HP ZBook Studio 16” G9 Mobile Workstation PC

Overview

1. Ambient Light Sensor (Optional)
2. Top Facing Microphone (2)
3. Webcam LED
4. IR Camera
5. HD Camera
6. IR Camera LEDs
7. Clickpad
8. Camera Privacy Key
9. Nano Security Lock slot
10. Super Speed USB Type-A 5Gbps signaling rate (charging)
11. SuperSpeed USB Type-C® 10Gbps signaling rate (Power Delivery Out, Display Out)1
12. microSD 7.1 media card reader
13. Woofer
14. Fingerprint Sensor (Optional)
15. Speakers
Quick Specs

HP ZBook Studio 16” G9 Mobile Workstation PC

Overview

Left

1. Power Charging indicator
2. Power connector
3. (2) Thunderbolt™ 4 with USB4™ Type-C® 40Gbps signaling rate (USB Power Delivery, DisplayPort™ 1.4, HP Sleep and Charge)
4. headphone/microphone combo
5. Woofer
1. Fan Venting
QuickSpecs

HP ZBook Studio 16” G9 Mobile Workstation PC

Overview

At A Glance

• New chassis design
• 12th Generation Intel® Core™ i7, i9 H series processors; up to 14-core
• Preinstalled with Windows 11 versions, Ubuntu 20.04, or FreeDOS
• 16:10 aspect ratio – taller aspect that is better for productivity and 11% more screen area
• 720p HD IR camera & Super Resolution SW
• New DDR5 SODIMM memory and PCIe Gen4 SSDs provide fast access to your work
• Choice of displays:
  • 40.6 cm (16") diagonal, 4K WQUXGA (3840 x 2400), 120 Hz, IPS, anti-glare, 500 nits, 100% DCI-P3, HP DreamColor Glass 5, Low Blue Light, 400 nits, 100% DCI-P3
  • 40.6 cm (16") diagonal, 4K WQUXGA (3840 x 2400), OLED, multitouch-enabled, UWVA, BrightView, Corning® Gorilla® Glass 5, Low Blue Light, 400 nits, 100% DCI-P3
  • 40.6 cm (16") diagonal, WUXGA (1920 x 1200), IPS, anti-glare, 1000 nits, 72% NTSC, HP Sure View Reflect integrated privacy screen
  • 40.6 cm (16") diagonal, WUXGA (1920 x 1200), IPS, narrow bezel, anti-glare, Low Blue Light, 400 nits, low power, 100% sRGB
• Larger 3:2 Clickpad surface for an easier, more intuitive input
• HP RGB Keyboard with Z Light Space
• HP Vaporforce Thermals including new curved metal blade design
• HP Long Life 6-cell, 86 Wh polymer battery
• HP Wolf Security for Business creates a hardware-enforced, always-on, resilient defense.¹
• Undergoes 21 MIL-STD 810H tests
• Designed to support all HP docking options including the HP Thunderbolt 280W G4 Dock w/Combo Cable
• HP Presence, a new portfolio of conferencing and collaboration solutions for people to truly work together and feel connected

¹Requires Windows OS.
²HP Presence requires myHP application and Windows OS.
³HP Wolf Security for Business requires Windows 10 and higher, includes various HP security features and is available on HP Pro, Elite, Workstation, and RPOS products. See product details for included security features and OS requirements.
⁴MIL-STD 810H is not intended to demonstrate fitness of U.S. Department of Defense 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.
⁵RGB Keyboard is optional

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

**HP ZBook Studio 16” G9 Mobile Workstation PC**

**Features**

**OPERATING SYSTEM**

<table>
<thead>
<tr>
<th>Preinstalled OS</th>
<th>Windows 11 Pro - HP recommends Windows 11 Pro²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Windows 11 Home - HP recommends Windows 11 Pro²</td>
</tr>
<tr>
<td></td>
<td>Windows 10 Pro (available through downgrade rights from Windows 11 Pro)¹,²,³</td>
</tr>
<tr>
<td></td>
<td>Ubuntu 20.04⁴</td>
</tr>
<tr>
<td></td>
<td>FreeDOS 3.0</td>
</tr>
</tbody>
</table>

¹ Device comes with Windows 10 and a free Windows 11 upgrade or may be preloaded with Windows 11. Upgrade timing may vary by device. Features and app availability may vary by region. Certain features require specific hardware (see Windows 11 Specifications).

² 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 internet and Microsoft account required. ISP fees may apply and additional requirements may apply over time for updates. See [http://www.windows.com](http://www.windows.com).

³ This system is preinstalled with Windows 10 Pro software and also comes with a license for Windows 11 Pro software and provision for recovery software. You may only use one version of the Windows software at a time. Switching between versions will require you to uninstall one version and install the other version. You must back up all data (files, photos, etc.) before uninstalling and installing operating systems to avoid loss of your data.

⁴ For detailed Linux® OS/hardware support information, see: [http://www.hp.com/linux_hardware_matrix](http://www.hp.com/linux_hardware_matrix)

**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](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](https://support.hp.com/us-en/document/c05195282)

**PROCESSOR**

12th Generation Intel® Core™ i9-12900H with Intel® Iris® Xe Graphics (2.5 GHz base frequency, up to 5.0 GHz with Intel® Turbo Boost Technology, 24 MB L3 cache, 14 cores, 20 threads), supports Intel® vPro® Technology ¹,²,³,⁴,⁵

12th Generation Intel® Core™ i9-12900HK with Intel® Iris® Xe Graphics (2.5 GHz base frequency, up to 5.0 GHz with Intel® Turbo Boost Technology, 24 MB L3 cache, 8 cores, 20 threads) ¹,²,³,⁴

12th Generation Intel® Core™ i7-12800H with Intel® Iris® Xe Graphics (2.4 GHz base frequency, up to 4.8 GHz with Intel® Turbo Boost Technology, 24 MB L3 cache, 14 cores, 20 threads), supports Intel® vPro® Technology ¹,²,³,⁴,⁵

12th Generation Intel® Core™ i7-12700H with Intel® Iris® Xe Graphics (2.3 GHz base frequency, up to 4.7 GHz with Intel® Turbo Boost Technology, 24 MB L3 cache, 14 cores, 20 threads) ¹,²,³,⁴

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. See [www.intel.com/technology/turboboost](http://www.intel.com/technology/turboboost) for more information.

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](http://www.support.hp.com).

