Overview

HP ZBook Ultra 14” G1a Mobile Workstation PC

Left

1	Internal microphones (2)	5	Extra Large Clickpad
2	Webcam and IR Camera	6	Security lock slot (Lock sold separately.)
3	Webcam LED	7	USB Type-A 10Gbps
4	Fingerprint reader / Power button	8	USB 3.1 Gen 1 charging port
		9	Woofer

Overview

Right

1	USB 3.1 Gen 1 charging port	3	Audio combo jack
2	USB Type-C™ with Thunderbolt™	4	HDMI 2.1
		5	Woofer

Overview

At A Glance

- Preinstall Windows 11, Ubuntu 24.04, or FreeDOS
- Choice of AMD Ryzen™ AI Max+ PRO 395, or AMD Ryzen™ AI Max PRO 390, 385, or 380
- Display include your choice of 35.56 cm (14") diagonal , FHD Non-Touch or QHD Touch
- Integrated Radeon 8060S Graphics, Radeon 8050S Graphics, or Radeon 8040S Graphics
- Enhanced security features including TPM2.0, HP Sure Start self-healing BIOS, HP Client Security,
- Self-Encrypting storage drives, and Fingerprint reader"
- Undergoes MIL-STD 810H tests [1]
- Weight starting at OLED 1.599 kg (3.52 lbs,), FHD 1.568 Kg (3.45 lbs,)
- Battery life up to 14.5 hours
    - Primary – MM25 @ >14.5 Hrs;
    - Secondary – Zoom/Teams video conference @ 8 Hrs
- Supports wireless LAN for connectivity on the go
- Up to 4 TB Solid State Drives
- Up to 128 GB shared system memory
- Up to 96 GB dedicated graphics memory
- 5MP webcam, IR camera for face authentication with Windows Hello [5,12]
- Full size, backlit, Keyboard and Extra Large Clickpad, multi-touch gestures enabled, taps enabled as default

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

Features

OPERATING SYSTEM

Preinstalled OS

Windows 11 Pro[1]
Windows 11 Home - HP recommends Windows 11 Pro for business [1]
Windows 11 Home Single Language - HP recommends Windows 11 Pro for business [1]
Windows 11 Pro (Windows 11 Enterprise or Windows 10 Enterprise available with a Volume Licensing Agreement)[1]
FreeDOS
Ubuntu 24.04 LTS

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

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

PROCESSOR

AMD Ryzen™ AI Max+ PRO 395 processor with PRO technologies (16 core/32 thread, 16MB L2 Cache, 64MB L3 cache, up to 5.1 GHz max boost) c[1,2,3]

AMD Ryzen™ AI Max PRO 390 Processor with PRO technologies (12 core/24 thread, 12MB L2 Cache, 64MB L3 cache, up to 5.0 GHz max boost) [1,2,3]

AMD Ryzen™ AI Max PRO 385 Processor with PRO technologies (8 core/16 thread, 8MB L2 Cache, 32MB L3 cache, up to 5.0 GHz max boost) [1,2,3]

AMD Ryzen™ AI Max PRO 380 Processor with PRO technologies (6 core/12 thread, 6MB L2 Cache, 16MB L3 cache, up to 4.9 GHz max boost) [1,2,3]

AMD Ryzen™ AI Max+ PRO 395 processor (16 core/32 thread, 16MB L2 Cache, 64MB L3 cache, up to 5.1 GHz max boost) [1,2,3]

AMD Ryzen™ AI Max PRO 390 Processor (12 core/24 thread, 12MB L2 Cache, 64MB L3 cache, up to 5.0 GHz max boost) [1,2,3]

AMD Ryzen™ AI Max PRO 385 Processor (8 core/16 thread, 8MB L2 Cache, 32MB L3 cache, up to 5.0 GHz max boost) [1,2,3]

[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. AMD's numbering, branding and/or naming is not a measurement of higher performance.

Features

[4] In accordance with Microsoft’s support policy, HP does not support the Windows 8 or Windows 7 operating system on products configured with Intel and AMD 7th generation and forward processors or provide any Windows 8 or Windows 7 drivers on http://www.support.hp.com.

[5] Processor speed denotes maximum performance mode; processors will run at lower speeds in battery optimization mode.

[6]Features and software that require a NPU may require software purchase, subscription or enablement by a software or platform provider, and third party software may have specific configuration or compatibility requirements. Potential NPU inferencing performance varies by use, configuration, and other factors.

