

Overview

HP EliteOne 800 G5 23.8-in Healthcare Edition All-in-One

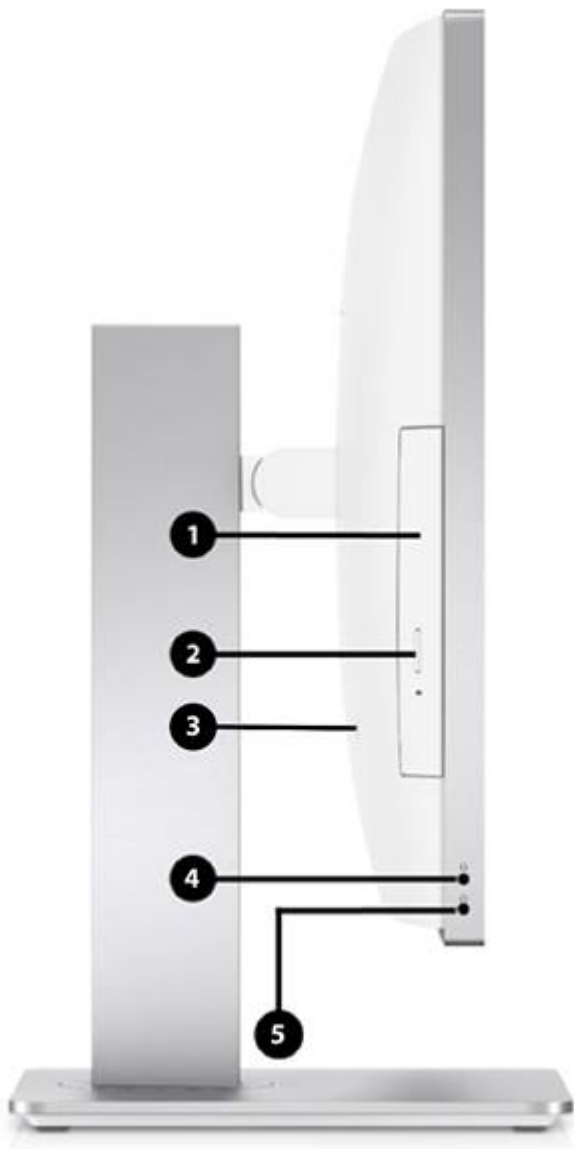


Front

1. Camera (optional)
3. RFID reader (optional)
2. HP Sure View Gen3 Integrated Privacy Screen (optional)

Overview

HP EliteOne 800 G5 23.8-in Healthcare Edition All-in-One

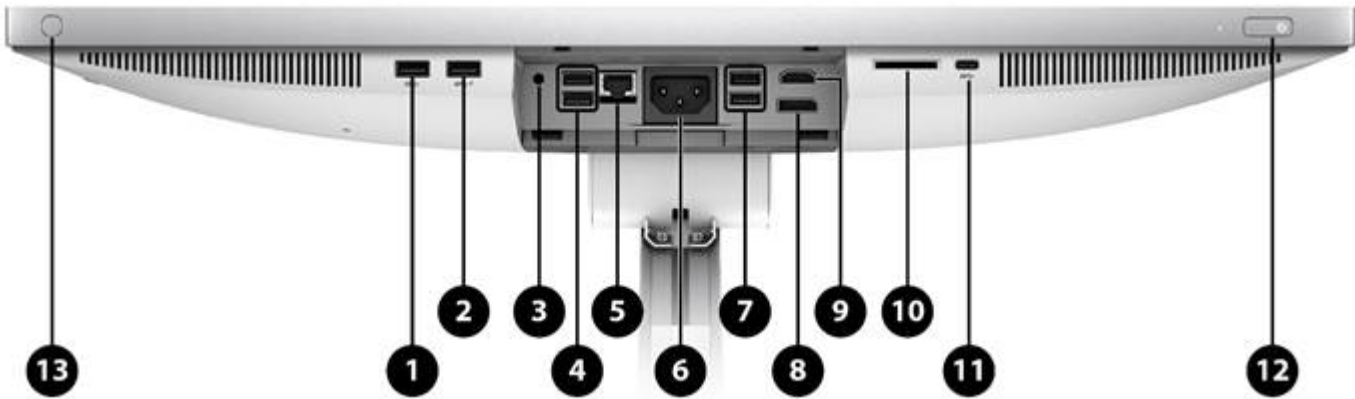


Side

- | | |
|---|---|
| 1. Optical disc drive (optional) | 4. Universal audio jack with CTIA headset support |
| 2. Optical disc drive eject button (optional) | 5. Headphone connector |
| 3. Standard lock slot (10 mm) | |

Overview

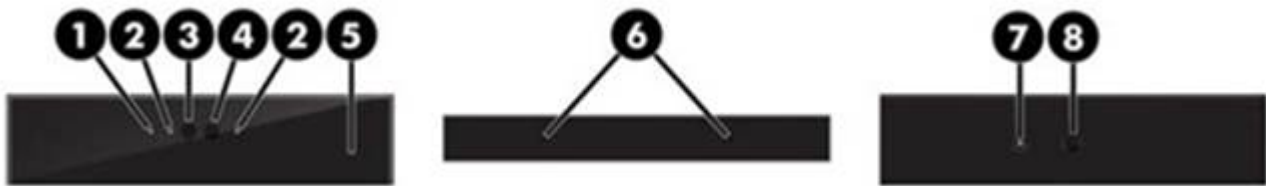
HP EliteOne 800 G5 23.8-in Healthcare Edition All-in-One



Bottom components and rear ports (behind security cover)

- | | |
|---|---|
| 1. USB 3.1 Gen 2 Type-A port | 7. USB 3.1 Gen 2 Type-A ports (2) wake capable |
| 2. USB 3.1 Gen 2 Type-A port (charge support up to 5V/1.5A) | 8. HDMI 2.0a connector |
| 3. Audio line-out connector | 9. Dual-Mode DisplayPort™1.2 (DP++) |
| 4. USB 3.1 Gen 1 Type-A ports (2) | 10. SD card reader 4.0 (optional) |
| 5. RJ-45 (network) jack | 11. USB 3.1 Type-C™ Gen 2 port (charge support up to 5V/3A) |
| 6. Power connector | 12. Dual-state power button |
| | 13. HP Sure View Button (optional) |

HP EliteOne 800 G5 23.8-in Healthcare Edition All-in-One



Infrared (IR) and dual facing camera (optional)

- | | |
|--------------------------------------|---------------------------------|
| 1. Camera light | 5. Rear camera adjustment wheel |
| 2. IR camera light | 6. Digital microphones |
| 3. Full High Definition (FHD) camera | 7. Camera light |
| 4. IR camera | 8. FHD camera |



Full High Definition (FHD) camera (optional)

- | | |
|-----------------|------------------------|
| 1. Camera light | 3. Digital microphones |
| 2. FHD camera | |

Features

At a Glance

- All-in-One form factor (touch)
- Sanitizable with germicidal wipes every shift, every day¹
- Optional HP Sure View Gen3 Integrated Privacy Screen
- Optional, integrated dual-band RFID reader and and biometrics for integrated single sign-on support
- Optional, integrated RFID Asset Tag for Inventory tracking
- Intel® Q370 chipset
- Intel® 9th generation and select 8th Core™ processors
- Intel® vPro™ Technology available with Intel® Core™ i3, i5, i7 and i9 processors
- Processor support - 54W/65W
- Integrated Intel® UHD Graphics
- Windows 10
- Intel® Ethernet Connection I219LM GbE LOM integrated network connection
- EN/EN 60601-1-2:2015 compliant
- Skype for Business® certified
- Vidyo Ready for telemedicine²
- Optional dual-facing and IR camera supports Windows Hello
- Available Stand Options: Adjustable Height Stand or No Stand (VESA mountable)
- DDR4 Synchronous Dynamic Random Access Memory (SDRAM)
- HP Sure Start Gen5³
- HP Sure Sense⁶
- HP Manageability Integration Kit Gen3⁴
- ENERGY STAR® certified. EPEAT® 2019 registered where applicable. EPEAT ® registration varies by country. See <http://www.epeat.net> for registration status by country⁷
- TCO Edge for AiO
- PC chassis and all internal components and modules are manufactured with low halogen content⁵
- Protected by HP Services, including warranties up to 3-3-3 (terms and conditions vary by country; certain restrictions and exclusions apply)

1. Based on HP's internal analysis as of Nov. 1, 2017 of AiOs tested to simulate up to 10,000 wipes with germicidal towelettes over a 3-year period. See user guide for cleaning instructions. The HP EliteOne 800 G5 23.8-in Healthcare Edition AiO is not intended for use in diagnosis, cure, treatment or prevention of disease or other medical conditions.

