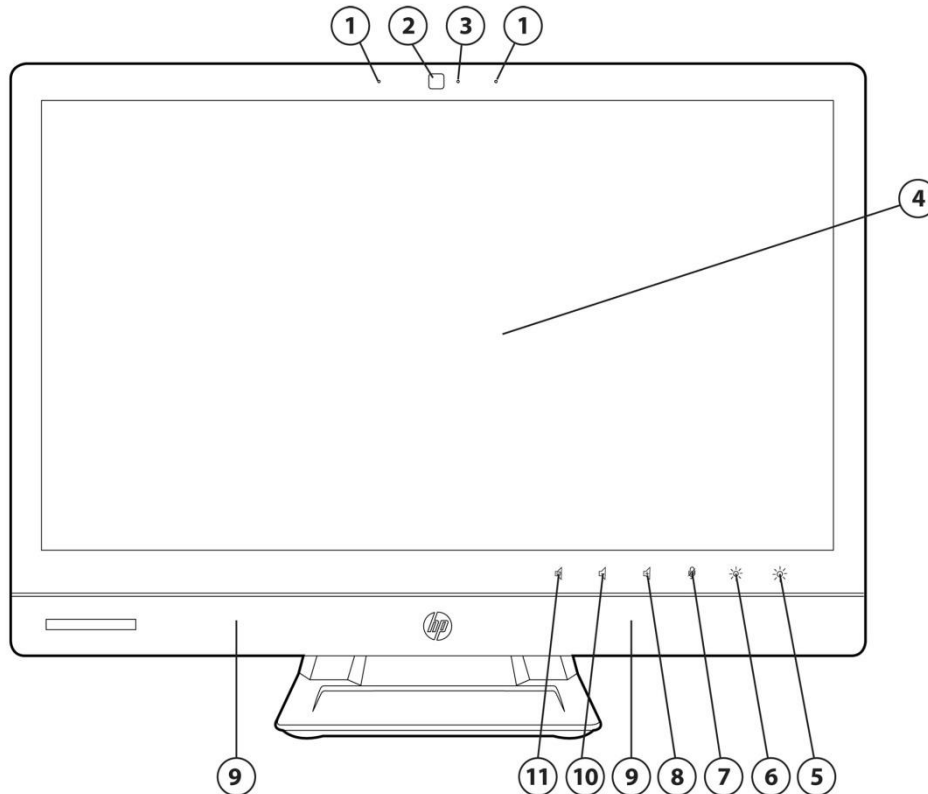


Overview

HP EliteOne 800 G1 21.5-inch Non-Touch All-in-One PC

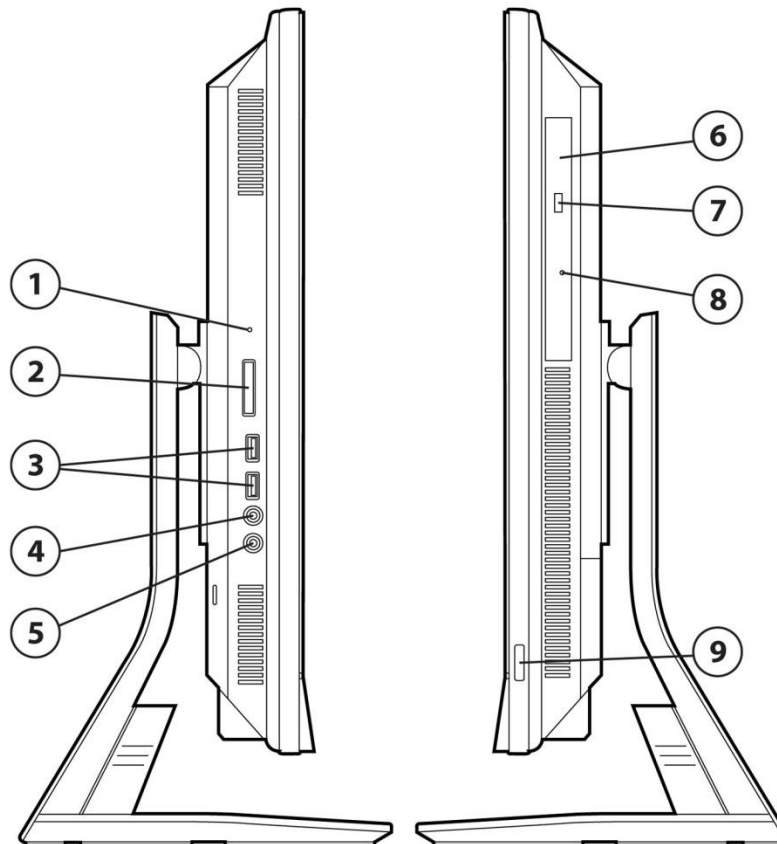


FRONT

1. Dual microphone array (only on models with Webcam)
2. 2.0 MP Webcam (optional)
3. Webcam Activity LED
4. 21.5-inch IPS Full HD capable screen
5. Increase brightness
6. Decrease brightness
7. Mute microphone
8. Increase volume
9. High performance stereo speakers
10. Reduce volume
11. Mute speaker