CHIPSET

Chipset is integrated with processor

GRAPHICS

Integrated

AMD Radeon™ Graphics

Name	Graphics Model	Graphics Core Count
AMD Ryzen™ AI Max+ PRO 395	Radeon 8060S Graphics	40
AMD Ryzen™ AI Max+ PRO 390	Radeon 8050S Graphics	32
AMD Ryzen™ AI Max+ PRO 385	Radeon 8050S Graphics	32
AMD Ryzen™ AI Max+ PRO 380	Radeon 8040S Graphics	16

Supports

HDMI2.1, DP2.1

Features

DISPLAY

Non-touch

- 35.6 cm (14") diagonal, WUXGA (1920 x 1200), UWVA, Anti-Glare, 400 nits, sRGB 100% [1,3]

Touch

- 35.6 cm (14") diagonal, 2.8K (2880 x 1800), OLED, UWVA, Touch, 120Hz (VRR), BrightView, Low Blue Light, 400 nits, DCI-P3 100% [1,3,4,5]

Display Size

14"
35.6 cm (14")

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

STORAGE AND DRIVES*

Primary M.2 Storage

4 TB PCIe® Gen4 x4 NVMe™ M.2 TLC SSD
2 TB PCIe® Gen4 x4 NVMe™ M.2 TLC SSD
1 TB PCIe® Gen4 x4 NVMe™ M.2 TLC SSD
512 GB PCIe® Gen4 x4 NVMe™ M.2 TLC SSD
512 GB PCIe® Gen4x4 NVMe™ SED TLC OPAL2

* 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.

MEMORY

Memory

128 GB LPDDR5X-8533 MT/s RAM
64 GB LPDDR5X-8533 MT/s RAM
32 GB LPDDR5X-8533 MT/s RAM
16 GB LPDDR5X-8533 MT/s RAM

Features

Memory Slots

Memory soldered down

Supports Dual Channel Memory

Processor	System Memory	Default Frame Buffer Size	Default Frame Buffer % of system memory	F10 options
OPN1	128GB	32GB	25%	96GB, 64GB, 32GB, 16GB, 8GB, 4GB, 0.5GB
OPN1, OPN2	64GB	16GB	25%	48GB, 32GB, 16GB, 8GB, 4GB, 0.5GB
OPN3	64GB	16GB	25%	48GB, 32GB, 16GB, 8GB, 4GB, 0.5GB
OPN1, OPN2	32GB	8GB	25%	24GB, 16GB, 8GB, 4GB, 0.5GB
OPN3	32GB	8GB	25%	24GB, 16GB, 8GB, 4GB, 0.5GB
OPN4	32GB	8GB	25%	24GB, 16GB, 8GB, 4GB, 0.5GB
OPN4	16GB	2GB	12.50%	8GB, 4GB, 2GB, 0.5GB

Ryzen AI Max Pro+ 395	referred to as OPN1 (16C, 40CU)
Ryzen AI Max Pro 390	referred to as OPN2 (12C, 40CU)
Ryzen AI Max Pro 385	referred to as OPN3 (8C, 32CU)
Ryzen AI Max Pro 380	referred to as OPN4 (6C, 16CU)

NETWORKING/COMMUNICATIONS

WLAN

MediaTek MT7925 1418 Wi-Fi7 + BT5.4 (802.11be 2x2, AMD AIM-T) [1]

[1]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.

Near Field Communication (NFC) module

NFC Mirage WNC XRAV-1

[1]Sold separately or as an optional feature.

Miracast

Native Miracast Support

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

Features

AUDIO/MULTIMEDIA

Audio
Audio by Poly Studio
4 Integrated stereo speakers
2 Integrated dual array microphone

Speaker Power
1w / 8 OHM Per Speaker

Webcam
5MP+Infrared camera

Sensors
Hall Sensor

KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

Keyboard
HP Premium Keyboard – spill resistant, backlit keyboard

Pointing Devices
Microsoft Precision Touchpad with gesture support; Clickpad with multi-touch gesture support, taps enabled as default with image sensor and glass surface

Function Keys
ESC: system information
F1 - Display Switching
F2 - Blank or SureView On/Off
F3 - Brightness Down
F4 - Brightness Up
F5 - Blank or Backlit Toggle
F6 - Audio Mute
F7 - Volume Down
F8 - Volume Up
F9 - Mic Mute
F10 - Play and Pause
F11 - Programmable key
F12 – Home
Power Button (with LED)

