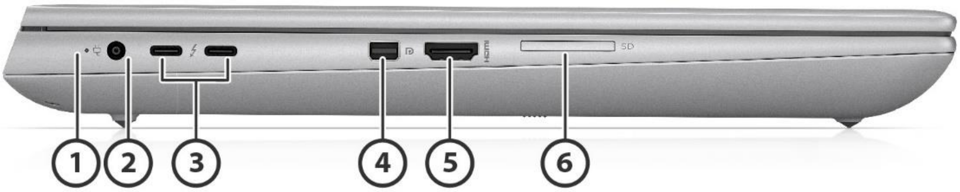
HP ZBook Fury 16 G11 Mobile Workstation PC

1. Ambient Light Sensor (Optional)
2. Internal Microphones (2)
3. Webcam LED (Optional)
4. Webcam
5. Camera Shutter
6. IR Camera (Optional)
7. IR Camera LEDs (Optional)
8. Glass Clickpad

Right

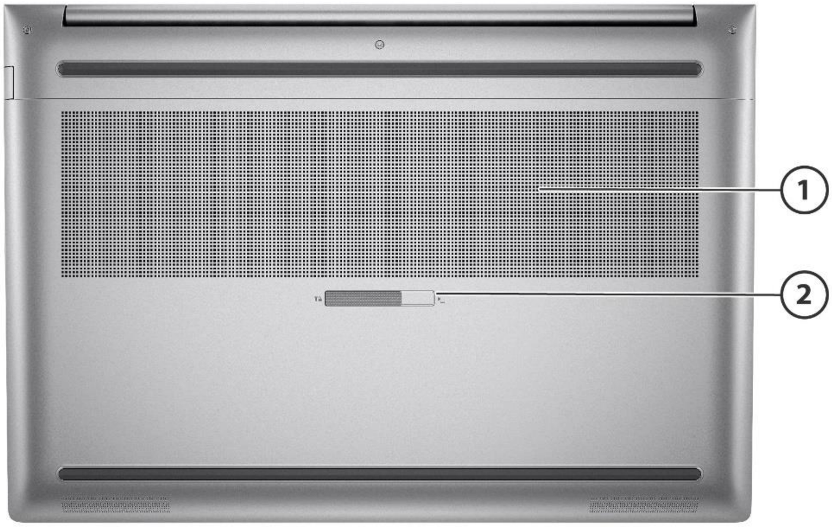
9. Power Button Key
10. Nano Security Lock Slot (Lock sold separately)
11. RJ45
12. SuperSpeed USB Type-A 5Gbps signaling rate
13. SuperSpeed USB Type-A 5Gbps signaling rate
14. Audio Combo Jack
15. Smartcard Reader
16. Touch Fingerprint Sensor (Select models)



Left

1. LED Indicator
2. Power connector
3. Thunderbolt™ 4 with USB4 Type-C® 40Gbps signaling rate (USB Power Delivery, DisplayPort™ 1.4)[1]
4. mDP port
5. HDMI 2.0b Port (Cable not included)
6. SD Card Reader

Overview



Bottom

1. Fan Venting	2. Service Door Latch

At A Glance

- Preinstalled with Windows 11 versions, FreeDOS, or Ubuntu Linux
- 16:10 ratio screen reduces the need to scroll by showing more vertical content than 16:9
- Choice of displays:
  - 40.6 cm (16") diagonal, WUXGA (1920 x 1200), IPS, anti-glare, eDP + PSR, micro-edge, 400 nits, 100% sRGB
  - 40.6 cm (16") diagonal, WQUXGA (3840 x 2400), 120 Hz, IPS, anti-glare, eDP + PSR, micro-edge, 500 nits, 100% DCI-P3, HP DreamColor
  - 40.6 cm (16") diagonal, WUXGA (1920 x 1200), IPS, anti-glare, eDP + PSR, micro-edge, 1000 nits, 100% sRGB, HP Sure View integrated privacy screen
  - 40.6 cm (16") diagonal, WQUXGA (3840 x 2400), OLED, touch, BrightView, eDP + PSR, micro-edge, Low Blue Light,400 nits, 100% DCI-P3
  - 40.6 cm (16") diagonal, WUXGA (1920 x 1200), IPS, touch, BrightView, eDP + PSR, micro-edge, 400 nits, 100% Srgb
- HP Wolf Security for Business creates a hardware-enforced, always-on, resilient defense.
- Connectivity with optional HP 5000 5G Solution WWAN available world-wide, and Thunderbolt™ Docking (Dock sold separately)
- Undergoes MIL-STD 810H tests
- Supports fast charging (50% in 30 minutes) with no impact on battery recharge cycles
- Designed to support all HP docking options including the HP Universal Dock G5

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

OPERATING SYSTEM

Preinstalled OS	Windows 11 Pro - HP recommends Windows 11 Pro for business [1] Windows 11 Home 64 - HP recommends Windows 11 Pro for business[1] FreeDOS 3.0 Ubuntu Linux 22.04

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

NOTE: Your product does not support Windows 8 or Windows 7. In accordance with Microsoft's support policy, HP does not support the Windows® 8 or Windows 7 operating system on products configured with Intel® and AMD® 7th generation and forward processors or provide any Windows® 8 or Windows 7 drivers on http://www.support.hp.com. A full list of HP products and the Windows 10 versions tested is available on the HP support website. https://support.hp.com/us-en/document/c05195282

PROCESSOR

13th Gen Intel® Core™ i9-13950HX with Intel® UHD Graphics (1.6 GHz E-core base frequency, 2.2 GHz P-core base frequency, up to 4.0 GHz E-core Max Turbo frequency, up to 5.5 GHz P-core Max Turbo frequency, 36 MB L3 cache, 8 P-cores and 16 E-cores, 32 threads), supports Intel® vPro® Technology [1,2,3,4,5]

Intel® Core™ 14th Gen i9-14900HX with Intel® UHD Graphics (1.6 GHz E-core base frequency, 2.2 GHz P-core base frequency, up to 4.1 GHz E-core Max Turbo frequency, up to 5.8 GHz P-core Max Turbo frequency, 36 MB L3 cache, 8 P-cores and 16 E-cores, 32 threads) [1,2,3,4,5]

13th Gen Intel® Core™ i7-13850HX with Intel® UHD Graphics (1.5 GHz E-core base frequency, 2.1 GHz P-core base frequency, up to 3.8 GHz E-core Max Turbo frequency, up to 5.3 GHz P-core Max Turbo frequency, 30 MB L3 cache, 8 P-cores and 12 E-cores, 28 threads), supports Intel® vPro® Technology[1,2,3,4,5]

Intel® Core™ 14th Gen i7-14700HX with Intel® UHD Graphics (1.5 GHz E-core base frequency, 2.1 GHz P-core base frequency, up to 3.9 GHz E-core Max Turbo frequency, up to 5.5 GHz P-core Max Turbo frequency, 33 MB L3 cache, 8 P-cores and 12 E-cores, 24 threads)[1,2,3,4,5]

13th Gen Intel® Core™ i5-13600HX with Intel® UHD Graphics (1.9 GHz E-core base frequency, 2.6 GHz P-core base frequency, up to 3.6 GHz E-core Max Turbo frequency, up to 4.8 GHz P-core Max Turbo frequency, 24 MB L3 cache, 6 P-cores and 8 E-cores, 20 threads), supports Intel® vPro® Technology[1,2,3,4,5]

[1] 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.
[2] Intel Turbo Boost performance varies depending on hardware, software and overall system configuration. See http://www.intel.com/technology/turboboost for more information.
[3] Intel vPro® requires Windows 10 Pro 64 bit or higher, a vPro supported processor, vPro enabled chipset, vPro enabled wired LAN and/or Wi-Fi 6E WLAN and TPM 2.0. Some functionality requires additional 3rd party software in order to run. Features of vPro® Essentials and Enterprise vary. See http://intel.com/vpro
[4] 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.
[5] Processor speed denotes maximum performance mode; processors will run at lower speeds in battery optimization mode.

CHIPSET

Intel WM790 Chipset

INTEL® CORE™ I5 WITH VPRO/CORE™ I7 WITH VPRO/ CORE™ I9 with VPRO TECHNOLOGY CAPABLE

Intel® Core™ i5 with vPro®, Core™ i7 with vPro®, Core™ i9 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.[1,2]

[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] Intel vPro® requires Windows 10 Pro 64 bit or higher, a vPro supported processor, vPro enabled chipset, vPro enabled wired LAN and/or Wi-Fi 6E WLAN and TPM 2.0. Some functionality requires additional 3rd party software in order to run. Features of vPro® Essentials and Enterprise vary. See http://intel.com/vpro, see data sheet

GRAPHICS

Integrated

Intel® UHD Graphics [1,3]

Supports

Support HD decode, D3D12 API, DP1.4, HDMI 2.1, HDCP 2.3
GFX arch up to 96EU

Discrete

NVIDIA RTX™ 5000 Ada Generation Laptop GPU (16 GB GDDR6 dedicated) [1,2];
NVIDIA RTX™ 4000 Ada Generation Laptop GPU (12 GB GDDR6 dedicated) [1,2];
NVIDIA RTX™ 3500 Ada Generation Laptop GPU (12 GB GDDR6 dedicated[1,2];
NVIDIA RTX™ 2000 Ada Generation Laptop GPU (8 GB GDDR6 dedicated) [1,2];
NVIDIA RTX™ 1000 Ada Generation Laptop GPU (6 GB GDDR6 dedicated) [1,2]

Supports

RTX 5000 / RTX 4000 / RTX 3500 Support Memory ECC
Support HDMI 2.1, DP1.4, HDCP 1.4, 2.3
Support CUDA,Dynamic Boost

[1] Both UMA & Discrete configurations support 4 independent displays when on the HP Thunderbolt Dock G4 (120W) (sold separately) - Max. resolution = 2.5K @60Hz (DP1) & 2.5K @60Hz (DP2) & FHD (VGA) OR 4K @60Hz (one DP Port) & 4K @60Hz (Type-C output port using a Type C-to-DP adapter).