⁵ 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](http://intel.com/vpro)
CHIPSET
Integrated in the processor

INTEL® CORE™ i7 WITH VPRO®/CORE i9 WITH VPRO® TECHNOLOGY CAPABLE

Intel® 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

GRAPHICS

Integrated
NVIDIA RTX™ A1000 Laptop GPU (4GB GDDR6 dedicated)
NVIDIA RTX™ A2000 8GB Laptop GPU (8GB GDDR6 dedicated)
NVIDIA RTX™ A3000 12GB Laptop GPU (12GB GDDR6 dedicated)6
NVIDIA RTX™ A4500 Laptop GPU (16GB GDDR6 dedicated)6
NVIDIA RTX™ A5500 Laptop GPU (16GB GDDR6 dedicated)6
NVIDIA GeForce 3060 Laptop GPU (6GB GDDR6 dedicated)
NVIDIA GeForce 3070 Ti Laptop GPU (8GB GDDR6 dedicated)
NVIDIA GeForce 3080 Ti Laptop GPU (16GB GDDR6 dedicated)

Supports
Support HD decode, DX12, HDMI 2.0b, HDCP 2.3
Hybrid Graphics supported (Default)

1 UHD content required to view UHD images.
2 Both UMA & Discrete configurations support up to 4 displays when on the HP Thunderbolt Dock G2 (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).
3 Support HD decode, DX11, DX12, HDMI 1.4, HDCP 2.3 via DP up to 4K @ 60Hz and via HDMI up to 4K @ 30Hz
4 Shared video memory (UMA) uses part of the total system memory for video performance. System memory dedicated to video performance is not available for other use by other programs.
5 GPU configurations may be limited to specific GPU/Memory Configurations.
6 NOTES:
NVIDIA Feature: Discrete Graphics (RTX A3000, A4500, A5500) can turn “ECC ON” with the VRAM
• NV Control Panel should have the following selectable option:
  o Change ECC State
• Native Display: There is no option to Change ECC State in NV Control Panel
QuickSpecs

HP ZBook Studio 16" G9 Mobile Workstation PC

Features

- External Display: There is an option to Change ECC State in NV Control Panel
- Software Driver solution available in Q3 2022

DISPLAY

Non-touch

- 16.0" diagonal, WUXGA (1920 x 1200), IPS, anti-glare, 1000 nits, 72% NTSC, HP Sure View Reflect integrated privacy screen\(^1,3,5,6,7,8\)
- 16.0" diagonal, WUXGA (1920 x 1200), IPS, narrow bezel, anti-glare, WLED+LBL, 400 nits, low power, 100% sRGB\(^1,3,6,7,8\)
- 16.0" diagonal, 4K WQUXGA (3840 x 2400), 120 Hz, IPS, UWVA, anti-glare, 500 nits, 100% DCI-P3, HP DreamColor\(^1,3,6,7,8\)

Touch

- 16.0" diagonal, 4K WQUXGA (3840 x 2400), OLED, LBL, multitouch-enabled, UWVA, BrightView, TS, Corning\(^\circledR\) Gorilla\(^\circledR\) Glass 5, 400 nits, 100% DCI-P3\(^1,3,5,6,7,8\)

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1HD content required to view HD images.
3Resolutions are dependent upon monitor capability, and resolution and color depth settings.
5Actual brightness will be lower with touchscreen or Sure View.
6UHD content required to view UHD images.
7HP Sure View is optional and must be configured at purchase. It operates in landscape orientation.
8Display options may be limited to specific CPU / GPU Configurations.
## DOCKING

### Docking station model #1

**HP Thunderbolt Dock G2**

- **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, 1xVGA, 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
- Non-Thunderbolt hosts:
  - The highest resolution for dual displays running a non-Thunderbolt host in multi-function mode is
    - (1) 5K dual cable (using both DP ports) + (1) 4K on USB-C DP port
    - Non-Thunderbolt hosts support (3) displays with a max resolution of: (2) 5K single cable + (1) 4K UHD @ 60 Hz in high resolution mode. In multi-function mode the maximum resolution for (3) displays is (2) 5K single cable @ 30Hz + (1) 4K UHD @ 30Hz.

### Docking station model #2

**HP USB-C Dock G5**

- **Dimensions (L x W x H):** 4.80 x 4.80 x 1.77 in (122 x 122 x 45 mm)
- **Weight:** 1.49 lb (0.68 kg)

### Top components

- LED and power button to power or wake host system\(^1\)

### Front components

- One USB-CTM port with data and power out (15W)
- One USB-CTM cable to connect to host system (1 meter cable length)

### Side components

- Two USB 3.0 charging ports
- One combo audio jack

### Back components

- Two USB 3.0 charging ports
- Two DisplayPort™ ports
- One 10/100/1000 RJ 45 port
- One HDMI 2.0 port
- One standard lock slot

### External monitor support

- 3 displays is the maximum displays supported, depending on the capabilities of the host machine. Triple 4K displays requires a DP 1.4 machine with DSC** in high res mode. See QuickSpecs for configurations supported at:

### Power to system

- (USB-C PD) 5V, 9V, 10V, 12V, 15V, 20V all at 5A MAX

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\(^1\) The LED remains lit when system is off or in standby mode.
QuickSpecs

HP ZBook Studio 16” G9 Mobile Workstation PC

Features

STORAGE AND DRIVES*

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

* 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.

NOTE: SSD/SODIMM will be CSR-B

DRIVE CONTROLLERS

M.2 Storage Bay (PCIe NVMe)
PCIe® Gen4 x4 lanes NVMe™ Solid State Drive
RAID:
Not supported

MEMORY

Maximum Memory
- 64 GB DDR5-4800 non-ECC SODIMM
- RAM Support – 16GB, 32GB, 64GB are populated in 2 DIMMs

Memory
- 64GB DDR5-4800 (2x32GB)
- 32GB DDR5-4800 (2x16GB)
- 16GB DDR5-4800 (2x8GB)

Memory Slots
- 2 SODIMM
- 1 DIMM per channel; support up to 4800MHz
- DDR5 SODIMMS, system runs at 4800MT/s
- 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.

NOTE: SSD/SODIMM requires low to moderate technical skills required to replace
NOTE: FreeDOS is limited to 32GB MAX ex-factory. Customer can add RAM, but should not uninstall their FreeDOS rev., but can upgrade.
QuickSpecs

HP ZBook Studio 16” G9 Mobile Workstation PC

Features

NETWORKING/COMMUNICATIONS

WLAN
Intel® Wi-Fi CERTIFIED 6E™ AX211 (2x2) and Bluetooth® 5.2 combo, vPro®
Intel® Wi-Fi CERTIFIED 6E™ AX211 (2x2) and Bluetooth® 5.2 combo, non-vPro®

1Wi-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.

Miracast
Native Miracast Support

NOTE: Miracast is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming.

AUDIO/MULTIMEDIA

Audio
Audio by Bang & Olufsen, Quad-speaker audio (2 tweeters & 2 woofers), 2 Top Facing Microphone dual array digital microphones, functions keys for volume up and down, combo microphone/headphone jack, HD audio with 200Hz Bass Roll off

Camera1,2
720p HD IR camera

1 HD content required to view HD images.
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.
KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

Keyboard*
- HP RGB Z Command Keyboard – spill-resistant, full-size, per-key RGB backlit keyboard and DuraKeys
- HP Premium Quiet Keyboard – spill-resistant, full-size, backlit keyboard and DuraKeys
- HP RGB Keyboard - Full-size, per-key RGB backlit keyboard

**NOTE:** RGB will only function after ZLight Space is activated
**NOTE:** Ubuntu will not function with RGB as ZLight Space is WinApp. No Ubuntu support

Pointing Devices
Clickpad with image sensor and glass surface supporting multi-touch gestures and taps

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 Backlit Toggle
- F10 - Insert
- F11 - Airplane Mode
- F12 - HP Command Center
- Power Button (with LED) delete

Hidden Keys
- home end
- Fn+R - Break
- Fn+S - Sys Rq
- Fn+C - Scroll Lock
- Fn+left/right arrow
- Privacy Key

*HP RGB Z Command Keyboard only available in the US, UK, France, and Germany. Not available with Privacy Panel.

