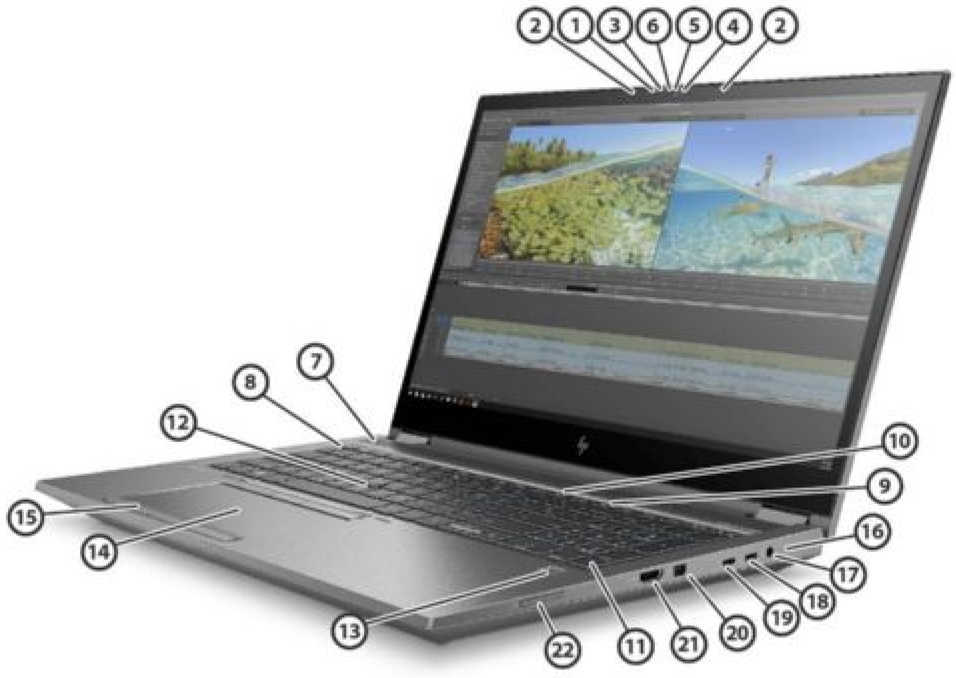
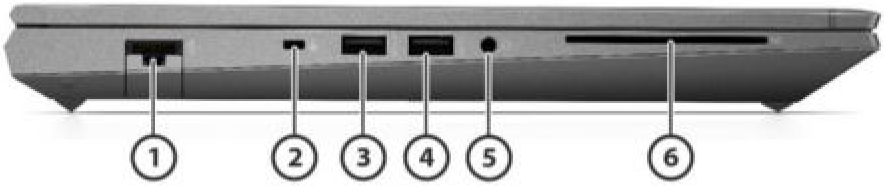
HP ZBook Fury 15 G7 Mobile Workstation



Right

1. Ambient Light Sensor
2. Internal Microphones (optional)
3. Camera LEDs (optional)
4. Camera (optional)
5. IR Camera (optional)
6. Camera Cover (optional)
7. Speakers with Discrete Amplifier
8. Function Keys (changes with configured options)
9. Power button
10. HP Programmable Key
11. Numeric Keypad
12. Pointstick
13. Fingerprint Sensor (optional)
14. Touchpad
15. 3-button Touchpad
16. Indicator LEDs: Power light, Wireless light, Storage usage light
17. Power connector
18. USB Type-C® with Thunderbolt™
19. USB Type-C® with Thunderbolt™
20. Mini DisplayPort™
21. HDMI port
22. SD Card Reader



Left

1. RJ-45
2. Nano security lock slot
3. USB 3.1 Gen 1 Charging Port
4. USB 3.1 Gen 1
5. Audio Combo Jack
6. Smart Card Reader

At A Glance

- Work anywhere without compromising on performance or security with Windows 10 Pro [1], powered by HP's collaboration anc connectivity technology.
- Accelerate your workflow. Power through projects with up to 128 GB RAM [2] for fast rendering, editing and visual effects performance.
- Take multitasking to the next level with the Intel® Core™ i9 processor [3] 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.[4]
- Run demanding professional apps with the newest generation Intel® Xeon® processors [5] for powerful performance and productivity.
- Experience high-end visualization and seamlessly render your biggest projects with the next generation NVIDIA® Turing architecture with Quadro® T-Series and RTX graphics[19]; Certified and supported for the apps you use every day.
- Strenuously tested to meet software certification and deliver superb performance with leading software providers, including Autodesk and Adobe® [6].
- Blitz through multiple tasks and ditch external drives with up to 8 TB [7], local PCIel NVMe storage - up to 21x faster than standard HDD and 6x faster than SATA SSD [9].
- Have confidence with the HP's most secure mobile workstations. Instantly protect against visual hacking with HP Sure View [10] and defend against firmware and malware attacks with HP Sure Start [11] and HP Sure Sense [12], and have peace of mind with multi-factor authentication- including an infrared camera and fingerprint scanner [13].
- 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.
- Designed for ultimate durability, this ZBook undergoes brutal MIL-STD 810H [14] tests to help ensure this PC keeps rolling through your workday.
- Plug in to greater connectivity at your desktop with the HP Thunderbolt Dock for lightning-fast Thunderbolt™ 3 [15] transfers ar the flexibility to run up to two external 4K displays [16,17].
- Improve connectivity while on Wi-Fi® with HP Extended Range Wireless LAN that allows greater distance from transmission point and fast data throughput at shorter ranges [18].