Overview

HP EliteOne 800 G1 21.5-inch Non-Touch All-in-One PC

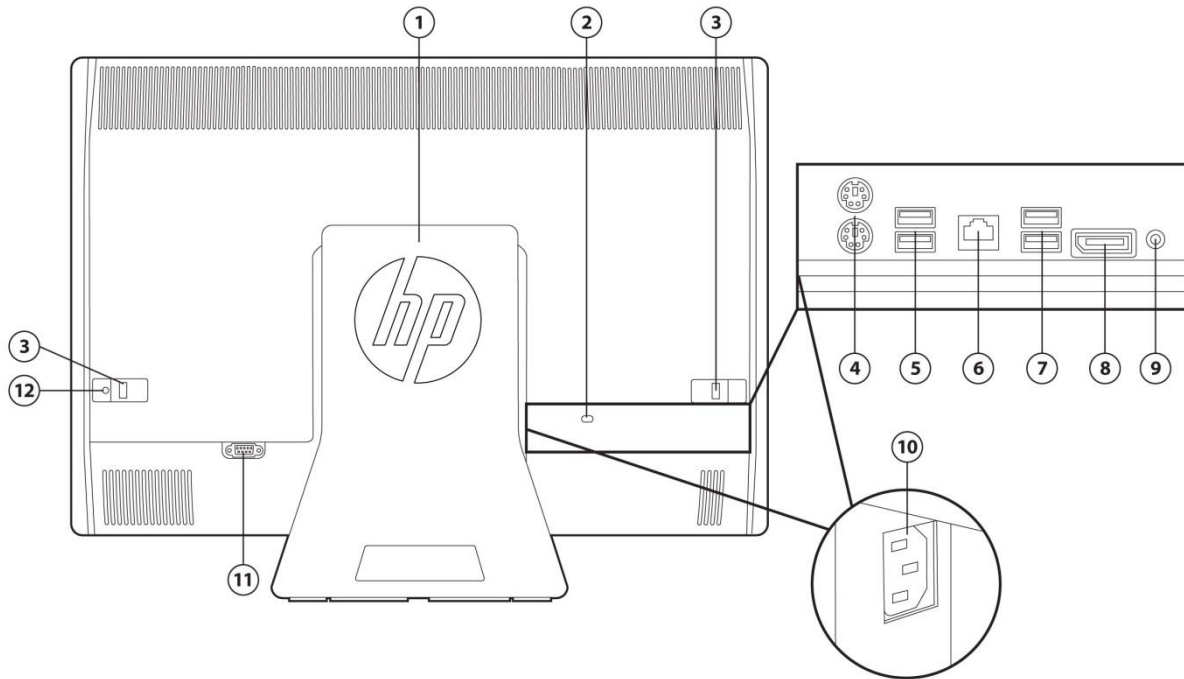


SIDE

1. Hard disc drive activity LED
2. HP SD media card reader (optional)
3. (2) USB 3.0 ports, including 1 fast charging port
4. Microphone/line in jack
5. Headphone/line out jack
6. Tray-load optical disc drive (optional)
7. Optical disc drive eject button
8. Optical disc drive activity LED
9. Power button

Overview

HP EliteOne 800 G1 21.5-inch Non-Touch All-in-One PC



REAR/PORTS (BEHIND SECURITY COVER)

1. Stand (can be configured with no stand, basic stand, or height adjustable/reclining stand)
2. Security lock slot
3. Access panel latches
4. (2) PS/2 mouse and keyboard connectors
5. 2) USB 3.0 ports
6. RJ-45 Gigabit Ethernet port
7. (2) USB 3.0 ports
8. DisplayPort connector
9. Stereo audio line out
10. Power connector
11. Optional Serial Port
12. Optional security screw