Features

Delete

Hidden Keys

Fn+R - Break

Fn+S - Sys Rq

Fn+C - Scroll Lock

Fn+E - Insert

Fn+W - Pause

SOFTWARE AND SECURITY

Software

HP PC Hardware Diagnostics UEFI

HP PC Hardware Diagnostics Windows

HP Privacy Settings

HP Touchpoint Customizer

Buy Microsoft Office (Sold separately)

HP Hotkey Support

HPX

HP Connection Optimizer[10]

HP Support Assistant[1]

HP Services Scan[34]

Manageability Features

HP Connect for Microsoft Endpoint Manager[26]

HP Manageability Integration Kit[12]

Security Management

HP Wolf Security for Business [29]

HP Sure Sense[19]

HP Sure Run Gen4[31]

HP Sure Recover Gen4 with Embedded Reimaging[14]

HP Sure Start Gen6[16]

HP Client Security Manager[18]

HP TPM Configuration Utility

Secured-core PC capable

TPM 2.0 Embedded Security Chip

HP Image Assistant Gen4.6

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

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

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

[14] HP Sure Recover Gen5 with Embedded Reimaging is an optional feature which requires Windows 10 and higher must be configured at purchase. You must back up important files, data, photos, videos, etc. before use to avoid loss of data. Network based recovery using Wi-Fi is only available on PCs with Intel Wi-Fi Module

Features

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

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

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

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

[29] 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 and OS requirement.

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

[34] HP Services Scan is provided with Windows Update on select products and will check entitlement on each hardware device to determine if an HP TechPulse-enabled service has been purchased, and will download applicable software automatically. HP TechPulse is a telemetry and analytics platform that provides critical data around devices and applications. For full system requirements or to disable this feature, please visit http://www.hpdaas.com/requirements . Not applicable in China.

POWER

Power Supply

140 W USB Type-C® slim adapter

Battery

HP XL-Long Life 4 cell, 74.5Whr Polymer[3,4]

Power Cord

3-wire plug - 1m

Battery life

Up to 14.5 Hours[1]

[1] MM25 battery life will vary depending on various factors including product model, configuration, loaded applications, features, use, wireless functionality, and power management settings. The maximum capacity of the battery will naturally decrease with time and usage. See www.bapco.com for additional details.

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

[4] For new batteries, actual battery Watt-hours (Wh) may differ from the design capacity and may have a full charge capacity that differs by up to 10, which is typical for lithium-ion batteries. Battery capacity naturally decreases over time and with use, depending on several factors such as battery health management settings, shelf life, temperature, environment, loaded apps, features, system configuration, and power settings.

WEIGHTS & DIMENSIONS

Product Dimensions (w x d x h)

12.29x 8.45x 0.71 in

31.22x21.465x1.81 cm

Weights*

Features

Product Weight

FHD Starting at 1.568 Kg (3.46 lbs.)
OLED Starting at 1.599 Kg (3.52 lbs.)

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

PORTS/SLOTS

2 x Thunderbolt™ 4 with USB Type-C® 40Gbps signaling rate (USB Power Delivery, DisplayPort™ 2.1)*
1x USB Type-C® 10Gbps signaling rate (USB Power Delivery, DisplayPort™ 2.1)
1 x HDMI 2.1**
1 x headphone/mic combo jack
1 x USB Type-A 10Gbps signaling rate (1 charging)
1 x Security lock slot

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

SERVICE AND SUPPORT

TBD

Certification and Compliance

EPEAT® 2019 registered where applicable. EPEAT ® registration varies by country. See www.epeat.net for registration status by country.
EPEAT® 2019 Gold
TCO 10 Certified
EPEAT Climate Badge Early Adopter - Worldwide - SRP
GS Mark - EMEA - SRP
Low Blue Light Certification - Worldwide – SRP

Sustainable Impact Specifications

[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.