SOFTWARE AND SECURITY

Software
- HP Quick Drop
- HP Easy Clean
- HP PC Hardware Diagnostics Windows
- Touchpoint Customizer for Commercial
- myHP
- Tile App
- HP Smart Support
- HP Mac Address Manager
- HP Hotkey Support
- HP Support Assistant
- HP Notifications
- HP Privacy Settings
- HP Power Manager
QuickSpecs

HP ZBook Studio 16” G9 Mobile Workstation PC

Features

- Buy Microsoft Office (Sold separately)
- Bing search for IE11
- HP Noise Cancellation Software
- HP Performance Advisor
- Native Miracast support
- 1-month Adobe free trial offer
- HP Z Light Space
- Data Science Stack

Manageability Features
- HP Connect for Microsoft Endpoint Manager
- HP Image Assistant Gen5 (download)
- HP Manageability Integration Kit (download)
- HP Client Management Script Library (download)
- HP Patch Assistant (download)
- HP Driver Packs (download)
- HP Cloud Recovery
- HP Client Catalog (download)

Security Management

HP Wolf Security of Business includes:
- HP Sure Click
- HP Sure Sense
- HP Sure Run Gen5
- HP Sure Recover Gen5
- HP Sure Start Gen7
- HP Tamper Lock
- HP Sure Admin
- HP Client Security Manager Gen7
- HP Device Access Manager
- HP Power On Authentication
- Master Boot Record security
- Pre-boot authentication
- Windows Defender
- MS Bitlocker Encryption
- Nano Security Lock Slot

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

BIOS Version

- ISO/IEC 19678: 2015 (formerly NIST 800-147) compliant
- UEFI version: 2.7
- UEFI Class 3

TPM
- Model: Infineon SLB9672
- Version: 2.0
Features

Revision: 1.38
FIPS 140-2 Compliant: Yes with Convert TPM to 2.0 (FIPS 140-2) option

Fingerprint Sensor (Optional)
Voltage: 3.0–3.6V
Operating temperature: -20° - 85°C
Imaging current: 31mA
Wake on finger current: 40 uA
Capture rate: 30ms/frame
ESD Resistance: IEC 61000-4-2 4B (+/-15KV)
Detection Matrix: 363 dpi, sensing area 8x8 mm

Security Features
HP Fingerprint Sensor (optional)


1 HP Support Assistant requires Windows and Internet access.
2 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.
3 HP BIOSphere Gen6 features may vary depending on the platform and configurations.
4 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.
5 HP Performance Advisor Software – HP Performance Advisor is ready to help you get the most out of your HP Workstation from day one—and every day after. Learn more or download at: http://hp.com/PerformanceAdvisor
6 Microsoft Defender Opt in and internet connection required for updates.
8 Nano Security lock slot is Lock sold separately.
9 HP Sure Recover Gen5 is available on select HP PCs and requires Windows 10 and an open network connection. You must back up important files, data, photos, videos, etc. before using HP Sure Recover to avoid loss of data. Network based recovery using Wi-Fi is only available on PCs with Intel Wi-Fi Module.
10 HP Sure Recover with Embedded Reimaging Gen3 is an optional feature which must be configured at purchase with a base unit that has the On System Recovery (OSR) module. See product specifications for availability. You must back up important files, data, photos, videos, etc. before use to avoid loss of data. HP Sure Recover with Embedded Reimaging (Gen1) does not support platforms with Intel® Optane™.
11 HP Sure Start Gen 7 is available on select HP PCs and workstations. See product specifications for availability.
12 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.
13 HP Sure Admin requires Windows 11, 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.
14 HP Client Security Manager Gen7 requires Windows and is available on the select HP PCs.
15 HP Sure Sense requires Windows 11 Pro or Enterprise and supports Microsoft Internet Explorer, Google Chrome™, and Chromium™. Supported attachments include Microsoft Office (Word, Excel, PowerPoint) and PDF files in read only mode, when Microsoft Office or Adobe Acrobat are installed.
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 Quick Drop requires Internet access and Windows 10 or higher PC preinstalled with HP QuickDrop app and either an Android device (phone or tablet) running Android 7 or higher with the Android HP QuickDrop app, and /or an iOS device (phone or tablet) running iOS 12 or higher with the iOS HP QuickDrop app.
18 HP Smart Support automatically collects the telemetry necessary upon initial boot of the product to deliver device-level configuration data and health insights and is available preinstalled on select products, thru HP Factory Configuration Services; or it can be downloaded. For more information about how to enable HP Smart Support or for download, please visit http://www.hp.com/smart-support.
19 Some Tile features require optional subscription to Tile Premium. Tile application for Windows 10 available for download from the Windows Store. Mobile phone app available for download from App Store and Google Play. Requires iOS 11 and greater or Android 6.0 and...
Features

greater see https://support.thetileapp.com/hc/en-us/articles/200424778 for more information. Tile will function as long as the PC has battery power.
21 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.
22 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.
23 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.
24 HP Wolf Security for Business requires Windows 10 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.
25 HP Sure Click requires Windows 10 Pro or higher or Enterprise. See https://bit.ly/2PrLT6A_SureClick for complete details.
26 HP Sure Run Gen5 is available on select Windows 11 based HP Pro, Elite and Workstation PCs with select Intel® or AMD processors
27 HP Fingerprint Reader is an optional feature that requires Windows 10 IoT and must be configured at purchase.
28 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.
29 Offer available worldwide (excluding China and embargoed countries or other countries identified as restricted by applicable law or regulation) to new and existing subscribers who are 18+. Click on the Adobe icon in the start menu to redeem a 1-month free trial membership for select Adobe software. The software is tied to the device and is not transferrable. If you would like to sign up for an auto-renewing subscription, you can provide your payment method at sign-up. By adding a payment method, your subscription will automatically renew at the then current rate on your renewal date until you cancel. If you cancel before the end of the one-month free trial, you won’t be charged. You can cancel your subscription anytime via your Adobe Account page or by contacting Customer Support. Please see current prices for Adobe Spark and the remaining Adobe products available in this offer. Offer not available to Education, OEM, or volume licensing customers. Subject to availability where the recipient resides. Additional terms and conditions may apply. VOID WHERE PROHIBITED OR RESTRICTED BY LAW.
30 HP Driver Packs not preinstalled, however available for download at http://www.hp.com/go/clientmanagement.
QuickSpecs

HP ZBook Studio 16” G9 Mobile Workstation PC

Features

POWER

Power Supply
- HP Slim Smart 150W External Right Angle AC Power Adapter
- HP Slim Smart 200W External Right Angle AC Power Adapter

Battery
- HP XL-Long Life 86Whr Polymer Fast Charge 6 cell

Battery Recharge Time
- Supports battery HP fast charge: approximately 50% in 30 minutes

Battery life
- Up to 12:50 hrs (UMA, Intel H, 400 nits, 2*4GB, 512GB SSD)

1 Battery life will vary depending on the product model, configuration, loaded applications, features, use, wireless functionality and power management settings. The maximum capacity of the battery will naturally decrease with time and usage. See MobileMark18 battery benchmark https://bapco.com/products/mobilemark-2018/ for additional details.

2 Supports HP Fast Charge Technology

3 150W Power Adapter is not available with Nvidia RTX™ Graphics

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.