2. Vidyo not included sold separately

3. HP Sure Start Gen5 is available on HP Elite and HP Pro 600 products equipped with Intel® 8th generation processors.

4. HP Manageability Integration Kit Gen3 can be downloaded from <http://www.hp.com/go/clientmanagement>.

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

6. Requires Windows 10. See product specifications for availability

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

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

OPERATING SYSTEMS

Features

Preinstalled Microsoft Windows® 10 Pro¹
Microsoft Windows® 10 Pro (National Academic License)²
Microsoft Windows® 10 Home¹
Microsoft Windows® 10 Home Single Language¹
Windows® 10 IoT Enterprise LTSC 2018
FreeDos 3.0

Web-supported only Microsoft Windows® 10 Enterprise 64¹

1. Not all features are available in all editions or versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers, software or BIOS update to take full advantage of Windows functionality. Windows 10 is automatically updated, which is always enabled. ISP fees may apply and additional requirements may apply over time for updates. See <http://www.windows.com/>.
2. 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>

CHIPSET

Intel® Q370

PROCESSORS

Intel® 9th Generation Core™ Processors

- *Intel® Core™ i9 9900 processor with Intel® UHD Graphics 630 (3.1GHz, up to 4.9 GHz with Intel® Turbo Boost,16MB cache, 8 cores) 65W¹ Supports Intel® vPro™Technology
- *Intel® Core™ i7 9700 processor with Intel® UHD Graphics 630 (3.0 GHz, up to 4.8 GHz with Intel® Turbo Boost, 12 MB cache, 8 cores) 65W^{1,2} Supports Intel® vPro™ Technology
- *Intel® Core™ i5 9600 processor with Intel® UHD Graphics 630 (3.1 GHz, up to 4.6 GHz with Intel® Turbo Boost, 9 MB cache, 6 cores)^{1,2} Supports Intel® vPro™Technology³
- *Intel® Core™ i5 9500 processor with Intel® UHD Graphics 630 (3.0 GHz, up to 4.4 GHz with Intel® Turbo Boost, 9 MB cache, 6 cores)^{1,2} Supports Intel® vPro™Technology³
- *Intel® Core™ i3 9300 processor with Intel® UHD Graphics 630 (3.7 GHz, 8 MB cache, 4 cores)¹
- *Intel® Core™ i3 9100 processor with Intel® UHD Graphics 630 (3.6 GHz, 6 MB cache, 4 cores)¹
- *Intel® Pentium® Gold G5620 processor with Intel® UHD Graphics 630 (4.0 GHz, 4 MB cache, 2 cores)¹
- *Intel® Pentium® Gold G5600 processor with Intel® UHD Graphics 630 (3.9 GHz, 4 MB cache, 2 cores)¹
- *Intel® Pentium® Gold G5420 processor with Intel® UHD Graphics 610 (3.8 GHz, 4 MB cache, 2 cores)¹
- *Intel® Celeron® G4930 processor with Intel® UHD Graphics 610 (3.2 GHz, 2 MB cache, 2 cores)

Intel® 8th Generation Core™ Processors

- *Intel® Core™ i7 8700 vPro™ processor with Intel® UHD Graphics 630 (3.2 GHz, up to 4.6 GHz with Intel® Turbo Boost, 12 MB cache, 6 cores) 65W^{1,2} Supports Intel® vPro™Technology³
- ***Intel® Core™ i5 8500 vPro™ processor with Intel® UHD Graphics 630 (3.2 GHz, up to 4.6 GHz with Intel® Turbo Boost, 12 MB cache, 6 cores) 65W^{1,2} Supports Intel® vPro™Technology³
- *Intel® Core™ i3 8100 processor with Intel® UHD Graphics 630 (3.6 GHz, 6 MB cache, 4 cores)¹

1: 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.
2. 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.
3. 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

Features

3rd party software providers. Compatibility of this generation of Intel vPro technology-based hardware with with future "virtual appliances" is yet to be determined.

NOTE: 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>.

NOTE: Multicore is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. Performance and clock frequency will vary depending on application workload and your hardware and software configurations. Intel's numbering, branding and/or naming is not a measurement of higher performance.

NOTE: Intel® Optane™ memory system acceleration does not replace or increase the DRAM in your system.

GRAPHICS

Integrated Intel® Graphics

Intel® UHD Graphics 630 (integrated on 9th gen Core i9/i7/i5/i3, Pentium® Gold G5600, G5500)
Intel® UHD Graphics 610 (integrated on 9th Pentium® Gold G5400, Celeron® G4900)

STORAGE AND DRIVES1

2.5 inch 7200 RPM Hard Disk Drives

500GB SATA
1TB SATA

2.5 inch 5400 RPM Hard Disk Drives

500GB SATA
2TB SATA

2.5 inch Self-encrypting Drives (SED HDD)

500GB 7200RPM 2.5in SED OPAL 2
500GB 7200RPM 2.5in Federal Information Processing Standard (FIPS) SED

2.5 SATA SSD Drives

256GB SATA TLC SSD
512GB SATA TLC SSD

2.5 inch Self-encrypting Drives (SED SSD)

256GB TLC SED SSD OPAL 2 Drive
256GB TLC SED SSD OPAL 2 Drive 2nd
512GB TLC SED SSD OPAL 2 Drive
512GB TLC SED SSD OPAL 2 Drive 2nd
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 NVMe SSD Drives

128GB PCIe NVMe TLC SSD
128GB PCIe NVMe TLC SSD 2nd
256GB PCIe NVMe TLC SSD
256GB PCIe NVMe TLC SSD 2nd
512GB PCIe NVMe TLC SSD
512GB PCIe NVMe TLC SSD 2nd
2TB PCIe NVMe TLC SSD
2TB PCIe NVMe TLC SSD 2nd
1TB PCIe NVMe TLC SSD
1TB PCIe NVMe TLC SSD 2nd
128GB PCIe NVMe SSD
128GB PCIe NVMe SSD 2nd
256GB PCIe NVMe SSD

Features

- 256GB PCIe NVMe SSD 2nd
- 512GB PCIe NVMe SSD
- 512GB PCIe NVMe SSD 2nd

PCIe NVMe Self-encrypting Drives (PCIe NVMe SED SSD)

256GB PCIe NVMe TLC SED SSD OPAL 2 Drive

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

DISPLAY FEATURES

HP EliteOne 800 G5 Healthcare Edition 23.8-in FHD Display

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

Discrete Touch

Glass covered display

HP Sure View Gen 3 (optional)

MEMORY

Maximum

64GB (32GB/slot)

Memory Slots

2 SODIMMs

DDR4-2666 (Transfer rates up to 2666 MT/s)

Dual 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)

32 GB (1 x 32 GB)

64 GB (2 x 32 GB)

512 GB Intel® PCIe® NVMe™ QLC + 32 GB Intel® Optane™

NOTE: Intel® Optane™ memory system acceleration does not replace or increase the DRAM in your system.

NETWORKING

Features

Wireless LAN

Intel® Wi-Fi 6 AX200 ax 2x2 Wi-Fi® +Bluetooth® M.2 Combo Card non-vPro™
Intel® Wi-Fi 6 AX200 ax 2x2 Wi-Fi® +Bluetooth® M.2 Combo Card vPro™
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

Ethernet (RJ-45) Integrated

Intel® I219LM Gigabit Network Connection LOM (standard)

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

AUDIO/MULTIMEDIA

Audio

Integrated Conexant CX5001 codec - up to 24-bit PCM
High performance integrated stereo speakers(2.5watt)

High Definition Audio

Integrated
Conexant CX5001

Blu-Ray / DVD

Blu-ray Writer 9.5mm EliteOne AiO*
DVD-ROM 9.5mm EliteOne AiO (DVD-Rom)**
DVD-Writer 9.5mm EliteOne AiO (DVD-Writer)***
HP 9.5mm EliteOne 800 Slim DVD-Writer Drive***

Media Card Reader

SD 4.0 with 5-in-1 Interface (Supports SD, SDXC, SDHC, UHS-I, UHS-II)

Webcams & Mic

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

NOTE: Universal Audio Jack with CTIA headset support (re-taskable for headphone/line out/microphone in/line in)
***NOTE:** With Blu-Ray, certain disc, digital connection, compatibility and/or performance issues may arise, and do not constitute defects in the product. Flawless playback on all systems is not guaranteed. In order for some Blu-ray titles to play, they may require a DVI or HDMI digital connection and your display may require HDCP support.
****NOTE:** HD-DVD disks cannot be played on this drive. No support for DVD-RAM. Actual speeds may vary. Don't copy copyright-protected materials. Double Layer discs can store more data than single layer discs. Discs burned with this drive may not be compatible with many existing single-layer DVD drives and players.
*****NOTE:** Don't copy copyright protected material.

KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

Features

Keyboard and Mouse Combos

- HP USB Keyboard and Mouse Healthcare Edition
- HP Premium Wireless Keyboard and Mouse
- HP Wireless Business Slim Keyboard and Mouse
- HP USB Keyboard and Mouse

Keyboards

- HP USB Collaboration Wired Keyboard
- HP Collaboration Wireless 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*
- HP USB Wired Keyboard
- HP Wired Keyboard EPEAT®
- HP USB PS/2 Washable Standalone Wired Keyboard
- HP USB Conferencing Wired Keyboard

Mice

- HP USB 1000dpi Laser Mouse
- HP Grey V2 Mouse
- HP USB Mouse
- HP USB Antimicrobial Mouse*
- HP USB Hardened Mouse
- HP Washable Wired Mouse USB PS/2
- HP Optical USB Mouse

Other

- HP Mouse Pad
- HP EliteOne G5 AiO Dust Filter

Adapters and Cables

- HP DisplayPort Cable
- HP DisplayPort to DVI-D Adapter
- HP DisplayPort to HDMI True 4K Adapter
- HP DisplayPort 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
- HP Type-C to DisplayPort Adapter

Headsets

- HP Business Headset v2

*China Only

HP BIOSPHERE

Features

HP BIOS

Key features of the HP BIOS include:

- Deployment and manageability - HP BIOS provides several technologies that help integrate the HP EliteOne 800 Healthcare PC into the enterprise, such as PXE, remote configuration, remote control, and BIOS (F10) Setup support for 15 languages.
- Network firmware updates - Update your BIOS via hp.com, Windows Update or standardize on a BIOS version hosted on an Enterprise network.
- Stability - HP BIOS supports the HP stable product roadmap by releasing only critical BIOS changes to the factory and advanced change notification.
- UEFI specification version 2.6
- Absolute Persistence agent - For tracking and tracing services, available in select countries, separate software and purchase of a subscription is required.
- Thermal and power management - The HP BIOS provides and enables thermal and power management technologies so component temperatures are managed for high reliability and to assist in operating the HP Business Desktop computer in any enterprise environment.
- Acoustic performance - Industry leading acoustic emissions across the range of operating conditions.
- Serviceability - HP BIOS provides diagnostic and detailed service information.
- Upgrades and recovery - HP BIOS provides numerous ways to upgrade HP Business Desktop computers, including BIOS updates from within Windows (HP FirmwareUpdRec utility), HP Client Manager, and fail-safe recovery. In addition, the HP BIOS Configuration Utility enables replication of BIOS settings within Windows while the Replicated Setup feature provides the same capability within BIOS (F10) Setup. The BIOS Configuration Utility is available from the HP support website.
- HP BIOS uses PKI signing of the BIOS for trusted BIOS upgrades and recovery.

Additional HP BIOS Features:

- Power-On password - Helps prevent an unauthorized user from powering on the system.
- Administrator password - Also known as the setup password, this helps prevent unauthorized changes to the system configuration. If the administrator password is not known, the BIOS cannot be updated and changes cannot be made to BIOS settings using BIOS Setup or under the OS.
- S5 Maximum Power Savings setting supports EU Lot6 requirement and allows the computer to power down below 0.5W in S5 (when turned off). When S5 Maximum Power Savings feature is enabled below features are turned off:
 - Power to expansion connectors / slots
 - Wake events other than power buttons (such as wake on LAN)
 - USB charging ports
- HP SureStart Gen5
- BIOS Integrity checking - Sure Start protection ensures that only trusted BIOS code is executed and not rootkits, viruses and malware. Verification is done upon boot up, shutdown and while On.
- SureStart Gen5 is set by default to automatically repair the BIOS if corrupted or compromised but is policy driven for better manageability.
- Protecting beyond BIOS - Integrity checking and repair is extended to other data that should be protected such as network configuration parameters (network name), platform specific information (i.e. system IDs) and other code the system needs to boot.
- Audit enabled - System Audit via Sure Start Event Logs capture data such as incident, repair date and time for troubleshooting and investigating.

PORTS/SLOTS

Features

Rear I/O Connectors

- (2) USB 3.1 Gen 1 Type A w/ S4/S5 Wake
- (3) USB 3.1 Gen 2 Type A
- (1) USB 3.1 Gen 2 Type A w/ BC 1.2
- (1) USB 3.1 Gen 2 Type-C DFP w/ 3.0A w/ BC1.2
- (1) LAN RJ45
- (1) DisplayPort 1.2
- (1) HDMI 2.0a
- (1) Audio Line-Out
- (1) SD Card Reader 4.0

Left I/O Connectors

- (1) Headphone
- (1) Headset - CTIA UAJ Headset w/o Virtual OMTP

M.2 Socket

- (1) M.2 Socket 1 Type 2230-E
- (1) M.2 Socket 3 Type 2230/80-M
- (1) M.2 Socket 3 Type 2230/42/80-M

Storage

- (2) SATA Power/Data Combo

SOFTWARE AND SECURITY

BIOS

- HP BIOSphere Gen5 ¹⁷
- HP DriveLock & Automatic DriveLock
- BIOS Update via Network
- Master Boot Record Security
- Power On Authentication
- Secure Erase ¹⁸
- Absolute Persistence Module ¹⁹
- RAID configurations ³³
- Pre-boot Authentication
- HP Wireless Wakeup

Software

- HP Native Miracast Support ¹⁵
- HP LAN-Wireless Protection
- HP Hotkey Support - CMIT
- HP Recovery Manager
- HP Jumpstart
- HP Support Assistant ²¹
- HP Noise Cancellation Software
- HP Easy Clean 2.0
- Buy Office

Features

Manageability Features

HP Driver Packs ²²
HP System Software Manager (SSM)
HP BIOS Config Utility (BCU)
HP Client Catalog
HP Manageability Integration Kit Gen3 ²³
Ivanti Management Suite ²⁴
HP Collaboration Keyboard

Client Security Software

HP Client Security Suite Gen5 including: ²⁵
HP Security Manager ²⁶ (including Credential Manager, HP Password Manager, HP Spare Key)
Power On Authentication
HP Fingerprint Sensor ³¹
HP Device Access Manager
HP Power On Authentication
Windows Defender ²⁷
HP Sure Run Gen 2
HP Sure View Gen 3
HP Sure Sense³⁵

Security Management

HP BIOSphere Gen5 ¹⁷
HP DriveLock & Automatic DriveLock
BIOS Update via Network
Secure Erase ¹⁸
Pre-boot Authentication
TPM 2.0 Embedded Security Chip shipped with Windows 10 (Common Criteria EAL4+ Certified) ³²
SATA 0,1 port disablement (via BIOS)
Serial, USB enable/disable (via BIOS)
Power-on password (via BIOS)
Setup password (via BIOS)
Support for chassis padlocks and cable lock devices
Integrated hood sensor
HP Sure Click ³⁴
HP Sure Recover Gen 2
HP Sure Start Gen5 ³⁰

Features

- 15. Miracast is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming
- 17. HP BIOSphere Gen5 is available on select HP Pro and Elite PCs. See product specifications for details. Features may vary depending on the platform and configurations.
- 18. For the methods outlined in the National Institute of Standards and Technology Special Publication 800-88 "Clear" sanitation method. HP Secure Erase does not support platforms with Intel® Optane™.
- 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 Manager Gen5 requires Windows and is available on select HP Pro and Elite PCs. See product specifications for details.
- 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 Gen5 is available on HP EliteBook products equipped with Intel® 9th generation processors
- 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).
- 33. RAID configuration is optional and requires 2 equivalent hard drives.
- 34. HP Sure Click is available on most HP PCs and supports Microsoft® Internet Explorer, Google Chrome, and Chromium™. Supported attachments include Microsoft Office (Word, Excel, PowerPoint) and PDF files in read only mode, when Microsoft Office or Adobe Acrobat are installed.
- 35. HP Sure Sense requires Windows 10. See product specifications for availability.
- 36. HP Sure View must be ordered at purchase, functions in landscape orientation and is planned to be available in July 2019.
- 37. HP Sure Recover Gen2: See product specifications for availability. Requires an open, wired network connection. Not available on platforms with multiple internal storage drives. You must back up important files, data, photos, videos, etc. before using HP Sure Recover to avoid loss of data. HP Sure Recover (Gen1) does not support platforms with Intel® Optane™.
- 38. HP Sure Run Gen2: See product specifications for availability.