Technical Specifications – System Unit

SYSTEM UNIT

Stand-Alone Power Requirements (AC Power)	
Nominal Operating Voltage	28V
Average Operating Power	
Integrated graphics	RDNA3.5
Discrete Graphics	
Max Operating Power	UMA < 55W
Temperature	
Operating	32° to 95° F (0° to 35° C)
Non-operating	-4°F to 149°F (-20°C to 65°C)
Relative Humidity	
Operating	
Non-operating	. 60°C (140°F) and 95% humidity for 6 hours . 30°C (86°F) and 95% humidity for 8 hours
Shock	
Operating	Operating: 40G, 2ms
Non-operating	Non-operating: 240G, 2ms
Random Vibration	
Operating	1.043 grms
Non-operating	3.5 grms
Altitude (unpressurized)	
Operating	
Non-operating	
Planned Industry Standard Certifications	
Regulatory Model Number	HSTNS-I001
UL	
CSA	
FCC Compliance	
ENERGY STAR®	Yes
EPEAT	Yes
ICES	
Australia /	
NZ A-Tick Compliance	We usually use RCM for naming, which corresponds to the C-Tick compliance.
CCC	
Japan VCCI Compliance	
KC	
BSMI	
CE Marking Compliance	
BNCI or BELUS	Currently, we do not apply for this country's certification separately; instead, we focus on applying for EAC certification.
CIT	These is not within our scope of confirmation; CIT appears to be related to the PCB board.
GOST	Currently, we do not apply for this country's certification separately; instead, we

Technical Specifications – System Unit

	focus on applying for EAC certification.
Saudi Arabian Compliance (ICCP)	
SABS	We apply for NRCS not SABS
UKRSERTCOMPUTER	

- Configurations of the HP ProBook 430 G4 that are ENERGY STAR® qualified are identified as HP ProBook 430 G4 ENERGY STAR on HP websites and on http://www.energystar.gov. - System Lead - N - Please, don't change the number between the brackets
- Based on US EPEAT® registration according to IEEE 1680.1-2018 EPEAT®. EPEAT® status varies by country. Visit www.epeat.net for more information. - System Lead - N - Please, don't change the number between the brackets

Technical Specifications – Displays

DISPLAYS

14.0 in 2.8K (2880 x 1800) BrightView UWVA OLED+LBL DCI-P3 100 400 eDP 1.4+PSR2+IOL 120Hz (VRR) bent OLED Touch Panel	**Outline Dimensions (W x H)**	305.450x197.850(max)
	Active Area	301.824x188.640 (typ)
	Weight	139(max)
	Diagonal Size	14"
	Surface Treatment	Bright View
	Touch Enabled	Yes
	Contrast Ratio	100,000:1(typ)
	Refresh Rate	48~120Hz
	Brightness	400 (typ)
	Pixel Resolution - Format	RGB
	Backlight	OLED
	Pixel Resolution	2880 x 1800 (UWVA)
	Color Gamut Coverage	DCI P3 100%
	Color Depth	8 bit + FRC 2 bit
	Viewing Angle	UWVA 89/89/89/89
	Low Blue Light	Yes
	Power Consumption (W, EBL@ 150nits max/ 200nits max))	4.42(max)/4.09(max)
14.0 in WUXGA (1920 x 1200) Anti-Glare UWVA sRGB 100 3SB 400 eDP 1.4+PSR2 bent LCD Panel	**Outline Dimensions (W x H)**	307.550x204.860(max)
	Active Area	301.590 X 188.500 (typ)
	Weight	200(max)
	Diagonal Size	14
	Surface Treatment	Anti-Glare
	Touch Enabled	No
	Contrast Ratio	1200 : 1 (typ)
	Refresh Rate	60 (typ)
	Brightness	400 (typ)
	Pixel Resolution - Format	RGB
	Backlight	WLED
	Pixel Resolution	1920 x 1200 (WUXGA)
	Color Gamut Coverage	sRGB 100%
	Color Depth	8 bits
	Viewing Angle	UWVA 89/89/89/89
	Low Blue Light	No
	Power Consumption (W, EBL@ 150nits max/ 200nits max))	1.64 (max)/1.97(max)

Technical Specifications – Storage

STORAGE

SSD 512GB 2280 PCIe-4x4 NVMe Three Layer Cell	**Form Factor**	M.2 2280
	Capacity	512GB
	NAND Type	TLC
	Interface	PCIe NVMe Gen4X4
	Maximum Sequential Read	6400 MB/s ±20%
	Maximum Sequential Write	3500 MB/s ±20%
	Logical Blocks	1000215215
	Features	Pyrite 2.0; TRIM; L1.2
SSD 1TB 2280 PCIe-4x4 NVMe Three Layer Cell	**Form Factor**	M.2 2280
	Capacity	1TB
	NAND Type	TLC
	Interface	PCIe NVMe Gen4X4
	Maximum Sequential Read	6400 MB/s ±20%
	Maximum Sequential Write	5000 MB/s ±20%
	Logical Blocks	2000409264
	Features	Pyrite 2.0; TRIM; L1.2
SSD 2TB 2280 PCIe-4x4 NVMe Three Layer Cell	**Form Factor**	M.2 2280
	Capacity	2TB
	NAND Type	TLC
	Interface	PCIe NVMe Gen4X4
	Maximum Sequential Read	6400 MB/s ±20%
	Maximum Sequential Write	5000 MB/s ±20%
	Logical Blocks	4000797360
	Features	Pyrite 2.0; TRIM; L1.2
512GB PCIe-4x4 2280 NVME Self Encrypted OPAL2 Three Layer Cell Solid State Drive	**Form Factor**	M.2 2280
	Capacity	512GB
	NAND Type	TLC
	Interface	PCIe NVMe Gen4X4
	Maximum Sequential Read	6400 MB/s ±20%
	Maximum Sequential Write	3500 MB/s ±20%
	Logical Blocks	1000215215
	Features	TCG Opal 2.0; TRIM; L1.2
CZL (TBC)	**Form Factor**	M.2 2280