AT A GLANCE

Overview

- Windows 7 or Windows 8
- UEFI BIOS developed and engineered by HP for better security, manageability and software image stability
- Integrated All-in-One form factor
- 21.5-inch IPS Full HD (1920 x 1080) diagonal widescreen WLED backlit anti-glare LCD
- Landscape or portrait display orientation – with height adjustable stand or VESA mount
- Can be configured with no stand, basic stand, or height adjustable/reclining stand
- Intel® Q87 chipset
- Intel® 4th generation Core™ processors
- Intel® vPro™ Technology available with select processors
- Integrated Intel® HD Graphics
- Integrated Intel® I217LM Gigabit Network Connection
- Optional wireless connectivity:
 - Intel® Advanced-N 6205 WLAN - Intel® 802.11 a/b/g/n
 - Intel® Dual Band Wireless-N 7260 - Intel® 802.11 a/b/g/n
 - WLAN and Bluetooth Combo Card - HP 802.11 a/b/g/n and Bluetooth® 4.0
- WiDi support (with Intel® 6205 or Intel® Dual Band Wireless-N 7260 and Intel® HD Graphics)
- Optional Near Field Communication (NFC)
- Optional Integrated 2.0 MP Webcam & Dual Microphone Array
- High performance integrated stereo speakers
- DTS Studio Sound™
- Up to 16 GB of DDR3 SDRAM, dual channel memory support, two SODIMM slots
- Support for up to 3 storage drives (2 SATA, 1 mSATA) with RAID support
- Up to 500GB SATA Hard Drive, up to 160GB Solid State Drive, 500 GB Self-Encrypting Drive, 256GB Self-Encrypting Solid State Drive, and 1TB Solid State Hybrid Drive
- Optional Intel® Smart Response Technology support with 32GB mSATA SSD Flash Cache Module
- Optional slim Tray-load SuperMulti DVD Writer, DVD-ROM, or BDXL Blu-ray Writer Optical Disc Drive
- Optional SD Media Card Reader
- Serial port
- DisplayPort out
- Integrated VESA 100 x 100 mounting holes
- Lockable rear access panel with intrusion sensor
- ENERGY STAR® qualified. EPEAT® registered where applicable/supported. See www.epeat.net for registration status by country.
- CCC, CECP & SEPA Certified
- Optimized for Microsoft Lync
- TCO AiO and TCO Edge
- Low Halogen
- Arsenic Free
- Protected by HP Services, including warranties up to 5-5-5 (terms and conditions vary by country; certain restrictions and exclusions apply)

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

Standard Features and Configurable Components

OPERATING SYSTEM

Preinstalled

Windows 8 Pro (64-bit)*
Windows 8 (64-bit)*
Windows 7 Ultimate (64-bit)**
Windows 7 Professional (32-bit)**
Windows 7 Professional (64-bit)**
Windows 7 Professional (32-bit) (available through downgrade rights from Windows 8 Pro)***
Windows 7 Professional (64-bit) (available through downgrade rights from Windows 8 Pro)***
Windows 7 Home Premium (32-bit)**
Windows 7 Home Premium (64-bit)**
Windows 7 Home Basic (32-bit)**

FreeDOS 2.0
Novell SUSE Linux Enterprise Desktop 11

*Not all features are available in all editions of Windows 8. Systems may require upgraded and/or separately purchased hardware, drivers and/or software to take full advantage of Windows 8 functionality. See <http://www.microsoft.com>.

**Not all features are available in all editions of Windows 7. This system may require upgraded and/or separately purchased hardware to take full advantage of Windows® 7 functionality. See <http://www.microsoft.com/windows/windows-7/> for details.

***This system is preinstalled with Windows 7 Pro software and also comes with a license and media for Windows 8 Pro software. You may only use one version of the Windows software at a time. Switching between versions will require you to uninstall one version and install the other version. You must back up all data (files, photos, etc.) before uninstalling and installing operating systems to avoid loss of your data.

PROCESSORS*

Intel® 4th Generation Core™ i7 Processors

Intel® Core™ i7-4770S

Up to 3.9 GHz Max. Turbo Frequency (3.1 GHz base frequency), 8 MB cache, 4 cores, 8 threads

Intel® HD Graphics 4600

Supports DDR3 memory up to 1600 MT/s data rate

Supports Intel® vPro Technologies and Intel's® Stable Image Platform Program (SIPP)

Intel® 4th Generation Core™ i5 Processors

Intel® Core™ i5-4670S

Up to 3.8 GHz Max. Turbo Frequency (3.1 GHz base frequency), 6 MB cache, 4 cores, 4 threads

Intel® HD Graphics 4600

Supports DDR3 memory up to 1600 MT/s data rate

Supports Intel® vPro Technologies and Intel's® Stable Image Platform Program (SIPP)

Intel® Core™ i5-4570S

Up to 3.6 GHz Max. Turbo Frequency (2.9 GHz base frequency), 6 MB cache, 4 cores, 4 threads

Intel® HD Graphics 4600

Supports DDR3 memory up to 1600 MT/s data rate

Supports Intel® vPro Technologies and Intel's® Stable Image Platform Program (SIPP)