POWER

- Power Supply
- Internal
- Internal 180W

ENVIRONMENTAL AND INDUSTRY

Features

UNIT ENVIRONMENTAL AND OPERATING 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.

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 more of these marks: <ul style="list-style-type: none">• IT ECO declaration• US ENERGY STAR®• EPEAT® 2019 registered where applicable. EPEAT ® registration varies by country. See http://www.epeat.net for registration status by country*. Search keyword generator on HP's 3rd party option store for solar generator accessories at http://www.hp.com/go/options. <p>*Based on US EPEAT® registration according to IEEE 1680.1-2018 EPEAT®. Status varies by country. Visit http://www.epeat.net for more information.</p>		
System Configuration	The configuration used for the Energy Consumption and Declared Noise Emissions data for the Desktop model is based a "Typically Configured Desktop"?.		
Energy Consumption (in accordance with US ENERGY STAR® test method)	115VAC, 60Hz	230VAC, 50Hz	100VAC, 60Hz
Normal Operation (Short idle)	24.408 W	24.48 W	24.225 W
Normal Operation (Long idle)	4.861 W	4.951 W	4.723 W
Sleep	1.467 W	1.486 W	1.411 W
Off	0.73 W	0.788 W	0.707 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.		

Features

Heat Dissipation*	115VAC, 60Hz	230VAC, 50Hz	100VAC, 60Hz
Normal Operation (Short idle)	83.231 BTU/hr	83.477 BTU/hr	82.607 BTU/hr
Normal Operation (Long idle)	16.576 BTU/hr	16.883 BTU/hr	16.105 BTU/hr
Sleep	5.0025 BTU/hr	5.067 BTU/hr	4.812 BTU/hr
Off	2.489 BTU/hr	2.687 BTU/hr	2.411 BTU/hr
NOTE: Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.			
Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)	Sound Power (L _{WAd} , bels)		Sound Pressure (L _{pAm} , decibels)
Typically Configured - Idle	2.7		17.3
Fixed Disk - Random writes	3.2		20.4
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: Spare parts are available throughout the warranty period and or for up to "5"? years after the end of production.		
Batteries	This battery(s) in this product comply with EU Directive 2006/66/EC Batteries used in the product do not contain: Mercury greater the1ppm by weight Cadmium greater than 20ppm by weight Battery size: CR2032 (coin cell) Battery type: Lithium		
Additional Information	<ul style="list-style-type: none">• This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC.• This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive - 2002/96/EC.• This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986).• This product is in compliance with the IEEE 1680.1-2018 EPEAT® Status varies by country. Visit www.epeat.net for more information. Search keyword generator on HP's 3rd party option store for solar generator accessories at http://www.hp.com/go/options• Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043.• This product contains 0% post-consumer recycled plastic (by wt.)• This product is 95.1% recycle-able when properly disposed of at end of life.		
Packaging Materials	External:	PAPER/Corrugated	1419 g
	Internal:	PLASTIC/EPE (Expanded Polyethylene)	694 g
		PLASTIC/Polyethylene low density	94 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		

Features

	<p>http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/gse.pdf):</p> <ul style="list-style-type: none">• 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)
End-of-life Management and Recycling	<p>HP Inc. 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.</p> <p>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.</p>
HP Inc. Corporate Environmental Information	<p>For more information about HP's commitment to the environment:</p> <p>Global Citizenship Report</p> <p>http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html</p> <p>Eco-label certifications</p> <p>http://www8.hp.com/us/en/hp-information/environment/ecolabels.html</p> <p>ISO 14001 certificates:</p> <p>http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC_GBU_Product_Design_ISO_14K_Certificate.pdf</p> <p>and</p> <p>http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf</p>

SERVICE AND SUPPORT

Features

On-site Warranty ¹⁶: Three-year (3-3-3) limited warranty delivers three years of on-site, next business day ¹⁷ service for parts and labor and complimentary limited technical support. Three-year onsite and labor are not available in all countries. Service offers terms up to 5 years by choosing an optional HP Care Pack. ¹⁸ To choose the right level of service for your HP product, visit HP Care Pack Central: <http://www.hp.com/go/cpc>

16. Terms and conditions may vary by country. Certain restrictions and exclusions apply. Other warranty variations may be offered in your region.

17. On-site service may be provided pursuant to a service contract between HP and an authorized HP third-party provider, and is not available in certain countries. Global service response times are based on commercially reasonable best effort and may vary by country.

18. Service levels and response times for HP Care Packs may vary depending on your geographic location. Service starts on date of hardware purchase. Restrictions and limitations apply. For details, visit www.hp.com/go/cpc. HP services are governed by the applicable HP terms and conditions of service provided or indicated to Customer at the time of purchase. Customer may have additional statutory rights according to applicable local laws, and such rights are not in any way affected by the HP terms and conditions of service or the HP Limited Warranty provided with your HP Product.

CERTIFICATION AND COMPLIANCE

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

NOTE: 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 - RFID CARD READER

RFID CARD READER

Operating Frequencies	125 kHz, 13.56 MHz
Read Height	1in (Typical)
Device Class	HID
Protocol	USB HID
NFC RF Standards (in reading CSN)	ISO/IEC 14443 A, ISO/IEC 14443 B ISO/IEC 15693
NFC Forum Support	Tag Type 1, Type 2, Type 3, and Type 4 in reading CSN
Raw RF Data Rates	Low-frequency Cards: 1,2050 to 7,812 bps High-frequency Cards: 106 to 848 bps AWID (RDR-698x Compatible) Cardax UID (RDR-6C8x Compatible) CASI-RUSCO (GE Security, UTC) (RDR-628x Compatible) CDVI COTAG Deister UID DIGITAG Dimpna UID EM 410x (RDR-6E8x Compatible) EM 410x Alternate Farpointe Data (Pyramid) PSC-1 26 Bit (RDR-647x Compatible) Farpointe Data (Pyramid) UID GProx-II ID GProx-II UID (IRDR-6G8x Compatible) HID Prox (RDR-608x Compatible) HID Prox UID Hitag 1 & S (RDR-6H8x Compatible) Hitag 1 & S Alternate Hitag 2 (RDR-6H8x Compatible) Hitag 2 Alternate ID Teck (RDR-6A8x Compatible) ID Teck Alternate (128 bits) Indala ASP 26 bit (Motorola) (RDR-638x Compatible) Indala ASP UID (Motorola) Indala ASP+ UID (Motorola) IO Prox (Kantech) (RDR-678x Compatible) Isonas Keri NXT UID Keri PSC-1 26 Bit: (RDR-647x Compatible) Keri UID (RDR-6K8x Compatible) Nedap NexKey, Quadrakey, KeyMate, 2SmartKey (Honeywell) Nexwatch (Honeywell) (RDR-6N8x Compatible) Paradox Postech Pyramid (Farpointe Data) PSC-1 26 Bit Pyramid (Farpointe Data) UID Radio Key (Secura Key -02) RKCx-02 (RDR-6Z8x Compatible) ReadyKey Pro UID RDR-6R8x Compatible) Rosslare Russwin UID Secura Key -01 RKCx-01 CEPAS
Card Types Supported - 125 kHz	

Technical Specifications - RFID CARD READER

Card Types Supported - 13.56 MHz	e-TAG
	Felica (NFC Type 3)
	HID iCLASS
	I-Code
	ISO 14443B
	I-tag
	Legic Advant
	MIFARE Classic (32 bits)
	MIFARE DESFire
	MIFARE DESFire EV1
	MIFARE Plus
	MIFARE Ultralight
	my-d CSN (Infinition)
	NFC Type 1
	NFC Type 2
	NFC Type 4
	NTWare
	Oyster
Card Types Supported - 13.56 MHz ID (with HID SE Processor SIM)	RDR-758x Equivalent (iCLASS, ISO 14443A, ISO 15693)
	Tag-It (Texas instruments)
	HID iCLASS ID
	HID iCLASS SE
	HID iCLASS Seos

NOTE: Dual-band RFID reader and Asset Tracking sold as configurable options. SE Security Access Module (SE SAM) is a separate hardware SIM inserted into the RFID reader and is required to support SE, SEOS, and iClass credentials for reading HID/iClass card types

Technical Specifications – Cleaning Care Guide

CLEANING CARE GUIDE

Please refer to the HP EliteOne 800 G5 23.8-in Healthcare Edition All-in-One Business PC user guide for instructions on cleaning this computer. Here are additional instructions for cleaning with specific germicidal wipes.

First turn off the computer to prevent electric shock or damage to components.