Technical Specifications – Storage

	Capacity	
	NAND Type	TLC
	Interface	PCIe NVMe Gen
	Maximum Sequential Read	
	Maximum Sequential Write	
	Logical Blocks	
	Features	
4TB PCIe-4x4 2280 NVMe Three Layer Cell double-sided M.2 Solid State Drive	**Form Factor**	M.2 2280
	Capacity	4TB
	NAND Type	TLC
	Interface	PCIe NVMe Gen4X4
	Maximum Sequential Read	6400 MB/s ±20%
	Maximum Sequential Write	5000 MB/s ±20%
	Logical Blocks	8001573552
	Features	Pyrite 2.0; TRIM; L1.2

Technical Specifications – Networking

NETWORKING / COMMUNICATION

MediaTek MT7925 1418 Wi-Fi7 + BT5.4 (802.11be 2x2, AMD AIM-T) [1]	**Wireless LAN Standards**	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac IEEE 802.11ax IEEE 802.11be IEEE 802.11d IEEE 802.11e IEEE 802.11h IEEE 802.11i IEEE 802.11k IEEE 802.11r IEEE 802.11v
	Interoperability	Wi-Fi certified
	Frequency Band	802.11b/g/n/ax/be • 2.402 – 2.482 GHz 802.11a/n/ac/ax/be • 4.9 – 4.95 GHz (Japan) • 5.15 – 5.25 GHz • 5.25 – 5.35 GHz • 5.47 – 5.725 GHz • 5.825 – 5.850 GHz • 5.955 – 6.415 GHz • 6.435 – 6.515 GHz • 6.535 – 6.875 GHz • 6.895 – 7.115 GHz
	Data Rates	• 802.11b: 1, 2, 5.5, 11 Mbps • 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11n: max 300Mbps • 802.11ac : 1733Mbps • 802.11ax : max 2.4Gbps • 802.11be : max 2.8Gbps (160MHz)
	Modulation	Direct Sequence Spread Spectrum OFDM, BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024QAM, 4096QAM

Technical Specifications – Networking

Security[3]	• IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only • AES-CCMP: 128 bit in hardware • 802.1x authentication • WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES. • WPA2 certification • WPA3 certification • IEEE 802.11i • WAPI
Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
Roaming	IEEE 802.11 compliant roaming between access points
Output Power[2]	• 802.11b, 1Mbps : +17dBm minimum • 802.11g, 6Mpbs : +16dBm minimum • 802.11a, 6Mbps : +17dBm minimum • 802.11n, MCS7(HT20) : +14dBm minimum • 802.11n, MCS7(HT40) : +13.5dBm minimu • 802.11ac MCS9(VHT20) : 13.5dBm minimum • 802.11ac MCS9(VHT40) : +13.5dBm minimum • 802.11ac MCS9(VHT80) : +12.5dBm minimum • 802.11ac MCS9(VHT160) : +10.5dBm minimum • 802.11ax MCS11(HE20)(6GHz) : +11.5dBm minimum • 802.11ax MCS11(HE40)(6GHz) : +7.5dBm minimum • 802.11ax MCS11(HE80)(6GHz) : +7.5dBm minimum • 802.11ax MCS11(HE160)(6GHz) : +7.5dBm minimum • 802.11be MCS13(EHT20)(6GHz) : +11.5dBm • 802.11be MCS13(EHT40)(6GHz) : +7.5dBm • 802.11be MCS13(EHT80)(6GHz) : +7.5dBm • 802.11be MCS13(EHT160)(6GHz) : +6.5dBm
Power Consumption	• Transmit mode 2.7 W • Receive mode 1.8 W • Idle mode (PSP) 180 mW (WLAN Associated) • Idle mode 50 mW (WLAN unassociated) • Connected Standby 10mW • Radio disabled 8 mW
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Receiver Sensitivity[3]	•802.11b, 1Mbps : -93.5dBm maximum