[2] HDMI cable Sold Separately

DISPLAY

Non-touch

- 40.6 cm (16") diagonal, WUXGA (1920 x 1200), IPS, anti-glare, eDP + PSR, micro-edge, 400 nits, 100% sRGB[1,3]

Features

- 40.6 cm (16") diagonal, WQUXGA (3840 x 2400), 120 Hz, IPS, anti-glare, eDP + PSR, micro-edge, 500 nits, 100% DCI-P3, HP DreamColor[1,3]
- 40.6 cm (16") diagonal, WUXGA (1920 x 1200), IPS, anti-glare, eDP + PSR, micro-edge, 1000 nits, 100% sRGB, HP Sure View integrated privacy screen[1,3,4,5]

Touch

- 40.6 cm (16") diagonal, WQUXGA (3840 x 2400), OLED, touch, BrightView, eDP + PSR, micro-edge, Low Blue Light,400 nits, 100% DCI-P3[1,3,4,5]
- 40.6 cm (16") diagonal, WUXGA (1920 x 1200), IPS, touch, BrightView, eDP + PSR, micro-edge, 400 nits, 100% Srgb[1,3,4,5]

Displays support

Supports up to 4 displays through the HP Thunderbolt 280W G4 Dock
For more information, please reference the following ZBook docking whitepaper:
https://h20195.www2.hp.com/v2/GetDocument.aspx?docname=4AA5-2657ENW

Display Size

16"
40.64 cm (16")

[1] HD content required to view HD images.
[2] HDMI cable sold separately.
[3] Resolutions are dependent upon monitor capability, and resolution and color depth settings.
[4] HP Sure View Reflect integrated privacy screen is an optional feature that must be configured at purchase and is designed to function in landscape orientation.
[5] Actual brightness will be lower with touchscreen or Sure View.

DOCKING

Docking station model #1	HP Thunderbolt 280W G4 Dock w/Combo Cable
Total number of supported displays (incl.the notebook) display)	4
Max.resolutions supported	Dual 4K @30Hz or dual 4K UHD @ 60Hz is supported Single 8K @30Hz (multiple tiles) for Thunderbolt hosts Non-TBT hosts DP 1.4 in high-res mode (1) 8K video single cable @30Hz
Dock Connectors	2xDP, 1xHDMI, 1xTB, 1xUSB-C Alt Mode
Technical limitations	Thunderbolt Hosts: Maximum of (4) displays with maximum resolution of 5K@ 30Hz running Thunderbolt host. Max resolution possible is dual 8K displays @ 60Hz running Thunderbolt host or running a non-Thunderbolt host in High Resolution mode @30Hz

STORAGE AND DRIVES*

Maximum Storage
16TB

PCIe® NVMe™ M.2 2280 Storage
4 TB PCIe® Gen4x4 NVMe™ M.2 SSD TLC
2 TB PCIe® Gen4x4 NVMe™ M.2 SSD TLC
2 TB PCIe® Gen4x4 NVMe™ SED SSD
1 TB PCIe® Gen4x4 NVMe™ M.2 SSD TLC
1 TB PCIe® Gen4x4 NVMe™ SED SSD
512 GB PCIe® Gen4x4 NVMe™ M.2 SSD TLC
512 GB PCIe® Gen4x4 NVMe™ SED SSD

Storage Slots
4 M.2 Solid State Drive

Drive Controllers
M.2 Storage Bay (PCIe NVMe) : PCIe® Gen4 x4 lanes NVMe™ Solid State Drive

* For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 35GB of disk is reserved for system recovery software.

DRIVE CONTROLLERS

M.2 Storage Bay (PCIe NVMe)	Supports up to PCIe® Gen4 x4 lanes NVMe™ Solid State Drive
RAID:	0, 1 ,5, 10

MEMORY

Maximum Memory
128 GB DDR5-5600 ECC SODIMM
128 GB DDR5-5600 non-ECC SODIMM
Memory
16GB (1x16GB) DDR5 5600
16GB (2x8GB) DDR5 5600
32GB (1x32GB) DDR5 5600
32GB (2x16GB) DDR5 5600
64GB (2x32GB) DDR5 5600
64GB (4x16GB) DDR5 5600
128GB (4x32GB) DDR5 5600
16GB (1x16GB) DDR5 5600 ECC
16GB (2x8GB) DDR5 5600 ECC
32GB (1x32GB) DDR5 5600 ECC
32GB (2x16GB) DDR5 5600 ECC
64GB (2x32GB) DDR5 5600 ECC
64GB (4x16GB) DDR5 5600 ECC
128GB (4x32GB) DDR5 5600 ECC

Memory Slots
4 SODIMM
2 DIMMs per channel; support up to 4000 MT/s
DDR5 SODIMMS, system runs at 4000 MT/s

Features

Supports Dual Channel Memory

NOTE: 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.

NETWORKING/COMMUNICATIONS

Ethernet

Intel® I219LM(vPro®) GbE PCIe NIC
Intel® I219V (non-vPro®) GbE PCIe NIC

WLAN

Intel® Wi-Fi 7 BE200 + Bluetooth® 5.4 wireless card vPro® WW WLAN[1,2]
Intel® Wi-Fi 7 BE200 + Bluetooth® 5.4 wireless card non-vPro® WW WLAN[1]

[1] Wi-Fi 7: Wireless access point and Internet service required and sold separately. Availability of public wireless access points limited. Wi-Fi 7 (802.11BE) functionality requires compatible Windows 11 OS, compatible processor, and separately purchased Wi-Fi 7 router to support backwards compatibility with prior 802.11 specs. Available in countries where Wi-Fi 7 is supported. The specification for 802.11BE is a draft specification and is not final. If the final specification differs from the draft specification, it may affect the ability of the device to communicate with other 802.11BE devices.

[2] Intel vPro® requires Windows 10 Pro 64 bit or higher, a vPro supported processor, vPro enabled chipset, vPro enabled wired LAN and/or Wi-Fi 6E WLAN and TPM 2.0. Some functionality requires additional 3rd party software in order to run. Features of vPro® Essentials and Enterprise vary. See http://intel.com/vpro

WWAN

HP 5000 5G Solution WWAN[2]
HP 4000 4G LTE-Advanced Pro Cat 16[3]

[2] 5G module is optional and must be configured at the factory. Module designed for 5G NR NSA (non-standalone) networks as carriers deploy Evolved-Universal Terrestrial Radio Access New Radio Dual Connectivity (ENDC) with both 100Mhz of 5G NR and LTE channel bandwidth, using 256QAM 4x4 as defined by 3GPP. Module requires activation and separately purchased service contract. Check with service provider for coverage and availability in your area. Data connection, upload and download speeds will vary due to network, location, environment, network conditions, and other factors. Backwards compatible to 4G LTE and 3G HSPA technologies. 5G module planned to be available in select platforms and select countries, where carrier supported.

[3] Gigabit class Category 16 4G LTE module is optional and must be configured at the factory. Module designed for up to 1 Gbps download speeds as carriers deploy 5 carrier aggregation and 100Mhz channel bandwidth, requires activation and separately purchased service contract. Backwards compatible to HSPA 3G technologies. Check with service provider for coverage and availability in your area. Connection, upload and download speeds will vary due to network, location, environment, network conditions, and other factors. 4G LTE not available on all products, in all regions.

LPWAN

Qualcomm 9205 LTE-M (CAT-M1 fSVC) (no Internet)*

*LPWAN (Mobile Narrowband - MNB) cards support the HP Protect & Trace with Wolf Connect service, but do not support mobile broadband/Internet use.

Near Field Communication (NFC) module

No Near Field Communication (NFC) module[1]

NFC Mirage WNC XRAV-1

[1] Sold separately or as an optional feature.

AUDIO/MULTIMEDIA

Audio

Features

Audio Tuning by Poly Studio
Dual stereo speakers with discrete amps
HP World Facing Microphone dual array digital microphones

Camera[1]
5MP+IR Camera

Sensors
ALS (ambient light sensor)
Hall effect Sensor

[1] Sold separately or as an optional feature.

Features

KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

Keyboard*
HP Premium Quiet Keyboard – spill-resistant, full-size, backlit keyboard and DuraKeys
HP RGB Keyboard – Full-size, per-key RGB backlit keyboard
HP Privacy Keyboard – Full-size, backlit Privacy keyboard (required with Privacy panel)

Pointing Devices
Three button Touchpad

Function Keys
ESC: system information
F1 - Display Switching
F2 - Blank or Privacy
F3 - Brightness Down
F4 - Brightness Up
F5 - Audio Mute
F6 - Volume Down
F7 - Volume Up
F8 - Mic Mute
F9 - Blank or Backlight Toggle (for backlit keyboard)
F10 - Insert
F11 - Airplane Mode
F12 - HP Command Center
Power Button (with LED)
Delete
Microsoft Copilot key**
Hidden Keys
home
end
Fn+R - Break
Fn+S - Sys Rq
Fn+C - Scroll Lock
Fn+left/right arrow

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

SOFTWARE AND SECURITY

Software
HP Easy Clean[2]
HP PC Hardware Diagnostics Windows
Touchpoint Customizer for Commercial
HP Smart Support[18]
HP Mac Address Manager
HP Hotkey Support
HP Support Assistant[1]
HP Notifications
HP Privacy Settings
HP Power Manager[19]
Buy Microsoft Office (Sold separately)
Bing search for IE11
HP Noise Cancellation Software

Features

HP Z Light Space
Data Science Stack[20] (optional on select skus)

Manageability Features
HP Connect for Microsoft Endpoint Manager[26]
HP Image Assistant Gen5 (download)
HP Manageability Integration Kit (download)[12]
HP Client Management Script Library (download)
HP Patch Assistant (download)[27]
HP Driver Packs (download)
HP Cloud Recovery[28]
HP Client Catalog (download)

Security Management
HP Wolf Security for Business[15] includes:
HP Sure Click[5]
HP Sure Sense[11]
HP Sure Run Gen5[9]
HP Sure Recover Gen6[8]
HP Sure Start Gen7[13]
HP Tamper Lock[14]
HP Sure Admin[4]
HP Client Security Manager Gen7[3]
HP Device Access Manager
HP Power On Authentication
Master Boot Record security
Pre-boot authentication
Windows Defender
Microsoft Bitlocker Encryption
Nano Security Lock Slot

BIOS
HP BIOSphere Gen6[6]
HP Secure Erase[17]
Absolute Persistence Module[7]
HP DriveLock & Automatic DriveLock
BIOS Update via Network
HP Wake on WLAN
Fingerprint Sensor (select models)[32]
Secured-Core PC Enable[16]
Trusted Platform Module TPM 2.0 Embedded Security Chip

Security
TPM
Model: Infineon SLB9672VU2.0
Version: 15.21
Revision: TPM 2.0
FIPS 140-2 Compliant: Yes

Model: IFX SLB9672
Version: FW 15.22
Revision: N/A
FIPS 140-2 Compliant: Yes

Smartcard Reader

Features

Model Number: Alcor AU9560
FIPS 201 Compliant: Yes

[1] HP Support Assistant - Requires Windows and Internet Access.