- o Disconnect AC power
- o Disconnect all powered external devices
 - Examine the computer for any visible soiling and then wipe the exterior of the computer with a soft, water-dampened cloth to remove the soil as needed.
- o The cloth should be moist but not wet. Water dripping into the ventilation or other points of ingress can cause damage.
- o The cloth should be of dry microfiber or a chamois (static-free cloth without oil), or static-free cloth wipes.
- o Please do not use fibrous materials, such as paper towels, as these can scratch the computer. Over time, dirt and cleaning agents can get trapped in the scratches.
 - Next, clean the computer using any of the ready-to-use germicidal wipes that contain the below chemical solutions.
- o Remember to start with the display, then wipe the rest of the computer and finish with any flexible cables
- o Allow the unit to air-dry before use

(Refer to the directions for use provided by the manufacturer of the wipes)

Ready-to-use cleaning wipe solutions include:

- Solution 1
 - o Benzyl-C12-18-alkyldimethyl ammonium chlorides: <0.1%
 - o Quaternary ammonium compounds, C12-14-alkyl[(ethylphenyl)methyl]di methyl, chlorides: <0.1%
- Solution 2
 - o Isopropanol: 10-20%
 - o 2-Butoxyethanol: <5%
 - o Quaternary ammonium compounds, C12-18-alkyl [(ethylphenyl) methyl] dimethyl, chlorides: <0.5%
 - o Benzyl-C12-18-alkyldimethyl ammonium chlorides: <0.5%
- Solution 3
 - o Quaternary ammonium compounds, C12-18-alkyl [(ethylphenyl) methyl] dimethyl, chlorides: <0.5%
 - o Benzyl-C12-18-alkyldimethyl ammonium chlorides: <0.5%
- Solution 4
 - o Isopropyl alcohol: 55.000%
 - o Alkyl dimethyl benzyl ammonium chlorides: 0.250%
 - o Alkyl (68% C12, 32% C14) dimethyl ethylbenzyl ammonium chloride: 0.250%
- Solution 5
 - o Isopropanol: 10-20%
 - o Ethylene Glycol Monobutyl Ether (2-Butoxyethanol): 1-5%
 - o Diisobutylphenoxyethoxyethyl dimethyl benzyl ammonium chloride: 0.1-0.5%
- Solution 6
 - o Sodium hypochlorite 0.1%-1.0%
- Solution 7
 - o Cellulose: 10-30%
 - o Ethyl alcohol: 0.10-1.00%
- Solution 8
 - o Isopropyl alcohol: 60-70%
 - Water: 30-40%

Technical Specifications – Cleaning Care Guide

Do not use cleaners that contain any petroleum based materials such as benzene, thinner, or any volatile substance to clean the screen or cabinet. These chemicals may damage the computer.

Occasionally clean air vents on all vented sides of the computer. Lint and dust can block the vents and limit the airflow.

Compatible Gloves

Touch on the screen and clickpad is tuned for support with bare hands and with Latex, Nitrile, and Vinyl exam gloves.

**Solutions tested as of December 4, 2017; chemical composition is subject to change.*

DISPLAY PANEL SPECIFICATIONS

23.8" diagonal IPS widescreen WLED backlit anti-glare LCD (1920 x 1080)	
Discrete Projected Capacitive Touch supports up to 10 touch-points	
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)	1000:1
Brightness (typical)	215 nits
Viewing angle (typical) (HxV)	178 ° x 178 °
Backlight lamp life (to half brightness)	30,000 hours minimum
Color support	Over 16 million colors*
Color gamut (typical)	NTSC 72%
Anti-glare	Yes
Default color temperature	Warm (6500K)
NOTE: All performance specifications represent the typical specifications provided by HP's component manufacturers; actual performance may vary either higher or lower.	
*NOTE: Up to 16 million colors through A-FRC technology.	

23.8" diagonal IPS widescreen WLED backlit anti-glare LCD (1920 x 1080) with optional switchable privacy display	
Discrete Projected Capacitive Touch supports up to 10 touch-points	
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)	1000:1
Brightness (typical)	245 nits (non-Privacy); 170 nits (Privacy)
Viewing angle (typical) (HxV)	178 ° x 178 °(non-Privacy); 80 ° x 178 ° (Privacy)
Backlight lamp life (to half brightness)	30,000 hours minimum
Color support	Over 16 million colors
Color gamut (typical)	NTSC 72%
Anti-glare	Yes
Default color temperature	Warm (6500K)

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

***NOTE:** Up to 16 million colors through A-FRC technology.

Technical Specifications – Graphics

GRAPHICS

Intel® UHD Graphics (integrated)

DisplayPort™

HDMI
Memory

Maximum Color Depth
Graphics/Video API Support

Multimode capable; supports HDCP 2.2, Display Port Audio (2 streams)
Multi-Stream Technology for a maximum of 3 displays (including the i
Supports HDMI 2.0a features
The actual amount of maximum graphics memory can be >4GB. Syste
graphics as needed using Intel's Dynamic Video Memory Technology (D
optimal balance between graphics and system memory use.
Up to 10 bits/color
HEVC 10b Enc/Dec HW
VP9 10b Dec HW
HDR
Rec. 2020
DX12

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
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

Technical Specifications – Graphics

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

Technical Specifications – Storage

STORAGE AND DRIVES

500 GB 7200RPM 2.5in SATA HDD

Capacity	500 GB
Rotational Speed	7,200 rpm
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 (nominal)	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.

1 TB 7200RPM 2.5in SATA HDD

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 (nominal)	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.

2 TB 5400RPM 2.5in SATA HDD

Capacity	2 TB
Rotational Speed	5,400 rpm
Interface	SATA 6 Gb/s
Buffer Size	128 MB
Logical Blocks	3,907,050,336
Seek Time	12 ms (Average)
Height	0.374 in/9.5 mm (nominal)
Width (nominal)	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

500 GB 7200RPM 2.5in Self Encrypted OPAL2 SATA HDD

Capacity	500 GB
Architecture	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.

500 GB 7200RPM 2.5in Self Encrypted Federal Information Processing Standard SATA HDD

Capacity	500 GB
Architecture	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.

128 GB 2.5in SATA Three Layer Cell SSD

Drive Weight	<50g
Capacity	128 GB
Height	7mm
Length	100.45mm
Width	69.85mm
Interface	SATA 3.0 (6Gb/s)
Maximum Sequential Read	Up to 530MB/s
Maximum Sequential Write	Up to 380MB/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.

Technical Specifications – Storage

256 GB 2.5in SATA Three Layer Cell SSD

Drive Weight	<62g
Capacity	256 GB
Height	7mm
Length	100.45mm
Width	69.85mm
Interface	SATA 3.0 (6Gb/s)
Maximum Sequential Read	Up to 530MB/s
Maximum Sequential Write	Up to 450MB/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.

512 GB 2.5in SATA Three Layer Cell SSD

Drive Weight	<50g
Capacity	512 GB
Height	7mm
Length	100.45mm
Width	69.85mm
Interface	SATA 3.0 (6Gb/s)
Maximum Sequential Read	Up to 530MB/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.

256 GB 2.5in SATA Self Encrypted OPAL2 Three Layer Cell SSD

Drive Weight	<50g
Capacity	256 GB
Height	7mm
Length	100.45mm
Width	69.85mm
Interface	SATA 3.0 (6Gb/s)
Maximum Sequential Read	Up to 530MB/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; TCG-OPAL2.0 security

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

512 GB 2.5in SATA Self Encrypted OPAL2 Three Layer Cell SSD

Drive Weight	<50g
Capacity	512 GB
Height	7mm
Length	100.45mm
Width	69.85mm
Interface	SATA 3.0 (6Gb/s)
Maximum Sequential Read	Up to 530MB/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; TCG-OPAL2.0 security

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 2.5in SATA Self Encrypted Federal Information Processing Standard SSD

Drive Weight	<40g
Capacity	256 GB
Height	7mm
Length	100.45mm
Width	69.85mm
Interface	SATA 3.0 (6Gb/s)
Maximum Sequential Read	Up to 530MB/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 security

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.

512 GB 2.5in SATA Self Encrypted Federal Information Processing Standard SSD

Drive Weight	<45g
Capacity	512 GB
Height	7mm
Length	100.45mm
Width	69.85mm
Interface	SATA 3.0 (6Gb/s)
Maximum Sequential Read	Up to 530MB/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 security

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

128 GB M.2 2280 PCIe NVMe SSD

Drive Weight	< 10g
Capacity	128GB
Height	2.38mm
Length	80mm
Width	22mm
Interface	PCIe Gen3
Maximum Sequential Read	Up to 1400MB/s
Maximum Sequential Write	Up to 395MB/s
Logical Blocks	250,069,680
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.