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

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

Overview

necessarily benefit from use of this technology. Performance and clock frequency will vary depending on application workload and your hardware and software configurations. Intel's numbering, branding and/or naming is not a measurement of higher performance

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

[5] 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

[6] Adobe and Autodesk software sold separately.

[7] For hard drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 3GB (for Windows 10) of system di is reserved for system recovery software.

[9] Speeds based on 8TB PCIe NNVMe storage.

[10] Based on HP's unique and comprehensive security capabilities at no additional cost among desktop workstation vendors as of Sept 2017 on HP Mobile Workstations with 7th Gen and higher Intel® Processors.

[11] HP Sure Start Gen5 is available on select HP PCs with Intel processors. See product specifications for availability.

[12] HP Sure Sense requires Windows 10. See product specifications for availability.

[13] Infrared camera and fingerprint scanner are optional, configurable features.

[14] 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.

[15] HP Thunderbolt Dock with Thunderbolt™ 3 sold separately.

[16] External displays sold separately.

[17] Optional hybrid graphics is required to run up to two external 4K displays.

[18] Based on internal testing vs. previous generation product with 802.11ac wireless LAN module.

[19] The HP custom vapor chamber (Z VaporForce) is only available on configurations with NVIDIA RTX graphics or AMD Radeon graphic

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

OPERATING SYSTEM

Preinstalled OS	Windows 10 Pro 64 - HP recommends Windows 10 Pro for business.[1] Windows 10 Pro for Workstations 64[1] Windows 10 Home 64[1] Windows 10 Home Single Language 64[1] FreeDOS 3.0
Web support OS	Red Hat® Enterprise Linux® 8[2] Ubuntu Linux 18.04[2] Windows 10 Enterprise 64[1]
Supported Version	HP tested Windows 10, version 1809 on this platform. For testing information on newer versions of Windows 10, please see: https://support.hp.com/document/c05195282.

[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] For detailed Linux® OS/hardware support information, see: http/www.hp.com/linux_hardware_matrix

PROCESSOR

10th Generation Intel® Xeon® W-10885M vPro™ with Intel® UHD Graphics (2.4 GHz base frequency, up to 5.3 GHz with Intel® Turbc Boost Technology, 16 MB cache, 8 cores)[1,2,3,4,5,6]

10th Generation Intel® Core™ i9-10885H vPro™ with Intel® UHD Graphics (2.4 GHz base frequency, up to 5.3 GHz with Intel® Turbc Boost Technology, 16 MB cache, 8 cores) [1,2,3,4,5,6]

10th Generation Intel® Core™ i7-10850H vPro™ with Intel® UHD Graphics (2.7 GHz base frequency, up to 5.1 GHz with Intel® Turbc Boost Technology, 12 MB cache, 6 cores) [1,2,3,4,5,6]

10th Generation Intel® Core™ i7 10750H with Intel® UHD Graphics (2.6 GHz base frequency, up to 5.0 GHz with Intel® Turbo Boost Technology, 12 MB cache, 6 cores)[1,2,3,4,5]

10th Generation Intel® Core™ i5-10400H vPro™ with Intel® UHD Graphics (2.6 GHz base frequency, up to 4.6 GHz with Intel® Turbc Boost Technology, 8 MB cache, 4 cores)[1,2,3,4.5,6]

10th Generation Intel® Core™ i5 10300H with Intel® UHD Graphics (2.5 GHz base frequency, up to 4.5 GHz with Intel® Turbo Boost Technology, 8 MB cache, 4 cores)[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] Processor speed denotes maximum performance mode; processors will run at lower speeds in battery optimization mode.
[3] Intel® Turbo Boost performance varies depending on hardware, software and overall system configuration. Energy Efficient Turbo is a power management feature that can lower the maximum core ratio (frequency), if the CPU thinks it can achieve about the same performance as with the maximum turbo frequency. Energy Efficient Turbo feature is disabled in Comet Lake H in orde to prioritize performance in DC mode. It can be changed in F10 BIOS settings. See www.intel.com/technology/turboboost for more information.[4] In accordance with Microsoft's support policy, HP does not supp the Windows 8 or Windows 7 operating system on products configured with Intel and AMD 7th generation and forward process or provide any Windows 8 or Windows 7 drivers on http://www.support.hp.com.
[5] For full Intel® vPro® functionality, Windows, a vPro supported processor, vPro enabled Q370 chipset or higher and vPro enable WLAN card are required. Some functionality, 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 of this generation of Intel vPro technology-based hardware with future "virtual appliances" is yet to be determined.

CHIPSET

Mobile Intel® WM 490

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. [1,2]

[1] Requires a Windows operating system, network hardware and software, connection with a power source, and a direct (non-VP 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 [1,2,3,4,5]

Discrete

NVIDIA Graphic options:

NVIDIA® Quadro® RTX 5000 with Max-Q Design (16 GB GDDR6 dedicated) [1,2,3,4,5,7]

NVIDIA® Quadro® RTX 4000 with Max-Q Design (8 GB GDDR6 dedicated) [1,2,3,4,5,7]

NVIDIA® Quadro® RTX 3000 (6 GB GDDR6 dedicated) [1,2,3,4,5,7]

NVIDIA® Quadro® T2000 with Max-Q Design (4 GB GDDR6 dedicated) [1,2,3,4,5]

NVIDIA® Quadro® T1000 with Max-Q Design (4 GB GDDR6 dedicated) [1,2,3,4,5]

AMD Graphic options:

AMD Radeon Pro W5500M (4 GB GDDR6 dedicated) [1,2,3,4,5,7]

AMD Radeon RX 5500M (4 GB GDDR6 dedicated) [1,2,3,4,5,7]

[1] UHD content required to view UHD images.