[2] HP Easy Clean requires Windows 10 RS3 and higher and will disable the keyboard, touchscreen, and clickpad only. Ports are not disabled. See user guide for cleaning instructions.

[3] HP Client Security Manager Gen7 requires Windows and is available on select HP Pro, Elite and ZBook PCs. See product specifications for details.

[4] HP Sure Admin requires Windows 10, HP BIOS, HP Manageability Integration Kit from http://www.hp.com/go/clientmanagement and HP Sure Admin Local Access Authenticator smartphone app from the Android or Apple store.

[5] HP Sure Click requires Windows 10 Pro or higher or Enterprise. See https://bit.ly/2PrLT6A_SureClick for complete details.

[6] HP BIOSphere Gen6 is available on select HP Pro, Elite and ZBook PCs. See product specifications for details. Features may vary depending on the platform and configurations.

[7] 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.

[8] HP Sure Recover Gen6 with Embedded Reimaging is an optional feature which requires Windows 10 and higher must be configured at purchase. You must back up important files, data, photos, videos, etc. before use to avoid loss of data. Network based recovery using Wi-Fi is only available on PCs with Intel Wi-Fi Module

[9] HP Sure Run Gen5 is available on select HP PCs and requires Windows 10 and higher.

[10] HP Connection Optimizer requires Windows 10 and Windows 11.

[11] HP Sure Sense is available on select HP PCs with Windows 10 Pro, Windows 10 Enterprise, Windows 11 Pro, or Windows 11 Enterprise OS.

[12] HP Manageability Integration Kit can be downloaded from https://ftp.ext.hp.com/pub/caps-softpaq/cmit/HPMIK.html.

[13] HP Sure Start Gen7 is available on select HP PCs and requires Windows 10 and higher

[14] HP Tamper Lock must be enabled by the customer or your administrator.

[15] HP Wolf Security for Business requires Windows 10 or 11 Pro or higher, includes various HP security features and is available on HP Pro, Elite, RPOS and Workstation products. See product details for included security features.

[16] Secured-core PC requires an Intel® vPro® or AMD Ryzen™ Pro processor. Requires 8 GB or more system memory. Secured-core PC functionality can be enabled from the factory.

[17] HP Secure Erase 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™.

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

[19] HP Power Manager requires Windows 10 and higher and can be downloaded from the Microsoft Store.

[20] HP Easy Clean requires Windows 10 and higher and can be downloaded from the Microsoft store.

[26] HP Connect for Microsoft Endpoint Manager is available from the Azure Market Place for HP Pro, Elite, Z and Point-of-Sale PCs managed with Microsoft Endpoint Manager. Subscription to Microsoft Endpoint Manager required and sold separately. Network connection required.

[27] HP Patch Assistant available on select HP PCs with the HP Manageability Kit that are managed through Microsoft System Center Configuration Manager. HP Manageability Integration Kit can be downloaded from http://www8.hp.com/us/en/ads/clientmanagement/overview.html.

[28] HP Cloud Recovery is available for Z by HP, HP Elite and Pro desktops and laptops PCs with Intel® or AMD processors and requires an open, wired network connection. **NOTE:** You must back up important files, data, photos, videos, etc. before use to avoid loss of data. Detail please refer to: https://support.hp.com/us-en/document/c05115630.

[32] HP Fingerprint Reader is an optional feature.

POWER

Power Supply

HP Slim Smart 150W External Right Angle AC Power Adapter[2]
HP Slim Smart 200W External Right Angle AC Power Adapter[2]
HP Slim Smart 230W External Right Angle AC Power Adapter[2]
Not Included AC Adapter [2]

Battery
95Whr XL-Long Life Polymer Fast Charge* 8 cell Battery[3,4]

Power Cord
1.83m Sticker Conventional Straight HF Power Cord
1.0m Premium Power Cord Sticker
1.0m Sticker Conventional Straight HF Power Cord
1.0m Premium Power Cord Sticker
Not Included Power Cord

Battery life
UMA
Up to 13:00 hrs[1]

Discrete
TBD[1]

*Recharges up to 50% within 30 minutes when the system is off or in standby mode when used with the power adapter provided with the notebook. Power adapter minimum of 65 watts required for battery capacities 56Whr or less. Power adapter minimum of 100 watts required for battery capacities greater than 56Whr and less than 83Whr. Power adapter minimum of 120 watts required for battery capacities greater than 83Whr and less than 100Whr. After charging has reached 90% capacity, charging speed will return to normal. Charging time may vary +/-10% due to System tolerance.

[1] battery life will vary depending on various factors including product model, configuration, loaded applications, features, use, wireless functionality, and power management settings. The maximum capacity of the battery will naturally decrease with time and usage. See www.bapco.com for additional details.

[2] Availability may vary by country.

[3] Battery is internal and not replaceable by customer. Serviceable by warranty.

[4] 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.

WEIGHTS & DIMENSIONS

Dimensions (w x d x h)
14.02 x 9.54 x 0.76 in (non-touch)
14.02 x 9.54 x 0.72 in (touch)
35.6 x 24.2 x 1.9 cm (non-touch)
35.6 x 24.2 x 1.8 cm (touch)

Weights*
Product Weight- 95Whr
Starting at 5.173 lbs (UMA)
Weight varies by configuration and components.
Starting at 2.350 kg (UMA)
Weight varies by configuration and components.

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

PORTS/SLOTS

Left side
1 power connector
2 Thunderbolt™ 4 with USB4™ Type-C® 40Gbps signaling rate (USB Power Delivery, DisplayPort™ 1.4, HP Sleep and Charge)*
1 SD 7.1 Media Card Reader
1 Mini DisplayPort™ 1.4 with UMA and Discrete Graphics
1 HDMI 2.1 (depends on graphics selection)**

Right side
1 headphone/microphone combo
1 RJ-45
1 SuperSpeed USB Type-A 5Gbps signaling rate (charging)
1 SuperSpeed USB Type-A 5Gbps signaling rate
1 nano security lock slot
1 smart card reader

MicroSD 7.1 supports next generation secure digital and is compatible to SD, SDHC, SDXC, SDUC media

*SuperSpeed USB 20Gbps is not available with Thunderbolt™ 4.
**HDMI cable sold separately.

SERVICE AND SUPPORT

1-year warranty and 90 day software limited warranty options depending on country. Batteries have a default one year limited warranty except for HP Long Life batteries which will follow the one or three year warranty of 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] HP Care Packs are sold separately. Service levels and response times for HP Care Packs may vary depending on your geographic location. Service starts on date of hardware purchase. Restrictions and limitations apply. For details, visit http://www.hp.com/go/cpc. HP services are governed by the applicable HP terms and conditions of service provided or indicated to Customer at the time of purchase. Customer may have additional statutory rights according to applicable local laws, and such rights are not in any way affected by the HP terms and conditions of service or the HP Limited Warranty provided with your HP Product.

Certification and Compliance

ENERGY STAR® certified
EPEAT® registered where applicable. EPEAT ® registration varies by country. See www.epeat.net for registration status by country.1
IEEE 1680.1-2018 EPEAT®
Low halogen*

*External power supplies, power cords, cables and peripherals are not Low Halogen. Service parts obtained after purchase may not be Low Halogen.

SYSTEM UNIT

Stand-Alone Power Requirements (AC Power)	**Nominal Operating Voltage**	19.5V
	Average Operating Power(idle)	System in idle mode
	Integrated graphics	CPU < 55W
	Discrete Graphics	Nvidia RTX A1000/A2000< 45W Nvidia RTX A3000/A4000/A5000< 80W
	Max Operating Power	< 230W
Temperature	**Operating**	32° to 95° F (0° to 35° C), System performance may be reduced above 32°C (89.6°F). No sustained direct exposure to sunlight.
	Non-operating	-4° to 140° F (-20° to 60° C)
Relative Humidity	**Operating**	10% to 90%, non-condensing
	Non-operating	5% to 95% (38.7° C (101.6° F) maximum wet bulb tempera-ture; non-condensing)
Shock	**Operating**	40 G, 2 ms, half-sine
	Non-operating	200G, 2ms, half sine
Random Vibration	**Operating**	0.75grms
	Non-operating	1.50grms
Maximum Altitude (unpressurized)	**Operating**	3048m (10,000ft)
	Non-operating	12192m (40,000ft)

Features

Planned Industry Standard Certifications	**Regulatory Model Number**	HSN-I50C
	CSA/UL 62368-1	Yes
	CSA	Yes
	FCC/ICES/CISPR/VCCI	Yes
	ENERGY STAR®	Selected models
	EPEAT Gold	EPEAT Gold in United States
	TCO	Yes
	China CCC/SRRC	Yes
	Korea KCC/KC/KES	Yes
	Taiwan BSMI/NCC	Yes
	CE MARKING	Yes
	EAEU compliance	Yes
	CITC	Yes
	GOST	Yes
	Saudi Arabian Compliance	Yes
	Ukraine NSoC/TEC	Yes

[1] Configurations of the HP ZBook Fury 16 G11 Mobile Workstation PC that are ENERGY STAR® qualified are identified as HP ZBook Fury 16 G11 Mobile Workstation PC 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.