256 GB M.2 2280 PCIe NVMe SSD

Drive Weight	< 10g
Capacity	256 GB
Height	2.38mm
Length	80mm
Width	22mm
Interface	PCIe Gen3
Maximum Sequential Read	Up to 1600MB/s
Maximum Sequential Write	Up to 780MB/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.

512 GB M.2 2280 PCIe NVMe SSD

Drive Weight	< 10g
Capacity	512 GB
Height	2.38mm
Length	80mm
Width	22mm
Interface	PCIe Gen3
Maximum Sequential Read	Up to 1600MB/s
Maximum Sequential Write	Up to 860MB/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.

Technical Specifications – Storage

1 TB M.2 2280 PCIe NVMe SSD

Drive Weight	< 10g
Capacity	1 TB
Height	2.38mm
Length	80mm
Width	22mm
Interface	PCIe Gen3
Maximum Sequential Read	Up to 1800MB/s
Maximum Sequential Write	Up to 1800MB/s
Logical Blocks	2,000,409,264
Operating Temperature	0° to 70°C (32° to 158°F) [ambient temp]
Features	TRIM; ASPM L1.2

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.

128 GB M.2 2280 PCIe NVMe Three Layer Cell SSD

Drive Weight	< 10g
Capacity	128 GB
Height	2.38mm
Length	80mm
Width	22mm
Interface	PCIe Gen3x4
Maximum Sequential Read	Up to 2800MB/s
Maximum Sequential Write	Up to 600MB/s
Logical Blocks	250,069,680
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.

256 GB M.2 2280 PCIe NVMe Three Layer Cell SSD

Drive Weight	< 10g
Capacity	256GB
Height	2.38mm
Length	80mm
Width	22mm
Interface	PCIe Gen3x4
Maximum Sequential Read	Up to 2700MB/s
Maximum Sequential Write	Up to 1000MB/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

512 GB M.2 2280 PCIe NVMe Three Layer Cell SSD

Drive Weight	< 10g
Capacity	512 GB
Height	2.38mm
Length	80mm
Width	22mm
Interface	PCIe Gen3x4
Maximum Sequential Read	Up to 2900MB/s
Maximum Sequential Write	Up to 1100MB/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.

1 TB M.2 2280 PCIe NVMe Three Layer Cell SSD

Drive Weight	< 10g
Capacity	1 TB
Height	2.38mm
Length	80mm
Width	22mm
Interface	PCIe Gen3x4
Maximum Sequential Read	Up to 3480MB/s
Maximum Sequential Write	Up to 3037MB/s
Logical Blocks	2,000,409,264
Operating Temperature	0° to 70°C (32° to 158°F) [ambient temp]
Features	TRIM; ASPM L1.2

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.

256 GB M.2 2280 PCIe NVMe Self Encrypted OPAL2 Three Layer Cell SSD

Drive Weight	< 10g
Capacity	256 GB
Height	2.38mm
Length	80mm
Width	22mm
Interface	PCIe Gen3x4
Maximum Sequential Read	Up to 2700MB/s
Maximum Sequential Write	Up to 1000MB/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; TCG-OPAL2 security

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

512 GB M.2 2280 PCIe NVMe Self Encrypted OPAL2 Three Layer Cell SSD

Drive Weight	< 10g
Capacity	512 GB
Height	2.38mm
Length	80mm
Width	22mm
Interface	PCIe Gen3x4
Maximum Sequential Read	Up to 2900MB/s
Maximum Sequential Write	Up to 1100MB/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; TCG-OPAL2 security

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 Intel® Optane™ Memory H10 with Solid State Storage

Drive Weight	< 10g
Capacity	512 GB
Height	2.38mm
Length	80mm
Width	22mm
Interface	PCIe Gen3x4
Maximum Sequential Read	Up to 2400MB/s
Maximum Sequential Write	Up to 1300MB/s
Logical Blocks	1,000,215,215
Operating Temperature	0° to 70°C (32° to 158°F) [ambient temp]
Features	TRIM; ASPM L1.2

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

HP 9.5mm Slim DVD-ROM Drive

Height	9.5 mm height
Orientation	Either horizontal or vertical
Interface type	SATA/ATAPI
Dimensions (W x H x D)	5.04 x 0.37 x 5.0 in (128 x 9.5 x 127 mm) without bezel
Weight (max)	Up to 0.31 lb (140g) without bezel
Read Speeds	DVD+R/-R/+RW/ -RW/+R DL /-R DL Up to 8X DVD-ROM Up to 8X CD-ROM, CD-R Up to 24X CD-RW Up to 24X
Access time (typical reads, including settling)	Random: DVD-ROM: 170 ms (typical), CD-ROM: 170 ms (typical) Full stroke: DVD-ROM: 320 ms (typical), CD-ROM: 320 ms (typical)
Power	Source Slimline SATA DC power receptacle DC Power Requirement 5 VDC ± 5%-100 mV ripple p-p DC Current 5 VDC (< 1000 mA typical, 1600 mA maximum)
Environmental conditions (operating - non-condensing)	Temperature 41° to 122° F (5° to 50° C) Relative Humidity 10% to 80% Maximum Wet Bulb Temperature 84° F (29° C)

HP 9.5mm Slim DVD Writer Drive

Height	9.5 mm height
Orientation	Either horizontal or vertical
Interface type	SATA/ATAPI
Disc recording capacity	Up to 8.5 GB DL or 4.7 GB standard
Dimensions (W x H x D)	5.04 x 0.37 x 5.0 in (128 x 9.5 x 127 mm) without bezel
Weight (max)	0.31 lb (140 g)
Write Speeds	DVD-R DL - Up to 6X DVD+R - Up to 8X DVD+RW - Up to 8X DVD+R DL - Up to 6X DVD-R - Up to 8X DVD-RW - Up to 6X CD-R - Up to 24X CD-RW - Up to 10X
Read Speeds	DVD-RW, DVD+RW - Up to 8X DVD-R DL, DVD+R DL - Up to 8X DVD+R, DVD-R - Up to 8X DVD-ROM DL, DVD-ROM - Up to 8X CD-ROM, CD-R - Up to 24X CD-RW - Up to 24X
Access time (typical reads, including settling)	Random DVD-ROM: 170 ms (typical), CD-ROM: 170 ms (typical) Full Stroke DVD-ROM: 320 ms (typical), CD-ROM: 320 ms (typical) Stop Time 6 seconds (typical)
Power	Source Slimline SATA DC power receptacle DC Power Requirement 5 VDC ± 5%-100 mV ripple p-p DC Current 5 VDC (< 1000 mA typical, 1600 mA maximum)
Environmental conditions (operating - non-condensing)	Temperature 41° to 122° F (5° to 50° C) Relative Humidity 10% to 80% Maximum Wet Bulb Temperature 84° F (29° C)

Technical Specifications – Storage

HP 9.5mm Slim Blu-Ray Writer Drive

Height	9.5 mm height
Orientation	Either horizontal or vertical
Interface type	SATA/ATAPI
Disc recording capacity	Up to 128 GB QL, 100 GB TL, 50 GB DL or 25 GB standard SL
Dimensions (W x H x D)	5.04 x 0.37 x 5.0 in (128 x 9.5 x 127 mm) without bezel
Weight (max)	0.29 lb (132 g)
Write Speeds	BD-R SL/DL Up to 6X BD-R TL/QL Up to 4X BD-RE Up to 2X DVD-R Up to 8X DVD-RW Up to 6X DVD+R Up to 8X DVD+RW Up to 8X DVD-RAM Up to 5X CD-R Up to 24X CD-RW Up to 10X
Read Speeds	BD-ROM Up to 6X BD-R Up to 6X BD-RE SL/DL Up to 6X BD-RE TL Up to 4X DVD-ROM Up to 8X DVD-R Up to 8X DVD-RW Up to 8X DVD+R Up to 8X DVD+RW Up to 8X BDMV (AACSV Compliant Disc) Up to 6x/2x (Read/Play) DVD-RAM Up to 5x DVD-Video (CSS Compliant Disc) Up to 8x/4x (Read/Play) CD-R/RW/ROM Up to 24x CD-DA (DAE) Up to 24X/10X (Read/Play)
Access time (typical reads, including settling)	Random BD-ROM: 205 ms (typical), DVD-ROM: 185 ms (typical), CD-ROM: 165 ms (typical) Full Stroke BD-ROM: 350 ms (typical), DVD-ROM: 345 ms (typical), CD-ROM: 340 ms (typical)
Power	Source Slimline SATA DC power receptacle DC Power Requirement 5 VDC ± 5%-100 mV ripple p-p DC Current 5 VDC -1200 mA typical, 2000 mA maximum
Environmental conditions (operating - non-condensing)	Temperature 41° to 122° F (5° to 50° C) Relative Humidity 10% to 80% Maximum Wet Bulb Temperature 84° F (29° C)

