Overview

HP EliteOne 1000 G2 All-in-One Business PC

Front

1. Webcam (optional)
2. On-screen display (OSD) buttons
3. Volume slider
4. Collaboration keys
5. Power button
6. Speakers (optional)

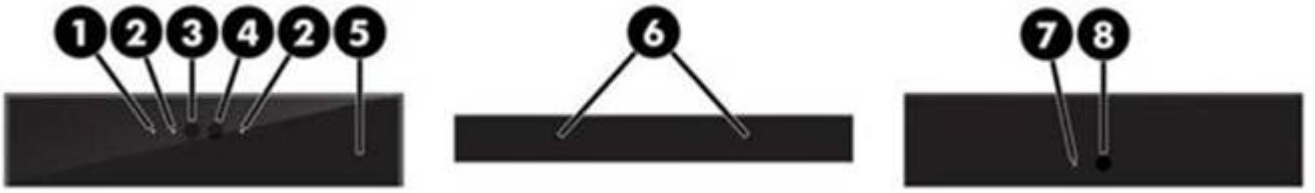
Overview

HP EliteOne 1000 G2 All-in-One Business PC

Collaboration keys

1. Volume slider
2. Speaker mute button
3. Hang up button
4. Webcam mute button
5. Microphone mute button
6. Call button
7. Power button

Infrared (IR) and Dual-facing Full High Definition (FHD) webcam (optional)



1. Webcam light
2. IR light
3. Full High Definition (FHD) webcam
4. IR webcam
5. Rear webcam adjustment wheel
6. Digital microphones
7. Webcam light
8. FHD webcam

Full High Definition (FHD) webcam (optional)

Overview

1. Webcam light
2. FHD webcam
3. Digital microphones

HP EliteOne G2 All-in-One Business PC (rear)

Rear

1. Standard lock slot
2. RJ-45 (network) jack
3. Power connector
4. DisplayPort™ 1.2 in

Not Shown

5. DisplayPort™ 1.2 out
6. HDMI 2.0a out connector
7. USB 3.1 Gen2 ports
8. USB 3.1 Gen2 ports (wake capable)

Overview

Slots

(1) internal M.2 2230 connector for optional wireless NIC

(1) internal M.2 SSD storage (2230 or 2280 connector)

Bays

(1) 2.5" internal storage drive bay

HP EliteOne 1000 G2 All-in-One Business PC (side)

Side

1. USB 3.1 Gen1 Type-A port(charge support up to 5V/1.5A)
2. USB 3.1 Gen2 Type-C™ Thunderbolt port (DP Alt mode and 15W)
3. Universal Audio Jack with CTIA headset support
4. Fingerprint sensor (optional)

HP EliteOne 1000 Display

Additional optional displays include: HP EliteOne 1000 23.8-in FHD Display, HP EliteOne 1000 23.8-in FHD Touch Display, HP EliteOne 1000 27-in 4K UHD Display, and HP EliteOne 1000 34-in WQHD Curved Display[5]

Front

1. Webcam (optional)
2. On-screen display (OSD) buttons
3. Power indicator LED

Overview

HP EliteOne 1000 Display

Rear

1. Power button
2. DisplayPort™ 1.2 in
3. HDMI connector
4. Power connector
5. USB Type-B out (webcam, mics, and touch)
6. Standard lock slot

Features

At a Glance

- Unique All-in-One form factor with interchangeable and upgradeable display options
- Four display options: 23.8" diagonal FHD touch and non-touch, 27" diagonal 4K UHD, and 34"diagonal WQHD Curved[5]
- Ability to redeploy displays or purchase additional displays with a matching standalone display base
- Tool-less accessibility to easily reach upgradeable components or swap displays
- Creates a rich video conferencing solution with immersive video and audio engagement, capacitive touch collaboration keys, and a built-in pop-up privacy camera
- Integrated collaboration keys keep conferencing controls (call answer, microphone mute, webcam disable, call hang up, and volume controls) within reach
- ~~Intel~~ Unite™ (optional)
- Intel® Unite™ needs to be configured at factory (AiO/DM)
- Intel® Q370 chipset supporting Intel® 8th generation Core™ processors, featuring integrated Intel® UHD Graphics and Intel® vPro™ Technology (available with Core i5 and Core i7 processors)
- 35W and 65W processor support
- Windows 10
- Intel® UHD graphics
- Optional AMD discrete graphics
- USB 3.1 Type-C™ Thunderbolt port
- Intel® Ethernet Connection I219LM GbE LOM integrated network connection
- DDR4 Synchronous Dynamic Random Access Memory (SDRAM)
- Support for up to 2 additional monitors via DisplayPort™ 1.2 or HDMI connectors
- HP Sure Start Gen4[1]
- HP Manageability Integration Kit Gen2[2]
- HP Sure Click[4]
- HP Sure Run[6]
- HP Sure Recover[7]
- 23.8"? and 27"? screen sizes are ENERGY STAR® certified and EPEAT® 2019 registered where applicable. EPEAT ® registration varies by country. See http://www.epeat.net for registration status by country[8]. Search keyword generator on HP's 3rd party option store for solar generator accessories at http://www.hp.com/go/options
- CCC Certified
- TCO Edge for AiO
- PC chassis and all internal components and modules are manufactured with low halogen content[3]
- Protected by HP Services, including limited warranties up to 3-3-3 (terms and conditions vary by country; certain restrictions and exclusions apply); Care Packs available with up to 5 years ext Business Day Onsite Hardware Support

1. HP Sure Start G4 requires Intel® 8th generation processors

2. HP Management Integration Kit Gen2 for Microsoft System Center Configuration Manager: HP Management Integration Kit Gen2 can be downloaded from http://www8.hp.com/us/en/ads/clientmanagement/overview.html

3. External power supplies, power cords, cables and peripherals are not low halogen. Service parts obtained after purchase may not be low halogen.

4. HP Sure Click is available on select HP platforms and supports Microsoft® Internet Explorer, Google Chrome, and Chromium™. Supported attachments include Microsoft Office (Word, Excel, PowerPoint) and PDF files in read only mode. Check http://h20195.www2.hp.com/v2/GetDocument.aspx?docname=4AA7-0922ENW for all compatible platforms as they become available.

5. Configurable at purchase with choice of display sizes. Additional displays sold separately.

6. HP Sure Run is available on HP Elite products equipped with 8th generation Intel® or AMD® processors.

7. HP Sure Recover is available on HP Elite PCs with 8th generation Intel® or AMD processors and requires an open, wired network connection. Not available on platforms with multiple internal storage drives, Intel® Optane™. You must back up important files, data, photos, videos, etc. before use to avoid loss of data.

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

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

PRODUCT NAME

Features

HP EliteOne 1000 G2 All-in-One Business PC
HP EliteOne 1000 G2 23.8-in All-in-One Business PC
HP EliteOne 1000 G2 23.8-in Touch All-in-One Business PC
HP EliteOne 1000 G2 27-in 4K UHD All-in-One Business PC
HP EliteOne 1000 G2 34-in Curved All-in-One Business PC
HP EliteOne 1000 G2 Base PC

OPERATING SYSTEMS

Preinstalled	Windows® 10 Pro 64[1] Windows® 10 Pro 64 (National Academic License)[2] Windows® 10 Home 641 Windows® 10 Home Single Language 641 FreeDos 2.0
Web-supported only	Windows® 10 Enterprise 64[1]

1. Not all features are avilable in all editions or versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers, software or BIOS update to take full advantage of Windows functionality. Windows 10 is automatically updated, which is always enabled. ISP fees may apply and additional requirements may apply over time for updates. See http://www.windows.com/.
2. Some devices for academic use will automatically be updated to Windows 10 Pro Education with the Windows 10 Anniversary Update. Features vary; see https://aka.ms/ProEducation for Windows 10 Pro Education feature information.

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

PROCESSORS

Intel® 8th Generation Core™ Processors

Intel® Core™ i7 8700T processor with Intel® UHD Graphics 630 (2.4 GHz, up to 4 GHz with Intel® Turbo Boost, 12 MB cache, 6 cores)[3,5]
Supports Intel® vPro™Technology[6]

Intel® Core™ i7+ 8700T Processor with Intel® UHD Graphics 630 (2.4 GHz, up to 4.0 GHz with Intel® Optane™ Memory, 12 MB cache, 6 cores)[3,4]
Supports Intel® vPro™Technology[6]

Intel® Core™ i7 8700 processor with Intel® UHD Graphics 630 (3.22 GHz, up to 4.66 GHz with Intel® Turbo Boost, 12 MB cache, 6 cores) 65W[3,5]
Supports Intel® vPro™Technology[6]

Intel® Core™ i7+ 8700 processor (Core i7 and 16GB Intel® Optane™ memory) with Intel® UHD Graphics 630 (3.2 GHz, up to 4.6 GH with Intel® Turbo Boost, 12 MB cache, 6 cores) 65W [3,4,5]
Supports Intel® vPro™Technology[6]

Intel® Core™ i5 8600T processor with Intel® UHD Graphics 630 (2.3 GHz, up to 3.7 GHz with Intel® Turbo Boost, 9 MB cache, 6 cores)[3,5]
Supports Intel® vPro™Technology[6]

Intel® Core™ i5+ 8600T Processor with Intel® UHD Graphics 630 (2.3 GHz, up to 3.7 GHz with 16GB Intel® Optane™ Memory, 9 MB cache, 6 cores)[3,4]
Supports Intel® vPro™Technology[6]

Features

Intel® Core™ i5 8600 processor with Intel® UHD Graphics 630 (3.1 GHz, up to 4.3 GHz with Intel® Turbo Boost, 9 MB cache, 6 cores)[3,5]
Supports Intel® vPro™Technology[6]

Intel® Core™ i5+ 8600 processor (Core i5 and 16GB Intel® Optane™ memory) with Intel® UHD Graphics 630 (3.1 GHz, up to 4.3 GH with Intel® Turbo Boost, 9 MB cache, 6 cores) [3,4,5]
Supports Intel® vPro™Technology[6]

Intel® Core™ i5 8500T processor with Intel® UHD Graphics 630 (2.1 GHz, up to 3.5 GHz with Intel® Turbo Boost, 9 MB cache, 6 cores)[3,5]
Supports Intel® vPro™Technology[6]

Intel® Core™ i5+ 8500T Processor with Intel® UHD Graphics 630 (2.1 GHz, up to 3.5 GHz with 16GB Intel® Optane™ Memory, 9 MB cache, 6 cores)[3,4]
Supports Intel® vPro™Technology[5]

Intel® Core™ i5 8500 processor with Intel® UHD Graphics 630 (3.0 GHz, up to 4.1 GHz with Intel® Turbo Boost, 9 MB cache, 6 cores)[3,5]
Supports Intel® vPro™Technology[5]

Intel® Core™ i5+ 8500 processor (Core i5 and 16GB Intel® Optane™ memory) with Intel® UHD Graphics 630 (3.0 GHz, up to 4.1 GH with Intel® Turbo Boost, 9 MB cache, 6 cores) [3,4,5]
Supports Intel® vPro™Technology[6]

Intel® Core™ i3 8300T processor with Intel® UHD Graphics 630 (3.2 GHz, 8 MB cache, 4 cores) [3]

Intel® Core™ i3 8300 processor with Intel® UHD Graphics 630 (3.7 GHz, 8 MB cache, 4 cores) [3]

Intel® Core™ i3 8100T processor with Intel® UHD Graphics 630 (3.1 GHz, 6 MB cache, 4 cores) [3]

Intel® Core™ i3 8100 processor with Intel® UHD Graphics 630 (3.6 GHz, 6 MB cache, 4 cores) [3]

Intel® 8th Generation Pentium® Processors

Intel® Pentium® Gold G5600 processor with Intel® UHD Graphics 630 (3.9 GHz, 4 MB cache, 2 cores) [3]

Intel® Pentium® Gold G5500T processor with Intel® UHD Graphics 630 (3.2 GHz, 4 MB cache, 2 cores) [3]

Intel® Pentium® Gold G5500 processor with Intel® UHD Graphics 630 (3.8 GHz, 4 MB cache, 2 cores) [3]

Intel® Pentium® Gold G5400T processor with Intel® UHD Graphics 610 (3.1 GHz, 4 MB cache, 2 cores) [3]

Intel® Pentium® Gold G5400 processor with Intel® UHD Graphics 610 (3.7 GHz, 4 MB cache, 2 cores) [3]

Intel® 8th Generation Celeron™ Processors

Intel® Celeron® G4900T processor with Intel® UHD Graphics 610 (2.9 GHz, 2 MB cache, 2 cores)[3]

Intel® Celeron® G4900 processor with Intel® UHD Graphics 610 (3.1 GHz, 2 MB cache, 2 cores)[3]

3 Multi-core 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.
4. Intel® Optane™ memory system acceleration does not replace or increase the DRAM in your system.
5. Intel® Turbo Boost technology requires a PC with a processor with Intel Turbo Boost capability. Intel Turbo Boost performance varies depending on hardware, software and overall system configuration. See http://www.intel.com/technology/turboboost for more information.
6. Some functionality of vPro technology, such as Intel Active management technology and Intel Virtualization technology, requires additional 3rd party software in order to run. Availability of future "virtual appliances" applications for Intel vPro technology is dependant on 3rd party software providers. Compatibility of this generation of Intel vPro technology-based hardware with with future "virtual

Features

appliances" is yet to be determined.