DISPLAYS

16.0 in WQUXGA (3840 x 2400) BrightView UWVA DCI-P3 NBZ2 400 eDP 1.4+PSR 100 bent OLED Panel	**Active Area (W x H, mm)**	344.448 x 215.280 (typ)	
	Dimensions (W x H, mm)	348.578 x 224.310 (max)	
	Diagonal Size (inch)	16	
	Thickness (body/PCB, mm)	1.242 / 3.143 (max)	
	Weight (g)	230 (max)	
	Interface	eDP1.4	
	Surface Treatment	Bright View	
	Contrast Ratio	100,000:1 (typ)	
	Refresh Rate (Hz)	60 (typ)	
	Brightness (nits)	400 (typ)	
	P.P.I.	283	
	Pixel Resolution	**Pitch**	3840 x 2400 (WQUXGA)
		Format	RGB
	Backlight	OLED	
	Color Gamut Coverage	DCI-P3 100%	
	Color Depth	8	
	Viewing Angle	UWVA 85/85/85/85	
	Power Consumption (W, EBL@ 150nits max /200nits max)	6.10 (max) / 7.40 (max)	
	Low Blue Light	Yes	
	Touch Enabled	Yes	
	Touch Point Supported	10-point multi-touch	
	Pen Enabled	No	

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

16.0 in WQUXGA DRM (3840 x 2400) Anti-Glare UWVA LED DCI-P3 NB2Y 500 eDP1.4 w/o PSR 100 120Hz bent LCD Panel	**Active Area (W x H, mm)**	344.680 x 215.420 (typ)	
	Dimensions (W x H, mm)	349.980 x 225.420 (max)	
	Diagonal Size (inch)	16	
	Thickness (body/PCB, mm)	2.3 / 4.1(max)	
	Weight (g)	300 (max)	
	Interface	eDP1.4	
	Surface Treatment	Anti-Glare	
	Contrast Ratio	1200:1 (typ)	
	Refresh Rate (Hz)	120 (typ)	
	Brightness (nits)	500 (typ)	
	P.P.I.	283	
	Pixel Resolution	**Pitch**	3840 x 2400 (WQUXGA)
		Format	RGB
	Backlight	WLED	

Technical Specifications – Displays

	Color Gamut Coverage	DCI-P3 100%	
	Color Depth	8	
	Viewing Angle	UWVA 85/85/85/85	
	Power Consumption (W, EBL@ 150nits max /200nits max)	4.98 (max)/ 5.84 (max)	
	Low Blue Light	No	
	Touch Enabled	No	
	Touch Point Supported	No	
	Pen Enabled	No	

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

16.0 in WUXGA (1920 x 1200) Anti-Glare UWVA WLED+LBL sRGB NB2Y 1000 eDP 1.3+PSR 100 PrivacyG4 Plus bent LCD Panel	**Active Area (W x H, mm)**	344.680 x 215.420 (typ)	
	Dimensions (W x H, mm)	349.980 x 225.420 (max)	
	Diagonal Size (inch)	16	
	Thickness (body/PCB, mm)	2.2 / 3.9 (max)	
	Weight (g)	310 (max)	
	Interface	eDP 1.3	
	Surface Treatment	Anti-Glare	
	Contrast Ratio	1500:1 (typ)	
	Refresh Rate (Hz)	60 (typ)	
	Brightness (nits)	1000 (typ)	
	P.P.I.	142	
	Pixel Resolution	**Pitch**	1920 x1200 (WUXGA)
		Format	RGB
	Backlight	WLED	
	Color Gamut Coverage	sRGB 100%	
	Color Depth	8	
	Viewing Angle	UWVA 85/85/85/85	
	Power Consumption (W, EBL@ 150nits max /200nits max)	N/A	
	Low Blue Light	Yes	
	Touch Enabled	No	
	Touch Point Supported	No	
	Pen Enabled	No	

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

16.0 in WUXGA (1920 x 1200) Anti-Glare UWVA WLED+LBL sRGB NB2Y 400 eDP 1.4+PSR2 Low-Power 100 bent LCD Panel	**Active Area (W x H, mm)**	344.678 x 215.424 (typ)
	Dimensions (W x H, mm)	350.680 x 226.470 (max)
	Diagonal Size (inch)	16
	Thickness (body/PCB, mm)	2.6 / 4.6 (max)
	Weight (g)	330 (max)
	Interface	eDP1.4

Surface Treatment	Anti-Glare	
Contrast Ratio	1000:1 (typ)	
Refresh Rate (Hz)	60 (typ)	
Brightness (nits)	400 (typ)	
P.P.I.	142	
Pixel Resolution	**Pitch**	1920 x1200 (WUXGA)
	Format	RGB
Backlight	WLED	
Color Gamut Coverage	sRGB 100%	
Color Depth	8	
Viewing Angle	UWVA 89/89/89/89	
Power Consumption (W, EBL@ 150nits max /200nits max)	1.60 (max)/ 1.95 (max)	
Low Blue Light	Yes	
Touch Enabled	Yes	
Touch Point Supported	10-point multi-touch	
Pen Enabled	No	

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

16.0 in WUXGA (1920 x 1200) Anti-Glare UWVA WLED+LBL sRGB NB2Y 400 eDP 1.4+PSR2 Low-Power 100 bent LCD Panel	**Active Area (W x H, mm)**	344.678 x 215.424 (typ)	
	Dimensions (W x H, mm)	350.680 x 226.470 (max)	
	Diagonal Size (inch)	16	
	Thickness (body/PCB, mm)	2.6 / 4.6 (max)	
	Weight (g)	330 (max)	
	Interface	eDP1.4	
	Surface Treatment	Anti-Glare	
	Contrast Ratio	1000:1 (typ)	
	Refresh Rate (Hz)	60 (typ)	
	Brightness (nits)	400 (typ)	
	P.P.I.	142	
	Pixel Resolution	**Pitch**	1920 x1200 (WUXGA)
		Format	RGB
	Backlight	WLED	
	Color Gamut Coverage	sRGB 100%	
	Color Depth	8	
	Viewing Angle	UWVA 89/89/89/89	
	Power Consumption (W, EBL@ 150nits max /200nits max)	1.60 (max)/ 1.95 (max)	
	Low Blue Light	Yes	
	Touch Enabled	No	
	Touch Point Supported	No	
	Pen Enabled	No	

Technical Specifications – Displays

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

STORAGE AND DRIVES

4TB PCIe-4x4 2280 NVMe Three Layer Cell double-sided M.2 Solid State Drive	**Form Factor**	M.2 2280	
	Capacity	4TB	
	NAND Type	TLC	
	Height	0.09 in (2.3 mm)	
	Width	0.87 in (22 mm)	
	Weight	15g	
	Interface	PCIe NVMe Gen4X4	
	Performance	**Minimum Sequential Read**	**Minimum Sequential Write**
		6400 MB/s ±20%	5000 MB/s ±20%
	Logical Blocks	8,001,594,720	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	Pyrite 2.0; TRIM; L1.2	
		NOTE: For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 35 GB is reserved for system recovery software.	
SSD 2TB 2280 PCIe-4x4 NVMe Three Layer Cell	**Form Factor**	M.2 2280	
	Capacity	2 TB	
	NAND Type	TLC	
	Height	0.09 in (2.3 mm)	
	Width	0.87 in (22 mm)	
	Weight	0.02 lb (10 g)	
	Interface	PCIe NVMe Gen4X4	
	Performance	**Minimum Sequential Read**	**Minimum Sequential Write**
		6400 MB/s ±20%	5000 MB/s ±20%
	Logical Blocks	4,000,797,360	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	Pyrite 2.0; TRIM; L1.2	
		NOTE: For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 35 GB is reserved for system recovery software.	
SSD 1TB 2280 PCIe-4x4 NVMe Three Layer Cell	**Form Factor**	M.2 2280	
	Capacity	1TB	
	NAND Type	TLC	
	Height	0.09 in (2.3 mm)	
	Width	0.87 in (22 mm)	
	Weight	0.02 lb (10 g)	
	Interface	PCIe NVMe Gen4X4	
	Performance	**Minimum Sequential Read**	**Minimum Sequential Write**
		6400 MB/s ±20%	5000 MB/s ±20%
	Logical Blocks	2,000,409,264	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	Pyrite 2.0; TRIM; L1.2	

Technical Specifications – Storage

		NOTE: For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 35 GB is reserved for system recovery software.	
SSD 512GB 2280 PCIe-4x4 NVMe Three Layer Cell	Form Factor	M.2 2280	
	Capacity	512GB	
	NAND Type	TLC	
	Height	0.09 in (2.3 mm)	
	Width	0.87 in (22 mm)	
	Weight	0.02 lb (10 g)	
	Interface	PCIe NVMe Gen4X4	
	Performance	**Minimum Sequential Read**	**Minimum Sequential Write**
		6400 MB/s ±20%	3500 MB/s ±20%
	Logical Blocks	1,000,215,215	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	TCG Opal 2.0; TRIM; L1.2	
		NOTE: For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 35 GB is reserved for system recovery software.	
2TB PCIe-4x4 2280 NVME Self Encrypted OPAL2 Three Layer Cell Solid State Drive	**Form Factor**	M.2 2280	
	Capacity	2TB	
	NAND Type	TLC	
	Height	0.09 in (2.3 mm)	
	Width	0.87 in (22 mm)	
	Weight	0.02 lb (10 g)	
	Interface	PCIe NVMe Gen4X4	
	Performance	**Minimum Sequential Read**	**Minimum Sequential Write**
		6400 MB/s ±20%	5000 MB/s ±20%
	Logical Blocks	4,000,797,360	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	TCG Opal 2.0; TRIM; L1.2	
		NOTE: For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 35 GB is reserved for system recovery software.	
1TB PCIe-4x4 2280 NVME Self Encrypted OPAL2 Three Layer Cell Solid State Drive	**Form Factor**	M.2 2280	
	Capacity	1TB	
	NAND Type	TLC	
	Height	0.09 in (2.3 mm)	
	Width	0.87 in (22 mm)	
	Weight	0.02 lb (10 g)	
	Interface	PCIe NVMe Gen4X4	
	Performance	**Minimum Sequential Read**	**Minimum Sequential Write**
		6400 MB/s ±20%	5000 MB/s ±20%
	Logical Blocks	2,000,409,264	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	TCG Opal 2.0; 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 35 GB is reserved for system recovery software.	
512GB PCIe-4x4 2280 NVME Self Encrypted OPAL2 Three Layer Cell Solid State Drive	**Form Factor**	M.2 2280	
	Capacity	512GB	
	NAND Type	TLC	
	Height	0.09 in (2.3 mm)	
	Width	0.87 in (22 mm)	
	Weight	0.02 lb (10 g)	
	Interface	PCIe NVMe Gen4X4	
	Performance	**Minimum Sequential Read**	**Minimum Sequential Write**
		6400 MB/s ±20%	3500 MB/s ±20%
	Logical Blocks	1,000,215,215	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	TCG Opal 2.0; TRIM; L1.2	
		NOTE: For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 35 GB is reserved for system recovery software.	