[2] Support HD decode, DX11, DX12, HDMI 1.4, HDCP 2.3 via DP up to 4K @ 60Hz and via HDMI up to 4K @ 30Hz

[3] HDMI cable Sold Separately

[4] Shared video memory (UMA) uses part of the total system memory for video performance. System memory dedicated to vide performance is not available for other use by other programs.

[5] miniDP cable sold separately.

[6] GPU configurations may be limited to specific panel options

[7] The HP custom vapor chamber (Z VaporForce) is only available on configurations with NVIDIA RTX graphics or AMD Radeon graphics

DISPLAY

Non-touch

- 15.6" diagonal FHD (1920 x 1080) IPS eDP1.2 anti-glare WLED-backlit and ambient light sensor 250 nits 45% CG[1,2]
- 15.6" diagonal FHD (1920 x 1080) IPS eDP1.3 + PSR anti-glare WLED-backlit and ambient light sensor 400 nits 72% CG [1,2]
- 15.6" diagonal FHD (1920 x 1080) IPS eDP1.3 + PSR anti-glare WLED-backlit and ambient light sensor 1000 nits 72% CG Next Gen HP SureView Reflect [1,2,5]
- 15.6" diagonal UHD (3840 x 2160) IPS HDR 400 eDP1.4 + PSR2 anti-glare BV LED-backlit and ambient light sensor 600 nits 100% DCI-P3 Next Gen HP Dream Color display [1,2,3,4]

Touch

- 15.6" diagonal UHD (3840 x 2160) IPS HDR 400 eDP1.4 + PSR2 WLED-backlit touch screen with Corning® Gorilla® Glass 5 and ambient light sensor 600 nits 100% DCI-P3 [1,2,3,4]

HP Virtual Reality[6] Headset (sold separately)

- HP Reverb
- HP Reverb G2

[1] UHD content required to view UHD images.
[2] Resolutions are dependent upon monitor capability, and resolution and color depth settings.
[3] Display options may be limited to specific GPU Configurations.
[4] VESA DisplayHDR 400 certifications are pending.
[5] HP Sure View Reflect is optional and must be configured at purchase.
[6] Virtual Reality content is required to view Virtual Reality images

STORAGE AND DRIVES*

Max Storage
8TB through four M.2 NVMe drives
6TB through two M.2 NVMe drives and one 2.5"? SATA drive

(up to 1) HDD Storage (SATA 3.2)
500 GB 7200 rpm SATA FIPS 140-2 SED HDD
500 GB 7200 rpm SATA HDD
1 TB 7200 rpm SATA HDD
2 TB 5400 rpm SATA HDD

(up to 4) M.2 Storage (NVMe™ PCIe SSD)
256 GB PCIe (NVMe™) TLC Self Encrypting (SED) Solid State Drive
512 GB PCIe (NVMe™) TLC Self Encrypting (SED) Solid State Drive
256 GB PCIe (NVMe™) TLC Solid State Drive
512 GB PCIe (NVMe™) TLC Solid State Drive
1 TB PCIe (NVMe™) TLC Solid State Drive[3]
2 TB PCIe (NVMe™) TLC Solid State Drive[3]

[2] Storage slot 1-4 can support NVMe protocol
[3] Storage slot 1, 3 and 4 can support SATA protocol

[4] Only storage slots 1-3 can support RAID

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

DRIVE CONTROLLERS

M.2 Storage Bay (PCIe NVMe)	PCIe Gen 3 x 4 lanes NVMe Solid State Drive
RAID:	RAID 0 and RAID 1 support[1]

[1] Support only available with 1TB + 1TB M.2 storage or 2TB + 2TB M.2 storage combinations
[2] Not available if slots if storage slots 3 or 4 are selected

MEMORY

Maximum Memory[3,2,5]
128 GB DDR4-2667 non-ECC SDRAM
64 GB DDR4-2667 ECC SDRAM
4 DDR4 SODIMMS[4]
Supports Dual Channel Memory[1]
Slots are customer accessible / upgradeable

[1] Maximized dual-channel performance requires SODIMMs of the same size and speed in both memory channels.
[2] Due to the non-industry standard nature of some third-party memory modules, we recommend HP branded memory to ensur compatibility. If you mix memory speeds, the system will perform at the lower memory speed.
[3] Transfer rates up to 2667 MT/s for nECC and ECC memory combinations when memory suppliers are consistent. If suppliers are not consistent, speeds may drop to 2133 MT/s for nECC and 2400 MT/s for ECC memory combinations. A custom configuration including part number AY104AV can be used to lock in a consistent vendor.
[4] Intel® allows architectures designed with four DIMM slots to run at 2400 MT/s
[5] 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

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

[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

Intel® Wi-Fi 6 AX201 (2x2) and Bluetooth® 5 combo, vPro™ [1]
Intel® Wi-Fi 6 AX201 (2x2) and Bluetooth® 5 combo, non-vPro™ [1]

[1] Wireless cards are optional or add-on features and requires separately purchased wireless access point and internet service. Availability of public wireless access points limited. The specifications for the 802.11ac WLAN are draft specifications 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 802.11ac WLAN devices.

WWAN[1]

Intel® XMM™ 7360 LTE Advanced CAT 9

[1] WWAN use 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, and in all regions.

Optional Near Field Communication (NFC) module

AUDIO/MULTIMEDIA

Audio

Audio by Bang & Olufsen, dual stereo speakers, HP World Facing Microphone dual array digital microphone[1], functions keys for volume up and down, combo microphone/headphone jack, HD audio

[1] Dual-microphone array when equipped with optional webcam and optional world facing microphone.