ENVIRONMENTAL

ENERGY STAR® certified
EPEAT® 2019 registered where applicable. EPEAT® registration varies by country. See www.epeat.net for registration status by country.
EPEAT® 2019 Gold
Low halogen

1 Based on US EPEAT® registration according to IEEE 1680.1-2018 EPEAT®. 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)
35.6 x 24.2 x 1.9 cm (non-touch)
14.02 x 9.54 x 0.76 in (non-touch)
35.6 x 24.2 x 1.8 cm (touch)
14.02 x 9.54 x 0.72 in (touch)

Weights*
Starting Weight: 3.92 lbs (1.78 kg)
Weight varies by configuration and components.

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

PORTS/SLOTS
MicroSD SD7.1 supports next generation secure digital and is compatible to SD, SDHC, SDXC, SDUC media

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 headphone/microphone combo

Right side
1 SuperSpeed USB Type-A 5Gbps signaling rate (charging)
1 SuperSpeed USB Type-C® 10Gbps signaling rate (USB Power Delivery, DisplayPort™ 1.4) *
1 nano security lock slot

* Multi-Function USB-C port works with Discrete Graphics and Intel® Iris Xe Graphics.

SERVICE AND SUPPORT
1-year warranty and 90-day software limited warranty options depending on country. Batteries have a default 1-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 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  19V
Average Operating Power(idle)  System in hybrid mode  High-end 15.0W
QuickSpecs

HP ZBook Studio 16” G9 Mobile Workstation PC

Features

- Integrated graphics: Yes
- Discrete Graphics: Yes
- Max Operating Power: A1000/A2000 <40W
  A3000/A4000/A5000/RTX3060/RTX3070ti/RTX3080ti <80W

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: -4–140°F (-20 – 60°C)

Relative Humidity

- Operating: 10% to 90%, non-condensing
- Non-operating: 5% to 95%; 38.7°C (101.6°F) maximum wet bulb temperature; non-condensing.

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: 3048m (10,000ft)
- Non-operating: 12192m (40,000ft)

Temperature Derating with Altitude

- Operating: 1.8°F / 1000 ft (1°C / 304.8 m)

Planned Industry Standard Certifications

- Regulatory Model Number: HSN-152C
- UL: Yes
- CSA: Yes
- FCC Compliance: Yes
- ENERGY STAR®: Selected models
- EPEAT®: EPEAT Gold in United States
- 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
- BNCl or BELUS: Yes
- CIT: Yes
- EAC: Yes
- Saudi Arabian Compliance (ICCP): Yes
- SABS: Yes

1Configurations of the HP ZBook Studio 16” G9 Mobile Workstation PC that are ENERGY STAR® qualified are identified as HP ZBook Studio 16” G9 Mobile Workstation PC ENERGY STAR on HP websites and on http://www.energystar.gov.

## DISPLAYS

**16.0 in WUXGA (3840 x 2400) BrightView UWVA DCI-P3 NBZ2 400 eDP 1.4+PSR 100 bent OLED Panel**

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

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

**16.0 in WUXGA DreamColor (3840 x 2400) Anti-Glare UWVA LED DCI-P3 NB2Y 500 eDP1.4 w/o PSR 100 120Hz bent LCD Panel**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Area (W x H, mm)</td>
<td>344.680 x 215.420 (typ)</td>
</tr>
<tr>
<td>Dimensions (W x H, mm)</td>
<td>349.980 x 225.420 (max)</td>
</tr>
<tr>
<td>Diagonal Size (inch)</td>
<td>16</td>
</tr>
<tr>
<td>Thickness (body/PCB, mm)</td>
<td>2.3 / 4.1(max)</td>
</tr>
<tr>
<td>Weight (g)</td>
<td>300 (max)</td>
</tr>
<tr>
<td>Interface</td>
<td>eDP1.4</td>
</tr>
<tr>
<td>Surface Treatment</td>
<td>Anti-Glare</td>
</tr>
<tr>
<td>Contrast Ratio</td>
<td>1200:1 (typ)</td>
</tr>
<tr>
<td>Refresh Rate (Hz)</td>
<td>120 (typ)</td>
</tr>
<tr>
<td>Brightness (nits)</td>
<td>500 (typ)</td>
</tr>
<tr>
<td>P.P.I.</td>
<td>283</td>
</tr>
<tr>
<td>Pixel Resolution</td>
<td>Pitch 3840 x 2400 (WUXGA)</td>
</tr>
<tr>
<td>Format</td>
<td>RGB</td>
</tr>
<tr>
<td>Backlight</td>
<td>LED</td>
</tr>
<tr>
<td>Color Gamut Coverage</td>
<td>DCI-P3 100%</td>
</tr>
</tbody>
</table>
## Technical Specifications – Displays

<table>
<thead>
<tr>
<th>Specification</th>
<th>Specification</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color Depth</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Viewing Angle</td>
<td>UWVA 89/89/89/89</td>
<td></td>
</tr>
<tr>
<td>Power Consumption (W, EBL@ 150nits max /200nits max)</td>
<td>4.98 (max)/ 5.84 (max)</td>
<td></td>
</tr>
<tr>
<td>Low Blue Light</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Touch Enabled</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Touch Point Supported</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Pen Enabled</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

*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

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

*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

<table>
<thead>
<tr>
<th>Specification</th>
<th>Specification</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Area (W x H, mm)</td>
<td>344.678 x 215.424 (typ)</td>
<td></td>
</tr>
<tr>
<td>Dimensions (W x H, mm)</td>
<td>350.680 x 226.470 (max)</td>
<td></td>
</tr>
<tr>
<td>Diagonal Size (inch)</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Thickness (body/PCB, mm)</td>
<td>2.6 / 4.6 (max)</td>
<td></td>
</tr>
<tr>
<td>Weight (g)</td>
<td>330 (max)</td>
<td></td>
</tr>
<tr>
<td>Interface</td>
<td>eDP1.4</td>
<td></td>
</tr>
<tr>
<td>Surface Treatment</td>
<td>Anti-Glare</td>
<td></td>
</tr>
</tbody>
</table>
## QuickSpecs

### Technical Specifications – Displays

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contrast Ratio</td>
<td>1000:1 (typ)</td>
</tr>
<tr>
<td>Refresh Rate (Hz)</td>
<td>60 (typ)</td>
</tr>
<tr>
<td>Brightness (nits)</td>
<td>400 (typ)</td>
</tr>
<tr>
<td>P.P.I.</td>
<td>142</td>
</tr>
<tr>
<td>Pixel Resolution</td>
<td>Pitch 1920 x1200 (WUXGA)</td>
</tr>
<tr>
<td></td>
<td>Format RGB</td>
</tr>
<tr>
<td>Backlight</td>
<td>WLED</td>
</tr>
<tr>
<td>Color Gamut Coverage</td>
<td>sRGB 100%</td>
</tr>
<tr>
<td>Color Depth</td>
<td>8</td>
</tr>
<tr>
<td>Viewing Angle</td>
<td>UWVA 89/89/89/89</td>
</tr>
<tr>
<td>Power Consumption (W, EBL@ 150nits max /200nits max)</td>
<td>1.60 (max)/ 1.95 (max)</td>
</tr>
<tr>
<td>Low Blue Light</td>
<td>Yes</td>
</tr>
<tr>
<td>Touch Enabled</td>
<td>No</td>
</tr>
<tr>
<td>Touch Point Supported</td>
<td>No</td>
</tr>
<tr>
<td>Pen Enabled</td>
<td>No</td>
</tr>
</tbody>
</table>

*All specifications represent the typical specifications provided by HP’s component manufacturers; actual performance may vary either higher or lower.*
### STORAGEd AND DRIVES