NETWORKING/COMMUNICATION

Intel® I219-LM 1 Gigabit Network Connection LOM (vPro®)	**Connector**	RJ-45
	System Interface	PCI(Intel proprietary) + SMBus
	Data Rates Supported	10 Mbit/s operation (10BASE-T; IEEE 802.3i; IEEE 802.3 clauses 13-14) 100 Mbit/s operation (100BASE-TX; IEEE 802.3u; IEEE 802.3 clauses 21-30) 1000 Mbit/s operation (1000BASE-T; IEEE 802.3ab; IEEE 8023 clauses 40) Auto-Negotiation (Automatic Speed Selection) Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/s
	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(Hash Mode Only) Jumbo Frame 9K
	Power consumption	Cable Disconnetion: 25mW 100Mbps Full Run: 450mW 1000bps 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 modern standby or sleep state (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
	embedded eSIM	Support

Intel® I219v 1 Gigabit Network Connection LOM (non-vPro®)	**Connector**	RJ-45
	System Interface	PCI(Intel proprietary) + SMBus
	Data Rates Supported	10 Mbit/s operation (10BASE-T; IEEE 802.3i; IEEE 802.3 clauses 13-14) 100 Mbit/s operation (100BASE-TX; IEEE 802.3u; IEEE 802.3 clauses 21-30) 1000 Mbit/s operation (1000BASE-T; IEEE 802.3ab; IEEE 802.3 clauses 40) Auto-Negotiation (Automatic Speed Selection) Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/s
	IEEE Compliance	IEEE 802.1p QoS (Quality of Service) Support IEEE 802.1q VLAN support

Technical Specifications – Networking

		IEEE 802.3x Flow Control (IEEE 802.3 clauses 31-32; configurable) IEEE 802.3az EEE (Energy Efficient Ethernet) IEEE 802.3i 10BASE-T IEEE 802.3u 100BASE-TX IEEE 802.3ab 1000BAE-T IEEE 802.3bz 2.5GBASE-T
	Performance	TCP/IP/UDP Checksum Offload (configurable) Protocol Offload (ARP & NS) Large send offload and Giant send offload Receiving Side Scaling(Hash Mode Only) Jumbo Frame 9K
	Power consumption	Cable Disconnetion: 25mW 100Mbps Full Run: 450mW 1000bps 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 modern standby or sleep state (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
	embedded eSIM	Support

Intel BE200 Wi-Fi 7 + Bluetooth® 5.4 wireless card M.2 320MHz PCIe World-wide WLAN 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/be • 2.402 – 2.482 GHz 802.11a/n/ac/ax/be • 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 • 5.955 – 6.415 GHz • 6.435 – 6.515 GHz • 6.535 – 6.875 GHz • 6.895 – 7.115 GHz
Data Rates	• 802.11b: 1, 2, 5.5, 11 Mbps • 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11n: max 300Mbps • 802.11ac : 1733Mbps • 802.11ax : max 2.4Gbps • 802.11be : max 5.76Gbps
Modulation	Direct Sequence Spread Spectrum OFDM, BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024QAM, 4096QAM
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 • 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, 1Mbps : +17dBm minimum • 802.11g, 6Mpbs : +16dBm minimum • 802.11a, 6Mbps : +17dBm minimum • 802.11n, MCS7(HT20) : +14dBm minimum • 802.11n, MCS7(HT40) : +13.5dBm minimu • 802.11ac MCS9(VHT20) : 13.5dBm minimum • 802.11ac MCS9(VHT40) : +13.5dBm minimum • 802.11ac MCS9(VHT80) : +12.5dBm minimum • 802.11ac MCS9(VHT160) : +10.5dBm minimum • 802.11ax MCS11(HE20)(6GHz) : +11.5dBm minimum • 802.11ax MCS11(HE40)(6GHz) : +7.5dBm minimum • 802.11ax MCS11(HE80)(6GHz) : +7.5dBm minimum • 802.11ax MCS11(HE160)(6GHz) : +7.5dBm minimum • 802.11be MCS13(EHT20)(6GHz) : 11.5dBm • 802.11be MCS13(EHT40)(6GHz) : 7.5dBm • 802.11be MCS13(EHT80)(6GHz) : 7.5dBm • 802.11be MCS13(EHT160)(6GHz) : 6.5dBm • 802.11be MCS13(EHT320)(6GHz) : 4.5dBm
Power Consumption	• Transmit mode 3.4 W • Receive mode 1.8 W • Idle mode (PSP) 180 mW (WLAN Associated) • Idle mode 50 mW (WLAN unassociated) • Connected Standby 10mW • Radio disabled 8 mW
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 : -85dBm maximum • 802.11a/g, 6Mbps : -90.5dBm maximum • 802.11a/g, 54Mbps : -72.5dBm maximum • 802.11n, MCS0(HT20) : -90dBm maximum • 802.11n, MCS7(HT20) : -71.5dBm maximum • 802.11n, MCS0(HT40) : -88.5dBm maximum • 802.11n, MCS7(HT40) : -68.5dBm maximum • 802.11ac, MCS9(VHT20) : -88.5dBm maximum • 802.11ac, MCS9(VHT40) : -65.5dBm maximum • 802.11ac, MCS9(VHT80) : -60.5dBm maximum • 802.11ac, MCS9(VHT160) : -58.5dBm maximum • 802.11ax, MCS11(HE20)(6GHz) : -59.5dBm maximum • 802.11ax, MCS11(HE40)(6GHz) : -56.5dBm maximum • 802.11ax, MCS11(HE80)(6GHz) : -53.5dBm maximum • 802.11ax, MCS11(HE160)(6GHz) : -51.5dBm maximum • 802.11be, MCS13(EHT20)(6GHz) : -55.5dBm maximum • 802.11be, MCS13(EHT40)(6GHz) : -53.5dBm maximum • 802.11be, MCS13(EHT80)(6GHz) : -51.5dBm maximum • 802.11be, MCS13(EHT160)(6GHz) : -48.5dBm maximum • 802.11be, MCS13(EHT320)(6GHz) : -45.5dBm maximum	
Antenna Type	High efficiency antenna with spatial diversity Two embedded tri-band 2.4/5/6 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 : 3.07g 2. Type 1216: 0.75g	
Operating Voltage	3.3v +/- 5%	
Temperature	Operating Non-operating	14° to 158° F (–10° to 70° C) –40° to 176° F (–40° to 70° 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 4.0/4.1/4.2/5.0/5.1/5.2/5.3/5.4 Wireless Technology

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 I Bluetooth device with a maximum transmit power of +15.5 dBm for BR and +13dBm for EDR.

Technical Specifications – Networking

Power Consumption	Peak (Tx): 330 mW Peak (Rx): 230 mW Selective Suspend: 17 mW
Bluetooth Software Supported Link Topology	1. Microsoft Windows Bluetooth Software 2. Linux/Chrome OS Bluetooth Software.
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Certifications	FCC (47 CFR) Part 15C/E, Section 15.247, 15.249, 15.407 ETSI 300 328, ETSI 301 893, ETSI 303 687
Power Management Certifications	ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark
Bluetooth Profiles Supported	Bluetooth® 4.1-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 Bluetooth® 4.2 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) Bluetooth® 5.2 ESR9/10 Compliance LE Advertisement Extensions Channel Selection Algo Limited High Duty Cycle Non-Connectable Advertising 2Mbps LE LE Long Range Bluetooth® 5.3 Host to Controller Encryption Key Control Enahancements Compliance to the latest Errata Section 12.3 of Bluetooth® 5.3 specification

[1] Wi-Fi 7: Wireless access point and Internet service required and sold separately. Availability of public wireless access points limited. Wi-Fi 7 (802.11BE) functionality requires compatible Windows 11 OS, compatible processor, and separately purchased Wi-Fi 7 router to support backwards compatibility with prior 802.11 specs. Available in countries where Wi-Fi 7 is supported. The specification for 802.11BE is a draft specification and is not final. If the final specification differs from the draft specification, it may affect the ability of the device to communicate with other 802.11BE devices.
[2] Check latest software/driver release for updates on supported security features.
[3] The FCC has declared as of September 1, 2014 products that utilize passive scanning on channel 12/13 and are capable of transmitting must fully comply with requirements of 15.247 or otherwise disable those channels.

[4] Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).

Intel BE200 Wi-Fi 7 + Bluetooth® 5.4 wireless card M.2 320MHz PCIe World-wide WLAN non-vPro® [1]	**Wireless LAN Standards**	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac IEEE 802.11ax IEEE 802.11be IEEE 802.11d IEEE 802.11e IEEE 802.11h IEEE 802.11i IEEE 802.11k IEEE 802.11r IEEE 802.11v
	Interoperability	Wi-Fi certified
	Frequency Band	802.11b/g/n/ax/be • 2.402 – 2.482 GHz 802.11a/n/ac/ax/be • 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 • 5.955 – 6.415 GHz • 6.435 – 6.515 GHz • 6.535 – 6.875 GHz • 6.895 – 7.115 GHz
	Data Rates	• 802.11b: 1, 2, 5.5, 11 Mbps • 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11n: max 300Mbps • 802.11ac : 1733Mbps • 802.11ax : max 2.4Gbps • 802.11be : max 5.76Gbps
	Modulation	Direct Sequence Spread Spectrum OFDM, BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024QAM, 4096QAM
	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 • WPA3 certification • IEEE 802.11i • WAPI