Camera[1, 2, 3]

720p HD webcam with IR

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.

[3] Camera-configured options come with a Privacy Shutter

KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

Keyboard

HP Premium Quiet Keyboard, full-size, spill-resistant, backlit, a Programmable Key, with sperate numeric keypad, HP DuraKey, touchpad with glass surface, multi-touch gestures and taps enabled

Pointing Devices

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

SOFTWARE AND SECURITY

Workstation ISV Certifications

See the latest list of certifications at: http://www.hp.com/go/isv

HP ZCENTRAL REMOTE BOOST SOFTWARE

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

HP Performance Advisor

HP Performance Advisor enables optimal configuration of HP Mobile Workstations delivering stability and best performance. HP

Features

Performance Advisor will guide your system setup allowing a "custom" configuration that best matches the workstation to use requirements. Download at: http://www.hp.com/go/performanceadvisor

Software

Bing search for IE11
Buy Office
HP Hotkey Support
HP Image Assistant
HP Noise Cancellation Software
HP Performance Advisor[8]
HP Sure Recover
HP ZCentral Remote Boost[2]
HP Support Assistant [1,7]
Native Miracast support [4]
HP Connection Optimizer[9]
HP Cloud Recovery
myHP

Security Management

Absolute persistence module [6]

HP Admin

HP Device Access Manager
HP FingerPrint Sensor
HP Manageability Integration Kit Gen4[11]
HP Power On Authentication
Security lock slot[12]
Trusted Platform Module TPM 2.0 Embedded Security Chip with Windows 10 (Common Criteria EAL4+ Certified)(FIPS 140-2 Leve Certified)
Master Boot Record security
Pre-boot authentication
Windows Defender[10]
HP Client Security Manager Gen5[7, 16]
HP BIOSphere Gen6 [5]
HP Sure Recover Gen3[13]
HP Sure Start Gen6 [5, 14]
HP Secure Erase [15]
HP Sure Sense[17]
HP Secure Platform[18]
HP Sure Click
HP Sure Run Gen3
HP Tamper Lock
HP SureView Reflect
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 Internet Access.

[2] HP Z Central Remote Boost Software does not come preinstalled on Z Workstations but can be downloaded and run on all Z desktop and laptops without license purchase. With non-Z sender devices, purchase of perpetual individual license or perpetual floating license per simultaneously executing versions and purchase of ZCentral Remote Boost Software Support is required. RGS requires Windows, RHEL (7 or 8), UBUNTU 18.04 LTS, or HP ThinPro 7 operating systems. MacOS (10.13 or newer) operating system is only supported on the receiver side. Requires network access. The software is available for download at hp.com/ZCentralRemoteBoost.[4] 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.

[5] 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. [6] 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.

Features

[8] 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
[9] HP Connection Optimizer requires Windows 10.
[10] Microsoft Defender Opt in and internet connection required for updates.
[11] HP Manageability Integration Kit can be downloaded from http://www.hp.com/go/clientmanagement.
[12] Nano Security lock slot is Lock sold separately.
[13] HP Sure Recover Gen3: See product specifications for availability. Requires an open, wired network connection. 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™.
[14] HP Sure Start Gen6 is available on select HP PCs with Intel processors. See product specifications for availability.
[15] 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™.
[16] HP Client Security Manager Gen5 requires Windows and is available on select HP Pro, Elite and ZBook PCs. See product specifications for details.
[17] HP Sure Sense requires Windows 10. See product specifications for availability.
[18] Wireless access point and Internet service required and sold separately. Availability of public wireless access points limited.

POWER

Power Supply

Up to 16 hours 15 minutes[1]

HP Long Life 8-cell, 94 Wh Li-ion polymer[2]

120 W Slim Smart external AC power adapter
150 W Slim Smart external AC power adapter
200 W UltraSlim Smart external AC power adapter

120 W power adapter is configurable with Intel UMA graphics
150 W power adapter is configurable with NVIDIA Quadro T1000 and T2000 configurations
200 W power adapter is configurable with NVIDIA Quadro RTX 3000[3] or higher configurations

[1] Measured with MobileMark 14

[2] Serviceable by warranty. Batteries have a default one year limited warranty except for Long Life batteries which will have same 1-year or 3-year.

[3] The HP custom vapor chamber (Z VaporForce) is only available on configurations with NVIDIA RTX graphics or AMD Radeon graphics

ENVIRONMENTAL

ENERGY STAR® certified and EPEAT® 2.0 registered where applicable. EPEAT® registration varies by country. See www.epeat.net for registration status by country.[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 information.
[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

Dimensions (w x d x h)
35.7 x 24.25 x 2.59 cm
14.06 x 9.55 x 1.02 in

Weights
Starting at 2.35kg (5.18 lb)
Weight varies by configuration and components.

A deck: Anodized Aluminum
B deck: Aluminum with plastic antenna cover; Touch has Corning® Gorilla ® Glass 5
C deck: Anodized Aluminum
D deck: Magnesium Die Cast
E door: Magnesium Die Cast
Metal Alloy Hinges

PORTS/SLOTS

1 smart card reader
1 SD 4.0 Media Card Reader

Left side[6]
1 RJ-45
1 USB 3.1 Gen 1 (charging)
1 USB 3.1 Gen 1
1 headphone/microphone combo

Right side[6]
1 power connector
2 USB Type-C® (Thunderbolt™ 3, pass through support DispalyPort™ 1.4[2], USB 3.1 Gen 2, with BC 1.2)
1 Mini DisplayPort™ 1.4
1 HDMI 2.0b[1,3,4,5]

[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.
[4] When both USB Type-C® are in use, HDMI cannot be detected
[5] When one USB Type-C® is in use, HDMI can be detected if USB Type-C® in use is assigned to different channel
[6] When product is under heavy power loading, performance may be reduced to prevent battery drain. Disconnecting USB device will restore system performance

SERVICE AND SUPPORT

HP Services offers 3-year and 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.