<table>
<thead>
<tr>
<th>Form Factor</th>
<th>M.2 2280</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>4TB</td>
</tr>
<tr>
<td>NAND Type</td>
<td>TLC</td>
</tr>
<tr>
<td>Height</td>
<td>0.14 in (3.5mm)</td>
</tr>
<tr>
<td>Width</td>
<td>0.87 in (22 mm)</td>
</tr>
<tr>
<td>Weight</td>
<td>15g</td>
</tr>
<tr>
<td>Interface</td>
<td>PCIe NVMe Gen4X4</td>
</tr>
<tr>
<td>Performance</td>
<td></td>
</tr>
<tr>
<td>Maximum Sequential Read</td>
<td>6400 MB/s ±20%</td>
</tr>
<tr>
<td>Maximum Sequential Write</td>
<td>5000 MB/s ±20%</td>
</tr>
<tr>
<td>Logical Blocks</td>
<td>8,001,594,720</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>32° to 158°F (0° to 70°C) [ambient temp]</td>
</tr>
<tr>
<td>Features</td>
<td>Pyrite 2.0; TRIM; L1.2</td>
</tr>
</tbody>
</table>

**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.

#### SSD 2TB PCIe-4x4 NVMe Three Layer Cell

<table>
<thead>
<tr>
<th>Form Factor</th>
<th>M.2 2280</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>2 TB</td>
</tr>
<tr>
<td>NAND Type</td>
<td>TLC</td>
</tr>
<tr>
<td>Height</td>
<td>0.09 in (2.3 mm)</td>
</tr>
<tr>
<td>Width</td>
<td>0.87 in (22 mm)</td>
</tr>
<tr>
<td>Weight</td>
<td>0.02 lb (10 g)</td>
</tr>
<tr>
<td>Interface</td>
<td>PCIe NVMe Gen4X4</td>
</tr>
<tr>
<td>Performance</td>
<td></td>
</tr>
<tr>
<td>Maximum Sequential Read</td>
<td>6400 MB/s ±20%</td>
</tr>
<tr>
<td>Maximum Sequential Write</td>
<td>5000 MB/s ±20%</td>
</tr>
<tr>
<td>Logical Blocks</td>
<td>4,000,797,360</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>32° to 158°F (0° to 70°C) [ambient temp]</td>
</tr>
<tr>
<td>Features</td>
<td>Pyrite 2.0; TRIM; L1.2</td>
</tr>
</tbody>
</table>

**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.

#### SSD 1TB PCIe-4x4 NVMe Three Layer Cell

<table>
<thead>
<tr>
<th>Form Factor</th>
<th>M.2 2280</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>1TB</td>
</tr>
<tr>
<td>NAND Type</td>
<td>TLC</td>
</tr>
<tr>
<td>Height</td>
<td>0.09 in (2.3 mm)</td>
</tr>
<tr>
<td>Width</td>
<td>0.87 in (22 mm)</td>
</tr>
<tr>
<td>Weight</td>
<td>0.02 lb (10 g)</td>
</tr>
<tr>
<td>Interface</td>
<td>PCIe NVMe Gen4X4</td>
</tr>
<tr>
<td>Performance</td>
<td></td>
</tr>
<tr>
<td>Maximum Sequential Read</td>
<td>6400 MB/s ±20%</td>
</tr>
<tr>
<td>Maximum Sequential Write</td>
<td>5000 MB/s ±20%</td>
</tr>
<tr>
<td>Logical Blocks</td>
<td>2,000,409,264</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>32° to 158°F (0° to 70°C) [ambient temp]</td>
</tr>
<tr>
<td>Features</td>
<td>Pyrite 2.0; TRIM; L1.2</td>
</tr>
</tbody>
</table>
## QuickSpecs

### HP ZBook Studio 16” G9 Mobile Workstation PC

### Technical Specifications – Storage

<table>
<thead>
<tr>
<th>SSD 512GB 2280 PCIe-4x4 NVMe Three Layer Cell</th>
<th>Form Factor</th>
<th>M.2 2280</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>512GB</td>
<td></td>
</tr>
<tr>
<td>NAND Type</td>
<td>TLC</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>0.09 in (2.3 mm)</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>0.87 in (22 mm)</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>0.02 lb (10 g)</td>
<td></td>
</tr>
<tr>
<td>Interface</td>
<td>PCIe NVMe Gen4X4</td>
<td></td>
</tr>
<tr>
<td>Performance</td>
<td>Maximum Sequential Read</td>
<td>6400 MB/s ±20%</td>
</tr>
<tr>
<td>Logical Blocks</td>
<td>1,000,215,215</td>
<td></td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>32° to 158°F (0° to 70°C) [ambient temp]</td>
<td></td>
</tr>
<tr>
<td>Features</td>
<td>Pyrite 2.0; TRIM; L1.2</td>
<td></td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>SSD 256GB 2280 PCIe-4x4 NVMe Three Layer Cell</th>
<th>Form Factor</th>
<th>M.2 2280</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>256GB</td>
<td></td>
</tr>
<tr>
<td>NAND Type</td>
<td>TLC</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>0.09 in (2.3 mm)</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>0.87 in (22 mm)</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>0.02 lb (10 g)</td>
<td></td>
</tr>
<tr>
<td>Interface</td>
<td>PCIe NVMe Gen4X4</td>
<td></td>
</tr>
<tr>
<td>Performance</td>
<td>Maximum Sequential Read</td>
<td>4000 MB/s ±20%</td>
</tr>
<tr>
<td>Logical Blocks</td>
<td>500,118,192</td>
<td></td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>32° to 158°F (0° to 70°C) [ambient temp]</td>
<td></td>
</tr>
<tr>
<td>Features</td>
<td>Pyrite 2.0; TRIM; L1.2</td>
<td></td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>512GB PCIe-4x4 2280 NVME Self Encrypted OPAL2 Three Layer Cell Solid State Drive</th>
<th>Form Factor</th>
<th>M.2 2280</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>512GB</td>
<td></td>
</tr>
<tr>
<td>NAND Type</td>
<td>TLC</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>0.09 in (2.3 mm)</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>0.87 in (22 mm)</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>0.02 lb (10 g)</td>
<td></td>
</tr>
<tr>
<td>Interface</td>
<td>PCIe NVMe Gen4X4</td>
<td></td>
</tr>
<tr>
<td>Performance</td>
<td>Maximum Sequential Read</td>
<td>6400 MB/s ±20%</td>
</tr>
<tr>
<td>Logical Blocks</td>
<td>1,000,215,215</td>
<td></td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>32° to 158°F (0° to 70°C) [ambient temp]</td>
<td></td>
</tr>
<tr>
<td>Features</td>
<td>TCG Opal 2.0; TRIM; L1.2</td>
<td></td>
</tr>
</tbody>
</table>

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.
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.
## NETWORKING/COMMUNICATION

**Intel AX211 Wi-Fi 6E +BT**  
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
  - 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