Technical Specifications – Networking

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, 1Mbps : +17dBm minimum • 802.11g, 6Mpbs : +16dBm minimum • 802.11a, 6Mbps : +17dBm minimum • 802.11n, MCS7(HT20) : +14dBm minimum • 802.11n, MCS7(HT40) : +13.5dBm minimu • 802.11ac MCS9(VHT20) : 13.5dBm minimum • 802.11ac MCS9(VHT40) : +13.5dBm minimum • 802.11ac MCS9(VHT80) : +12.5dBm minimum • 802.11ac MCS9(VHT160) : +10.5dBm minimum • 802.11ax MCS11(HE20)(6GHz) : +11.5dBm minimum • 802.11ax MCS11(HE40)(6GHz) : +7.5dBm minimum • 802.11ax MCS11(HE80)(6GHz) : +7.5dBm minimum • 802.11ax MCS11(HE160)(6GHz) : +7.5dBm minimum • 802.11be MCS13(EHT20)(6GHz) : 11.5dBm • 802.11be MCS13(EHT40)(6GHz) : 7.5dBm • 802.11be MCS13(EHT80)(6GHz) : 7.5dBm • 802.11be MCS13(EHT160)(6GHz) : 6.5dBm • 802.11be MCS13(EHT320)(6GHz) : 4.5dBm
Power Consumption	• Transmit mode 3.4 W • Receive mode 1.8 W • Idle mode (PSP) 180 mW (WLAN Associated) • Idle mode 50 mW (WLAN unassociated) • Connected Standby 10mW • Radio disabled 8 mW
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 : -85dBm maximum • 802.11a/g, 6Mbps : -90.5dBm maximum • 802.11a/g, 54Mbps : -72.5dBm maximum • 802.11n, MCS0(HT20) : -90dBm maximum • 802.11n, MCS7(HT20) : -71.5dBm maximum • 802.11n, MCS0(HT40) : -88.5dBm maximum • 802.11n, MCS7(HT40) : -68.5dBm maximum • 802.11ac, MCS9(VHT20) : -88.5dBm maximum • 802.11ac, MCS9(VHT40) : -65.5dBm maximum • 802.11ac, MCS9(VHT80) : -60.5dBm maximum • 802.11ac, MCS9(VHT160) : -58.5dBm maximum • 802.11ax, MCS11(HE20)(6GHz) : -59.5dBm maximum • 802.11ax, MCS11(HE40)(6GHz) : -56.5dBm maximum • 802.11ax, MCS11(HE80)(6GHz) : -53.5dBm maximum • 802.11ax, MCS11(HE160)(6GHz) : -51.5dBm maximum • 802.11be, MCS13(EHT20)(6GHz) : -55.5dBm maximum • 802.11be, MCS13(EHT40)(6GHz) : -53.5dBm maximum • 802.11be, MCS13(EHT80)(6GHz) : -51.5dBm maximum • 802.11be, MCS13(EHT160)(6GHz) : -48.5dBm maximum • 802.11be, MCS13(EHT320)(6GHz) : -45.5dBm maximum
Antenna Type	High efficiency antenna with spatial diversity Two embedded tri-band 2.4/5/6 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 : 3.07g 2. Type 1216: 0.75g	
Operating Voltage	3.3v +/- 5%	
Temperature	Operating Non-operating	14° to 158° F (–10° to 70° C) –40° to 176° F (–40° to 70° 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 4.0/4.1/4.2/5.0/5.1/5.2/5.3/5.4 Wireless Technology

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 I Bluetooth device with a maximum transmit power of +15.5 dBm for BR and +13dBm for EDR.
Power Consumption	Peak (Tx): 330 mW Peak (Rx): 230 mW Selective Suspend: 17 mW
Bluetooth Software Supported	1. Microsoft Windows Bluetooth Software
Link Topology	2. Linux/Chrome OS Bluetooth Software.
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Certifications	FCC (47 CFR) Part 15C/E, Section 15.247, 15.249, 15.407 ETSI 300 328, ETSI 301 893, ETSI 303 687
Power Management Certifications	ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark
Bluetooth Profiles Supported	Bluetooth® 4.1-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
Bluetooth® 4.2 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)
Bluetooth® 5.2
ESR9/10 Compliance
LE Advertisement Extensions
Channel Selection Algo
Limited High Duty Cycle Non-Connectable Advertising
2Mbps LE
LE Long Range
Bluetooth® 5.3
Host to Controller Encryption Key Control Enahancements
Compliance to the latest Errata Section 12.3 of Bluetooth® 5.3 specification

[1] Wi-Fi 7: Wireless access point and Internet service required and sold separately. Availability of public wireless access points limited. Wi-Fi 7 (802.11BE) functionality requires compatible Windows 11 OS, compatible processor, and separately purchased Wi-Fi 7 router to support backwards compatibility with prior 802.11 specs. Available in countries where Wi-Fi 7 is supported. The specification for 802.11BE is a draft specification and is not final. If the final specification differs from the draft specification, it may affect the ability of the device to communicate with other 802.11BE devices.
[2] Check latest software/driver release for updates on supported security features.
[3] The FCC has declared as of September 1, 2014 products that utilize passive scanning on channel 12/13 and are capable of transmitting must fully comply with requirements of 15.247 or otherwise disable those channels.
[4] Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).

* Wi-Fi 6E requires a Wi-Fi 6E router, sold separately, and Windows 11 to function in the 6GHz band. Availability of public wireless access points limited. Wi-Fi 6E is backwards compatible with prior 802.11 specs. And available in countries where Wi-Fi 6E is supported.

HP 5G Sub-6 Cat 19 WWAN eSIM

Technology/Operating bands*	Band 1: 1920 to 1980 MHz (UL), 2110 to 2170 MHz (DL) Band 2: 1850 to 1910 MHz (UL), 1930 to 1990 MHz (DL) Band 4: 1710 to 1755 MHz (UL), 2110 to 2155 MHz (DL) Band 5: 824 to 849 MHz (UL), 869 to 894 MHz (DL) Band 8: 880 to 915 MHz (UL), 925 to 960 MHz (DL) LTE FDD/TDD operating bands: Band 1: 1920 to 1980 MHz (UL), 2110 to 2170 MHz (DL) Band 2: 1850 to 1910 MHz (UL), 1930 to 1990 MHz (DL) Band 3: 1710 to 1785 MHz (UL), 1805 to 1880 MHz (DL) Band 4: 1710 to 1755 MHz (UL), 2110 to 2155 MHz (DL) Band 5: 824 to 849 MHz (UL), 869 to 894 MHz (DL) Band 7: 2500 to 2570 MHz (UL), 2620 to 2690 MHz (DL)

	Band 8: 880 to 915 MHz (UL), 925 to 960 MHz (DL) Band 12: 699 to 716 MHz (UL), 729 to 746 MHz (DL) Band 13: 777 to 787 MHz (UL), 746 to 756 MHz (DL) Band 14: 788 to 798 MHz (UL), 758 to 768 MHz (DL) Band 17: 704 to 716 MHz (UL), 734 to 746 MHz (DL) Band 18: 815 to 830 MHz (UL), 860 to 875 MHz (DL) Band 19: 830 to 845 MHz (UL), 875 to 890 MHz (DL) Band 20: 832 to 862 MHz (UL), 791 to 821 MHz (DL) Band 25: 1850 to 1915 MHz (UL), 1930 to 1995 MHz (DL) Band 26: 814 to 849 MHz (UL), 859 to 894 MHz (DL) Band 28: 703 to 748 MHz (UL), 758 to 803 MHz (DL) Band 29: 717 to 728 MHz (DL) Band 30: 2305 to 2315 MHz (UL) 2350 to 2360 MHz (DL) Band 32: 1452 to 1496 MHz (DL) Band 34: 2010 to 2025 MHz (UL/DL) Band 38: 2570 to 2620 MHz (UL/DL) Band 39: 1880 to 1920 MHz (UL/DL) Band 40: 2300 to 2400 MHz (UL/DL) Band 41: 2496 to 2690 MHz (UL/DL) Band 42: 3400 to 3600 MHZ (UL/DL) Band 43: 3400 to 3800 MHZ (UL/DL) Band 46: 5150 to 5925 MHZ (DL) Band 48: 3550 to 3700 MHZ (UL/DL) Band 66: 1710 to 1800 MHz (UL), 2110 to 2200 MHz (DL) Band 71: 663 to 698 MHz (UL), 617 to 652 MHz (DL) 5GNR Sub 6GHZ n1: 1920 to 1980 MHz (UL), 2110 to 2170 MHz (DL) n2: 1850 to 1910 MHz (UL), 1930 to 1990 MHz (DL) n3: 1710 to 1785 MHz (UL), 1805 to 1880 MHz (DL) n5: 824 to 849 MHz (UL), 869 to 894 MHz (DL) n7: 2500 to 2570 MHz (UL), 2620 to 2690 MHz (DL) n8: 880 to 915 MHz (UL), 925 to 960 MHz (DL) n20: 832 to 862 MHz (UL), 791 to 821 MHz (DL) n25: 1850 to 1915 MHz (UL), 1930 to 1995 MHz (DL) n28: 703 to 748 MHz (UL), 758 to 803 MHz (DL) n30: 2305 to 2315 MHz (UL) 2350 to 2360 MHz (DL) n38: 2570 to 2620 MHz (UL/DL) n40: 2300 to 2400 MHz (UL/DL) n41: 2496 to 2690 MHz (UL/DL) n48: 3550 to 3700 MHZ (UL/DL) n66: 1710 to 1800 MHz (UL), 2110 to 2200 MHz (DL) n71: 663 to 698 MHz (UL), 617 to 652 MHz (DL) n77: 3300 to 4200 MHz (UL/DL) n78: 3300 to 3800 MHz (UL/DL) n79: 4400 to 5000 MHz (UL/DL)
Wireless protocol standards	NR Sub6G rel15 200MHz 2 DLCA, 256 QAM 200MHz 2 ULCA, 256 QAM 15KHz/30KHz SCS for FDD/TDD LTE Rel15 100MHz 5 DLCA, 256 QAM 40MHz 2 ULCA, 256 QAM UMTS Rel8
GPS	GPS only support L1 C/A)
GPS bands	GPS: L1 (1575.42MHz)

	GLONASS: L1 (1602MHz) BeidouB1(1561.098MHz) Galileo E1 (1575.42) QZSS(1575.42 MHz)
Maximum data rates	Sub-6 SA Peak DL 4.67Gbps/UL 1.25Gbps Sub-6 NSA Peak DL 3.74Gbps/UL 835Mbps LTE Peak DL 1.6Gbps (CAT19)/UL 211Mbps (CAT18) UMTS/HSPA+ DL DC-HSPA+: 42 Mbps (CAT24)/UL 11.5 Mbps (CAT7)
Maximum output power	23 dBm in all band except (n30 = 22dBm & n48=21dBm & n77=25dBm & n41/n77/n78 = 26dBm) LTE: 23 dBm in all band except (B30 = 22dBm & B48=21dBm & B41=26dBm) UMTS: 23.5 dBm
Maximum power consumption	3500 mA (peak); 1674mA (average)
Form Factor	M.2, 3052-S3 Key B
Weight	8.7g
Dimensions (Length x Width x Thickness)	52 mm × 30 mm × 2.3 mm
embedded eSIM	Support

***** 5G module is optional and must be configured at the factory. Module designed for 5G NR NSA (non-standalone) networks as carriers deploy Evolved-Universal Terrestrial Radio Access New Radio Dual Connectivity (ENDC) with both 100Mhz of 5G NR and LTE channel bandwidth, using 256QAM 4x4 as defined by 3GPP. Module requires activation and separately purchased service contract. Check with service provider for coverage and availability in your area. Data connection, upload and download speeds will vary due to network, location, environment, network conditions, and other factors. Backwards compatible to 4G LTE and 3G HSPA technologies. 5G module planned to be available in select platforms and select countries, where carrier supported.