Standard Features and Configurable Components

Intel® 4th Generation Core™ i3 Processors

Intel® Core™ i3-4340

3.6 GHz base frequency, 4 MB cache, 2 cores, 4 threads

Intel® HD Graphics 4600

Supports DDR3 memory up to 1600 MT/s data rate

Intel® Core™ i3-4330

3.5 GHz base frequency, 4 MB cache, 2 cores, 4 threads

Intel® HD Graphics 4600

Supports DDR3 memory up to 1600 MT/s data rate

Intel® Core™ i3-4130

3.4 GHz base frequency, 3 MB cache, 2 cores, 4 threads

Intel® HD Graphics 4600

Supports DDR3 memory up to 1600 MT/s data rate

Intel® 4th Generation Pentium™ Processors

Intel® Pentium™ G3430

3.3 GHz base frequency, 3 MB cache, 2 cores, 2 threads

Intel® HD Graphics

Supports DDR3 memory up to 1600 MT/s data rate

Intel® Pentium™ G3420

3.2 GHz base frequency, 3 MB cache, 2 cores, 2 threads

Intel® HD Graphics

Supports DDR3 memory up to 1600 MT/s data rate

Intel® Pentium™ G3220

3.0 GHz base frequency, 3 MB cache, 2 cores, 2 threads

Intel® HD Graphics

Supports DDR3 memory up to 1300 MT/s data rate

*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. 64-bit computing on Intel® architecture requires a computer system with a processor, chipset, BIOS, operating system, device drivers, and applications enabled for Intel® 64 architecture. Processors will not operate (including 32-bit operation) without an Intel® 64 architecture-enabled BIOS. Performance will vary depending on your hardware and software configurations. Intel's numbering is not a measurement of higher performance.

CHIPSET

Intel® 8 Series (Q87) Chipset

INTEL® vPRO TECHNOLOGY CAPABLE

Intel® Core i5 with vPro and Core i7 with vPro technology is a selectable feature that is available on units configured with select processors, and a preinstalled Windows operating system. It provides advances in remote manageability, security, energy efficient performance, and wireless connectivity. Intel® Active Management Technology 9.0 (iAMT) offers an advanced set of remote management features and functionality which provides network administrators the latest and most effective tools to remotely discover, heal, and protect networked client systems regardless of the system's health or power state. AMT 9.0 includes the following advanced management functions:

- Power Management (on, off, reset)

Standard Features and Configurable Components

- Hardware Inventory (includes BIOS and firmware revisions)
- Hardware Alerting
- Agent Presence
- System Defense Filters
- SOL/IDER
- Cisco NAC/SDN Support
- ME Wake-on-LAN
- DASH 1.1 compliance
- IPv6 Support
- Fast Call for Help - a client inside or outside the firewall may initiate a call for help via BIOS screen, periodic connections, or alert triggered connection
- Remote Scheduled Maintenance - pre-schedule when the PC connects to the IT or service provider console for maintenance. Remote PCs can get required patches, be inventoried, etc by connecting to their IT console or Service Provider when it's convenient
- Remote Alerts - automatically alert IT or service provider if issues arise
- Access Monitor - Provides oversight into Intel® AMT actions to support security requirements
- PC Alarm Clock
- Microsoft NAP Support
- Host Base set-up and configuration
- Management Engine (ME) firmware roll back
- Wireless AMT functionality on Desktop (WoDT)*
- Enhanced KVM resolution

* Requires Intel® Advanced-N 6205 WLAN 802.11a/b/g/n PCIe Minicard Wireless Module

INTEL® STANDARD MANAGEABILITY

Includes DASH 1.0/1.1 compliance plus:

- System Defense
- Agent Presence
- SOL/IDE Redirection
- CISCO NAC/SDN support
- ME Wake on LAN
- Host Based Configuration
- ME Firmware Rollback
- IPv6 Support

DASH 1.0/1.1 compliance:

- Boot Control
- HW Inventory
- SW Inventory
- Power State Management
- HW Alerting

SMBIOS

System Management BIOS, previously known as DMI BIOS, is used to store system management information.

GRAPHICS

Integrated

Standard Features and Configurable Components

Intel® HD Graphics 4600*

Graphics controller	Intel® Processor Graphics
DisplayPort	Multi-Stream support (supports up to 2 external displays) ¹
Memory	Up to 1.8GB DDR3
Supported Graphics APIs	DX11.1, OpenGL 4.0, OpenCL 1.2, full 1080p Blu-Ray Disc (H264) playback in hardware

* HD content required to view HD images.

WIRELESS DISPLAY

WiDi support with Intel® Advanced-N 6205 WLAN or Intel® Dual Band Wireless-N 7260 (mini PCI Express) and Intel® HD graphics.*

Desktop system requirements for Intel® Wireless Display

System Component	Requirement
Processor	4 th generation Intel® Core processor
Graphics	Intel® HD Graphics
Wireless	Intel® Advanced-N 6205 WLAN or Intel® Dual Band Wireless-N 7260
Software	Intel® My WiFi Technology and Intel® Wireless Display must be pre-installed and enabled.
OS	Windows 7 32-bit/64-bit Home Premium, Ultimate, Professional; Windows 7 32-bit Home Basic; Windows 8 64-bit Professional

*Integrated Intel WiDi software is available on select models only and requires separately purchased projector, tv or computer monitor with an integrated or external Wi-Di receiver. External Wi-Di receivers connect to the projector, tv or computer monitor via a standard VGA, HDMI cable, also sold separately."