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

**Security**
- 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
QuickSpecs

HP ZBook Studio 16” G9 Mobile Workstation PC

Technical Specifications – Networking

Output Power
- 802.11b : +17dBm minimum
- 802.11g : +16dBm minimum
- 802.11a : +17dBm minimum
- 802.11n HT20(2.4GHz) : +14dBm minimum
- 802.11n HT40(2.4GHz) : +13dBm minimum
- 802.11n HT20(5GHz) : +14dBm minimum
- 802.11n HT40(5GHz) : +13dBm minimum
- 802.11ac VHT80(5GHz) : +10dBm minimum
- 802.11ac VHT160(5GHz) : +10dBm minimum
- 802.11ax HE40(2.4GHz) : +12dBm minimum
- 802.11ax HE80(5GHz) : +10dBm minimum
- 802.11ax HE160(5GHz) : +10dBm minimum

Power Consumption
- Transmit mode 2.0 W
- Receive mode 1.6 W
- Idle mode (PSP) 180 mW (WLAN Associated)
- Idle mode 50 mW (WLAN unassociated)
- Connected Standby 10mW
- Radio disabled 8 mW

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

Receiver Sensitivity
- 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(VHT80) : -84dBm maximum
- 802.11ac, MCS9(VHT80) : -59dBm maximum
- 802.11ac, MCS9(VHT160) : -58.5dBm maximum
- 802.11ax, MCS11(HE40) : -57dBm maximum
- 802.11ax, MCS11(HE80) : -54dBm maximum
- 802.11ax, MCS11(HE160) : -53.5dBm maximum

Antenna Type
- High efficiency antenna with spatial diversity, mounted in the display enclosure
- Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth communications

Form Factor
- PCI-Express M.2 MiniCard

Dimensions
1. Type 2230 : 2.3 x 22.0 x 30.0 mm
2. Type 1216: 1.67 x 12.0 x 16.0 mm

Weight
1. Type 2230 : 2.8g
2. Type 1216: 1.3g

Operating Voltage
3.3v +/- 9%

Temperature
- Operating 14° to 158° F (-10° to 70° C)
- Non-operating -40° to 176° F (-40° to 80° C)

Humidity
- Operating 10% to 90% (non-condensing)
- Non-operating 5% to 95% (non-condensing)

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

LED Activity
- LED Amber – Radio Off; LED Off – Radio ON
QuickSpecs

HP ZBook Studio 16” G9 Mobile Workstation PC

Technical Specifications – Networking

**HP Integrated Module with Bluetooth 4.0/4.1/4.2/5.0/5.1/5.2 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**
Microsoft Windows Bluetooth Software

**Link Topology**
Microsoft Windows ACPI, and USB Bus Support

**Certifications**
- FCC (47 CFR) Part 15C, Section 15.247 & 15.249
- 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 (BIP2)
- Headset Profile (HSP)
- Hands Free Profile (HFP)
- Advanced Audio Distribution Profile (A2DP)
- BTS.2
- ESR9/10 Compliance
- LE Advertisement Extensions
- Channel Selection Algo
- Limited High Duty Cycle Non-Connectable Advertising
- 2Mbps LE
- LE Long Range

* 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.
Intel AX211 Wi-Fi 6E +BT  Wireless LAN Standards
5.2 M.2 160MHz CNVi
World-Wide WLAN non-vPro

IEEE 802.11a
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IEEE 802.11n
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OFDM, BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024QAM

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QuickSpecs

HP ZBook Studio 16” G9 Mobile Workstation PC

Technical Specifications – Networking

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ACPI and PCI Express compliant power management
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**HP ZBook Studio 16” G9 Mobile Workstation PC**

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Legacy: Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DHS) or 864 kbps symmetric (3-EV5) |
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Peak (Rx): 230 mW  
Selective Suspend: 17 mW |
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| **Link Topology** | Microsoft Windows ACPI, and USB Bus Support |
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| **Power Management** | ETS 300 328, ETS 300 826 |
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UL, CSA, and CE Mark |

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- LE Link Layer
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- Train Nudging & Interlaced Scan
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- LE Privacy 1.2 –Link Layer Privacy
- LE Privacy 1.2 –Extended Scanner Filter Policies
- LE Data Packet Length Extension
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- Basic Imaging Profile (BIP)2
- Headset Profile (HSP)
- Hands Free Profile (HFP)
- Advanced Audio Distribution Profile (A2DP)
- BT5.2
- ESR9/10 Compliance
- LE Advertisement Extensions
- Channel Selection Algo
- Limited High Duty Cycle Non-Connectable Advertising
- 2Mbps LE
- LE Long Range

#### Security & Manageability

Intel® vPro® support with appropriate Intel® chipset components

* 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.
QuickSpecs

HP ZBook Studio 16” G9 Mobile Workstation PC

Technical Specifications – Networking

**AUDIO**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>HD Stereo Codec</td>
<td>Realtek ALC3315</td>
</tr>
<tr>
<td>Audio I/O Ports</td>
<td>Headset: CTIA only and Headphone-out</td>
</tr>
<tr>
<td>Internal Speaker Amplifier</td>
<td>Cirrus Logic High-Efficiency Boosted Class D Amplifier</td>
</tr>
<tr>
<td>Multi-streaming Capable</td>
<td>Playback multi-streaming can be enabled in the audio control panel to allow independent audio. Following MSFT Behaviour</td>
</tr>
<tr>
<td>Sampling</td>
<td>DAC: 44.1k/48kHz</td>
</tr>
<tr>
<td></td>
<td>ADC: 48kHz</td>
</tr>
<tr>
<td>Wavetable Syntheses</td>
<td>Support 3.5mm Headset: CTIA only and Headphone-out</td>
</tr>
<tr>
<td>Analog Audio</td>
<td>Support 3.5mm Headset: CTIA only and Headphone-out</td>
</tr>
<tr>
<td># of Channels on Line-Out</td>
<td></td>
</tr>
<tr>
<td>Internal Speaker</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**FINGERPRINT SENSOR**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensor vendor</td>
<td>Synaptics FS7604</td>
</tr>
<tr>
<td>Sensor type</td>
<td>Capacitive</td>
</tr>
<tr>
<td>DPI resolution</td>
<td>363DPI</td>
</tr>
<tr>
<td>Scan area</td>
<td>7.4x6mm sensor area</td>
</tr>
<tr>
<td>False Rejection Rate</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>False Acceptance Rate</td>
<td>1:50K FAR</td>
</tr>
<tr>
<td>Mobile Voltage Operation</td>
<td>Mobile Voltage Operation: 3.0V to 3.6V</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>Operating Temperature: 0~60°C</td>
</tr>
<tr>
<td>Current Consumption Image</td>
<td>Current Consumption Image: 100mA Max</td>
</tr>
<tr>
<td>Low Latency Wait For Finger</td>
<td>Low Latency Wait For Finger: 260 uA</td>
</tr>
<tr>
<td>Capture Rate</td>
<td>Capture Rate: &lt;30msec per image</td>
</tr>
<tr>
<td>ESD Resistance</td>
<td>ESD Resistance: IEC 61000-4-2 4B (+/-15KV)</td>
</tr>
<tr>
<td>Detection Matrix</td>
<td>Detection Matrix: 363 dpi / 7.4x6mm sensor area</td>
</tr>
</tbody>
</table>