SYSTEM UNIT

Stand-Alone Power Requirements (AC Power)	**Nominal Operating Voltage**	19.5V	
	Average Operating Power(idle)	System in idle mode + max panel brightness	Adapter Safety test condition
	Discrete Graphics	80W	
	Max Operating Power	<200W	
Temperature	**Operating**	41° to 122° F (5° to 50° C) (reading optical) '41° to 113° F (5° to 45° C) (writing optical)	
	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	
Maximum Altitude (unpressurized)	**Operating**	-50 to 10,000 ft. (-15.24 to 3,048 m)	
	Non-operating	-50 to 15,000 ft. (-15.24 to 12,192 m)	
Planned Industry Standard Certifications	**UL**	Yes	
	CSA	Yes	
	FCC Compliance	Yes	
	ENERGY STAR®	Yes	
	EPEAT®	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 810H	Yes	
	BNCI or BELUS	Yes	
	GOST	Yes	
	Saudi Arabian Compliance (ICCP)	Yes	
	UKRSERTCOMPUTER	Yes	

[1] Configurations of the HP ZBook Fury 15 G7 that are ENERGY STAR® qualified are identified as HP ZBook Fury 15 G7 ENERGY STAR on HP websites and on http://www.energystar.gov.

[2] EPEAT® registered where applicable. EPEAT registration varies by country. See http://www.epeat.net for registration status by country. Search keyword generator on HP's 3rd party option store for solar generator accessories at www.hp.com/go/options.

DISPLAYS

15.6" diagonal FHD IPS eDP1.2 anti-glare WLED-backlit and ambient light sensor 250 nits 45% CG (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	15.6 inch	
	Thickness	4.0 mm (max)	
	Interface	eDP 1.2	
	Panel Technology	IPS	
	Surface Treatment	Anti-Glare	
	Touch Enabled	No	
	Refresh Rate	60 hrz	
	Brightness	400 nits	
	Pixel Resolution	**Format**	1920 x 1080 (FHD)
		Configuration	RGB
	Backlight	LED	
	PPI	127	
	Color Gamut Coverage	45% CG	
	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.

15.6" diagonal FHD IPS eDP1.3 + PSR anti-glare WLED-backlit and ambient light sensor 400 nits 72% CG (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	15.6 inch	
	Thickness	4.0 mm (max)	
	Interface	eDP 1.3 + PSR	
	Panel Technology	IPS	
	Surface Treatment	Anti-Glare	
	Touch Enabled	No	
	Refresh Rate	60 hrz	
	Brightness	400 nits	
	Pixel Resolution	**Format**	1920 x 1080 (FHD)
		Configuration	RGB
	Backlight	LED	
	PPI	127	
	Color Gamut Coverage	72% CG	

Technical Specifications – Displays

	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.

Next Gen HP SureView Reflect 15.6" diagonal FHD IPS eDP1.3 + PSR anti-glare WLED-backlit and ambient light sensor 1000 nits 72% CG (1920 x 1080)	**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	15.6 inch	
	Thickness	4.0 mm (max)	
	Interface	eDP 1.3 + PSR	
	Panel Technology	IPS	
	Surface Treatment	Anti-Glare	
	Touch Enabled	No	
	Contrast Ratio	1000:1 (typ.)	
	Refresh Rate	60Hz	
	Brightness	1000 nits	
	Pixel Resolution	**Pitch**	1920 x 1080 (FHD)
		Format	RGB
	Backlight	LED	
	PPI	254	
	Color Gamut Coverage	72% CG	
	Color Depth	8 bits	
	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.

Next Gen HP Dream Color display 15.6" diagonal UHD IPS HDR 400 eDP1.4 + PSR2 anti-glare BV LED-backlit and ambient light sensor 600 nits 100% DCI-P3 (3840 x 2160)	**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	15.6 inch	
	Thickness	4.0 mm (max)	
	Interface	eDP 1.4 + PSR2	
	Panel Technology	IPS	
	Surface Treatment	Anti-Glare	
	Touch Enabled	No	
	Contrast Ratio	1000:1 (typ.)	
	Refresh Rate	60Hz	
	Brightness	600 nits	
	Pixel Resolution	**Pitch**	3840 x 2160 (UHD)
		Format	RGB
	Backlight	LED	

	PPI	254	
	Color Gamut Coverage	100% DCI-P3	
	Color Depth	8 bits	
	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.

15.6" diagonal UHD IPS HDR 400 eDP1.4 + PSR2 WLED-backlit touch screen with Corning® Gorilla® Glass 5 and ambient light sensor 600 nits 100% DCI-P3 (3840 x 2160)	**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	15.6 inch	
	Thickness	4.0 mm (max)	
	Interface	eDP 1.4 + PSR2	
	Panel Technology	IPS	
	Surface Treatment	Gorilla Glass 5 with Anti-Glare	
	Touch Enabled	No	
	Contrast Ratio	1000:1 (typ.)	
	Refresh Rate	60Hz	
	Brightness	600 nits	
	Pixel Resolution	**Pitch**	3840 x 2160 (UHD)
		Format	RGB
	Backlight	LED	
	PPI	254	
	Color Gamut Coverage	100% DCI-P3	
	Color Depth	8 bits	
	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.