HP 4G LTE-A Pro Cat16 WWAN eSIM

Technology/Operating bands*	WCDMA/HSPA+ operating bands: Band 1: 1920 to 1980 MHz (UL), 2110 to 2170 MHz (DL) Band 2: 1850 to 1910 MHz (UL), 1930 to 1990 MHz (DL) Band 4: 1710 to 1755 MHz (UL), 2110 to 2155 MHz (DL) Band 5: 824 to 849 MHz (UL), 869 to 894 MHz (DL) Band 8: 880 to 915 MHz (UL), 925 to 960 MHz (DL) LTE FDD/TDD operating bands: Band 1: 1920 to 1980 MHz (UL), 2110 to 2170 MHz (DL) Band 2: 1850 to 1910 MHz (UL), 1930 to 1990 MHz (DL) Band 3: 1710 to 1785 MHz (UL), 1805 to 1880 MHz (DL) Band 4: 1710 to 1755 MHz (UL), 2110 to 2155 MHz (DL) Band 5: 824 to 849 MHz (UL), 869 to 894 MHz (DL) Band 7: 2500 to 2570 MHz (UL), 2620 to 2690 MHz (DL) Band 8: 880 to 915 MHz (UL), 925 to 960 MHz (DL) Band 12: 699 to 716 MHz (UL), 729 to 746 MHz (DL) Band 13: 777 to 787 MHz (UL), 746 to 756 MHz (DL) Band 14: 788 to 798 MHz (UL), 758 to 768 MHz (DL)

Technical Specifications – Networking

	Band 17: 704 to 716 MHz (UL), 734 to 746 MHz (DL) Band 18: 815 to 830 MHz (UL), 860 to 875 MHz (DL) Band 19: 830 to 845 MHz (UL), 875 to 890 MHz (DL) Band 20: 832 to 862 MHz (UL), 791 to 821 MHz (DL) Band 25: 1850 to 1915 MHz (UL), 1930 to 1995 MHz (DL) Band 26: 814 to 849 MHz (UL), 859 to 894 MHz (DL) Band 28: 703 to 748 MHz (UL), 758 to 803 MHz (DL) Band 29: 717 to 728 MHz (DL) Band 30: 2305 to 2315 MHz (UL) 2350 to 2360 MHz (DL) Band 32: 1452 to 1496 MHz (DL) Band 34: 2010 to 2025 MHz (UL/DL) Band 38: 2570 to 2620 MHz (UL/DL) Band 39: 1880 to 1920 MHz (UL/DL) Band 40: 2300 to 2400 MHz (UL/DL) Band 41: 2496 to 2690 MHz (UL/DL) Band 42: 3400 to 3600 MHZ (UL/DL) Band 43: 3400 to 3800 MHZ (UL/DL) Band 48: 3550 to 3700 MHZ (UL/DL) Band 66: 1710 to 1800 MHz (UL), 2110 to 2200 MHz (DL) Band 71: 663 to 698 MHz (UL), 617 to 652 MHz (DL)
Wireless protocol standards	3GPP LTE Rel15 LTE Specification, 100MHz 5 DLCA, 256 QAM, DL 1.0Gbps (CAT16)/ 40MHz 2 ULCA, 256 QAM, UL 211Mbps (CAT18) WCDMA 3GPP Release 8 UMTS Specification, DL UMTS: 384 kbps/UL 384 kbp, DL DC-HSPA+: 42 Mbps (CAT24)/UL 11.5 Mbps (CAT7) WCDMA R99, 3GPP Release 5, 6, 7 and 8 UMTS Specification
GPS	Standalone, A-GPS (MS-A, MS-B)
GPS Bands	GPS: L1 (1575.42MHz) GLONASS: L1 (1602MHz) BeidouB1(1561.098MHz) Galileo E1 (1575.42) QZSS(1575.42 MHz)
Maximum Data Rates	LTE: ue-CategoryDL 16, (DL : 1 Gbps) ue-CategoryUL 18 , (UL: 211Mbps) DC-HSPA+: 42 Mbps (Download), 11.5 Mbps (Upload)
Maximum Output Power	HPUE: Not supported LTE: 23 dBm in all band except (B30= 22dBm& B48= 21dBm) UMTS: 23.5 dBm
Maximum Power Consumption	M.2, 3052-S3 Key B
Form Factor	8 g
Weight	52 mm × 30 mm × 2.3 mm
Dimensions (Length x Width x Thickness)	M.2, 3052-S3 Key B
embedded eSIM	Support

Technical Specifications – Networking

*Mobile Broadband is an optional feature. 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.

**Gigabit class Category 16 4G LTE module is optional and must be configured at the factory. Module designed for up to 1 Gbps download speeds as carriers deploy 5 carrier aggregation and 100Mhz channel bandwidth, requires activation and separately purchased service contract. Backwards compatible to HSPA 3G technologies. Check with service provider for coverage and availability in your area. Connection, upload and download speeds will vary due to network, location, environment, network conditions, and other factors. 4G LTE not available on all products, in all regions.

Qualcomm 9205

Technology/Operating bands*	FDD LTE: 2100 (Band 1), 1900 (Band 2), 1800 (Band 3), 1700/2100 (Band 4), 850 (Band 5), 900 (Band 8), 700 (Band 12 lower), 700 (Band 13 upper), 700 (Band 14 upper), 850 (Band 18 lower), 850 (Band 19 upper), 800 (Band 20), 1900 (Band 25), 850 (Band 26), 800 (Band 27), 700 (Band 28), 1700/2100 (Band 66), 700 (band 85) MHz. GSM/GPRS/EGPRS: 850, 900, 1800, 1900MHz.
Wireless protocol standards	l 3GPP TS 51.010-1 V10.5.0: Mobile Station (MS) conformance specification; Part 1: Conformance specification l 3GPP TS 36.521-1 V14.3.0: User Equipment (UE) conformance specification; Radio transmission and reception; Part 1: Conformance testing l 3GPP TS 21.111 V10.0.0: USIM and IC card requirements l 3GPP TS 51.011 V4.15.0: Specification of the Subscriber Identity Module -Mobile Equipment (SIM-ME) interface l 3GPP TS 31.102 V10.11.0: Characteristics of the Universal Subscriber Identity Module (USIM) application l 3GPP TS 31.11 V10.16.0: Universal Subscriber Identity Module (USIM) Application Toolkit (USAT) l 3GPP TS 36.124 V10.3.0: Electro Magnetic Compatibility (EMC) requirements for mobile terminals and ancillary equipment l 3GPP TS 27.007 V10.0.8: AT command set for User Equipment (UE) l 3GPP TS 27.005 V10.0.1: Use of Data Terminal Equipment - Data Circuit terminating Equipment (DTE - DCE) interface for Short Message Service (SMS) and Cell Broadcast Service (CBS)
GPS	Standalone GPS/Beidou/Glonass, A-GPS (MS-A, MS-B)
GPS Bands	1575.42 MHz ± 1.023 MHz, GLONASS 1596-1607MHz, Beidou 1561.098 MHz
Maximum Data Rates	LTE FDD: 375 Kbps (Download), 1119 Kbps (Upload) GSM: - GPRS: 107 Kbps (Download), 85.6 Kbps (Upload) - EGPRS: 296 Kbps (Download), 236.8 Kbps (Upload)
Maximum Output Power	LTE: 21.5 dBm in all band GSM:34dBm
Maximum Power Consumption	LTE: 1,200 mA (peak); 900 mA (average) HSPA+: 1,100 mA (peak); 800 mA (average)
Form Factor	M.2, 2242-S3 Key B
Weight	5.5 g
Dimensions (Length x Width x Thickness)	22 x 42 x 2.3 mm
embedded eSIM	Support

NFC Mirage module (NXP NPC300 I2C 10mmx17mm)

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,**	VBAT= 3.3V,	
	VCC_BOOST = 5V) Mode Power Consumption, 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.		