**POWER**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP 150W Slim 4.5 mm PFC Right Angle Smart (3-pin) AC Power Adapter</td>
<td>Dimensions: 138x66x22mm</td>
</tr>
<tr>
<td></td>
<td>Weight: unit: 325g +/- 10g</td>
</tr>
<tr>
<td></td>
<td>Input Efficiency: 88% at 115 Vac and 89% at 230Vac</td>
</tr>
<tr>
<td></td>
<td>Input frequency range: 47 ~ 63 Hz</td>
</tr>
<tr>
<td></td>
<td>Input AC current: 2.7 A at 90 Vac and Maximum Load</td>
</tr>
<tr>
<td></td>
<td>Output power: 150W</td>
</tr>
<tr>
<td></td>
<td>DC output: 19.5V</td>
</tr>
<tr>
<td></td>
<td>Hold-up time: 5ms at 115 Vac input</td>
</tr>
<tr>
<td></td>
<td>Output current limit: &lt;16.0A</td>
</tr>
</tbody>
</table>
## Technical Specifications – Networking

<table>
<thead>
<tr>
<th>Connector</th>
<th>DC Plug</th>
<th>4.5mm Barrel Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>C6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Environmental Design

<table>
<thead>
<tr>
<th>Operating temperature</th>
<th>32° to 95° F (0° to 35° C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-operating (storage) temperature</td>
<td>-4° to 185° F (-20° to 85° C)</td>
</tr>
<tr>
<td>Altitude</td>
<td>0 to 16,400 ft (0 to 5000m)</td>
</tr>
<tr>
<td>Humidity</td>
<td>5% to 95%</td>
</tr>
<tr>
<td>Storage Humidity</td>
<td>5% to 95%</td>
</tr>
</tbody>
</table>

### EMI and Safety Certifications

- *CE Mark* – full compliance with LVD and EMC directives
- *Worldwide safety standards* - IEC60950-1 and/or IEC62368-1, EN60950-1 and/or EN62368-1, UL60950-1 and/or UL62368-1, Class1, SELV;
- Agency approvals - C-UL-US, NORDICS, DENAN, EN55032 Class B, FCC Class B, CISPR32 Class B, CCC, NOM-001 NYCE.
- *MTBF* – over 200,000 hours at 25°C ambient condition.
## HP ZBook Studio 16” G9 Mobile Workstation PC

### QuickSpecs

#### Technical Specifications – Power

<table>
<thead>
<tr>
<th><strong>HP 200W Slim 4.5 mm PFC Right Angle Smart (3-pin) AC Power Adapter</strong></th>
<th><strong>Dimensions</strong></th>
<th>152x73x23.5mm</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Weight</strong></td>
<td><strong>Input Efficiency</strong></td>
<td>88% at 115 Vac and 89% at 230Vac</td>
</tr>
<tr>
<td><strong>Input</strong></td>
<td><strong>Input frequency range</strong></td>
<td>47 ~ 63 Hz</td>
</tr>
<tr>
<td><strong>Output</strong></td>
<td><strong>Input AC current</strong></td>
<td>2.7 A at 90 Vac and Maximum Load</td>
</tr>
<tr>
<td><strong>Output power</strong></td>
<td><strong>Output power</strong></td>
<td>200W</td>
</tr>
<tr>
<td><strong>DC output</strong></td>
<td><strong>Hold-up time</strong></td>
<td>5ms at 115 Vac input</td>
</tr>
<tr>
<td><strong>Output current limit</strong></td>
<td><strong>Output current limit</strong></td>
<td>&lt;21.0A</td>
</tr>
<tr>
<td><strong>DC Plug</strong></td>
<td><strong>DC Plug</strong></td>
<td>4.5mm Barrel Type</td>
</tr>
<tr>
<td><strong>Connector</strong></td>
<td><strong>Connector</strong></td>
<td>C14</td>
</tr>
<tr>
<td><strong>Environmental Design</strong></td>
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<td>Operating temperature: 32° to 95° F (0° to 35° C)</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
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<td>Altitude: 0 to 16,400 ft (0 to 5000m)</td>
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<td></td>
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<tr>
<th><strong>86Whr XL-Long Life Polymer Fast Charge 6 cell Battery</strong></th>
<th><strong>Dimensions (H x W x L)</strong></th>
<th>299.15<em>81.2</em>8.14 mm (11.7<em>3.2</em>0.32 inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Weight</strong></td>
<td><strong>Voltage</strong></td>
<td>11.58V</td>
</tr>
<tr>
<td><strong>Cells/Type</strong></td>
<td><strong>Amp-hour capacity</strong></td>
<td>7.130Ah / 7.428Ah</td>
</tr>
<tr>
<td><strong>Energy</strong></td>
<td><strong>Watt-hour capacity</strong></td>
<td>86Wh</td>
</tr>
<tr>
<td><strong>Temperature</strong></td>
<td><strong>Operating (Charging)</strong></td>
<td>32° to 113˚ F (0° to 45˚ C)</td>
</tr>
<tr>
<td></td>
<td><strong>Operating (Discharging)</strong></td>
<td>14° to 140˚ F (-10° to 60˚ C)</td>
</tr>
<tr>
<td><strong>Fuel Gauge LED</strong></td>
<td><strong>Fuel Gauge LED</strong></td>
<td>NA</td>
</tr>
<tr>
<td><strong>Warranty</strong></td>
<td><strong>Warranty</strong></td>
<td>Follow product spec</td>
</tr>
<tr>
<td><strong>Optional Travel Battery Available</strong></td>
<td><strong>Optional Travel Battery Available</strong></td>
<td>No</td>
</tr>
</tbody>
</table>

*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.*


**NOTE:** batteries are not customer replaceable.
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

- Ocean-bound plastic in Speaker Box
- 35% post-consumer recycled plastic
- 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)

<table>
<thead>
<tr>
<th></th>
<th>115VAC, 60Hz</th>
<th>230VAC, 50Hz</th>
<th>100VAC, 50Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Operation (Short idle)</td>
<td>14.37 W</td>
<td>14.63 W</td>
<td>14.23 W</td>
</tr>
<tr>
<td>Normal Operation (Long idle)</td>
<td>1.37 W</td>
<td>1.39 W</td>
<td>1.26 W</td>
</tr>
<tr>
<td>Sleep</td>
<td>1.37 W</td>
<td>1.39 W</td>
<td>1.26 W</td>
</tr>
<tr>
<td>Off</td>
<td>0.46 W</td>
<td>0.47 W</td>
<td>0.46 W</td>
</tr>
</tbody>
</table>

**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*

<table>
<thead>
<tr>
<th></th>
<th>115VAC, 60Hz</th>
<th>230VAC, 50Hz</th>
<th>100VAC, 50Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Operation (Short idle)</td>
<td>49.1 BTU/hr</td>
<td>50 BTU/hr</td>
<td>48.7 BTU/hr</td>
</tr>
<tr>
<td>Normal Operation (Long idle)</td>
<td>4.7 BTU/hr</td>
<td>4.8 BTU/hr</td>
<td>4.3 BTU/hr</td>
</tr>
<tr>
<td>Sleep</td>
<td>4.7 BTU/hr</td>
<td>4.8 BTU/hr</td>
<td>4.3 BTU/hr</td>
</tr>
<tr>
<td>Off</td>
<td>1.6 BTU/hr</td>
<td>1.6 BTU/hr</td>
<td>1.6 BTU/hr</td>
</tr>
</tbody>
</table>

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

HP ZBook Studio 16” G9 Mobile Workstation PC

Technical Specifications – Environmental

**Declared Noise Emissions**

(in accordance with ISO 7779 and ISO 9296)

<table>
<thead>
<tr>
<th></th>
<th>Sound Power (L&lt;sub&gt;WAd&lt;/sub&gt;, bels)</th>
<th>Sound Pressure (L&lt;sub&gt;pAm&lt;/sub&gt;, decibels)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typically Configured – Idle</td>
<td>3.2</td>
<td>25</td>
</tr>
<tr>
<td>Fixed Disk – Random writes</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Optical Drive – Sequential reads</td>
<td>4.3</td>
<td>36</td>
</tr>
</tbody>
</table>

**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](http://www.epeat.net).
- Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043.
- This product is 90.0% recycle-able when properly disposed of at end of life.