GRAPHICS

Integrated Intel® Graphics

Optional Discrete Graphics

AMD Radeon™ RX 560 Graphics with 4GB GDDR5 dedicated memory*

*Optional discrete graphics card can only be configured with 35W CPUs and PCIe NVMe storage drives

DISPLAY FEATURES

HP EliteOne 1000 23.8-in FHD Display[9]
23.8" diagonal IPS widescreen WLED backlit anti-glare LCD (1920 x 1080)[10]
Non-Touch
Tilt: 5 degrees forward and 25 degrees back
Height Adjustment: 40mm

HP EliteOne 1000 23.8-in FHD Touch Display[9]
23.8" diagonal IPS widescreen WLED backlit anti-glare LCD (1920 x 1080)[10]
Touch; Projected capacitive touch supports up to 10 touch-points
Tilt: 5 degrees forward and 25 degrees back
Height Adjustment: 40mm

HP EliteOne 1000 27-in 4K UHD Display[9]
27" diagonal IPS widescreen WLED backlit anti-glare 4K UHD LCD (3840 x 2160)[10]
Non-Touch
Tilt: 5 degrees forward and 25 degrees back

HP EliteOne 1000 34-in WQHD Curved Display[9]
34" diagonal IPS widescreen WLED backlit anti-glare WQHD LCD (3440 x 1440)[5,10]
Non-Touch
Tilt: 0 degrees forward and 20 degrees back

9. HD and 4K content required to view HD and 4K images.
10. Resolutions are dependent upon monitor capability, and resolution and color depth settings.

DISPLAY PANEL SPECIFICATIONS

Features

23.8" diagonal IPS widescreen WLED backlit anti-glare LCD (1920 x 1080)

Type	IPS WLED Backlit LCD
Active area (mm)	527.04 x 296.46
Native Resolution (HxV)	1920 x 1080
Aspect ratio	16:09
Pixel pitch (HxV)(mm)	0.2745 x 0.2745
Contrast ratio (typical)	1000:01:00
Brightness (typical)	250 nits[11]
Viewing angle (typical) (HxV)	178° x 178°
Backlight lamp life (to half brightness)	30,000 hours minimum
Color support	Over 16 million colors
Response time	14ms (typical)
Color gamut (typical)	NTSC 72%
Anti-glare	Yes
Default color temperature	Warm (6500K)

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

27" diagonal IPS widescreen WLED backlit anti-glare 4K UHD LCD (3840 x 2160)

Type	IPS WLED Backlit LCD
Active area (mm)	596.74 x 335.66
Native Resolution (HxV)	3840 x 2160
Aspect ratio	16:09
Pixel pitch (HxV)(mm)	0.1554 x 0.1554
Contrast ratio (typical)	1000:01:00
Brightness (typical)	350 nits[11]
Viewing angle (typical) (HxV)	178° x 178°
Backlight lamp life (to half brightness)	30,000 hours minimum
Color support	Over 1 billion colors
Response time	14ms (typical)
Color gamut (typical)	sRGB 99%
Anti-glare	Yes
Default color temperature	Warm (6500K)

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

Features

34" diagonal IPS widescreen WLED backlit anti-glare WQHD LCD (3440 x 1440)

Type	IPS WLED Backlit LCD
Active area (mm)	799.80 x 334.8
Native Resolution (HxV)	3440 x 1440
Aspect ratio	21:09
Pixel pitch (HxV)(mm)	0.2325 x 0.2325
Contrast ratio (typical)	1000:01:00
Brightness (typical)	300 nits[11]
Viewing angle (typical) (HxV)	178° x 178°
Backlight lamp life (to half brightness)	30,000 hours minimum
Color support	Over 1 billion colors
Response time	14ms (typical)
Color gamut (typical)	sRGB 99%
Anti-glare	Yes
Default color temperature	Warm (6500K)

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

STORAGE AND DRIVES[12]

2.5 inch 7.2k RPM 2.5 inch 7.2k RPM Hard Disk Drives
500GB SATA
1TB SATA

2.5 inch Solid State Hybrid Drives (SSHD)
500GB 5400RPM 2.5in 8GB Hybrid
1TB 5400RPM 2.5in 8GB Hybrid
2TB 5400RPM 2.5in 8GB Hybrid

2.5 inch 5.4k RPM Hard Disk Drives
2TB SATA

2.5 inch Self-encrypting Drives (SED HDD)
500GB 7200RPM 2.5in SED OPAL 2
500GB 5400RPM 2.5in Federal Information Processing Standard (FIPS) SED
2.5 SATA SSD Drives
128GB SATA TLC SSD
256GB SATA TLC SSD
512GB SATA TLC SSD

2.5 inch Self-encrypting Drives (SED SSD)
256GB TLC SED SSD OPAL 2 Drive
512GB TLC SED SSD OPAL 2 Drive
256GB TLC SED SSD 2.5in Federal Information Processing Standard (FIPS) SED
512GB TLC SED SSD 2.5in Federal Information Processing Standard (FIPS) SED

PCIe NMVe SSD Drives
128GB PCIe NVMe TLC SSD
256GB PCIe NVMe TLC SSD
512GB PCIe NVMe TLC SSD

Features

1TB PCIe NVMe TLC SSD
128GB PCIe NVMe SSD
256GB PCIe NVMe SSD
512GB PCIe NVMe SSD

PCIe NMVe Self-encrypting Drives (PCIe NVMe SED SSD)
256GB PCIe NVMe TLC SED SSD OPAL 2 Drive
512GB PCIe NVMe TLC SED SSD OPAL 2 Drive

12. For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 10) is reserved for system recovery software.

MEMORY[13]

Maximum
32GB (16GB/slot)
Memory Slots
2 SODIMM
DDR4-2666 (Transfer rates up to 2666 MT/s)

Double channel support
Customer accessible/upgradeable

Configurations
4 GB (1 x 4 GB)
8 GB (2 x 4 GB)
8 GB (1 x 8 GB)
16 GB (2 x 8 GB)
16 GB (1 x 16 GB)
32 GB (2 x 16 GB)
Intel® Optane Memory 16GB SSD (cache)

13. Intel® Optane™ memory system acceleration does not replace or increase the DRAM in your system and requires configuration with an optional Intel® Core™ i(5or 7)+ processor.

NETWORKING

Features

Wireless LAN
Intel® 9560 802.11b/g/n/a/ac 2x2 Wi-Fi +Bluetooth® M.2 Combo Card non-vPro™
Intel® 9560 802.11b/g/n/a/ac 2x2 Wi-Fi +Bluetooth® M.2 Combo Card vPro™

Realtek RTL8822BE ac 2x2 Wi-Fi +Bluetooth® M.2 Combo Card
Realtek ac 1x1 +Bluetooth® M.2 Combo Card (2230 PCI-e+USB)

Ethernet (RJ-45) Integrated
Intel® I219LM Gigabit Network Connection LOM (standard)

14. Wireless LAN is optional and must be bought at purchase
15. Wireless access point and Internet service required and not included. Availability of public wireless access points limited.
16. The specifications for the 802.11ac WLAN are draft specifications and are not final. If the final specifications differ from the draft specifications, it may affect the ability of the notebook to communicate with other 802.11ac WLAN devices.

AUDIO/MULTIMEDIA

Audio
Integrated Conexant CX5001 codec - up to 24-bit PCM
High performance integrated stereo speakers (2W)
Headset side port (3.5mm)
Multi-streaming capable[17]

Webcam & Mic
Pop-up webcam - 2MP FHD webcam, Up to 30 frames/sec, discrete dual array microphone (Fixed 2MP FHD 1080p)(maximum resolution of 1920 x1080)(optional)
Pop-up webcam - 2MP FHD webcam with IR camera front-facing and 2nd rear-facing 2MP webcam, discrete dual array microphon (Dual Camera 480P IR+1080P RGB Fixed/2MP FHD 1080P Fixed)(maximum resolution of 1920 x1080)(optional)
IR camera (optional) supports Win10 Hello

Collaboration Keys
Integrated, capacitive touch collaboration keys functions include:
Call answer, microphone mute, webcam mute, hang up, speaker mute, and volume slider

Collaboration Keys
Call answer
Microphone mute

NOTE: All HP devices which carry the Bang & Olufsen brand are custom-tuned with Bang & Olufsen's acoustical engineers for precise sound experience in business use.
17.The side headset connector supports CTIA style headsets and is re-taskable as a Line-in, Microphone-in or Headphone-out port. External speakers must be powered externally. Multi-streaming can be enabled in the audio control panel to allow independent audio streams to be sent to/from the side headset jack or internal speakers. This allows for different audio applications to use separate audio ports on the system. For example, the side audio jack could be used with a headset for a communications application while the internal speakers can be used with a multimedia application.

AUDIO SPECIFICATIONS

Features

High Definition Audio

Type	Integrated
HD Audio Codec	Conexant CX5001
Audio I/O Ports	Universal Audio Jack with CTIA headset support (re-taskable for headphone/line out/microphone in/line in)
Wavetable Syntheses	Yes - Uses OS soft wavetable
Analog Audio	Yes
Internal Speaker	Yes - two speakers (optional)
DAC Sampling Rates	44.1kHz/48kHz/96kHz/192kHz
ADC Sampling Rates	44.1kHz/48kHz/96kHz

KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

Keyboard and Mouse Combos
HP Premium Wireless Keyboard and Mouse
HP Premium USB Wired Keyboard and Mouse
HP USB Keyboard and Mouse Healthcare Edition
HP Wireless Business Slim Keyboard and Mouse

Keyboards
HP Premium USB Wired Keyboard
HP USB Business Slim Keyboard
HP USB Business Slim Grey Keyboard
HP USB Business Slim CCID SmartCard Keyboard
HP USB Business Slim Antimicrobial Keyboard[18]
HP USB Wired Keyboard
HP Wired Keyboard EPEAT®

Mice
HP USB 1000dpi Laser Mouse
HP Grey V2 Mouse
HP USB Mouse
HP USB Antimicrobial Mouse[18]
HP USB Hardened Mouse
HP USB PS/2 Wired Washable Mouse

Other
HP Mouse Pad

Adapters and Cables
DisplayPort™ 1.2 Cable
DisplayPort™ 1.2 to DVI-D Adapter
DisplayPort™ 1.2 to HDMI 4K Adapter
DisplayPort™ 1.2 to VGA Adapter
HP DVI Cable
HP USB Type-C™ to Type-A Hub
HP USB to Serial Port Adapter
HP USB-C™ to USB 3.0 Adapter

Headsets
HP Business Headset v2
HP UC Bluetooth® Headset

18. China Only

SOFTWARE AND SECURITY

BIOS

HP BIOSphere Gen4[17]
HP DriveLock & Automatic DriveLock
BIOS Update via Network
Master Boot Record Security
Power On Authentication
Secure Erase[18]
Absolute Persistence Module[19]
Pre-boot Authentication
HP Wireless Wakeup

Software

HP Native Miracast Support[15]
HP Hotkey Support - CMIT
HP Recovery Manager
HP JumpStart
HP Support Assistant[21]
HP Noise Cancellation Software
Buy Office (sold separately)
Intel Unite (optional)}

Manageability Features

HP Driver Packs[22]
HP System Software Manager (SSM)
HP BIOS Config Utility (BCU)
HP Client Catalog
HP Manageability Integration Kit Gen2[23]
Ivanti Management Suite[24]
HP Cloud Recovery[39]

Client Security Software

HP Client Security Suite Gen4[25] including:
HP Client Security Manager[26] (including Credential Manager, Password Manager, Spare Key)
Synaptics Fingerprint Sensor[31]
HP Device Access Manager
HP Power On Authentication
Windows Defender[27]

Features

Security Management

Secure Erase[18]

TPM 2.0 Embedded Security Chip shipped with Windows 10 (Common Criteria EAL4+ Certified) (FIPS 140-2 Level 2 Certified)[32]

SATA 0,1 port disablement (viaBIOS)

Serial, USB enable/disable (viaBIOS)

Power-on password (viaBIOS)

Setup password (viaBIOS)

Support for chassis padlocks and cable lock devices

Integrated hood sensor

HP Sure Start Gen4[30]

HP Sure Run[35]

HP Sure Recover[36]

HP Sure Click[38]