DISPLAY

21.5" diagonal IPS widescreen WLED backlit anti-glare LCD; Orientation designed to operate in portrait or landscape

Display Panel	Type	IPS WLED Backlit LCD
	Viewable image area (mm)	476.06 x 267.79
	Screen opening (mm)	477.73 x 269.22
	Native Resolution (HxV)	1920 x 1080
	Aspect ratio	16:9
	Pixel pitch (HxV)(mm)	0.248 x 0.248
	Contrast ratio (typical)	1000:1
	Brightness (typical)	250 nits (cd/m ²)
	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)	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.

¹ Using the Integrated Graphics, two (2) external displays are supported via one of these methods:

1) DisplayPort multi-stream monitors 'daisy-chained' together or

2) DisplayPort multi-stream hub – hub requires power through power cable provided. DisplayPort multi-stream hub provides 4 DisplayPort ports, adapters are required for support of DVI, VGA or HDMI displays.

Standard Features and Configurable Components

Basic Stand	Tilt Angle Rotation	-5° to +30° 360° swivel
Height Adjustable / Reclining Stand:	Vertical Adjustment Recline Angle Tilt Angle Rotation	Up to 110 mm Low position sliding height adjustment => -5° to +60° High position sliding height adjustment => -5° to +30° 360° swivel and portrait or landscape orientation

WEBCAM & MIC

Optional integrated 2 MP Full HD webcam & dual microphone array; maximum resolution of 1920 x 1080

STORAGE*

2.5" SATA Hard Drive

320 GB, 7200 rpm, SATA 6.0 Gb/s, SMART IV
500 GB, 7200 rpm, SATA 6.0 Gb/s, SMART IV

2.5" Solid State Drive

120 GB, SATA, Solid State Drive
128 GB, SATA, Solid State Drive
160 GB, SATA, Solid State Drive

2.5" Self-Encrypting Solid State Drive

128 GB, SATA, Self-Encrypting Solid State Drive
256 GB, SATA, Self-Encrypting Solid State Drive

2.5" Self-Encrypting Drive

500 GB, SATA, Self-Encrypting Drive

2.5" Solid State Hybrid Drive

500 GB, SATA, Solid State Hybrid Drive
1 TB SATA, Solid State Hybrid Drive

3.5" Hard Drive

500GB 7200 RPM 3.5 Hard Drive
1TB 7200 RPM 3.5 HDD
2TB 7200 RPM 3.5 Hard Drive

3.5" Self-Encrypting Drive

500 GB, SATA, Self-Encrypting Drive

Optical Disc Drive

Slim Tray-load SATA DVD-ROM
Slim Tray-load SATA SuperMulti DVD Writer
Slim Tray-load SATA BD-XL Blu-ray Writer
No included Optical Disc Drive

Removable

HP Slim Removable SATA HDD

Media Card Reader (optional)

5-in-1 PCIe Interface
Supports Secure Digital (SD, SDXC, SDHC, UHS-I, UHS-II)

Standard Features and Configurable Components

*For hard drives and solid state drives, GB = 1 billion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and 30 GB (for Windows 8.1) of system disk is reserved for the system recovery software.

PERFORMANCE

Flash Cache Module

32GB mSATA SSD Flash Cache Module (Intel® Smart Response Technology - Optional with Core Processors)

MEMORY*

Type

Non-ECC, DDR3 SDRAM, 1600 MT/s, SODIMM

Maximum

16 GB

of Slots

2

204-pin supporting dual-channel memory

Maximized dual-channel performance requires SODIMMs of the same size and speed in both memory slots.

*Full availability of 4 GB or more of memory requires a 64-bit operating system. With Windows 32-bit operating systems, the amount of usable memory is dependent upon your configuration, so that above 3 GB all memory may not be available due to system resource requirements.

Memory modules support data transfer rates up to 1600 MT/s; actual data rate is determined by the system's configured processor. See processor specifications for supported memory data rate.

NETWORKING/COMMUNICATIONS

Ethernet (RJ-45)

Integrated Intel® I217LM Gigabit Network Connection

NOTE: The term "10/100/1000" or "Gigabit" Ethernet indicates compliance with IEEE standard 802.3ab for Gigabit Ethernet and does not connote actual operating speed of 1 Gb/s. For high-speed transmission, connection to a Gigabit Ethernet server and network infrastructure is required.

Wireless LAN (optional)*

Intel® 802.11 a/b/g/n wireless 6205 PCIe minicard

Intel® 802.11 a/b/g/n wireless 7260 PCIe minicard

Up to 300 mbps data rate

HP 802.11 a/b/g/n wireless PCIe minicard with Bluetooth Combo

Up to 300 mbps data rate

Bluetooth 4.0 compliant

Works with a wide range of Bluetooth devices

* Wireless access point and Internet service required and not included. Availability of public wireless access points limited.