Technical Specifications – Networking and Communications

NETWORKING AND COMMUNICATIONS

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 Disconnection: 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
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 9560 802.11a/b/g/n/ac (2x2) Wi-Fi® and Bluetooth® 5.0 Combo 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 and Communications

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 : +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 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%	
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	

Technical Specifications – Networking and Communications

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 802.11ax 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 802.11ax WLAN devices	

Intel 9560 802.11a/b/g/n/ac (2x2) Wi-Fi® and Bluetooth® 5.0 Combo non-vPro™	
Wireless LAN Standards	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac
Interoperability	Wi-Fi certified

Technical Specifications – Networking and Communications

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

Technical Specifications – Networking and Communications

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)	

NOTE: Wireless access point and Internet service is required. Availability of public wireless access point is limited. The specifications for the 802.11ax 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 802.11ax WLAN devices

Realtek 802.11a/b/g/n/ac (2x2) WiFi and Bluetooth® 4.2 Combo		
Wireless LAN Standards	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac	
Interoperability	Wi-Fi certified	

Technical Specifications – Networking and Communications

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

Technical Specifications – Networking and Communications

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	
Bluetooth Software Supported Link Topology	USB 2.0 compliant	
Power Management	Microsoft Windows Bluetooth Software	
Certifications	Microsoft Windows ACPI, and USB Bus Support	
Power Management Certifications	FCC (47 CFR) Part 15C, Section 15.247 & 15.249	
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)	

Realtek 802.11a/b/g/n/ac (1x1) Wi Fi® 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

Technical Specifications – Networking and Communications

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. 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

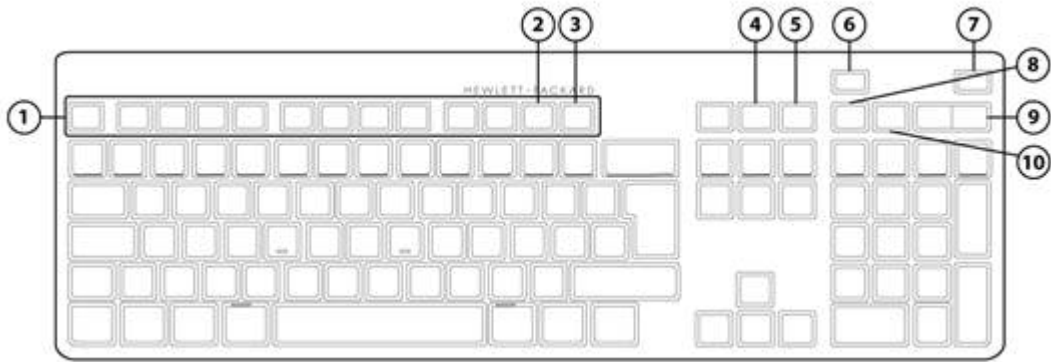
Technical Specifications – Networking and Communications

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)	

Technical Specifications – I/O Devices

INPUT/OUTPUT DEVICES

HP Conferencing Keyboard



1.

Function Keys
2.

F11 Lync or Skype for Business Contact list ¹
3.

F12 Lync or Skype for Business Calendar²
4.

Share Screen
5.

Stop Webcam
6.

End/Decline a Call
7.

Answer a Call
8.

Microphone Mute
9.

Volume Up/Down
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)
	Operating voltage	5 VDC, +/-5%
	Power consumption	35mA (All LED on)
Electrical	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
	Microsoft® PC 99 - 2001	Mechanically compliant
	Keycaps	Low-profile design
Mechanical	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
	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)

Technical Specifications – I/O Devices

Environmental	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
	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, TUV GS, VCCI, BSMI, C-Tick, KC
	Ergonomic compliance	TUVGS
	Kit contents	Keyboard, QSP
Warranty Card	Product Notice	
Skylab USB wired Keyboard		
Physical Characteristics	Keys	104, 105, 106, 107, 109 layout (depending upon country)
	Dimensions (L x W x H)	436.9*137.7*20.4mm
	Weight	615g
Electrical	Operating voltage	4.4-5.25VDC
	Power consumption	50-mA maximum (with 5 VDC power supplied and three LEDs ON)
	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
Mechanical	Keycaps	Low-profile design
	Switch actuation	60±15g nominal peak force with tactile feedback
	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	Minus 20 degress to 60 degress Celsius
	Humidity	90%RH+-2%, 24Hours
Environmental	Vibration	3mm amplitude oscillation, 60Hz
	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, TUV GS, VCCI, BSMI, RCM, KC, EAC
	Ergonomic compliance	ISO 9241-410, TUVGS
	Kit contents	

Technical Specifications – I/O Devices

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 mm)
	Weight w/o cable	0.19lb (90g)
	Operating temperature	50° to 122° F (10° to 50° C)
	Non-operating temperature	-22° to 140° F (-30° to 60° C)
Environmental	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
Electrical	Operating vibration	2-g peak acceleration
	Non-operating vibration	4-g peak acceleration
	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, TUV GS, VCCI, BSMI, C-Tick, KC

HP USB Wired Keyboard

Physical characteristics	Dimensions (H x L x W)"	37mm*115mm*62.9mm
	Weight	90 +10g/- 5 g
	Color	Black
	Connector	USB
	Resolution	800 DPI sensitivity
	Buttons	Two primary buttons and clickable scroll wheel

Technical Specifications – Audio

AUDIO

Audio by HP Audio
Internal 2.5watt 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
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.

Technical Specifications – Power Supply

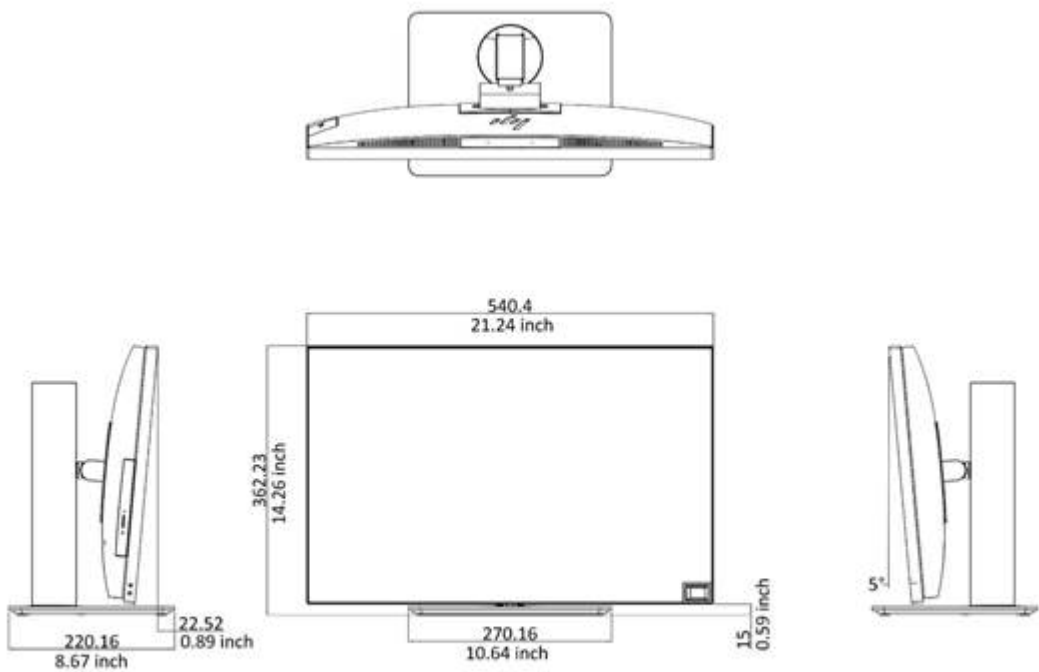
POWER SUPPLY

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	180 W : 2.5A
Energy Efficient* Power Supply	180 W active PFC 87/90/87% efficient at 20/50/100% load (115V) 88/91/88% efficient at 20/50/100% load (230V)
DC Output	12.1V/14.88A
Current Leakage (NFPA 99: 2102)	Less than 300 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)