15. Miracast is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming
17. HP BIOSphere Gen4 features may vary depending on the PC platform and configurations requires 8th Gen Intel® processors.
18. For the methods outlined in the National Institute of Standards and Technology Special Publication 800-88 "Clear" sanitation method.
19. 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.
21. HP Support Assistant requires Windows and Internet access.
22. HP Driver Packs not preinstalled, however available for download at http://www.hp.com/go/clientmanagement.
23. HP Manageability Integration Kit can be downloaded from http://www8.hp.com/us/en/ads/clientmanagement/overview.html
24. Ivanti Management Suite subscription required.
25. HP Client Security Suite Gen 4 requires Windows and Intel® or AMD 8th generation processors.
26. HP Password Manager requires Internet Explorer or Chrome or FireFox. Some websites and applications may not be supported. User may need to enable or allow the add-on / extension in the internet browser.
27. Windows Defender Opt in Windows 10 and internet connection required for updates.
30. HP Sure Start Gen4 is available on HP Elite and HP Pro 600 products equipped with 8th generation Intel® or AMD processors.
31. HP Fingerprint Sensor sold separately or as an optional feature.
32. Firmware TPM is version 2.0. Hardware TPM is v1.2, which is a subset of the TPM 2.0 specification version v0.89 as implemented by Intel Platform Trust Technology (PTT).
35. HP Sure Run is available on HP Elite products equipped with 8th generation Intel® or AMD® processors.
36. HP Sure Recover is available on HP Elite PCs with 8th generation Intel® or AMD processors and requires an open, wired network connection. Not available on platforms with multiple internal storage drives, Intel® Optane™. You must back up important files, data, photos, videos, etc. before use to avoid loss of data.
38. HP Sure Click is available on most HP PCs and supports Microsoft® Internet Explorer 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. Check http://h20195.www2.hp.com/v2/GetDocument.aspx?docname=4AA7-0922ENW for all compatible platforms as they become available.
39. HP Cloud Recovery is available for 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

POWER

Features

Power Supply

External 180W
Standard efficiency
87%

Power cord length: 6.0 ft. (1.83 m)

WEIGHTS & DIMENSIONS

Weight	
23.8 Non-Touch Product Weight (Unboxed)	Without Arm: 4.71kg, 10.3lb Without Base: 5.19kg, 11.4lb Whole system with Base: 8.21kg, 18.1lb
23.8 Touch Product Weight (Unboxed)	Without Arm: 4.71kg, 10.3lb Without Base: 5.26 kg, 11.6lb Whole system with Base: 8.28kg, 18.25lb
23.8 Shipping Weight (Boxed)	System with package weight: 12.42kg , 27.38 lb
23.8 Shipping Weight (Pallet)	Total Weight including pallet: 247 kg, 544.54 lb
Dimensions (W x D x H)	
23.8 System Dimensions (including Touch, Non-Touch)	Without Base: 539.5 x 33 x 324.9 mm, 21.2 x 1.3 x 12.8 in Base only: 400 x 190 x 37 mm, 15.7 x 7.5 x 1.5 in With Base: 539.5 x 190 x 419.2 mm, 21.2 x 7.5 x 16.5 in
23.8 Shipping Dimensions (Pallet)	Shipping pallet size : 1153 x 905 x 1728 mm, 45.39 x 35.63 x 68.03 in
23.8 Pallet Quantity (including Touch, Non-Touch)	18 units per pallet
Weight	
27 Product Weight (Unboxed)	Without Arm: 6.78 kg, 14.9 lb Without Base: 7.26 kg, 16.0lb Whole system with Base: 10.2kg, 22.5lb
27 Shipping Weight (Boxed)	System with package weight: 14.62 kg, 32.23lb (maximum config.)
27 Shipping Weight (Pallet)	Total Weight including pallet: 243 kgf, 535.72 lb
Dimension	
27 System Dimensions	Without Base: 613.3 x 30.5 x 366.7 mm, 24.15 x 1.19 x 14.44 in Base only: 400 x 190 x 37 mm, 15.7 x 7.5 x 1.5 in With Base: 613.3 x 190 x 457.3 mm, 24.15 x 7.5 x 18 in
27 Shipping Dimensions (Boxed)	Package: 741 x 243 x 572 mm, 29.71 x 9.57 x 22.52 in
27 Shipping Dimensions (Pallet)	Shipping pallet size : 1102 x 984 x 1851 mm, 43.39 x 38.74 x 62.87 in
27 Pallet Quantity	15 units per pallet
Weight	
34 Product Weight (Unboxed)	Without Arm: 6.8 kg, 15.0 lb Without Base: 7.28 kg, 16 lb Whole system with Base: 10.3 kg, 22.8 lb
34 Shipping Weight (Boxed)	System with package weight: 17.32 kg , 38.14 lb

Features

34 Shipping Weight (Pallet)	Total Weight including pallet: 228 kg, 502.65 lb
Dimension	
34 System Dimensions	Without Base: 815.8 x 73.8 x 366.7 mm, 32.1 x 2.9 x 14.44 in Base only: 400 x 190 x 37 mm, 15.7 x 7.5 x 1.5 in With Base: 815.8 x 190 x 457.3 mm, 32.1 x 7.5 x 18 in
34 Shipping Dimensions (Boxed)	Package: 985 x 292 x 608 mm, 38.78 x 11.5 x 23.94 in
34 Shipping Dimensions (Pallet)	Shipping pallet size : 1168 x 984 x 1959 mm, 45.98 x 38.74 x 77.13 in
34 Pallet Quantity	12 units per pallet

ENVIRONMENTAL AND INDUSTRY

UNIT ENVORINMENT AND OPERATIING CONDITIONS

General Unit Operating Guidelines

- Keep the computer away from excessive moisture, direct moisture and the extremes of heat and cold, to ensure that unit is operated within the specified operating range.
- Leave a 10.2 cm (4 in) clearance on all vented sides of the computer to permit the required airflow.
- Never restrict airflow into the computer by blocking any vents or air intakes.
- Do not stack computers on top of each other or place computers so near each other that they are subject to each other's re-circulated or preheated air.
- Occasionally clean the air vents on the front, back, and any other vented side of the computer. Lint, dust and other foreign matter can block the vents and limit the airflow.
- If the computer is to be operated within a separate enclosure, intake and exhaust ventilation must be provided on the enclosure, and the same operating guidelines listed above will still apply.

Temperature Range	Operating: 50° to 95° F (10° to 35° C)* Non-operating: -22° to 140° F(-30° to 60° C)
Relative Humidity	Operating: 10% to 90% (non-condensing at ambient) Non-operating: 5% to 95% (non-condensing at ambient)
Maximum Altitude (unpressurized)	Operating: 5000m Non-operating: 50000ft (15240 m)

NOTE: Operating temperature is de-rated 1.0 deg C per 300 m (1000 ft) to 3000 m (10,000 ft) above sea level, no direct sustained sunlight. Maximum rate of change is 10 deg C/Hr. The upper limit may be limited by the type and number of options installed.

STORAGE AND DRIVES

500GB 7200 RPM SATA Hard Drive	Capacity	500 GB
	Rotational Speed	7,200 rpm
	Interface	SATA 6 Gb/s
	Buffer Size	16 MB
	Logical Blocks	976,773,168
	Seek Time	12 ms (Average)
	Height	0.267 in/6.8 mm (nominal)
	Width	2.75 in/70 mm (nominal)
	Operating Temperature	41° to 131° F (5° to 55° C)

NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 10) of system disk is reserved for the system recovery software.

1TB 7200 RPM SATA Hard Drive	Capacity	1 TB
	Rotational Speed	7,200 rpm
	Interface	SATA 6 Gb/s
	Buffer Size	32 MB
	Logical Blocks	1,953,525,168
	Seek Time	12 ms (Average)
	Height	0.374 in/9.5 mm (nominal)
	Width	2.75 in/70 mm (nominal)
	Operating Temperature	41° to 131° F (5° to 55° C)

NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 10) of system disk is reserved for the system recovery software.

500GB 5400 RPM Solid State Hybrid Drive	Capacity	500 GB
	Rotational Speed	5,400 rpm
	Drive Type	Solid State Hybrid Drive (SSHD) technology with NAND Flash
	Interface	SATA 6 Gb/s
	Buffer Size	64 MB
	NAND Flash	8GB
	Seek Time	12 ms (Average)
	Height	0.267 in/6.8 mm (nominal)
	Width	2.75 in/70 mm (nominal)
	Operating Temperature	41° to 131° F (5° to 55° C)

NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 10) of system disk is reserved for the system recovery software.

Technical Specifications - Storage

1TB 5400 RPM Solid State Hybrid Drive	Capacity	1 TB
	Rotational Speed	5,400 rpm
	Drive Type	Solid State Hybrid Drive (SSHD) technology with NAND Flash
	Interface	SATA 6 Gb/s
	Buffer Size	64 MB
	NAND Flash	8 GB
	Seek Time	12 ms (Average)
	Height	0.374 in/9.5 mm (nominal)
	Width	2.75 in/70 mm (nominal)
	Operating Temperature	41° to 131° F (5° to 55° C)

NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 10) of system disk is reserved for the system recovery software.

2TB 5400 RPM Solid State Hybrid Drive	Capacity	2 TB
	Rotational Speed	5,400 rpm
	Drive Type	Solid State Hybrid Drive (SSHD) technology with NAND Flash
	Interface	SATA 6 Gb/s
	Buffer Size	128 MB
	NAND Flash	8GB
	Seek Time	12 ms (Average)
	Height	0.374 in/9.5 mm (nominal)
	Width	2.75 in/70 mm (nominal)
	Operating Temperature	41° to 131° F (5° to 55° C)

NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 10) of system disk is reserved for the system recovery software.

2TB 5400 RPM SATA Hard Drive	Capacity	2 TB
	Rotational Speed	5,400 rpm
	Interface	SATA 6 Gb/s
	Buffer Size	128MB
	Logical Blocks	3,907,050,336
	Seek Time	12 ms (Average)
	Height	0.374 in/9.5 mm (nominal)
	Width	2.75 in/70 mm (nominal)
	Operating Temperature	41° to 131° F (5° to 55° C)
	Capacity	2TB
	Rotational Speed	5,400 rpm

NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 10) of system disk is reserved for the system recovery software.

Technical Specifications - Storage

500GB SED Solid State Drive	Capacity	500 GB
	Rotational Speed	Self-Encrypting (SED) Solid State Drive with SATA interface
	Interface	SATA 6 Gb/s
	Buffer Size	32 MB
	Logical Blocks	976,773,168
	Seek Time	12 ms (Average)
	Height	0.267 in/6.8 mm (nominal)
	Width	2.75 in/70 mm (nominal)
	Operating Temperature	41° to 131° F (5° to 55° C)

NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 10) of system disk is reserved for the system recovery software.

128GB SATA TLC Solid State Drive	Drive Weight	up to 50g (0.11lb)
	Capacity	128 GB
	Height	7mm (0.276in)
	Width	70mm (2.756 in)
	Interface	SATA 3.0 (6Gb/s)
	Maximum Sequential Read	Up to 530MB/s
	Maximum Sequential Write	Up to 450MB/s
	Logical Blocks	250,069,680
	Operating Temperature	0° to 70°C (32° to 158°F) [ambient temp]
	Features	DIPM; TRIM;

NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 10) of system disk is reserved for the system recovery software.

256GB SATA TLC Solid State Drive	Drive Weight	up to 50g (0.11lb)
	Capacity	256GB
	Height	7mm (0.276in)
	Width	70mm (2.756 in)
	Interface	SATA 3.0 (6Gb/s)
	Maximum Sequential Read	Up to 540MB/s
	Maximum Sequential Write	Up to 500MB/s
	Logical Blocks	500,118,192
	Operating Temperature	0° to 70°C (32° to 158°F) [ambient temp]
	Features	DIPM; TRIM;

NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 10) of system disk is reserved for the system recovery software.

Technical Specifications - Storage

512GB SATA TLC Solid State Drive	Drive Weight	up to 50g (0.11lb)
	Capacity	512 GB
	Height	7mm (0.276in)
	Width	70mm (2.756 in)
	Interface	SATA 3.0 (6Gb/s)
	Maximum Sequential Read	Up to 540MB/s
	Maximum Sequential Write	Up to 500MB/s
	Logical Blocks	1,000,215,216
	Operating Temperature	0° to 70°C (32° to 158°F) [ambient temp]
	Features	DIPM; TRIM;

NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 10) of system disk is reserved for the system recovery software.

256GB SATA TLC SED OPAL2 Solid State Drive	Drive Weight	up to 50g (0.11lb)
	Capacity	256 GB
	Height	7mm (0.276in)
	Width	70mm (2.756 in)
	Interface	SATA 3.0 (6Gb/s)
	Maximum Sequential Read	Up to 540MB/s
	Maximum Sequential Write	Up to 500MB/s
	Logical Blocks	500,118,192
	Operating Temperature	0° to 70°C (32° to 158°F) [ambient temp]
	Features	DIPM; TRIM; Self Encrypting Drive with OPAL2.0

NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 10) of system disk is reserved for the system recovery software.