Near Field Communications (NFC) (optional)

HP Module with NXP NFC Controller with Embedded Secure Element, PN650

Supports Windows 8, Proximity Events

Support Windows 7, PC/SC

NFC Forum Compliant

Standard Features and Configurable Components

AUDIO/MULTIMEDIA

DTS Studio Sound™
 Realtek ALC 3228 Audio – 16 & 24-bit PCM
 High performance integrated stereo speakers
 Volume control and mute buttons
 Stereo headphone jack
 Microphone in
 Stereo line out
 Integrated 2.0 MP webcam (up to 30 frames/sec) & dual microphone array (optional)

KEYBOARDS AND POINTING DEVICES

Keyboard

HP PS/2 Keyboard	104 keys plus special functions for Mute, Volume Up, Volume Down, Sleep Separate numeric keypad Cable length 70.87 in (180 cm)
HP USB Keyboard	104 keys plus special functions for Mute, Volume Up, Volume Down, Sleep Separate numeric keypad Cable length 51 in (130 cm)
HP Wireless Keyboard & Mouse (Keyboard contains 25% post-consumer recycled plastic material)	104 keys plus special functions for Mute, Volume Up, Volume Down, Sleep Separate numeric keypad; two buttons with scroll wheel acting as third button Operates at ~ 2.4 GHz and supports a working distance of up to 32 ft (10m) Cable length 6ft (1.8m)
HP USB SmartCard CCID Keyboard	104, 105, 106, 107, 109 layout (depending upon country) All ISO 7816 smart cards
HP USB PS/2 Washable Keyboard	SpillSeal® keyboard technology protection USB & PS/2 support in one solution Separate numeric keypad Cable length 7ft (2.2m)

Mice

HP PS/2 Mouse	800 dpi support Two buttons with scroll wheel 72.8 in (185 cm)
HP USB Optical Mouse	800 dpi support Two buttons with scroll wheel 72.8 in (185 cm)
HP USB 1000dpi Laser Mouse	1000 dpi support Two buttons with scroll wheel Cable length 70.8 in (180 cm)
HP USB PS/2 Washable Scroll Mouse	SpillSeal® mouse technology protection Two buttons with scroll wheel

Standard Features and Configurable Components

8.8 ft total 70 cm+ 2m extension

HP BIOSphere

Key features of the HP BIOS include:

- Deployment and manageability - HP BIOS provides several technologies that help integrate the HP EliteOne 800 Business PC into the enterprise, such as PXE, remote configuration, remote control, and F10 Setup support for 12 languages.
- Select models feature either Intel® Standard Manageability or Intel® Core vPro Processor Technology.
- Stability - HP BIOS supports the HP stable product roadmap by releasing only critical BIOS changes to the factory and advanced change notification.
- Support UEFI specification 2.3.1
- Computrace 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.
- Thermal Controlled Fans – Automatic or manual controlled fan speeds for cooling and acoustic performance. 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 DOS (DOSFlash), BIOS updates from within Windows (HPQFlash), HP Client Manager, and fail-safe recovery (Emergency Boot Block Recovery). In addition, the HP Business Desktop BIOS Utilities tool enables replicated BIOS setup throughout the Enterprise; it is available from within the BIOS F10 setup and from the support website.
- HP BIOS uses PKI signing of the BIOS for trusted BIOS upgrades and recovery.
- Serviceability – HP BIOS provides diagnostic and detailed service information.

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 version cannot be changed and changes cannot be made to BIOS settings using F10 setup or under the OS.
- Advanced Configuration and Power Interface (ACPI) - Represents a significant innovation in power and configuration management, allowing operating systems and applications to manage power based on activity and usage. HP Elite models use ACPI to provide power conservation features.
- S5 Max Power Savings setting supports EU Lot6 requirement and allows the computer to power down below 1W in S5 (when turned off). When S5 Max Power Savings feature is enabled power to slots is turned off along with WOL functionality.
- Master Boot Record Security - Helps to prevent changes and/or infections to the Master Boot Record caused by viruses or malicious code.
- HP BIOS Protection – prevents unauthorized updates or changes to the BIOS due to malware, viruses, or malicious BIOS updates. Based on NIST SP800-147 policy guidelines.