WEIGHTS & DIMENSIONS

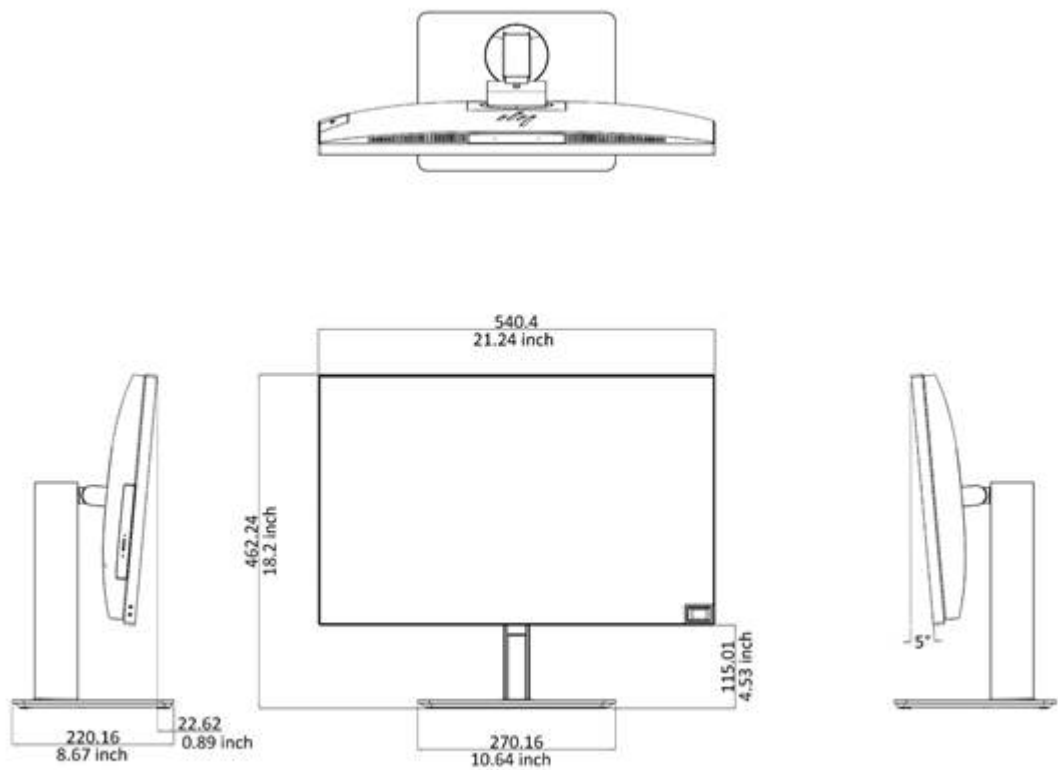
Weight	
Product Weight Unboxed	Without Stand 6.4 - 7.4 kg, 14.1 - 16.3 lbs
	Adjustable height stand: 9.1 - 10.4kg, 20.06 - 22.93 lbs
Dimensions (W x D x H)	
Products Dimensions	Without Stand 540.4 x 54 x 341.96 mm 21.24 x 2.1 x 13.5 in
	Adjustable height stand (0 degrees) 540.4 x 220.16 x 468 mm 21.24 x 8.67 x 18.43 in

DIMENSIONS



Technical Specifications – Weights and Dimensions

Adjustable Height Stand Dimensions



Height - Vertical/Landscape Adjustment	101mm (±2 mm)
Portrait Adjustment	54mm (±2 mm)
Tilt Angle	5° to +20° (±3°) in landscape and portrait
Rotation (Swivel)	90° (±1°)
Pivot	Clockwise 90°

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

AFTER MARKET OPTIONS

Description	Part #
HP 16GB DDR4-2666 SODIMM	3TK84AA
HP 4GB DDR4-2666 SODIMM	3TK86AA
HP 8GB DDR4-2666 SODIMM	3TK88AA
HP 256GB SATA TLC Non-SED Solid State Drive	P1N68AA
HP PCIe NVME TLC 512GB SSD M.2 Drive	X8U75AA
HP PCIe NVME TLC 256GB SSD M.2 Drive	1CA51AA
Intel Optane Memory 16GB (cache) ****	1WV97AA
HP 9.5mm Slim Removable SATA 500GB	T7G14AA
HP 9.5mm AIO 800 G3 Slim DVD Writer	Z9H62AA
HP Type-C to USB3 Adapter	N2Z63AA
HP USB-C to USB-A HUB***	Z6A00AA
HP Single Monitor Arm **	BT861AA
HP EliteOne G3 800 AIO Recline Stand (optional)	Z9H67AA
HP EliteOne G3 800 AIO Adjustable Height Stand (optional)	Z9H66AA
HP Keyed Cable Lock 10mm Kit	T1A62AA
HP DVI Cable Kit	DC198A
HP DisplayPort To DVI-D Adapter	FH973AA
HP DisplayPort To VGA Adapter	AS615AA
HP DisplayPort Cable Kit	VN567AA
HP DisplayPort To HDMI 4k Adapter	K2K92AA
HP DisplayPort to Dual Link DVI Adapter	NR078AA
HP DisplayPort To HDMI True 4k Adapter	ZJA63AA
HP HDMI Standard Cable Kit	T6F94AA
HP Business Headset v2	T4E61AA
HP UC Wireless Duo Headset	W3K09AA
HP USB Grey v2 Mouse	Z9H74AA
HP USB Mouse	QY777AA
HP (Bulk) USB Mouse	QY777A6
HP USB Grey Mouse	K7W54AA
HP USB 1000dpi Laser Mouse	QY778AA
HP (Bulk) USB 1000dpi Laser Mouse	QY778A6
HP PS/2 Mouse	QY775AA
HP (Bulk) PS/2 Mouse	QY775A6
HP Mouse Pad	AT485AA
HP (Bulk) Mouse Pad	AT485A6
HP USB PS/2 Washable Scroll Mouse	BM866AA
HP USB Hardened Mouse	P1N77AA
HP USB Collaboration Keyboard	Z9N38AA
HP WLess Collaboration Keyboard	Z9N39AA
HP USB Premium Keyboard	Z9N40AA
HP WLess Premium Keyboard	Z9N41AA
HP Bus Slim Wirles Localize Kit Nordic	2MY27AA
HP Bus Slim Localize Kit - Nordic USB	2MY28AA

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

HP USB Keyboard and Mouse Healthcare Edition	1VD81AA
HP Business Slim Smartcard Keyboard	Z9H48AA
HP USB (Grey) Business Slim Keyboard	Z9H49AA
HP USB Antimicrobial Slim Kybd and Mouse	Z9H50AA
HP Conferencing Keyboard	K8P74AA
HP USB Conferencing Keyboard	N8N57AA
HP Wireless Keyboard & Mouse	QY449AA
HP USB Keyboard	QY776AA
HP USB Keyboard/Mouse/Mousepad Kit	B1T09AA
HP (Bulk Pack) USB Keyobard	QY776AT
HP USB (Grey) Keyboard	B6B64AA
HP (Bulk Pack) USB (Grey) Keyboard	B6B64A6
HP PS/2 Keyboard	QY774AA
HP (Bulk Pack) PS/2 Keyboard	QY774A6
HP (Bulk Pack) USB Smart Card Keyboard	ED707A6#xxx
HP USB CCID Smartcard Keyboard	BV813AA#xxx
HP (Bulk Pack) USB CCID Smart Card Keyboard	BT824A6#xxx
HP USB PS2 Washable Keyboard	VF097AA#xxx
HP USB PS2 Washable Keyboard & Mouse	BU207AA#xxx
HP USB Smartcard CCID Keyboard	E6D77AA#xxx
HP (Bulk) USB Smartcard CCID Keyboard	E6D77A6#xxx
HP USB Grey Smartcard CCID Keyboard	J7H70AA#xxx
HP (Bulk) PS/2 Business Slim Keyboard	N3R86A6
HP USB Business Slim Keyboard	N3R87AA
HP (Bulk) USB Business Slim Keyboard	N3R87A6
HP Wireless Business Slim Keyboard and Mouse	N3R88AA
HP (Bulk) Wireless Business Slim Keyboard and Mouse	N3R88A6
HP USB Business Slim Keyboard and Mouse and MousePad	T4E63AA
HP (Bulk) USB Bus Slim Keyboard/Mouse/Mousepad	T4E63A6

Summary of Changes

Date of change:	Version History:		Description of change:
June 17, 2019	V1	Launch	
October 18, 2019	V1 to V2	Update	Call outs re-arranged in side view image, adding Standard lock slot
November 11, 2019	V2 to V3	Update	EPEAT references updated

Copyright © 2019 HP Development Company, L.P. The only warranties for HP products are set forth in the express limited warranty statements accompanying such products. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

Bluetooth is a trademark of its proprietor and used by HP Inc. under license. Intel, Core and Intel vPro are trademarks of Intel Corporation or its subsidiaries in the U.S. and/or other countries. USB Type-C™ and USB-C™ are trademarks of USB Implementers Forum. ENERGY STAR is a registered trademark of the U.S. Environmental Protection Agency.

DisplayPort™ and the DisplayPort™ logo are trademarks owned by the Video Electronics Standards Association (VESA®) in the United States and other countries.