Technical Specifications – Networking

	•802.11b, 11Mbps : -85dBm maximum • 802.11a/g, 6Mbps : -90.5dBm maximum • 802.11a/g, 54Mbps : -72.5dBm maximum • 802.11n, MCS0(HT20) : -90dBm maximum • 802.11n, MCS7(HT20) : -71.5dBm maximum • 802.11n, MCS0(HT40) : -88.5dBm maximum • 802.11n, MCS7(HT40) : -68.5dBm maximum • 802.11ac, MCS9(VHT20) : -88.5dBm maximum • 802.11ac, MCS9(VHT40) : -65.5dBm maximum • 802.11ac, MCS9(VHT80) : -60.5dBm maximum • 802.11ac, MCS9(VHT160) : -58.5dBm maximum • 802.11ax, MCS11(HE20)(6GHz) : -59.5dBm maximum • 802.11ax, MCS11(HE40)(6GHz) : -56.5dBm maximum • 802.11ax, MCS11(HE80)(6GHz) : -53.5dBm maximum • 802.11ax, MCS11(HE160)(6GHz) : -51.5dBm maximum • 802.11be, MCS13(EHT20)(6GHz) : -55.5dBm maximum • 802.11be, MCS13(EHT40)(6GHz) : -53.5dBm maximum • 802.11be, MCS13(EHT80)(6GHz) : -51.5dBm maximum • 802.11be, MCS13(EHT160)(6GHz) : -48.5dBm maximum
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 1418: 1.67 x 14.0 x 18.0 mm
Weight	1. Type 1418: 1.3g
Operating Voltage	3.3v +/- 9%
Temperature	Operating: 14° to 158° F (–10° to 70° C) Non-operating: –40° to 176° F (–40° to 80° C)
Humidity	Operating: 10% to 90% (non-condensing) Non-operating: 5% to 95% (non-condensing)
Altitude	Operating: 0 to 10,000 ft (3,048 m) Non-operating: 0 to 50,000 ft (15,240 m)
LED Activity	LED Amber – Radio OFF; LED OFF – Radio ON

HP Integrated Module with Bluetooth 4.0/4.1/4.2/5.0/5.1/5.2/5.3/5.4 Wireless Technology

Technical Specifications – Networking

Bluetooth Specification	4.0/4.1/4.2/5.0/5.1/5.2/5.3/5.4 Compliant
Frequency Band	2402 to 2480 MHz
Number of Available Channels	Legacy : 0~79 (1 MHz/CH) BLE : 0~39 (2 MHz/CH)
Data Rates and Throughput	Legacy : 3 Mbps data rate; throughput up to 2.17 Mbps BLE : 1 Mbps data rate; throughput up to 0.2 Mbps Legacy : Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Legacy : Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or 864 kbps symmetric (3-EV5)
Transmit Power	The Bluetooth component shall operate as a Class I Bluetooth device with a maximum transmit power of +15.5 dBm for BR and +13dBm for EDR.
Power Consumption	Peak (Tx): 330 mW Peak (Rx): 230 mW Selective Suspend: 17 mW
Bluetooth Software Supported **Link Topology**	1. Microsoft Windows Bluetooth Software 2. Linux/Chrome OS Bluetooth Software.
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Certifications **Power Management 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

Technical Specifications – Networking

		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) BT5.2 ESR9/10 Compliance LE Advertisement Extensions Channel Selection Algo Limited High Duty Cycle Non-Connectable Advertising 2Mbps LE LE Long Range BT5.3 Host to Controller Encryption Key Control Enahancements Compliance to the latest Errata Sectipn 12.3 of BT 5.3 specification

[1]Wi-Fi 7 requires a Wi-Fi 7 router, sold separately, to function in the 6GHz band. Availability of public wireless access points limited. Wi-Fi 7 is backwards compatible with prior 802.11 specs. And available in countries where Wi-Fi 7 is supported. Wi-Fi 7 is designed to support gigabit data rate when transferring files between two devices connected to the same router. Requires a wireless router, sold separately, that supports 80MHz and higher channels.

[2] Check latest software/driver release for updates on supported security features.

[3] The FCC has declared as of September 1, 2014 products that utilize passive scanning on channel 12/13 and are capable of transmitting must fully comply with requirements of 15.247 or otherwise disable those channels.