512GB SATA TLC SED OPAL2 Solid State Drive	Drive Weight	up to 50g (0.11lb)
	Capacity	512 GB
	Height	7mm (0.276in)
	Width	70mm (2.756 in)
	Interface	SATA 3.0 (6Gb/s)
	Maximum Sequential Read	Up to 540MB/s
	Maximum Sequential Write	Up to 500MB/s
	Logical Blocks	1,000,215,216
	Operating Temperature	0° to 70°C (32° to 158°F) [ambient temp]
	Features	DIPM; TRIM; Self Encrypting Drive with OPAL2.0

NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 10) of system disk is reserved for the system recovery software.

256 GB SATA TLC FIPS 140-2 SED Solid State Drive	Drive Weight	up to 50g (0.11lb)
	Capacity	256 GB
	Height	7mm (0.276in)

Technical Specifications - Storage

	Width	70mm (2.756 in)
	Interface	SATA 3.0 (6Gb/s)
	Maximum Sequential Read	Up to 540MB/s
	Maximum Sequential Write	Up to 500MB/s
	Logical Blocks	500,118,192
	Operating Temperature	0° to 70°C (32° to 158°F) [ambient temp]
	Features	DIPM; TRIM; FIPS 140-2

NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 10) of system disk is reserved for the system recovery software.

512GB 2.5" SATA-3 TLC FIPS 140-2 SED Solid State Drive	Drive Weight	up to 50g (0.11lb)
	Capacity	512 GB
	Height	7mm (0.276in)
	Width	70mm (2.756 in)
	Interface	SATA 3.0 (6Gb/s)
	Maximum Sequential Read	Up to 540MB/s
	Maximum Sequential Write	Up to 500MB/s
	Logical Blocks	1,000,215,216
	Operating Temperature	0° to 70°C (32° to 158°F) [ambient temp]
	Features	DIPM; TRIM; FIPS 140-2

NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 10) of system disk is reserved for the system recovery software.

256GB M.2 PCIE NVME Solid State Drive	Drive Weight	up to 10g (0.022lb)
	Capacity	256GB
	Height	2.38mm (0.093in)
	Width	22mm (0.87in)
	Length	80mm (3.15in)
	Interface	PCIE Gen3
	Maximum Sequential Read	Up to 1600MB/s
	Maximum Sequential Write	Up to 550MB/s
	Logical Blocks	500,118,192
	Operating Temperature	0° to 70°C (32° to 158°F) [ambient temp]
	Features	APST; ASPM L1.2; NVME spec 1.2

NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 10) of system disk is reserved for the system recovery software.

Technical Specifications - Storage

512GB M.2 PCIE NVME Solid State Drive	Drive Weight	up to 10g (0.022lb)
	Capacity	512 GB
	Height	2.38mm (0.093in)
	Width	22mm (0.87in)
	Length	80mm (3.15in)
	Interface	PCIE Gen3
	Maximum Sequential Read	Up to 1800MB/s
	Maximum Sequential Write	Up to 550MB/s
	Logical Blocks	1,000,215,216
	Operating Temperature	0° to 70°C (32° to 158°F) [ambient temp]
	Features	APST; ASPM L1.2; NVME spec 1.2

NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 10) of system disk is reserved for the system recovery software.

256GB M.2 PCIE NVME TLC Solid State Drive	Drive Weight	up to 10g (0.022lb)
	Capacity	256GB
	Height	2.38mm (0.093in)
	Width	22mm (0.87in)
	Length	80mm (3.15in)
	Interface	PCIE Gen3 x 4
	Performance	Up to 2700MB/s
	Maximum Sequential Read	Up to 1100MB/s
	Maximum Sequential Write	500,118,192
	Logical Blocks	0° to 70°C (32° to 158°F) [ambient temp]
	Operating Temperature	APST; ASPM L1.2; NVME spec 1.2
	Features	Up to 2700MB/s

NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 10) of system disk is reserved for the system recovery software.

Technical Specifications - Storage

512GB M.2 PCIE NVME TLC Solid State Drive	Drive Weight	up to 10g (0.022lb)
	Capacity	512GB
	Height	2.38mm (0.093in)
	Width	22mm (0.87in)
	Length	80mm (3.15in)
	Interface	PCIE Gen3 x 4
	Maximum Sequential Read	Up to 2700MB/s
	Maximum Sequential Write	Up to 1400MB/s
	Logical Blocks	1,000,215,216
	Operating Temperature	0° to 70°C (32° to 158°F) [ambient temp]
	Features	APST; ASPM L1.2; NVME spec 1.2

NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 10) of system disk is reserved for the system recovery software.

1TB M.2 PCIE NVME TLC Solid State Drive	Drive Weight	up to 10g (0.022lb)
	Capacity	1 TB
	Height	2.38mm (0.093in)
	Width	22mm (0.87in)
	Length	80mm (3.15in)
	Interface	PCIE Gen3 x 4
	Maximum Sequential Read	Up to 2700MB/s
	Maximum Sequential Write	Up to 1500MB/s
	Logical Blocks	2,000,409,264
	Operating Temperature	0° to 70°C (32° to 158°F) [ambient temp]
	Features	APST; ASPM L1.2; NVME spec 1.2

NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 10) of system disk is reserved for the system recovery software.

GRAPHICS

Intel® UHD Graphics (integrated)

DisplayPort™	Multimode capable; supports HDCP 2.2, Display Port Audio (2 strear
HDMI	Multi-Stream Technology for a maximum of 3 displays (including th
Optional	Supports HDMI 2.0a features
Memory	The actual amount of maximum graphics memory can be >4GB. Sys graphics as needed using Intel's Dynamic Video Memory Technolog optimal balance between graphics and system memory use.
Maximum Color Depth	Up to 10 bits/color
Graphics/Video API Support	HEVC 10b Enc/Dec HW VP9 10b Dec HW HDR Rec. 2020 DX12"

AMD Radeon™ RX 560 Graphics

Architecture	Discrete hybrid graphics configuration
Memory	4GB GDDR5 on a x128 bit bus
Outputs	Since this is a hybrid design, the AMD graphics' output capabilities a Intel Graphics
System Bus Connection	PCIEx8
API support	DirectX 12 OpenCL 2.0 OpenGL 4.5

Display Output chart.

Resolution	Refresh Rate	VGA (Using HP DP to VGA adapter)	DVI-D (Using HP DP to DVI-D adapter)	DisplayPort™	HDMI	Standard
640 x 480	60, 75, 85	X	X	X	X	VESA DMT, CVT 0.31M3
720 x 400	70	X	X	X	X	IBM VGA
800 x 600	60, 75, 85	X	X	X	X	VESA DMT, CVT0.48M3
1024 x 768	60, 75, 85	X	X	X	X	VESA DMT, CVT 0.79M3
1152 x 864	60, 75, 85	X	X	X	X	VESA DMT, CVT 0.83MA
1280 x 720	60, 75, 85	X	X	X	X	VESA DMT, CVT 0.92M9, CEA-770.3
1280 x 768	60, 60RB, 75, 85	X	X	X	X	VESA DMT, CVT 0.98M9/0.98M9-R
1280 x 800	60, 75, 85	X	X	X	X	VESA DMT
1280 x 960	60, 75, 85	X	X	X	X	VESA DMT
1280 x 1024	60, 75, 85	X	X	X	X	VESA DMT, CVT 1.31M4
1366 x 768	60, 60RB	X	X	X	X	VESA DMT
1440 x 900	60, 60RB	X	X	X	X	VESA DMT
1600 x 900	60, 60RB, 75, 85	X	X	X	X	VESA DMT

Technical Specifications - Graphics

1680 x 1050	60, 60RB	X	X	X	X	VESA DMT, CVT 1.76MA/1.76MA-R
1920 x 1080	60	X	X	X	X	VESA DMT, CVT 2.07M9, SMPTE 274M
1920 x 1080	75			X	X	CVT-RBv2 (2.07M-R)
1920 x 1080	100			X	X	CVT-RBv2 (6.14M-R)
1920 x 1080	120			X	X	SMPTE 274M
1920 x 1080	144			X	X	SMPTE 274M
1920 x 1200	60, 60RB	X[1]	X	X	X	DMT, CVT 2.30MA/2.30MA-R
1600 x 1200	60	X	X	X	X	VESA DMT, 1.92M3
1920 x 1440	60, 75, 85			X	X	VESA DMT, CVT 2.76M3
1920 X 1600	59.95			X	X	CVT-RBv2 (Not CVT Standard Aspect Ratio)
2048 x 1536	60			X	X	CVT 3.15M3
2560 x 1440	59.951			X	X	CVT 3.69M9-R
2560 x 1600	60, 60RB			X	X	VESA DMT, CVT 4.10MA/4.10MA-R
3440 x 1200	60			X	X	CVT-4.61M-R
3440 x 1440	49.987			X	X	CVT-RB v1
3440 x 1440	59.973			X	X	CVT-RB v1
3440 x 1440	60			X	X	Samsung Custom
3440 x 1440	100			X	X	CVT-RBv2 (4.95M-R)
3440 x 1440	120			X	X	CVT-RBv2 (4.95M-R)
3840 x 1600	30			X	X	CVT-RBv2 (6.14M-R)
3840 x 1600	59.994			X	X	CVT-RBv2
3840 x 2160	24			X	X	SMPTE 274M
3840 x 2160	25			X	X	SMPTE 274M
3840 x 2160	30			X	X	SMPTE 274M
3840 x 2160	29.981			X	X	CVT-RB v1
3840 x 2160	50			X	X	SMPTE 274M
3840 x 2160	59.997			X	X	CVT-RBv1 (8.29M9-R)
3840 x 2160	60			X	X	SMPTE 274M
4096 x 2160	24			X	X	SMPTE 274M
4096 x 2160	25			X	X	SMPTE 274M
4096 x 2160	30			X	X	SMPTE 274M
4096 x 2160	50			X	X	SMPTE 274M
4096 x 2160	59.94			X	X	CVT-RBv2
4096 x 2160	60			X	X	CVT-RBv2
1920 x 1080	60		X	X	X	VESA (SMPTE 274M)
1920 x 1080	50		X	X	X	SMPTE 274M
1920 x 1080	30		X	X	X	SMPTE 274M
1920 x 1080	24		X	X	X	SMPTE 274M
1280 x 720	60		X	X	X	VESA (CEA-770.3)

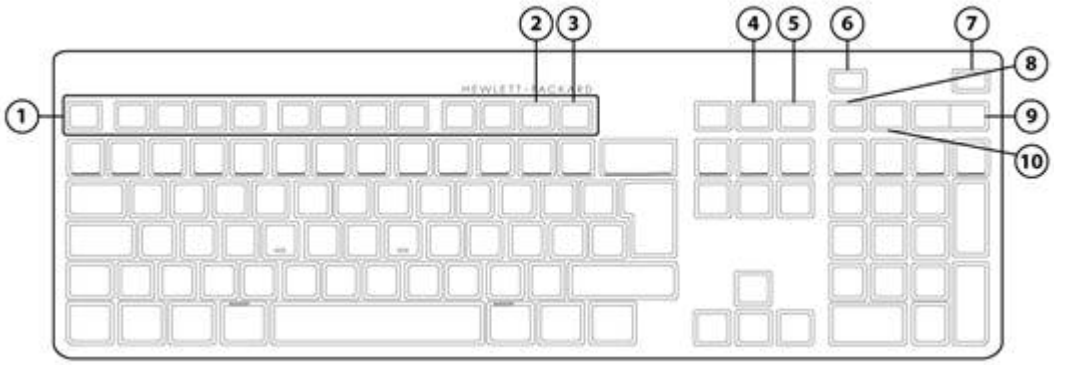
Technical Specifications - Graphics

1280 x 720	50		X	X	X	SMPTE 296M
720 x 480	59.94		X	X	X	MHL (CEA-770.2)
720 x 576	50		X	X	X	ITU-R BT.1358
640 x 480	59.94		X	X	X	CEA (VESA DMT)

NOTE: Other refresh rates and resolutions may also work, but have not been validated.
>60Hz refresh rates only for analog (VGA) signaling
1. 60Hz Reduced Blanking only

INPUT/OUTPUT DEVICES

HP Conferencing Keyboard



1.	Function Keys	**6.**	End/Decline a Call
2.	F11 Lync or Skype for Business Contact list [1]	**7.**	Answer a Call
3.	F12 Lync or Skype for Business Calendar[2]	**8.**	Microphone Mute
4.	Share Screen	**9.**	Volume Up/Down
5.	Stop Webcam	**10.**	Audio Mute

1. Microsoft Lync 2013, or Skype for Business Contact list
2. Microsoft Lync 2013, or Skype for Business Calendar

HP USB Premium Keyboard

Physical Characteristics	Keys	104, 105 layout (depending upon country)
	Dimensions (L x W x H)	17.04 x 5.55 x 0.52 in (433 x 141 x13.2 mm)
	Weight	1.54 lb (698g)
Electrical	Operating voltage	5 VDC, +/-5%
	Power consumption	35mA (All LED on)
	System interface	USB Type A plug connector
	ESD	Contact Discharge: 8 KV Air Discharge: 15 KV
	EMI - RFI	Conforms to FCC rules for a Class B computing device
Mechanical	Microsoft® PC 99 - 2001	Mechanically compliant
	Keycaps	Low-profile design
	Switch actuation	60±10g nominal peak force with tactile feedback
	Switch life	10 million keystrokes (Life tester)
	Switch type	Contamination-resistant switch membrane
	Key-leveling mechanisms	For all double-wide and greater-length keys