Anti-Glare surface treatment only available with non-touch option

STORAGE AND DRIVES

256GB PCIe NVMe TLC M.2 2280 Solid State Drive	**Form Factor**	M.2 2280	
	Drive Weight	0.02 lb (10 g)	
	Capacity	256GB	
	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**
		3500 MB/s	2200 MB/s
	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 DIPM; TRIM; DEVSLP	
		Note: For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 35 GB (for Windows 10) is reserved for system recovery software.	

256GB PCIe NVMe TLC M.2 2280 SED Opal 2 Solid State Drive	**Form Factor**	M.2 2280	
	Drive Weight	0.02 lb (10 g)	
	Capacity	256GB	
	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**
		3000 MB/s	1600 MB/s
	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 DIPM; TRIM; DEVSLP	
		Note: For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 35 GB (for Windows 10) is reserved for system recovery software.	

Technical Specifications – Storage

512GB PCIe NVMe TLC M.2 2280 Solid State Drive	**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**
		3400 MB/s	2956 MB/s
	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 DIPM; TRIM; DEVSLP	
		Note: For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 35 GB (for Windows 10) is reserved for system recovery software.	

512TB PCIe NVMe TLC M.2 2280 SED Opal 2 Solid State Drive	**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**
		3400 MB/s	2500 MB/s
	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 DIPM; TRIM; DEVSLP	
		Note: For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 35 GB (for Windows 10) is reserved for system recovery software.	

Technical Specifications – Storage

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	2.6 mm Max	
	Width	0.87 in (22 mm)	
	Interface	ACS-3, SATA 3.2	
	Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
		3480 MB/s	2800 MB/s
	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 DIPM; TRIM; DEVSLP	
	Available in RAID 1 config	Yes	
		Note: For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 35 GB (for Windows 10) is reserved for system recovery software.	

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	2.6 mm Max	
	Width	0.87 in (22 mm)	
	Interface	ACS-3, SATA 3.2	
	Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
		3180 MB/s	2920 MB/s
	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 DIPM; TRIM; DEVSLP	
	Available in RAID 1 config	Yes	
		Note: For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 35 GB (for Windows 10) is reserved for system recovery software.	

Technical Specifications – Storage

500GB SATA 2.5" HDD	**Form Factor**	2.5"	
	Drive Weight	0.02 lb (10 g)	
	Capacity	500GB	
	Generation	1100	
	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 DIPM; TRIM; DEVSLP	
		Notes: For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 35 GB (for Windows 10) is reserved for system recovery software.	

500GB SATA 2.5" SED HDD - FIPS-140-2	**Form Factor**	2.5"	
	Drive Weight	0.02 lb (10 g)	
	Capacity	500GB	
	Generation	1100	
	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 DIPM; TRIM; DEVSLP	
		Notes: For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 35 GB (for Windows 10) is reserved for system recovery software.	

Technical Specifications – Storage

1TB SATA 2.5" HDD	**Form Factor**	2.5"	
	Drive Weight	0.02 lb (10 g)	
	Capacity	1TB	
	Generation	1100	
	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 DIPM; TRIM; DEVSLP	
		Notes: For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 35 GB (for Windows 10) is reserved for system recovery software.	
2TB SATA 2.5" HDD	**Form Factor**	2.5"	
	Drive Weight	0.02 lb (10 g)	
	Capacity	2TB	
	Generation	1100	
	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 DIPM; TRIM; DEVSLP	
		Notes: For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 35 GB (for Windows 10) is reserved for system recovery software.	

NETWORKING/COMMUNICATION

Intel i219LM 10/100/1000 Integrated NIC	**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 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 consumptior
	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

Technical Specifications – Networking

Intel i219v 10/100/1000 Integrated NIC	**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 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 consumptior
	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

Technical Specifications – Networking

NFC (Near Field Communication) module (optional)			
	Dimensions (L x W x H)	Module 50 mm by 23 mm by 2.89 mm	
	Chipset	SiM3U156+SiM3U154+AMS3911	
	System interface	USB 2.0	
	System interface (I/O)	Audio signal output on card read	
	NFC RF standards (In reading CSN)	ISO/IEC 14443 A ISO/IEC 14443 B ISO/IEC 15693 ISO/IEC 18092 ECMA-340 NFCIP-1	
	NFC Forum Support	Tag Type 1, Type 2, Type3 and Type 4 in reading CSN	
	Reader Mode	13.56MHz: ISO/IEC 14443 A ISO/IEC 14443 B ISO/IEC 15693 MIFARE 1K MIFARE 4K MIFARE DESFire FeliCa Topaz cards HID iClass ISO 125kHz: HID Prox UID AWID UID CASI-RUSCO UID EM 410x UID Indana ASP/ASP+ UID	
	Frequency	13.56MHz and 125kHz	
	NFC Modes Supported	Reader	
	Raw RF Data Rates	106, 212 kbps	
	Operating temperature	-30°C to 70°C	
	Storage temperature	-40°C to 80°C	
	Humidity	10-90% operating 5-95% non-operating	
	Supply Operating voltage	4.35 to 5.25 Volts	
	Power Consumption	**Mode**	Power Consumption, Typical
		Polling	75mA
		Comunication	85mA
	Antenna	13.56MHz/125kHz combo antenna. Antenna connector, 0.5mm pitch, 16pin connector FPC.	
Intel Wi-Fi 6 AX201 + BT5 (802.11ax 2x2, non-vPro, supporting gigabit file transfer speeds) non-vPro	**Wireless LAN Standards**	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac IEEE 802.11ax	