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

NFC NXP NPC300	**Dimensions (L x W x H)**	17 x 10 x 2.0 mm
	Chipset	NPC300
	System interface	I2C
	NFC RF standards	ISO/IEC 14443 A ISO/IEC 14443 B ISO/IEC 15693 ISO/IEC 18092 ECMA-340 NFCIP-1 Target and Initiator ECMA-320 NFCIP-2
	NFC Forum Support	Tag Type 1, Type 2, Type3 and Type 4, NFCIP-1 and NFCIP-2
	Reader (PCD-VCD) Mode(1)	ISO/IEC 14443 A ISO/IEC 14443 B ISO/IEC 15693 MIFARE 1K

Technical Specifications – Networking

	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	Operating: 0 °C to 70 °C (32 °F to 158 °F)
Storage temperature	Storage: -20 °C to 125 °C (-4 °F to 257 °F)
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)	(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.

Technical Specifications – Audio

AUDIO

HD Stereo Codec	Realtek ALC3315
Audio I/O Ports	Front: Headset connector supports a CTIA and OMTP style headset and is re-taskable as a Line-in, Line-out, Microphone-in or Headphone-out port
Internal Speaker Amplifier	1W class D mono amplifier for internal speaker External speakers. External speakers must be powered
Multi-streaming Capable Sampling	Playback multi-streaming can be enabled in the audio control panel to allow independent audio streams to be sent to/from the jacks or integrated speaker.
Wavetable Syntheses	Independent sampling rates for DAC’s and ADC’s; supports resolutions from 16 to 24-bit; 44.1 k/48k/96k/192kHz
Analog Audio	to 192 kHz for DAC and 44.1 kHz to 96 kHz for ADC
# of Channels on Line-Out	Yes - Uses OS soft wavetable
Internal Speaker	Yes

Technical Specifications – Power

POWER

HP 140W Slim USB-C Straight AC Power Adapter Daisy II	**Weight**	415g(+/-10g)
	Input	100-240Vac
	Input Efficiency	81.50% min at 115 Vac/ 230 Vac @5.00V 86.70% min at 115 Vac/ 230 Vac @9.00V 88.00% min at 115 Vac/ 230 Vac @12.00V 89.00% min at 115 Vac/ 230 Vac @15.00V 89.00% min at 115 Vac/ 230 Vac @20.00V 89.00% min at 115 Vac/ 230 Vac @28.00V
	Input frequency range	47-63Hz
	Input AC current	Max. 2.5 A at 90 Vac
	Output	
	Output power	5V/15W 9V/27W 12V/60W 15V/75W 20V/100W 28V/140W
	DC output	5V/9V/12V/15V/20V/28V
	Hold-up time	100% load 5ms at 115 Vac input/80% load 10ms at 115 Vac input
	Output current limit	5V/9V/12V/15V/20V<125% max current, 28V<135% max current
	AC Inlet Type	C6
	DC Cable Connector	USB type C
	DC Cable Material	PVC
	Connector	
	Connector	C6
	Environmental Design	
	Operating temperature	0° to 35° C (32° to 95° F)
	Non-operating (storage) temperature	-20° to 85° C (-4° to 185° F)
	Altitude	0 to 5,000 m(0 to 16,400 ft)
	Humidity	20% to 95%
	Storage Humidity	10% to 95%
	EMI and Safety Certifications	CE Mark - full compliance with LVD and EMC directives Worldwide safety standards - IEC60950-1, IEC 62368-1:2014 and IEC62368-1 : 2018, EN62368-1:2020+A11, UL 62368-1 Agency approvals - C-UL-US, TUV/GS, TUV/PSE, EN55032 Class B, FCC Class B, CISPR32 Class B, CCC, CU(EAC), KCC(Safety+EMC), NOM001 NYCE, NRcan, NRCS, ISC, SEC, PSB, Argentina S-mark, Australia RCM, BIS, BSMI, UAE, UKCA DoC, Ukraine(CoC+DoC+RoHS+ECO)

Technical Specifications – Environmental

ENVIRONMENTAL DATA

Eco-Label Certifications & declarations

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

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

Sustainable Impact Specifications

- Product Carbon Footprint
- At least 50% ocean bound plastic in the (CPU Fan) and 30% in (Speakers)[1]
- At least 35% post-consumer recycled plastic[2]
- At least 65% recycled metal[3]
- Low Halogen[4]
- 100% of HP paper-based packaging is from recycled or certified sustainable sources[5]
- Bulk packaging available