Technical Specifications – I/O Devices

	Cable length	6 ft (1.8 m)
	Microsoft PC 99 - 2001	Mechanically compliant
	Acoustics	43-dBA maximum sound pressure level
	Operating temperature	50° to 122° F (10° to 50° C)
	Non-operating temperature	-22° to 140° F (-30° to 60° C)
	Operating humidity	10% to 90% (non-condensing at ambient)
	Non-operating humidity	20% to 80% (non-condensing at ambient)
	Operating shock	40 g, six surfaces
	Non-operating shock	80 g, six surfaces
Environmental	Operating vibration	2-g peak acceleration
	Non-operating vibration	4-g peak acceleration
	Drop (out of box)	26 in (66 cm) on carpet, six-drop sequence
	Drop (in box)	30 in (76.2 cm) on concrete, 16-drop sequence
	Approvals	UL, FCC, CE Mark, VCCI, BSMI, C-Tick, KC
	Ergonomic compliance	TUVGS
	Kit contents	Keyboard, QSP
	Warranty Card	Product Notice

Skylab USB wired Keyboard

	Keys	104, 105, 106, 107, 109 layout (depending upon country)
Physical Characteristics	Dimensions (L x W x H)	171.97 x 68.35 x 8.27 in (436.8± 1.5 x 137.6± 1.0 x 21.0± 1.0 cm)
	Weight	1.32 lb (0.6± 0.08 kg)
	Operating voltage	4.4-5.25VDC
	Power consumption	50-mA maximum (with 5 VDC power supplied and three LEDs ON)
Electrical	System interface	USB
	ESD	Contact Discharge: 2, 4,6,8KV Air Discharge: 2, 4, 8,10,12.5KV
	EMI - RFI	Conforms to FCC rules for a Class B computing device
	Keycaps	Low-profile design
	Switch actuation	60±15g nominal peak force with tactile feedback
Mechanical	Switch life	10 million keystrokes (Life tester)
	Switch type	Silicon rubber switch membrane
	Cable length	6 ft (1.8 m)
	Acoustics	43-dBA maximum sound pressure level
	Temperature	50° to 122° F (10° to 50° C)
	Humidity	20% to 80% (non-condensing at ambient)
	Vibration	2-g peak acceleration

Technical Specifications – I/O Devices

Environmental	Drop (out of box)	26 in (66 cm) on carpet, six-drop sequence
	Drop (in box)	30 in (76.2 cm) on concrete, 16-drop sequence
	Approvals	UL, FCC, CE Mark, VCCI, BSMI, C-Tick, KC
	Ergonomic compliance	ANSI HFS 100, ISO 9241-4, and TUVGS
	Kit contents	Keyboard, Installation Guide, Warranty card, Safety and Comfort Guide

HP USB Premium Mouse

Physical characteristics	Dimensions (L x W x H)	4.21 x 2.64 x 1.52 in (107 x 67 x 38.7 mmm)
	Weight w/o cable	0.19lb (90g)
Environmental	Operating temperature	50° to 122° F (10° to 50° C)
	Non-operating temperature	-22° to 140° F (-30° to 60° C)
	Operating humidity	10% to 90% (non-condensing at ambient)
	Non-operating humidity	20% to 80% (non-condensing at ambient)
	Operating shock	50 g, 6 surfaces
	Non-operating shock	80 g, 6 surfaces
	Operating vibration	2-g peak acceleration
	Non-operating vibration	4-g peak acceleration
Electrical	Operating voltage	5 VDC, +/-5%
	Power consumption (typical)	12mA
Mechanical	Connector	USB 2.0
	Type	3D mouse (3 keys and wheel)
	Resolution	800, 1200, 1600 DPI
	Sensor	Pixart PAN3606DL
	Tracking speed	30 inch/sec (max)
	Tracking acceleration	8G(max), 1G=9.8m/s2
	Cable length	6 ft (1.8 m)
	Color	Jack Black
	Regulatory Approvals	UL, FCC, CE Mark, VCCI, BSMI, C-Tick, KC

Technical Specifications – I/O Devices

Apollo wired USB MS		
Physical characteristics	Dimensions (H x L x W)"	2.5 x 4.5 x 1.5 in (63.5 x 114.3 x 38.1 mm)
	Weight	0.22 lb (99.79 g)
	Color	Black
	Connector	USB
	Resolution	799 DPI sensitivity
	Buttons	Two primary buttons and clickable scroll wheel

Technical Specifications – Audio

AUDIO

Audio by Bang & Olufsen*
Internal 2watt stereo speaker
3.5mm Combo Jack

High Definition Audio	
Type	Integrated
HD Audio Codec	Conexant CX5001
Audio I/O Ports	Universal Audio Jack with CTIA headset support (re-taskable for headphone/line out/microphone in/line in)
Wavetable Syntheses	Yes - Uses OS soft wavetable
Analog Audio	Yes
Internal Speaker	Yes - two speakers (optional)
DAC Sampling Rates	44.1kHz/48kHz/96kHz/192kHz
ADC Sampling Rates	44.1kHz/48kHz/96kHz

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

WEBCAM & MICROPHONE

Integrated microphones and FHD (1920X1080) RGB webcam
No support for RealSense
Integrated dual discrete microphone modules
For Windows Hello

NOTE: All HP devices which carry the Bang & Olufsen brand are custom-tuned with Bang & Olufsen's acoustical engineers for precise sound experience in business use.

POWER SUPPLY

Operating Voltage Range	90 - 264 VAC
Rated Voltage Range	100-240V AC
Rated Line Frequency	50/60 HZ
Operating Line Frequency	47 - 63 Hz
Rated Input Current	180W: 2.5A
Rated Input Current with Energy Efficient* Power Supply	180W: 2.5A 180W active PFC 87/90/87% efficient at 20/50/100% load (115V) 88/91/88% efficient at 20/50/100% load (230V)
DC Output	+19.5V
Current Leakage (NFPA 99: 2102)	Less than 500 microamps of leakage current at 120 Vac with the ground wire disconnected, as required for Non-patient Electrical Appliances and Equipment used in a patient care facility or that contact patients in normal use. Per section 10.3.5.1. Less than 100 microamps of leakage current at 120 Vac with the ground wire intact with normal polarity as required for Non-patient Electrical Appliances and Equipment used in a patient care facility or that contact patients in normal use. Per section 10.3.5.1.
Power cord length	6.0 ft. (1.83 m)

NETWORKING

Intel i219LM 10/100/1000 Integrated NIC	
Connector	RJ-45
System Interface	PCI (Intel proprietary) + SMBus
Data rates supported	10 Mbit/s operation (10BASE-T; IEEE 802.3i; IEEE 802.3 clauses 13-14) 100 Mbit/s operation (100BASE-TX; IEEE 802.3u; IEEE 802.3 clauses 21-30) 1000 Mbit/s operation (1000BASE-T; IEEE 802.3ab; IEEE 8023 clauses 40) Auto-Negotiation (Automatic Speed Selection) Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/s
IEEE Compliance	IEEE 802.1p QoS (Quality of Service) Support IEEE 802.1q VLAN support IEEE 802.3x Flow Control (IEEE 802.3 clauses 31-32; configurable) IEEE 802.3az EEE (Energy Efficient Ethernet)
Performance	TCP/IP/UDP Checksum Offload (configurable) Protocol Offload (ARP & NS) Large send offload and Giant send offload Receiving Side Scaling Jumbo Frame 9K
Power Consumption	Cable Disconnetion: 25mW 100Mbps Full Run: 450mW 1000bp Full Run: 1000mW WoL Enable(S3/S4/S5): 50mW WoL Disable(S3/S4/S5): 25mW
Power Management	ACPI compliant - multiple power modes Situation-sensitive features reduce power consumption Advanced link down power saving for reducing link down power consumption
Management Interface	Auto MDI/MDIX Crossover cable detection
IT Manageability	Wake-on-LAN from standby and hibernation (Magic Packet and Microsoft Wake-Up Frame); Wake-on-LAN from off (Magic Packet only) PXE 2.1 Remote Boot Statistics Gathering (SNMP MIB II, Ethernet-like MIB, Ethernet MIB (802.3x, clause 30)) Comprehensive diagnostic and configuration software suite Virtual Cable Doctor for Ethernet cable status
Security & Manageability	Intel® vPro™ support with appropriate Intel® chipset components

Intel® Jefferson Peak 9560 802.11a/b/g/n/ac (2x2) WiFi and Bluetooth® 5.0 Combo [1] vPro		
Wireless LAN Standards	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac	
Interoperability	Wi-Fi certified	
Frequency Band	**802.11b/g/n**	• 2.402 - 2.482 GHz
	802.11a/n	• 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

Technical Specifications – Networking

Data Rates	• 802.11b: 1, 2, 5.5, 11 Mbps • 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz) • 802.11ac : MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, ,80MHz & 160MHz)	
Modulation	Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM	
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 • IEEE 802.11i • Cisco Certified Extensions, all versions through CCX4 and CCX Lite • WAPI	
Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)	
Roaming	IEEE 802.11 compliant roaming between access points	
Output Power	• 802.11b : +18.5dBm minimum • 802.11g : +17.5dBm minimum • 802.11a : +18.5dBm minimum • 802.11n HT20(2.4GHz) : +15.5dBm minimum • 802.11n HT40(2.4GHz) : +14.5dBm minimum • 802.11n HT20(5GHz) : +15.5dBm minimum • 802.11n HT40(5GHz) : +14.5dBm minimum • 802.11ac VHT80(5GHz) : +11.5dBm minimum • 802.11ac VHT160(5GHz) : +11.5dBm minimum	
Power Consumption	• Transmit mode2.0 W • Receive mode1.6 W • Idle mode (PSP)180 mW(WLAN Associated) • Idle mode50 mW(WLAN unassociated) • Connected Standby 10mW • Radio disabled8 mW	
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode	
Receiver Sensitivity	802.11b, 1Mbps : -93.5dBm maximum 802.11b, 11Mbps : -84dBm maximum 802.11a/g, 6Mbps : -86dBm maximum 802.11a/g, 54Mbps : -72dBm maximum 802.11n, MCS07 : -67dBm maximum 802.11n, MCS15 : -64dBm maximum 802.11ac, MCS0 : -84dBm maximum 802.11ac, MCS9 : -59dBm maximum	
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	Type 2230 : 2.3 x 22.0 x 30.0 mm	
Weight	Type 2230 : 2.8g	
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

Technical Specifications – Networking

Humidity	**Operating**	10% to 90% (non-condensing)
	Non-operating	5% to 95% (non-condensing)
Altitude	**Operating**	0 to 10,000 ft (3,048 m)
	Non-operating	0 to 50,000 ft (15,240 m)
LED Activity	LED Amber - Radio OFF; LED White - Radio ON	
HP Integrated Module with Bluetooth 4.0/4.1/4.2/5.0 Wireless Technology		
Bluetooth Specification	4.0/4.1/4.2/5.0 Compliant	
Frequency Band	2402 to 2480 MHz	
Number of Available Channels	Legacy: 0~79 (1 MHz/CH) BLE : 0~39 (2 MHz/CH)	
Data Rates and Throughput	Legacy: 3 Mbps data rate; throughput up to 2.17 Mbps BLE : 1 Mbps data rate; throughput up to 0.2 Mbps Legacy : Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Legacy : Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or 864 kbps symmetric (3-EV5)	
Transmit Power	The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of + 4 dBm for BR and EDR.	
Power Consumption	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW	
Bluetooth Software Supported Link Topology	Microsoft Windows Bluetooth Software	
Power Management	Microsoft Windows ACPI, and USB Bus Support	
Certifications	FCC (47 CFR) Part 15C, Section 15.247 & 15.249	
Power Management Certifications	ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark	
Bluetooth Profiles Supported	BT4.1-ESR 5/6/7 Compliance LE Link Layer Ping LE Dual Mode LE Link Layer LE Low Duty Cycle Directed Advertising LE L2CAP Connection Oriented Channels Train Nudging & Interlaced Scan BT4.2 ESR08 Compliance LE Secure Connection- Basic/Full LE Privacy 1.2 -Link Layer Privacy LE Privacy 1.2 -Extended Scanner Filter Policies LE Data Packet Length Extension FAX Profile (FAX) Basic Imaging Profile (BIP)2 Headset Profile (HSP) Hands Free Profile (HFP) Advanced Audio Distribution Profile (A2DP)	
Security & Manageability	Intel® vPro™ support with appropriate Intel® chipset components	
NOTE: Wireless access point and Internet service is required. Availability of public wireless access point is limited. The specifications for the 802.11ac WLAN are draft specifications and are not final. If the final specifications differ from the draft specifications, it may affect the ability of the notebook to communicate with other 802.11ac WLAN devices		