AUDIO

HD Stereo Codec	ALC3315

Audio I/O Ports	Headset connector supports a CTIA
Internal Speaker Amplifier	Using External AMP for internla speaker.
Multi-streaming Capable	Playback multi-streaming can be enabled in the audio control panel to allow independent audio.
Sampling	streams to be sent to/from the front and rear jacks or integrated speaker.
Wavetable Syntheses	DAC: 48000Hz ADC: Internla MIC: 48000Hz External MIC: 44100Hz
Analog Audio	Support 3.5mm Headset : CTIA only and Headphone-out
# of Channels on Line-Out	No line out
Internal Speaker	Yes

FINGERPRINT READER

Sensor vendor	Synaptics FS7605
Sensor type	Capacitive
DPI resolution	363 DPI
Scan area	104 x 86 pixels
False Rejection Rate	<3%
False Acceptance Rate	< 0.001%
Mobile Voltage Operation	3.0V to 3.6V
Operating Temperature	0°~60°C
Current Consumption Image	100mA max
Low Latency Wait For Finger	260uA
Capture Rate	Image transmitter output frequency 9.6MHz
ESD Resistance	IEC 61000-4-2 4B (+15KV)
Detection Matrix	363 dpi / 7.4x6mm sensor area

POWER

HP 150W Slim 4.5 mm PFC Right Angle Smart (3-pin) AC Power Adapter	**Dimensions**	138x66x22mm	
	Weight	unit: 330g +/- 10g	
	Input	**Input Efficiency**	88% at 115 Vac and 89% at 230Vac
		Input frequency range	47 ~ 63 Hz
		Input AC current	2.7 A at 90 Vac and Maximum Load
	Output	**Output power**	150W
		DC output	19.5V
		Hold-up time	5ms at 115 Vac input

		Output current limit	<16.0A
		AC Inlet Type	C6
		DC Cable Connector	4.5mm Barrel Type
	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 5000m)
		Humidity	20% to 95%
		Storage Humidity	10% to 95%
	EMI and Safety Certifications	CE Mark - full compliance with LVD and EMC directives Worldwide safety standards - IEC60950-1 and IEC62368-1 : 2018, EN62368-1:2014+A11, UL62368-1 Agency approvals - C-UL-US, TUV/GS, TUV/PSE, EN55032 Class B, FCC Class B, CISPR32 Class B, CCC and CECP, CU(EAC), EAEU, KCC(Safety+EMC), NOM-001 and 029 NYCE, NRcan, NRCS, ISC, SEC, PSB, Argentina S-mark, Australia GEMS and RCM, BIS, BSMI, UAE, UKCA DoC	
HP 200W Slim 4.5 mm PFC Right Angle Smart (3-pin) AC Power 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	3.0 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	<21.0A
		AC Inlet Type	C14
		DC Cable Connector	4.5mm Barrel Type
	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 5000m)
		Humidity	20% to 95%
		Storage Humidity	10% to 95%
	EMI and Safety Certifications	CE Mark - full compliance with LVD and EMC directives Worldwide safety standards - IEC60950-1 and IEC62368-1 : 2018, EN62368-1:2014+A11, UL62368-1 Agency approvals - C-UL-US, TUV/GS, TUV/PSE, EN55032 Class B, FCC Class B, CISPR32 Class B, CCC and CECP, CU(EAC), EAEU, KCC(Safety+EMC), NOM-001 and 029 NYCE, NRcan, NRCS, ISC, SEC, PSB, Argentina S-mark, Australia GEMS and RCM, BIS, BSMI, UAE, UKCA DoC	
HP 230W Slim 4.5 mm PFC Right Angle Smart (3-pin) AC Power Adapter	**Dimensions**	180x88x25.4mm	
	Weight	unit: 625g +/- 10g	
	Input	**Input Efficiency**	88% at 115 Vac and 89% at 230Vac

	Input frequency range	47 ~ 63 Hz
	Input AC current	3.5 A at 90 Vac and Maximum Load
Output	**Output power**	230W
	DC output	19.5V
	Hold-up time	5ms at 115 Vac input
	Output current limit	<25.0A
	AC Inlet Type	C14
	DC Cable Connector	4.5mm Barrel Type
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 5000m)
	Humidity	20% to 95%
	Storage Humidity	10% to 95%
EMI and Safety Certifications	CE Mark - full compliance with LVD and EMC directives Worldwide safety standards - IEC60950-1 and IEC62368-1 : 2018, EN62368-1:2014+A11, UL62368-1 Agency approvals - C-UL-US, TUV/GS, TUV/PSE, EN55032 Class B, FCC Class B, CISPR32 Class B, CCC and CECP, CU(EAC), EAEU, KCC(Safety+EMC), NOM-001 and 029 NYCE, NRcan, NRCS, ISC, SEC, PSB, Argentina S-mark, Australia GEMS and RCM, BIS, BSMI, UAE, UKCA DoC	

95Whr XL-Long Life Polymer Fast Charge 8 cell Battery**	**Dimensions (H x W x L)**	314.2x59.4x16.91 mm (12.37x2.34x0.67 inch)	
	Weight	0.396kg +/-0.010kg (0.875lb +/-0.02lb)	
	Cells/Type	8-cell Lithium-Ion Polymer cell / 624266	
	Energy	Voltage	15.44V/ 17.72V
		Amp-hour capacity	5.907Ah /6.154Ah
		Watt-hour capacity	95Wh
	Temperature	Operating (Charging)	32° to 113° F (0° to 45° C)
		Operating (Discharging)	14° to 140° F (-10° to 60° C)
	Fuel Gauge LED	NA	
	Warranty	Refer to products warranty	
	Optional Travel Battery Available	No	

*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.

**Recharges up to 50% within 30 minutes when the system is off or in standby mode when used with the power adapter provided with the notebook. Power adapter minimum of 65 watts required for battery capacities 56Whr or less. Power adapter minimum of 100 watts required for battery capacities greater than 56Whr and less than 83Whr. Power adapter minimum of 120 watts required for battery capacities greater than 83Whr and less than 100Whr. After charging has reached 90% capacity, charging speed will return to normal. Charging time may vary +/-10% due to System tolerance.

ENVIRONMENTAL DATA

Eco-Label Certifications & declarations

This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks:

- IT ECO declaration
- US ENERGY STAR®
- US Federal Energy Management Program (FEMP)
- EPEAT□ Gold registered in the United States. See http://www.epeat.net for registration status in your country.
- TCO Certified
- China Energy Conservation Program (CECP)
- China State Environmental Protection Administration (SEPA)
- Taiwan Green Mark
- Korea Eco-label
- Japan PC Green label*

Sustainable Impact Specifications

- Product Carbon Footprint
- Ocean-bound plastic in SPEAKER
- 24% post-consumer recycled plastic
- 80% recycled metal
- External Power Supply 90% Efficiency
- Low halogen
- Outside Box and corrugated cushions are 100% sustainably sourced and recyclable
- Molded Paper Pulp Cushion inside box is 100% sustainably sourced and recyclable.
- Bulk packaging available

System Configuration

The configuration used for the Energy Consumption and Declared Noise Emissions data for the Notebook model is based on a “Typically Configured Notebook”.

Energy Consumption (in accordance with US ENERGY STAR® test method)	**115VAC, 60Hz**	**230VAC, 50Hz**	**100VAC, 50Hz**
Normal Operation (Short idle)	6.32 W	4.86 W	7.69 W
Normal Operation (Long idle)	2.37 W	1.41 W	2.03 W
Sleep	2.37 W	1.41 W	2.03W
Off	0.36 W	0.39 W	0.36 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)	16.57 BTU/hr	21.55 BTU/hr	26.22 BTU/hr
Normal Operation (Long idle)	4.81 BTU/hr	8.08 BTU/hr	6.92 BTU/hr
Sleep	4.81 BTU/hr	8.08 BTU/hr	6.92 BTU/hr
Off	1.33 BTU/hr	1.23 BTU/hr	1.23 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	2.9	20.8
Fixed Disk – Random writes	2.9	21.0
Optical Drive – Sequential reads	2.9	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 92.4% recycle-able when properly disposed of at end of life.

Packaging Materials

External:	PAPER/Corrugated	363 g
	PAPER/Molded pulp	160 g
Internal:	PAPER/PAPER	3 g
	PLASTIC/Polyethylene low density-LDPE	17g

The plastic packaging material contains at least 0.0% recycled content.

The corrugated paper packaging materials contains at least 56.3% 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.

Technical Specifications – Environmental

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:

- 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.

Technical Specifications – Environmental

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.
- Plastic cushions are made from >90% recycled plastic.
- Disclaimer: recycled metal is expressed as a percentage of the total weight of the metal according to ISO 14021 definitions for metal parts over 25 grams.

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

Type	Description	Part #
Audio/Video	TBD	
Bags and Cases	HP Renew Business 17.3 Laptop Backpack	3E2U5AA
	HP Renew Business 17.3 Laptop Bag	3E2U6AA
	HP Renew Executive 16 Laptop Backpack	6B8Y1AA
	HP Renew Executive 16 Laptop Bag	6B8Y2AA
	HP Campus XL Marble Stone Backpack	7J592AA
	HP Campus XL Marble Stone Backpack	7K0E2AA
	HP Campus XL Tie Dye Backpack	7J593AA
	HP Campus XL Tie Dye Backpack	7K0E3AA
Docking station	HP Thunderbolt 280W G4 Dock w/Combo Cable	4J0G4AA
	HP Thunderbolt 280W TAA G4 Dock w/Combo Cable	4J0J9AA
Adapter / Dongle	HP HDMI to VGA Adapter	H4F02AA
	HP USB-C to USB 3.0 Adapter	N2Z63AA
	HP USB-C to DisplayPort Adapter	N9K78AA
	HP USB-C to VGA Adapter	N9K76AA
	HP USB-C to VGA Adapter	P7Z54AA
	HP USB-C to HDMI 2.0 Adapter	1WC36AA
	HP USB-C to HDMI 2.0 Adapter	2PC54AA
	HP 7.4 mm to 4.5 DC dongle	K0Q39AA
	HP USB-C to RJ45 Adapter G2	4Z527AA
	HP USB-C to RJ45 Adapter G2	4Z534AA
	HP USB 3.0 to Gig RJ45 Adapter G2	4Z7Z7AA
	HP USB-C to DisplayPort Adapter G2	8Y8Y1AA
	HP USB-C to USB-C 100W Cable	5AR72AA
Hub	HP USB-C to USB-A Hub	Z6A00AA
Keyboard/Combo	TBD	
Mouse	TBD	
Power	HP ZBook 230W Slim Smart 4.5mm AC Adapter	6E6M1AA
Commodity	HP 2TB PCIe-4x4 NVMe TLC M.2 Solid State Drive	6D8L6AA
	HP USB External DVDRW Drive	F2B56AA
	HP USB External DVDRW Drive	Y3T76AA
Security	HP Nano Keyed Cable Lock	1AJ39AA
	HP Nano Master Keyed Cable Lock	1AJ40AA
	HP Sure Key Cable Lock	6UW42AA

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

HP Nano Combination Cable Lock	63B28AA
HP Essential Nano Combination Cable Lock	63B31AA

Date of change:	**Version History:**		**Description of change:**
April 24, 2024	From v1 to v2	Added	ENVIRONMENTAL DATA section