Standard Features and Configurable Components

SECURITY

- USB port disable
- Lockable Access Panel
- Lockable I/O security cover
- Security Screw
- HP Keyed Cable Lock (optional)
- Common Criteria Certified, Infineon TPM SLB9656TT1.2- 4.32 FW
- Intrusion Detector
- Wall/Arm/Cart Mountable via VESA bracket
- Support for Nobel Locking Plate (3rd party option)
- Support for 3M Privacy Screen (3rd party option), for non-touch models

POWER

Internal 180W, up to 93% efficient, active PFC
100-240V AC

Loading	20%		50%		100%	
Power Efficiency	90%	90%	93%	92%	91%	89%
Volts	230	100/115	230	100/115	230	100/115

SOFTWARE COMPONENTS AND APPLICATIONS WITH WINDOWS

Included	Windows 7	Windows 8
Security	Computrace (status tracing) ¹ Device Access Manager Drive Encryption ² File Sanitizer (Activated via Wizard) ⁹ Disk Sanitizer (External Version) ^{3, 8} Microsoft Security Essentials Security Manager	Computrace (status tracing) ¹ Device Access Manager Drive Encryption ² File Sanitizer (Activated via Wizard) ⁹ Disk Sanitizer (External Version) ^{3, 8} Microsoft Defender ¹⁰ Secure Erase ¹¹ Security Manager
Multimedia	Cyberlink Power DVD, BD Cyberlink Power2Go (Secure Burn) Cyberlink YouCam BE ⁴	Cyberlink Power DVD, BD Cyberlink Power2Go (Secure Burn)
Communication		HP Wireless Hotspot Intel Wireless Display
HP Value Add	HP ePrint Driver ⁵ HP Manageability HP PageLift HP Recovery Disk Creator HP Setup HP Software Setup	HP ePrint Driver ⁵ HP Manageability HP PageLift HP Recovery Manager HP Registration HP Setup

Standard Features and Configurable Components

	HP Support Assistant HP Wallpaper	HP Software Setup HP Support Assistant HP Wallpaper HP Quick Start ⁶
3rd Party	Bing Search Box 50 GB Offer ⁷ PDF Complete, Corporate Edition Skype	Bing Search Box 50 GB Offer ⁷ PDF Complete, Corporate Edition Skype
Microsoft Products	Buy Office	Buy Office

1. Computrace agent is shipped turned off, and must be activated by customers when they purchase a subscription. Subscriptions can be purchased for terms ranging from one to five years. Service is limited, check with Absolute for availability outside the U.S.
2. Drive Encryption is planned to be available in October 2013. Requires Windows. Data is protected prior to Drive Encryption login. Turning the PC off or into hibernate logs out of Drive Encryption and prevents data access.
3. Available via download.
4. Preinstalled on models with webcam for Windows 7 only.
5. Requires an Internet connection to HP web-enabled printer and HP ePrint account registration, for complete details see www.hp.com/eprint
6. Non-Touch model only.
7. Requires Box registration. Offer available to new Box users only. Box App requires Windows 8 or 8.1. Offer subject to change without notice.
8. For the use cases outlined in the DOD 5220.22-M Supplement. Does not support Solid State Drives (SSDs). Requires Disk Sanitizer, External Edition for Business Desktops from hp.com.
9. For the use cases outlined in the DOD 5220.22-M Supplement. Does not support Solid State Drives (SSDs). Initial setup required. Web history deleted only in Internet Explorer and Firefox browsers and must be user enabled. With Windows 8.1, user must turn off Enhanced Protection Mode in IE11 for shred on browser close feature.
10. Requires Windows 8 and internet access.
11. For the methods outlined in the National Institute of Standards and Technology Special Publication 800-88. Supported on ElitePad 900 G1 with BIOS version F.03 and higher.

ENVIRONMENTAL & INDUSTRY

ENERGY STAR® qualified models available

EPEAT® registered where applicable. EPEAT registration varies by country. See www.epeat.net for registration status by country.

Industry standard certifications:

UL
 CSA
 FCC compliance
 ENERGY STAR®
 EPEAT® Gold
 EUP Lot6 Tier2
 CCC
 CECP
 SEPA
 TCO AiO and TCO Edge
 Optimized for Microsoft Lync
 Low halogen*
 Arsenic Free
 80 PLUS®
 TAA compliant

For accessibility information on HP products, please visit: <http://www.hp.com/accessibility>.

Standard Features and Configurable Components

*External power supplies, power cords, cables and peripherals are not Low Halogen. Service parts obtained after purchase may not be Low Halogen.