Intel® Jefferson Peak 9560 802.11a/b/g/n/ac (2x2) WiFi and Bluetooth® 5.0 Combo [1] non-vPro	
Wireless LAN Standards	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac

Technical Specifications – Networking

Interoperability	Wi-Fi certified	
Frequency Band	**802.11b/g/n**	2.402 - 2.482 GHz
	802.11a/n	4.9 - 4.95 GHz (Japan) 5.15 - 5.25 GHz 5.25 - 5.35 GHz 5.47 - 5.725 GHz 5.825 - 5.850 GHz
Data Rates	802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz) 802.11ac : MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, and 80MHz)	
Modulation	Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM	
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 IEEE 802.11i Cisco Certified Extensions, all versions through CCX4 and CCX Lite WAPI	
Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)	
Roaming	IEEE 802.11 compliant roaming between access points	
Output Power[2]	802.11b : +14dBm minimum 802.11g : +12dBm minimum 802.11a : +12dBm minimum 802.11n HT20(2.4GHz) : +12dBm minimum 802.11n HT40(2.4GHz) : +12dBm minimum 802.11n HT20(5GHz) : +10dBm minimum 802.11n HT40(5GHz) : +10dBm minimum 802.11ac VHT80(5GHz) : +10dBm minimum	
Power Consumption	Transmit mode2.0 W Receive mode1.6 W Idle mode (PSP)180 mW(WLAN Associated) Idle mode50 mW(WLAN unassociated) Connected Standby 10mW Radio disabled8 mW	
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode	
Receiver Sensitivity[3]	802.11b, 1Mbps : -93.5dBm maximum 802.11b, 11Mbps : -84dBm maximum 802.11a/g, 6Mbps : -86dBm maximum 802.11a/g, 54Mbps : -72dBm maximum 802.11n, MCS07 : -67dBm maximum 802.11n, MCS15 : -64dBm maximum 802.11ac, MCS0 : -84dBm maximum 802.11ac, MCS9 : -59dBm maximum	
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	Type 2230 : 2.3 x 22.0 x 30.0 mm	
Weight	Type 2230 : 2.8g	
Operating Voltage	3.3v +/- 9%	

Technical Specifications – Networking

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

HP Integrated Module with Bluetooth 4.0/4.1/4.2/5.0 Wireless Technology	
Bluetooth Specification	4.0/4.1/4.2 Compliant
Frequency Band	2402 to 2480 MHz
Number of Available Channels	Legacy: 0~79 (1 MHz/CH) BLE: 0~39 (2 MHz/CH)
Data Rates and Throughput	Legacy: 3 Mbps data rate; throughput up to 2.17 Mbps BLE : 1 Mbps data rate; throughput up to 0.2 Mbps Legacy : Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Legacy : Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or 864 kbps symmetric (3-EV5)
Transmit Power	The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of + 4 dBm for BR and EDR.
Power Consumption	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW
Bluetooth Software Supported Link Topology	Microsoft Windows Bluetooth Software
Power Management	Microsoft Windows ACPI, and USB Bus Support
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	ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark
	BT4.1-ESR 5/6/7 Compliance LE Link Layer Ping LE Dual Mode LE Link Layer LE Low Duty Cycle Directed Advertising LE L2CAP Connection Oriented Channels Train Nudging & Interlaced Scan BT4.2 ESR08 Compliance LE Secure Connection- Basic/Full LE Privacy 1.2 -Link Layer Privacy LE Privacy 1.2 -Extended Scanner Filter Policies LE Data Packet Length Extension FAX Profile (FAX) Basic Imaging Profile (BIP)2 Headset Profile (HSP) Hands Free Profile (HFP) Advanced Audio Distribution Profile (A2DP)
NOTE: Wireless access point and Internet service is required. Availability of public wireless access point is limited. The specifications for the 802.11ac WLAN are draft specifications and are not final. If the final specifications differ from the draft specifications, it may affect the ability of the notebook to communicate with other 802.11ac WLAN devices	

Realtek 802.11a/b/g/n/ac (2x2) WiFi and Bluetooth® 4.2 Combo [1]

Technical Specifications – Networking

Wireless LAN Standards	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac	
Interoperability	Wi-Fi certified	
Frequency Band	**802.11b/g/n**	2.402 - 2.482 GHz
	802.11a/n	4.9 - 4.95 GHz (Japan) 5.15 - 5.25 GHz 5.25 - 5.35 GHz 5.47 - 5.725 GHz 5.825 - 5.850 GHz
Data Rates	802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz) 802.11ac : MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, and 80MHz)	
Modulation	Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM	
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 IEEE 802.11i Cisco Certified Extensions, all versions through CCX4 and CCX Lite WAPI	
Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)	
Roaming	IEEE 802.11 compliant roaming between access points	
Output Power	802.11b : +14dBm minimum 802.11g : +12dBm minimum 802.11a : +12dBm minimum 802.11n HT20(2.4GHz) : +12dBm minimum 802.11n HT40(2.4GHz) : +12dBm minimum 802.11n HT20(5GHz) : +10dBm minimum 802.11n HT40(5GHz) : +10dBm minimum 802.11ac VHT80(5GHz) : +10dBm minimum	
Power Consumption	Transmit mode2.0 W Receive mode1.6 W Idle mode (PSP)180 mW(WLAN Associated) Idle mode50 mW(WLAN unassociated) Connected Standby 10mW Radio disabled8 mW	
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode	
Receiver Sensitivity[3]	802.11b, 1Mbps : -93.5dBm maximum 802.11b, 11Mbps : -84dBm maximum 802.11a/g, 6Mbps : -86dBm maximum 802.11a/g, 54Mbps : -72dBm maximum 802.11n, MCS07 : -67dBm maximum 802.11n, MCS15 : -64dBm maximum 802.11ac, MCS0 : -84dBm maximum 802.11ac, MCS9 : -59dBm maximum	
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	

Technical Specifications – Networking

Dimensions	Type 2230 : 2.3 x 22.0 x 30.0 mm	
Weight	Type 2230 : 2.8g	
Operating Voltage	3.3v +/- 9%	
Temperature	**Operating**	14° to 158° F (-10° to 70° C)
	Non-operating	-40° to 176° F (-40° to 80° C
Humidity	**Operating**	10% to 90% (non-condensing)
	Non-operating	5% to 95% (non-condensing)
Altitude	**Operating**	0 to 10,000 ft (3,048 m)
	Non-operating	0 to 50,000 ft (15,240 m)
LED Activity	LED Amber - Radio OFF; LED White - Radio ON	

HP Integrated Module with Bluetooth 4.0/4.1/4.2 Wireless Technology	
Bluetooth Specification	4.0/4.1/4.2 Compliant
Frequency Band	2402 to 2480 MHz
Number of Available Channels	Legacy : 0~79 (1 MHz/CH) BLE : 0~39 (2 MHz/CH)
Data Rates and Throughput	Legacy : 3 Mbps data rate; throughput up to 2.17 Mbps BLE : 1 Mbps data rate; throughput up to 0.2 Mbps Legacy : Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Legacy : Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or 864 kbps symmetric (3-EV5)
Transmit Power	The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of + 4 dBm for BR and EDR.
Power Consumption	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW
Electrical Interface	USB 2.0 compliant
Bluetooth Software Supported Link Topology	Microsoft Windows Bluetooth Software
Power Management	Microsoft Windows ACPI, and USB Bus Support
Certifications	FCC (47 CFR) Part 15C, Section 15.247 & 15.249
Power Management Certifications	ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark
Bluetooth Profiles Supported	BT4.1-ESR 5/6/7 Compliance LE Link Layer Ping LE Dual Mode LE Link Layer LE Low Duty Cycle Directed Advertising LE L2CAP Connection Oriented Channels Train Nudging & Interlaced Scan BT4.2 ESR08 Compliance LE Secure Connection- Basic/Full LE Privacy 1.2 -Link Layer Privacy LE Privacy 1.2 -Extended Scanner Filter Policies LE Data Packet Length Extension FAX Profile (FAX) Basic Imaging Profile (BIP)2 Headset Profile (HSP) Hands Free Profile (HFP) Advanced Audio Distribution Profile (A2DP)
NOTE: Wireless access point and Internet service is required. Availability of public wireless access point is limited. The specifications for the 802.11ac WLAN are draft specifications and are not final. If the final specifications differ from the draft specifications, it may affect the ability of the notebook to communicate with other 802.11ac WLAN devices	

Technical Specifications – Networking

Realtek 802.11a/b/g/n/ac (1x1) WiFi and Bluetooth® 4.2 Combo [1]		
Wireless LAN Standards	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac	
Interoperability	Wi-Fi certified	
Frequency Band	**802.11b/g/n**	2.402 - 2.482 GHz
	802.11a/n	4.9 - 4.95 GHz (Japan) 5.15 - 5.25 GHz 5.25 - 5.35 GHz 5.47 - 5.725 GHz 5.825 - 5.850 GHz
Data Rates	802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz) 802.11ac : MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, and 80MHz)	
Modulation	Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM	
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 IEEE 802.11i Cisco Certified Extensions, all versions through CCX4 and CCX Lite WAPI	
Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)	
Roaming	IEEE 802.11 compliant roaming between access points	
Output Power	802.11b : +14dBm minimum 802.11g : +12dBm minimum 802.11a : +12dBm minimum 802.11n HT20(2.4GHz) : +12dBm minimum 802.11n HT40(2.4GHz) : +12dBm minimum 802.11n HT20(5GHz) : +10dBm minimum 802.11n HT40(5GHz) : +10dBm minimum 802.11ac VHT80(5GHz) : +10dBm minimum	
Power Consumption	Transmit mode2.0 W Receive mode1.6 W Idle mode (PSP)180 mW(WLAN Associated) Idle mode50 mW(WLAN unassociated) Connected Standby 10mW Radio disabled8 mW	
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode	
Receiver Sensitivity	802.11b, 1Mbps : -93.5dBm maximum 802.11b, 11Mbps : -84dBm maximum 802.11a/g, 6Mbps : -86dBm maximum 802.11a/g, 54Mbps : -72dBm maximum 802.11n, MCS07 : -67dBm maximum 802.11n, MCS15 : -64dBm maximum 802.11ac, MCS0 : -84dBm maximum 802.11ac, MCS9 : -59dBm maximum	

Technical Specifications – Networking

Antenna type	High efficiency antenna. One embedded dual band 2.4/5 GHz antenna is provided to the card to support WLAN communications and Bluetooth communications	
Form Factor	PCI-Express M.2 MiniCard	
Dimensions	Type 2230 : 2.3 x 22.0 x 30.0 mm	
Weight	Type 2230 : 2.8g	
Operating Voltage	3.3v +/- 9%	
Temperature	**Operating**	14° to 158° F (-10° to 70° C)
	Non-operating	-40° to 176° F (-40° to 80° C
Humidity	**Operating**	10% to 90% (non-condensing)
	Non-operating	5% to 95% (non-condensing)
Altitude	**Operating**	0 to 10,000 ft (3,048 m)
	Non-operating	0 to 50,000 ft (15,240 m)
LED Activity	LED Amber - Radio OFF; LED White - Radio ON	
HP Integrated Module with Bluetooth 4.0/4.1/4.2 Wireless Technology		
Bluetooth Specification	4.0/4.1/4.2 Compliant	
Frequency Band	2402 to 2480 MHz	
Number of Available Channels	Legacy: 0~79 (1 MHz/CH) BLE : 0~39 (2 MHz/CH)	
Data Rates and Throughput	Legacy: 3 Mbps data rate; throughput up to 2.17 Mbps BLE : 1 Mbps data rate; throughput up to 0.2 Mbps Legacy : Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Legacy : Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or 864 kbps symmetric (3-EV5)	
Transmit Power	The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of + 4 dBm for BR and EDR.	
Power Consumption	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW	
Electrical Interface	USB 2.0 compliant	
Bluetooth Software Supported Link Topology	Microsoft Windows Bluetooth Software	
Power Management	Microsoft Windows ACPI, and USB Bus Support	
Certifications	FCC (47 CFR) Part 15C, Section 15.247 & 15.249	
Power Management Certifications	ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark	

Technical Specifications – Networking

Bluetooth Profiles Supported	BT4.1-ESR 5/6/7 Compliance LE Link Layer Ping LE Dual Mode LE Link Layer LE Low Duty Cycle Directed Advertising LE L2CAP Connection Oriented Channels Train Nudging & Interlaced Scan BT4.2 ESR08 Compliance LE Secure Connection- Basic/Full LE Privacy 1.2 -Link Layer Privacy LE Privacy 1.2 -Extended Scanner Filter Policies LE Data Packet Length Extension FAX Profile (FAX) Basic Imaging Profile (BIP)2 Headset Profile (HSP) Hands Free Profile (HFP) Advanced Audio Distribution Profile (A2DP)
NOTE: Wireless access point and Internet service is required. Availability of public wireless access point is limited. The specifications for the 802.11ac WLAN are draft specifications and are not final. If the final specifications differ from the draft specifications, it may affect the ability of the notebook to communicate with other 802.11ac WLAN devices	