	IEEE 802.11d IEEE 802.11e IEEE 802.11h IEEE 802.11i IEEE 802.11k IEEE 802.11r IEEE 802.11v
Interoperability	Wi-Fi certified
Frequency Band	802.11b/g/n/ax 2.402 - 2.482 GHz 802.11a/n/ac/ax 4.9 - 4.95 GHz (Japan) 5.15 - 5.25 GHz 5.25 - 5.35 GHz 5.47 - 5.725 GHz 5.825 - 5.850 GHz
Data Rates	802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: 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 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

Technical Specifications – Networking

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

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

Technical Specifications – Networking

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 Wi-Fi 6 AX201 + BT5 (802.11ax 2x2, vPro, supporting gigabit file transfer speeds) 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)

Technical Specifications – Networking

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 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/Modern 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 with CNVi Interface
Dimensions	1. Type 2230 : 2.3 x 22.0 x 30.0 mm 2. Type 1216: 1.67 x 12.0 x 16.0 mm
Weight	1. Type 2230 : 2.8g 2. Type 126: 1.3g

Technical Specifications – Networking

Operating Voltage	3.3v +/- 9%	
Temperature	Operating	14° to 158° F (-10° to 70° C)
	Non-operating	-40° to 176° F (-40° to 80° C)
Humidity	Operating	10% to 90% (non-condensing)
	Non-operating	5% to 95% (non-condensing)
Altitude	Operating	0 to 10,000 ft (3,048 m)
	Non-operating	0 to 50,000 ft (15,240 m)
LED Activity	LED Amber - Radio OFF; LED White - Radio ON	

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

Intel® XMM™ 7360 LTE-Advanced CAT9 (Pandora)*

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 throughpu 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
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 configuration at purchase. 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. Connectio speeds will vary due to location, environment, network conditions, and other factors. 4G LTE not available on all products or in all countries.

Technical Specifications – Networking

Near Field Communications Controller (optional)

Dimensions (L x W x H)	Module 25 mm by 10 mm by 2.0 mm		
Chipset	NPC100		
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.		

POWER

120 Watt Slim Smart AC Adapter	**Dimensions**	138x68.5x25.4mm	
	Weight	unit: 350g +/- 10g	
	Input	**Input Efficiency**	88% at 115 Vac and 89% at 230Vac
		Input frequency range	47 ~ 63 Hz
		Input AC current	1.7 A at 90 Vac and Maximum Load
	Output	**Output power**	120W
		DC output	19.5V
		Hold-up time	5ms at 115 Vac input
		Output current limit	<18.0A
	Connector	C5	
	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 200,000 hours at 25°C ambient condition.	

*Can only be configured with Intel UMA Graphics option

Technical Specifications – Power

150 Watt Slim Smart AC Adapter	**Dimensions**	138x66x22mm	
	Weight	unit: 325g +/- 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
	Connector	C5	
	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	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 200,000 hours at 25°C ambient condition.	

*Can only be configured with Quadro T1000 and T2000 Graphics option

200 Watt UltraSlim Smart AC Adapter	**Dimensions**	152x73x23.5mm	
	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	C13	
	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	5% to 95%

Technical Specifications – Power

		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.	

*Can only be configured with Quadro RTX3000, RTX4000, RTX5000 Graphics and Radeon W5500M, RX 5500M Graphics option

HP Long Life 8-cell Polymer (94Wh) Battery	**Cells/Type**	8 cell	
	Energy	Voltage	11.55V
		Amp-hour capacity	4.15Ah
	Temperature	Operating (Charging)	0° to 60° C
		Operating (Discharging)	-20° to 70° C
	Fuel Gauge LED	NA	
	Warranty	Depends on system offering	
	Optional Travel Battery Available	No	

* 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.
Refer to http://www.hp.com/support/batterywarranty/ for battery warranty information.

ENVIRONMENTAL DATA

Eco-Label Certifications & declarations

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

- IT ECO declaration
- US ENERGY STAR®
- EPEAT® Gold registered in the United States. See http://www.epeat.net for registration sta country.

System Configuration

The configuration used for the Energy Consumption and Declared Noise Emissions data for the N 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)	7.38 W	10.02 W	7.29 W
Normal Operation (Long idle)	4.94 W	6.21 W	4.87 W
Sleep	1.69 W	1.68 W	1.59 W
Off	0.41 W	0.42 W	0.41 W

NOTE:
Energy efficiency data listed is for an ENERGY STAR® compliant product if offered within the mod HP computers marked with the ENERGY STAR® Logo are compliant with the applicable U.S. Enviro Protection Agency (EPA) ENERGY STAR® specifications for computers. If a model family does not ENERGY STAR® compliant configurations, then energy efficiency data listed is for a typically confi featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating s

Heat Dissipation*	**115VAC, 60Hz**	**230VAC, 50Hz**	**100VAC, 60Hz**
Normal Operation (Short idle)	25.24 BTU/hr	34.27 BTU/hr	24.93 BTU/hr
Normal Operation (Long idle)	16.89 BTU/hr	21.24 BTU/hr	16.66 BTU/hr
Sleep	5.78 BTU/hr	5.75 BTU/hr	5.44 BTU/hr
Off	1.4 BTU/hr	1.44 BTU/hr	1.4 BTU/hr

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

Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)	Sound Power (L_{WAd}, bels)	Sound Pressure (L_{pAm}, decibels)
Typically Configured - Idle	2.6	14.2
Fixed Disk - Random writes	2.8	15.4
Optical Drive - Sequential reads	2.9	19.4