System Configuration

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

Energy Consumption (in accordance with US ENERGY STAR® test method)	**115VAC, 60Hz**	**230VAC, 50Hz**	**100VAC, 50Hz**
Normal Operation (Short idle)	12.05 W	12.18 W	11.87 W
Normal Operation (Long idle)	N/A	N/A	N/A
Sleep	0.99 W	0.97 W	0.99 W
Off	0.42 W	0.43 W	0.41 W

NOTE:

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

Technical Specifications – Environmental

Heat Dissipation*	**115VAC, 60Hz**	**230VAC, 50Hz**	**100VAC, 50Hz**
Normal Operation (Short idle)	41 BTU/hr	42 BTU/hr	41 BTU/hr
Normal Operation (Long idle)	N/A	N/A	N/A
Sleep	3 BTU/hr	3 BTU/hr	3 BTU/hr
Off	1 BTU/hr	1 BTU/hr	1 BTU/hr

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

Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)	Sound Power (L_{Wad}, bels)	Sound Pressure (L_{pAm}, decibels)
Typically Configured – Idle	2.6	13.7
Fixed Disk – Random writes	2.7	15.5
Optical Drive – Sequential reads	3.2	21.8

Longevity and Upgrading

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

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

Additional Information

- This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC.
- This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive – 2002/96/EC.
- This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986).
- This product is in compliance with the IEEE 1680 (EPEAT) standard at the Gold level, see www.epeat.net
- Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043.
- This product is 96.0% recycle-able when properly disposed of at end of life.

Packaging Materials			
	External:	PAPER/Corrugated	267 g
		PAPER/Molded Pulp	100 g
		PAPER/Paper	26 g

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

The corrugated paper packaging materials contains at least 50.7% 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

Technical Specifications – Environmental

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 https://h20195.www2.hp.com/v2/GetDocument.aspx?docname=c05998906):

- 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)

Technical Specifications – Environmental

Packaging Usage

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

- Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials.
- Eliminate the use of ozone-depleting substances (ODS) in packaging materials.
- Design packaging materials for ease of disassembly.
- Maximize the use of post-consumer recycled content materials in packaging materials.
- Use readily recyclable packaging materials such as paper and corrugated materials.
- Reduce size and weight of packages to improve transportation fuel efficiency.
- Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.

End-of-life Management and Recycling

HP offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: https://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c05403198 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: HP Product Disassembly Instruction Website. 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:

- Sustainable Impact Report
  - https://h20195.www2.hp.com/v2/GetDocument.aspx?docname=c06040843
- Eco-label certifications
  - https://www.hp.com/us-en/sustainable-impact/document-reports.html#filters_documents_reports-=document_type-type_energy_star,type_epeat,type_tcoISO
- ISO 14001 certificates
  - https://h20195.www2.hp.com/v2/GetDocument.aspx?docname=c04777932

Footnotes

1. Percentage of ocean-bound plastic contained in each component varies by product. Ocean Bound plastic is expressed as a percentage of the total weight plastic. Ocean Bound plastic is based on the definition set by the UL2809 standard.
2. Recycled plastic is expressed as a percentage of the total weight plastic. Post-consumer recycled is based on the definition set in the EPEAT standard for computers, IEEE 1680.1-2018 standard.
3. Recycled metal is expressed as a percentage of the total weight of the metal according to ISO 14021 definitions for metal parts over 25 grams.
4. External power supplies, WWAN modules, power cords, cables and peripherals excluded. Service parts obtained after purchase may not be Low Halogen.

- HP paper and fiber-based packaging for PCs, displays, home and office print, and supplies is reported by suppliers as recycled or certified, with a minimum of 97% by volume verified by HP. Packaging is the box that comes with the product and all paper-based materials inside the box. Packaging for personal systems accessories and spare

Technical Specifications – Environmental

parts is not included. Plastic cushions are made from >90% recycled plastic.

Technical Specifications – Options

OPTIONS

Category	Description	Part Number
Audio/Video	TDB	TDB
Cases	TDB	TDB
Docking	TDB	TDB
Hub	TDB	TDB
Adapter	TDB	TDB
Keyboard/Combo	TDB	TDB
Mouse	TDB	TDB
Power	TDB	TDB
Commodity	TDB	TDB

CHANGELOG

Date of change	Version History		Description of change
March 17, 2025	From v1 to v2	Changed	ENVIRONMENTAL DATA section
March 21, 2025	From v2 to v3	Changed	Format
July 10, 2025	From v3 to v4	Changed	At A Glance section