ENVIRONMETAL DATA

HP EliteOne 1000 G2 Base PC

***Eco-Label* Certifications & declarations**	This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks: • IT ECO declaration • US ENERGY STAR® • EPEAT® 2019 registered where applicable. EPEAT® registration varies by country. See http://www.epeat.net for registration status in your country. • TCO *Based on US EPEAT® registration according to IEEE 1680.1-2018 EPEAT®. Status varies by country. Visit http://www.epeat.net for more information.		
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, 60Hz**
Normal Operation (Short idle)	14.63 W	14.68 W	14.54 W
Normal Operation (Long idle)	13.72 W	13.82 W	13.41 W
Sleep	0.75 W	0.78 W	0.74 W
Off	0.64 W	0.67 W	0.64 W
NOTE:	Energy efficiency data listed is for an ENERGY STAR® compliant product if offered within the model family. HP computers marked with the ENERGY STAR® Logo are compliant with the applicable U.S. Environmental Protection Agency (EPA) ENERGY STAR® specifications for computers. If a model family does not offer ENERGY STAR® compliant configurations, then energy efficiency data listed is for a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system.		
Heat Dissipation*	**115VAC, 60Hz**	**230VAC, 50Hz**	**100VAC, 50Hz**
Normal Operation (Short idle)	50 BTU/hr	50 BTU/hr	50 BTU/hr
Normal Operation (Long idle)	47 BTU/hr	47 BTU/hr	46 BTU/hr
Sleep	3 BTU/hr	3 BTU/hr	3 BTU/hr
Off	2 BTU/hr	2 BTU/hr	2 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 (LWAd, bels)	Sound Pressure (LpAm, decibels)	
Typically Configured - Idle	3.1	20	
Fixed Disk - Random writes	3.1	20	
Longevity and Upgrading	This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the product may include:		

Technical Specifications – Environmental

Batteries	This battery(s) in this product comply with EU Directive 2006/66/EC		
Additional Information	• This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2002/95/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). • Plastics parts weighing over 25 grams used in the product are marked per ISO 11469 and ISO1043. • This product contains 36.8% post-consumer recycled plastic (by wt.) • This product is 99.1% recycle-able when properly disposed of at end of life.		
Packaging Materials	**External:**	PAPER/Corrugated	910 g
	Internal:	PLASTIC/Polyethylene Expanded - EPE	194 g
		PLASTIC/Polyethylene low density - LDPE	21 g
Material Usage	This product does not contain any of the following substances in excess of regulatory limits (refer to the H General Specification for the Environment at http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/gse.pdf): • Asbestos • Certain Azo Colorants • Certain Brominated Flame Retardants - may not be used as flame retardants in plastics • Cadmium • Chlorinated Hydrocarbons • Chlorinated Paraffins • Formaldehyde • Halogenated Diphenyl Methanes • Lead carbonates and sulfates • Lead and Lead compounds • Mercuric Oxide Batteries • Nickel - finishes must not be used on the external surface designed to be frequently handled or carried by the user. • Ozone Depleting Substances • Polybrominated Biphenyls (PBBs) • Polybrominated Biphenyl Ethers (PBBEs) • Polybrominated Biphenyl Oxides (PBBOs) • Polychlorinated Biphenyl (PCB) • Polychlorinated Terphenyls (PCT) • Polyvinyl Chloride (PVC) - except for wires and cables, and certain retail packaging has been voluntarily removed from most applications. • Radioactive Substances • Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)		
Packaging	HP follows these guidelines to decrease the environmental impact of product packaging: • Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials. • Eliminate the use of ozone-depleting substances (ODS) in packaging materials. • Design packaging materials for ease of disassembly. • Maximize the use of post-consumer recycled content materials in packaging materials. • Use readily recyclable packaging materials such as paper and corrugated materials. • Reduce size and weight of packages to improve transportation fuel efficiency. • Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.		
End-of-life Management and Recycling	Hewlett-Packard offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: http://www.hp.com/go/reuse-recycle or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.		

	The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/recyclers. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.
HP, Inc. Corporate Environmental Information	For more information about HP's commitment to the environment: Global Citizenship Report http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html Eco-label certifications http://www.hp.com/hpinfo/globalcitizenship/environment/productdesign/ecolabels.html ISO 14001 certificates: http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c04755842 and http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf

HP EliteOne 1000 G2 23.8-in All-in-One Business PC

***Eco-Label* Certifications & declarations**	This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks: • IT ECO declaration • US ENERGY STAR® • EPEAT® 2019 registered where applicable. EPEAT® registration varies by country. See http://www.epeat.net for registration status in your country. • TCO		
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, 60Hz**
Normal Operation (Short idle)	26.44 W	26.51 W	26.37 W
Normal Operation (Long idle)	16.25 W	16.30 W	16.15 W
Sleep	4.07 W	4.09 W	3.96 W
Off	0.64 W	0.67 W	0.63 W
NOTE:	Energy efficiency data listed is for an ENERGY STAR® compliant product if offered within the model family. HP computers marked with the ENERGY STAR® Logo are compliant with the applicable U.S. Environmental Protection Agency (EPA) ENERGY STAR® specifications for computers. If a model family does not offer ENERGY STAR® compliant configurations, then energy efficiency data listed is for a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system.		
Heat Dissipation*	**115VAC, 60Hz**	**230VAC, 50Hz**	**100VAC, 50Hz**

Technical Specifications – Environmental

Normal Operation (Short idle)	90 BTU/hr	91 BTU/hr	90 BTU/hr
Normal Operation (Long idle)	56 BTU/hr	56 BTU/hr	55 BTU/hr
Sleep	14 BTU/hr	14 BTU/hr	14 BTU/hr
Off	2 BTU/hr	3 BTU/hr	2 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 (LWAd, bels)	Sound Pressure (LpAm, decibels)
Typically Configured - Idle	3.1	18
Fixed Disk - Random writes	3.1	18

Longevity and Upgrading

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

Batteries

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

Additional Information

- This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2002/95/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).
- Plastics parts weighing over 25 grams used in the product are marked per ISO 11469 and ISO1043.
- This product contains 36.8% post-consumer recycled plastic (by wt.)
- This product is 99.1% recycle-able when properly disposed of at end of life.

Packaging Materials			
	External:	PAPER/Corrugated	1415 g
	Internal:	PLASTIC/Polyethylene Expanded - EPE	609 g
		PLASTIC/Polyethylene low density - LDPE	63 g

Material Usage

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

- *Asbestos*
- Certain Azo Colorants
- Certain Brominated Flame Retardants - may not be used as flame retardants in plastics
- Cadmium
- Chlorinated Hydrocarbons
- Chlorinated Paraffins
- Formaldehyde
- Halogenated Diphenyl Methanes
- Lead carbonates and sulfates
- Lead and Lead compounds
- Mercuric Oxide Batteries
- Nickel - finishes must not be used on the external surface designed to be frequently handled or carried by the user.
- Ozone Depleting Substances
- Polybrominated Biphenyls (PBBs)
- Polybrominated Biphenyl Ethers (PBBEs)
- Polybrominated Biphenyl Oxides (PBBOs)

	• Polychlorinated Biphenyl (PCB) • Polychlorinated Terphenyls (PCT) • Polyvinyl Chloride (PVC) - except for wires and cables, and certain retail packaging has been voluntarily removed from most applications. • Radioactive Substances • Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)
Packaging	HP follows these guidelines to decrease the environmental impact of product packaging: • Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials. • Eliminate the use of ozone-depleting substances (ODS) in packaging materials. • Design packaging materials for ease of disassembly. • Maximize the use of post-consumer recycled content materials in packaging materials. • Use readily recyclable packaging materials such as paper and corrugated materials. • Reduce size and weight of packages to improve transportation fuel efficiency. • Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.
End-of-life Management and Recycling	Hewlett-Packard offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: http://www.hp.com/go/reuse-recycle or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/recyclers. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.
HP, Inc. Corporate Environmental Information	For more information about HP's commitment to the environment: Global Citizenship Report http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html Eco-label certifications http://www.hp.com/hpinfo/globalcitizenship/environment/productdesign/ecolabels.html ISO 14001 certificates: http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c04755842 and http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf

HP EliteOne 1000 G2 23.8-in Touch All-in-One Business PC

***Eco-Label* Certifications & declarations**	This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks: • IT ECO declaration • US ENERGY STAR® • EPEAT® 2019 registered where applicable. EPEAT® registration varies by country. See http://www.epeat.net for registration status in your country. • TCO *Based on US EPEAT® registration according to IEEE 1680.1-2018 EPEAT®. Status varies by country. Visit http://www.epeat.net for more information.

Technical Specifications – Environmental

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, 60Hz**
Normal Operation (Short idle)	26.44 W	26.51 W	26.37 W
Normal Operation (Long idle)	16.25 W	16.30 W	16.15 W
Sleep	4.07 W	4.09 W	3.96 W
Off	0.64 W	0.67 W	0.63 W
NOTE:	Energy efficiency data listed is for an ENERGY STAR® compliant product if offered within the model family. HP computers marked with the ENERGY STAR® Logo are compliant with the applicable U.S. Environmental Protection Agency (EPA) ENERGY STAR® specifications for computers. If a model family does not offer ENERGY STAR® compliant configurations, then energy efficiency data listed is for a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system.		
Heat Dissipation*	**115VAC, 60Hz**	**230VAC, 50Hz**	**100VAC, 50Hz**
Normal Operation (Short idle)	90 BTU/hr	91 BTU/hr	90 BTU/hr
Normal Operation (Long idle)	56 BTU/hr	56 BTU/hr	55 BTU/hr
Sleep	14 BTU/hr	14 BTU/hr	14 BTU/hr
Off	2 BTU/hr	3 BTU/hr	2 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 (LWAd, bels)	Sound Pressure (LpAm, decibels)
Typically Configured - Idle	3.1	18
Fixed Disk - Random writes	3.1	18

Longevity and Upgrading	This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the product may include:		
Batteries	This battery(s) in this product comply with EU Directive 2006/66/EC		
Additional Information	• This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2002/95/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). • Plastics parts weighing over 25 grams used in the product are marked per ISO 11469 and ISO1043. • This product contains 36.8% post-consumer recycled plastic (by wt.) • This product is 99.1% recycle-able when properly disposed of at end of life.		
Packaging Materials	**External:**	PAPER/Corrugated	1415 g
	Internal:	PLASTIC/Polyethylene Expanded - EPE	609 g

		PLASTIC/Polyethylene low density - LDPE	63 g

Material Usage	This product does not contain any of the following substances in excess of regulatory limits (refer to the H General Specification for the Environment at http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/gse.pdf): • *Asbestos* • Certain Azo Colorants • Certain Brominated Flame Retardants - may not be used as flame retardants in plastics • Cadmium • Chlorinated Hydrocarbons • Chlorinated Paraffins • Formaldehyde • Halogenated Diphenyl Methanes • Lead carbonates and sulfates • Lead and Lead compounds • Mercuric Oxide Batteries • Nickel - finishes must not be used on the external surface designed to be frequently handled or carried by the user. • Ozone Depleting Substances • Polybrominated Biphenyls (PBBs) • Polybrominated Biphenyl Ethers (PBBEs) • Polybrominated Biphenyl Oxides (PBBOs) • Polychlorinated Biphenyl (PCB) • Polychlorinated Terphenyls (PCT) • Polyvinyl Chloride (PVC) - except for wires and cables, and certain retail packaging has been voluntarily removed from most applications. • Radioactive Substances • Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)
Packaging	HP follows these guidelines to decrease the environmental impact of product packaging: • Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials. • Eliminate the use of ozone-depleting substances (ODS) in packaging materials. • Design packaging materials for ease of disassembly. • Maximize the use of post-consumer recycled content materials in packaging materials. • Use readily recyclable packaging materials such as paper and corrugated materials. • Reduce size and weight of packages to improve transportation fuel efficiency. • Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.
End-of-life Management and Recycling	Hewlett-Packard offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: http://www.hp.com/go/reuse-recycle or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/recyclers. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.
HP, Inc. Corporate Environmental Information	For more information about HP's commitment to the environment: Global Citizenship Report http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html

	Eco-label certifications http://www.hp.com/hpinfo/globalcitizenship/environment/productdesign/ecolabels.html ISO 14001 certificates: http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c04755842 and http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf

HP EliteOne 1000 G2 27-in 4K UHD All-in-One Business PC

***Eco-Label* Certifications & declarations**	This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks: • IT ECO declaration • US ENERGY STAR® • EPEAT® 2019 registered where applicable. EPEAT® registration varies by country. See http://www.epeat.net for registration status in your country. • TCO *Based on US EPEAT® registration according to IEEE 1680.1-2018 EPEAT®. Status varies by country. Visit http://www.epeat.net for more information.		
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, 60Hz**
Normal Operation (Short idle)	39.24 W	39.32 W	39.13 W
Normal Operation (Long idle)	12.39 W	12.40 W	12.26 W
Sleep	0.90 W	0.93 W	0.90 W
Off	0.64 W	0.64 W	0.63 W
NOTE:	Energy efficiency data listed is for an ENERGY STAR® compliant product if offered within the model family. HP computers marked with the ENERGY STAR® Logo are compliant with the applicable U.S. Environmental Protection Agency (EPA) ENERGY STAR® specifications for computers. If a model family does not offer ENERGY STAR® compliant configurations, then energy efficiency data listed is for a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system.		
Heat Dissipation*	**115VAC, 60Hz**	**230VAC, 50Hz**	**100VAC, 50Hz**
Normal Operation (Short idle)	134 BTU/hr	134 BTU/hr	134 BTU/hr
Normal Operation (Long idle)	42 BTU/hr	42 BTU/hr	42 BTU/hr
Sleep	3 BTU/hr	3 BTU/hr	3 BTU/hr
Off	2 BTU/hr	2 BTU/hr	2 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 (LWAd, bels)	Sound Pressure (LpAm, decibels)	

Technical Specifications – Environmental

Typically Configured - Idle	3.1	18	
Fixed Disk - Random writes	3.1	18	
Longevity and Upgrading	This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the product may include:		
Batteries	This battery(s) in this product comply with EU Directive 2006/66/EC		
Additional Information	• This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2002/95/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). • Plastics parts weighing over 25 grams used in the product are marked per ISO 11469 and ISO1043. • This product contains 36.8% post-consumer recycled plastic (by wt.) • This product is 99.1% recycle-able when properly disposed of at end of life.		
Packaging Materials	**External:**	PAPER/Corrugated	2074 g
	Internal:	PLASTIC/Polyethylene Expanded - EPE	793 g
		PLASTIC/Polyethylene low density - LDPE	73 g
Material Usage	This product does not contain any of the following substances in excess of regulatory limits (refer to the HP General Specification for the Environment at http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/gse.pdf): • *Asbestos* • Certain Azo Colorants • Certain Brominated Flame Retardants - may not be used as flame retardants in plastics • Cadmium • Chlorinated Hydrocarbons • Chlorinated Paraffins • Formaldehyde • Halogenated Diphenyl Methanes • Lead carbonates and sulfates • Lead and Lead compounds • Mercuric Oxide Batteries • Nickel - finishes must not be used on the external surface designed to be frequently handled or carried by the user. • Ozone Depleting Substances • Polybrominated Biphenyls (PBBs) • Polybrominated Biphenyl Ethers (PBBEs) • Polybrominated Biphenyl Oxides (PBBOs) • Polychlorinated Biphenyl (PCB) • Polychlorinated Terphenyls (PCT) • Polyvinyl Chloride (PVC) - except for wires and cables, and certain retail packaging has been voluntarily removed from most applications. • Radioactive Substances • Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)		
Packaging	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.		

Technical Specifications – Environmental

	• Maximize the use of post-consumer recycled content materials in packaging materials. • Use readily recyclable packaging materials such as paper and corrugated materials. • Reduce size and weight of packages to improve transportation fuel efficiency. • Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.
End-of-life Management and Recycling	Hewlett-Packard offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: http://www.hp.com/go/reuse-recycle or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/recyclers. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.
HP, Inc. Corporate Environmental Information	For more information about HP's commitment to the environment: Global Citizenship Report http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html Eco-label certifications http://www.hp.com/hpinfo/globalcitizenship/environment/productdesign/ecolabels.html ISO 14001 certificates: http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c04755842 and http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf

HP EliteOne 1000 G2 34-in Curved All-in-One Business PC

***Eco-Label* Certifications & declarations**	This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks: • IT ECO declaration • US ENERGY STAR® • EPEAT® 2019 registered where applicable. EPEAT® registration varies by country. See http://www.epeat.net for registration status in your country. • TCO *Based on US EPEAT® registration according to IEEE 1680.1-2018 EPEAT®. Status varies by country. Visit http://www.epeat.net for more information.		
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, 60Hz**
Normal Operation (Short idle)	51.75 W	51.80 W	51.46 W
Normal Operation (Long idle)	13.52 W	13.60 W	13.29 W
Sleep	0.95 W	0.97 W	0.94 W

Technical Specifications – Environmental

Off	0.68 W	0.71 W	0.68 W
NOTE:	Energy efficiency data listed is for an ENERGY STAR® compliant product if offered within the model family. HP computers marked with the ENERGY STAR® Logo are compliant with the applicable U.S. Environmental Protection Agency (EPA) ENERGY STAR® specifications for computers. If a model family does not offer ENERGY STAR® compliant configurations, then energy efficiency data listed is for a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system.		
Heat Dissipation*	**115VAC, 60Hz**	**230VAC, 50Hz**	**100VAC, 50Hz**
Normal Operation (Short idle)	177 BTU/hr	177 BTU/hr	176 BTU/hr
Normal Operation (Long idle)	46 BTU/hr	47 BTU/hr	45 BTU/hr
Sleep	3 BTU/hr	3 BTU/hr	3 BTU/hr
Off	2 BTU/hr	2 BTU/hr	2 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 (LWAd, bels)	Sound Pressure (LpAm, decibels)
Typically Configured - Idle	3.1	18
Fixed Disk - Random writes	3.1	18

Longevity and Upgrading	This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the product may include:
Batteries	This battery(s) in this product comply with EU Directive 2006/66/EC
Additional Information	• This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2002/95/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). • Plastics parts weighing over 25 grams used in the product are marked per ISO 11469 and ISO1043. • This product contains 36.8% post-consumer recycled plastic (by wt.) • This product is 99.1% recycle-able when properly disposed of at end of life.

Packaging Materials	**External:**	PAPER/Corrugated	2798 g
	Internal:	PLASTIC/Polyethylene Expanded - EPE	1362 g
		PLASTIC/Polyethylene low density - LDPE	89 g

Material Usage	This product does not contain any of the following substances in excess of regulatory limits (refer to the H General Specification for the Environment at http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/gse.pdf): • *Asbestos* • Certain Azo Colorants • Certain Brominated Flame Retardants - may not be used as flame retardants in plastics • Cadmium • Chlorinated Hydrocarbons • Chlorinated Paraffins • Formaldehyde • Halogenated Diphenyl Methanes

	• Lead carbonates and sulfates • Lead and Lead compounds • Mercuric Oxide Batteries • Nickel - finishes must not be used on the external surface designed to be frequently handled or carried by the user. • Ozone Depleting Substances • Polybrominated Biphenyls (PBBs) • Polybrominated Biphenyl Ethers (PBBEs) • Polybrominated Biphenyl Oxides (PBBOs) • Polychlorinated Biphenyl (PCB) • Polychlorinated Terphenyls (PCT) • Polyvinyl Chloride (PVC) - except for wires and cables, and certain retail packaging has been voluntarily removed from most applications. • Radioactive Substances • Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)
Packaging	HP follows these guidelines to decrease the environmental impact of product packaging: • Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials. • Eliminate the use of ozone-depleting substances (ODS) in packaging materials. • Design packaging materials for ease of disassembly. • Maximize the use of post-consumer recycled content materials in packaging materials. • Use readily recyclable packaging materials such as paper and corrugated materials. • Reduce size and weight of packages to improve transportation fuel efficiency. • Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.
End-of-life Management and Recycling	Hewlett-Packard offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: http://www.hp.com/go/reuse-recycle or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/recyclers. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.
HP, Inc. Corporate Environmental Information	For more information about HP's commitment to the environment: Global Citizenship Report http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html Eco-label certifications http://www.hp.com/hpinfo/globalcitizenship/environment/productdesign/ecolabels.html ISO 14001 certificates: http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c04755842 and http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf

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

Category	Description	Part #
DDR4-2666 Memory SoDIMMs	HP 16GB DDR4-2666 SODIMM	3TK84AA
DDR4-2666 Memory SoDIMMs	HP 4GB DDR4-666 SODIMM	3TK86AA
DDR4-2666 Memory SoDIMMs	HP 8GB DDR4-2666 SODIMM	3TK88AA
2.5" SATA Solid State Drive	HP 256GB SATA TLC Non-SED Solid State Drive	P1N68AA
2.5" SATA Solid State Hybrid Drive	HP 500GB SATA 6G 2.5 (8GB Cache) SSHD Drive	E1C62AA
M.2 PCIe NVME SSD/Optane	HP PCIe NVME TLC 512GB SSD M.2 Drive	X8U75AA
M.2 PCIe NVME SSD/Optane	HP PCIe NVME TLC 256GB SSD M.2 Drive	1CA51AA
M.2 PCIe NVME SSD/Optane	Intel® Optane Memory 16GB (cache) ****	1WV97AA
I/O Devices	HP USB to Serial Adapter	J7B60AA
HP EliteOne 1000 Accessories	HP EliteOne 1000 IR Camera with Rear Webcam	2HW55AA
HP EliteOne 1000 Accessories	HP EliteOne 1000 23.8in FHD Display (See Note H for localization support)	2SC22AA#
HP EliteOne 1000 Accessories	HP EliteOne 1000 23.8in FHD Touch Display (See Note H for localization support)	2SC23AA#
HP EliteOne 1000 Accessories	HP EliteOne 1000 27in 4K UHD Display (See Note H for localization support)	2SC24AA#
HP EliteOne 1000 Accessories	HP EliteOne 1000 34in WQHD Curved Display (See Note H for localization support)	2SC25AA#
Graphics - Cables & Adapters	HP DVI Cable Kit	DC198A
Graphics - Cables & Adapters	HP DisplayPort To DVI-D Adapter	FH973AA
Graphics - Cables & Adapters	HP DisplayPort To VGA Adapter	AS615AA
Graphics - Cables & Adapters	HP DisplayPort Cable Kit	VN567AA
Graphics - Cables & Adapters	HP DisplayPort To HDMI 4k Adapter	K2K92AA
Graphics - Cables & Adapters	HP DisplayPort To HDMI True 4k Adapter	2JA63AA
Graphics - Cables & Adapters	HP HDMI Standard Cable Kit	T6F94AA
Audio & Multimedia	HP Business Headset v2	T4E61AA
Audio & Multimedia	HP UC Wireless Duo Headset	W3K09AA
Pointing Devices	HP USB Grey v2 Mouse	Z9H74AA
Pointing Devices	HP USB Mouse	QY777AA
Pointing Devices	HP USB 1000dpi Laser Mouse	QY778AA
Pointing Devices	HP Mouse Pad	AT485AA
Pointing Devices	HP USB PS/2 Washable Scroll Mouse	BM866AA
Pointing Devices	HP USB Hardened Mouse	P1N77AA
Keyboards	HP Bus Slim Wirles Localize Kit Nordic	2MY27AA
Keyboards	HP Bus Slim Localize Kit - Nordic USB	2MY28AA
Keyboards	HP USB Keyboard and Mouse Healthcare Edition	1VD81AA
Keyboards	HP Business Slim Smartcard Keyboard	Z9H48AA
Keyboards	HP USB (Grey) Business Slim Keyboard	Z9H49AA
Keyboards	HP USB Antimicrobial Slim Kybd and Mouse	Z9H50AA
Keyboards	HP USB Keyboard	QY776AA
Keyboards	HP USB PS2 Washable Keyboard & Mouse	BU207AA#xxx
Keyboards	HP USB Business Slim Keyboard	N3R87AA
Keyboards	HP Wireless Business Slim Keyboard and Mouse	N3R88AA
Keyboards	HP USB Business Slim Keyboard and Mouse and MousePad	T4E63AA

Summary of Changes

Date of change:	Version History:		Description of change:
July 11, 2018	V1 to V2	Update	RAID reference removed from software security section
August 21, 2018	V2 to V3	Update	Windows Home removed Rear call outs corrected
August 27, 2018	V3 to V4	Update	Windows Home re-attached
October 25, 2018	V4 to V5	Update	Environmental Data section added Intel Processors added
November 13, 2018	V5 to V6	Update	"Optional"? added to speakers lines
November 27, 2018	V6 to V7	Update	TUV GS certification removed
February 1, 2019	V7 to V8	Update	HP PhoneWise, HP ePrinter + Jet advantage, HP Velocity, and HP WorkWise removed.
March 11, 2019	V8 to V9	Update	PORTS information charging capability statement update
June 27, 2019	V9 to V10	Update	HP Cloud Recovery and footnote added at Software section Intel Unite needs to be configured at factory (AiO/DM) added on At a Glance section
July 17, 2019	V10 to v11	Update	EPEAT references updated
July 31, 2019	V11 to V12	Update	Response time row added to all formats in Display panel specs section.
August 22, 2019	V12 to V13	Update	Lock slot upgraded to Standard
November 11, 2019	V13 to V14	Update	EPEAT references updated