Longevity and Upgrading

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

- AC adapter
- Battery
- WLAN/WWAN module
- 4 storage slots (M.2 and HDD)
- 4 SODIMM memory slots

Spare parts are available throughout the warranty period and or for up to "5"? years after the en
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

Cadmium greater than 20ppm by weight

Battery description: CR2032 (coin cell)

Battery type: Lithium

Battery description: 8 cell HP Long Life Polymer 94Wh (4.15Ah)

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 Equip (WEEE) Directive - 2002/96/EC.
- This product is in compliance with California Proposition 65 (State of California; Safe D Water and Toxic Enforcement Act of 1986).
- This product is in compliance with the IEEE 1680 (EPEAT) standard at the Gold level, www.epeat.net
- Plastics parts weighing over 25 grams used in the product are marked per ISO11469 a ISO1043.
- This product contains 11.09% post-consumer recycled plastic (by wt.) *according to IE 1680.1-2018 standard, criterion 4.2.1.1.*
- This product is 94.0% recycle-able when properly disposed of at end of life.

Packaging Materials

External:	PAPER/Corrugated	0.316
	PAPER/Molded Pulp	0.181
Internal:	PLASTIC/Polyethylene low density - LDPE	0.010
	PLASTIC/Polypropylene - PP	0.005

The plastic packaging material contains at least 50% recycled content.

The corrugated paper packaging materials contains at least 12.6 recycled content.

RoHS Compliance

HP Inc. complies fully with materials regulations. We were among the first companies to ext restrictions in the European Union (EU) Restriction of Hazardous Substances (RoHS) Direct our products worldwide through the HP GSE. HP has contributed to the development of relat 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- elimination of substances of concern. We have supported the inclusion of additional substan including PVC, BFRs, and certain phthalates-in future RoHS legislation that pertains to elec 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 th scope of the commitment to include further restricted substances as regulations continue to

To obtain a copy of the HP RoHS Compliance Statement, see HP RoHS position statemen

Material Usage

This product does not contain any of the following substances in excess of regulatory limits (refe 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 handle 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 beer 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 packa 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 geographi recycle your product, please go to: http://www.hp.com/go/reuse-recycle or contact your neares office. Products returned to HP will be recycled, recovered or disposed of in a responsible manne

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment informati each product type for use by treatment facilities. This information (product disassembly ins is posted on the Hewlett Packard web site at: http://www.hp.com/go/recyclers. These inst may be used by recyclers and other WEEE treatment facilities as well as HP OEM custom integrate and re-sell HP equipment.

HP Inc. Corporate Environmental

For more information about HP's commitment to the environment:

Technical Specifications – Environmental

Information	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

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#XXX
Case	HP Essential Top Load Case (up to 15.6")	H2W17AA
	HP Essential Backpack (up to 15.6")	H1D24AA
	HP Exec 17.3 Midnight Backpack	1KM17AA
	HP Business Case(up to 15.6")	2SC66AA
	HP Executive 15.6 Midnight Top Load	1KM15AA
	HP Exec 15.6 Midnight Backpack	1KM16AA
	HP Executive 15.6 Black Leather Top Load	1LG83AA
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 Hook dock)	3AQ21AA
	HP TB Dock G2 Combo Cable (this is 230W) comp with Hook dock	3XB96AA
Docking station	HP USB-C Mini Dock - power not supported on mWKS	1PM64AA
	HP TB Dock G2 w/ Combo Cable (this is 230W)	3TR87AA
	HP Thunderbolt Dock 230W G2	2UK38AA
	HP USB-C/A Universal Dock G2 Power Not Supported on Mobile Workstations	5TW13AA
	HP USB-C Dock G5 Power Not Supported on Mobile Workstation	5TW10AA
Input/Output - Mice	HP Comfort Grip Wireless Mouse (See Link 5 Tab)	H2L63AA
	HP 3-button USB Laser Mouse	H4B81AA
	HP Bluetooth Travel Mouse	6SP30AA
	HP USB Travel Mouse	G1K28AA
	HP Wireless Premium Mouse (See Link 5 Tab)	1JR31AA
	HP Elite Presenter Mouse	2CE30AA
Input/Output - Keyboard	HP Slim USB Keyboard and Mouse	T6T83AA
	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

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

	HP USB-C to USB 3.0 Adapter	N2Z63AA
	HP USB-C to DisplayPort Adapter	N9K78AA
	HP USB-C to VGA Adapter	N9K76AA
	HP Single miniDP-to-DP Adapter Cable	2MY05AA
Collaboration	HP UC Wired Headset	K7V17AA
Memory	HP 8GB 2666Mhz DDR4	4VN06AA
	HP 16GB 2666Mhz DDR4	4VN07AA
	HP 32GB 2666MHz DDR4	6NX83AA
	HP 8GB 2666MHz DDR4 ECC	4UY11AA
	HP 16GB 2666MHz DDR4 ECC	4UY12AA
Power - A/C Adapter	HP 200W Smart AC Adapter (4.5mm)	
	HP 200W Smart AC Adapter (4.5mm)	
Adapter Dongle	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

title

Date of change:	**Version History:**		**Description of change:**
September 11, 2020	From v1 to v2	Changed	Format
September 30, 2020	From v2 to v3	Changed	At A Glance, GRAPHICS, STORAGE AND DRIVES, SOFTWARE AND SECURITY, NETWORKING/COMMUNICATION, ENVIRONMENTAL DATA and Options and Accessories sections
October 20, 2020	From v3 to v4	Changed	Format
November 20, 2020	From v4 to v5	Changed	Format
December 1, 2020	From v5 to v6	Changed	Storage and Power sections