**Packaging Materials**

- **External:**
  - PAPER/Corrugated: 358 g
  - PAPER/Molded Pulp: 156 g
  - PAPER/Paper: 4 g
- **Internal:**
  - PLASTIC/Polyethylene low density - LDPE: 21 g

The plastic packaging material contains at least 100% recycled content.

The corrugated paper packaging materials contains at least 35.6% recycled content.

**RoHS Compliance**

HP Inc. complies fully with materials regulations. We were among the first companies to extend the restrictions in the European Union (EU) Restriction of Hazardous Substances (RoHS) Directive to our products worldwide through the HP GSE. HP has contributed to the development of related legislation in Europe, as well as China, India, and Vietnam.

We believe the RoHS directive and similar laws play an important role in promoting industry-wide elimination of substances of concern. We have supported the inclusion of additional substances—including PVC, BFRs, and certain phthalates—in future RoHS legislation that pertains to electrical and electronics products.

We met our voluntary objective to achieve worldwide compliance with the new EU RoHS requirements for virtually all relevant products by July 2013, and we will continue to extend the scope of the commitment to include further restricted substances as regulations continue to evolve.

To obtain a copy of the HP RoHS Compliance Statement, see [HP RoHS position statement](#).
Material Usage

This product does not contain any of the following substances in excess of regulatory limits (refer to the HP General Specification for the Environment at http://www.hp.com/hpinfo/globalcitizenship/environment/supplychain/gen_specifications.html):

- Asbestos
- Certain Azo Colorants
- Certain Brominated Flame Retardants – may not be used as flame retardants in plastics
- Cadmium
- Chlorinated Hydrocarbons
- Chlorinated Paraffins
- Bis(2-Ethylhexyl) phthalate (DEHP)
- Benzyl butyl phthalate (BBP)
- Dibutyl phthalate (DBP)
- Diisobutyl phthalate (DIBP)
- Formaldehyde
- Halogenated Diphenyl Methanes
- Lead carbonates and sulfates
- Lead and Lead compounds
- Mercuric Oxide Batteries
- Nickel – finishes must not be used on the external surface designed to be frequently handled or carried by the user.
- Ozone Depleting Substances
- Polybrominated Biphenyls (PBBs)
- Polybrominated Biphenyl Ethers (PBBEs)
- Polybrominated Biphenyl Oxides (PBBOs)
- Polychlorinated Biphenyl (PCB)
- Polychlorinated Terphenyls (PCT)
- Polyvinyl Chloride (PVC) – except for wires and cables, and certain retail packaging has been voluntarily removed from most applications.
- Radioactive Substances
- Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)

Packaging Usage

HP follows these guidelines to decrease the environmental impact of product packaging:

- 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.
QuickSpecs

HP ZBook Studio 16” G9 Mobile Workstation PC

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
- Eco-label certifications
- ISO 14001 certificates:
  and

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.
## QuickSpecs

### HP ZBook Studio 16" G9 Mobile Workstation PC

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

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Part #</th>
</tr>
</thead>
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<td>Type</td>
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<tr>
<td>HP Prelude Pro Recycle Backpack</td>
<td>1X644AA</td>
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<td>HP Executive 17.3 Backpack</td>
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<td>HP Executive 15.6 Top Load</td>
<td>6KD06AA</td>
<td></td>
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<tr>
<td>HP Executive 15.6 Backpack</td>
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<tr>
<td>HP Executive 17.3 Top Load</td>
<td>6KD08AA</td>
<td></td>
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<tr>
<td>HP Executive 15.6 Leather Top Load</td>
<td>6KD09AA</td>
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<td>HP Prelude 15.6 Top Load</td>
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<td>2Z8P4AA</td>
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<td>HP Renew Business 17.3 Laptop Backpack</td>
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<td>HP Renew Business 15.6 Laptop Bag</td>
<td>3E5F8AA</td>
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<td>Docking</td>
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<td>HP TB Dock G2 w/ Combo Cable</td>
<td>3TR87AA</td>
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<td></td>
<td>HP TB Dock 230W G2 Cable</td>
<td>3XB95AA</td>
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<td></td>
<td>HP TB Dock G2 Combo Cable</td>
<td>3XB96AA</td>
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<td>HP Thunderbolt 280W G4 Dock w/Combo Cable</td>
<td>4J0G4AA</td>
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<tr>
<td>Input/Output</td>
<td>HP USB 3.0 to Gigabit Adapter</td>
<td>N7P47AA</td>
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<td>HP USB-C to USB 3.0 Adapter</td>
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<td>HP USB-C to RJ45 Adapter</td>
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<td>HP USB-C to DisplayPort Adapter</td>
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<td>HP 125 Wired Keyboard</td>
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<td>HP Slim Wireless KB and Mouse</td>
<td>T6L04AA</td>
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<td>3M165AA</td>
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<td>HP Wired Desktop 320MK Mouse and Keyboard</td>
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<td>HP 235 Wireless Mouse and Keyboard Combo</td>
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<td>286J4AA</td>
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<td></td>
<td>HP Wired 320M Mouse</td>
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<td>HP Travel Bluetooth Mouse</td>
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<td>HP Multi-Device 635 Black Wireless Mouse</td>
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<td>HP 435 Multi-Device Wireless Mouse</td>
<td>3B4Q5AA</td>
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</tbody>
</table>
## QuickSpecs

**HP ZBook Studio 16” G9 Mobile Workstation PC**

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

<table>
<thead>
<tr>
<th>Category</th>
<th>Product Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hub</strong></td>
<td>HP USB-C to USB-A Hub</td>
<td>Z6A00AA</td>
</tr>
<tr>
<td><strong>Audio</strong></td>
<td>HP USB G2 Stereo Headset</td>
<td>428H5AA</td>
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<tr>
<td></td>
<td>HP 3.5mm G2 Stereo Headset</td>
<td>428H6AA</td>
</tr>
<tr>
<td><strong>Power</strong></td>
<td>HP 150W Slim Smart 4.5mm AC Adapter</td>
<td>4SC18AA</td>
</tr>
<tr>
<td></td>
<td>HP ZBook 200W Slim Smart 4.5mm AC Adapter</td>
<td>491C7AA</td>
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<tr>
<td><strong>Storage</strong></td>
<td>HP USB External DVDRW Drive</td>
<td>F2B56AA</td>
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<tr>
<td><strong>Security</strong></td>
<td>HP Nano Keyed Cable Lock</td>
<td>1AJ39AA</td>
</tr>
<tr>
<td></td>
<td>HP Sure Key Cable Lock</td>
<td>6UW42AA</td>
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QuickSpecs

HP ZBook Studio 16” G9 Mobile Workstation PC

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<thead>
<tr>
<th>Date of change:</th>
<th>Version History:</th>
<th>Description of change:</th>
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<tr>
<td>May 27, 2022</td>
<td>From v1 to v2</td>
<td>Changed ENVIRONMENTAL DATA section, Changed format page 1</td>
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