WEIGHTS & DIMENSIONS

Weight

<i>Product Weight</i>	<u>Without stand</u>	<u>Basic stand</u>	<u>Height adjustable/reclining stand</u>
	14.6 – 17.4 lbs	19.4 – 22.2 lbs	28.8 – 31.5 lbs
<i>Unboxed</i>	6.63 – 7.88 kg	8.8 – 10.05 kg	13.06 – 14.31 kg
	<u>Without stand</u>	<u>Basic Stand</u>	<u>Height adjustable/reclining stand</u>
<i>Shipping Weight</i>	26.24 lbs	31.09 lbs	40.92 lbs
	11.90 kg	12.87 kg	17.84 kg
<i>Boxed</i>	<u>Without stand (18 units)</u>	<u>Basic Stand (18 units)</u>	<u>Height adjustable/reclining stand (12 units)</u>
	503.80 lbs	595.35 lbs	491.10 lbs
<i>Shipping Weight</i>	228.48 kg	250.66 kg	233.08.84 kg
	<u>Without stand (18 units)</u>	<u>Basic Stand (18 units)</u>	<u>Height adjustable/reclining stand (12 units)</u>
<i>Pallet</i>	503.80 lbs	595.35 lbs	491.10 lbs
	228.48 kg	250.66 kg	233.08.84 kg

Dimensions (W x D x H)

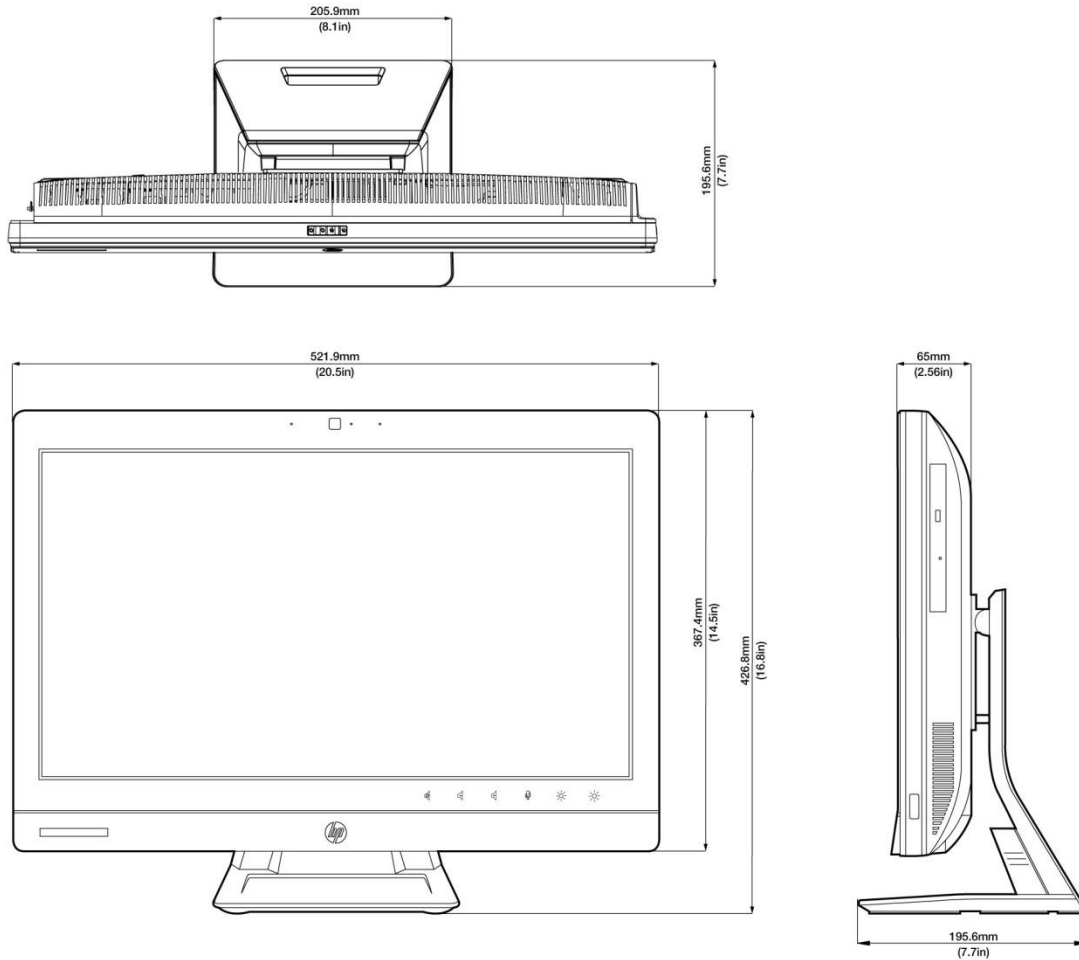
<i>Product Dimensions</i>	<u>Without stand</u>	<u>Basic stand</u>	<u>Height adjustable/reclining stand 0 degrees</u>
	20.5 x 2.56 x 14.5 in	20.5 x 7.7 x 16.8 in	20.5 x 9.8 x 20.4 in
	521.9 x 65 x 367.4 mm	521.9 x 195.6 x 426.8 mm	521.9 x 247.7 x 518.5 mm
	<u>Without stand</u>	<u>Basic stand</u>	<u>Height adjustable/reclining stand 60 degrees</u>
	20.5 x 2.56 x 14.5 in	20.5 x 7.7 x 16.8 in	20.5 x 14.4 x 10.8 in
	521.9 x 65 x 367.4 mm	521.9 x 195.6 x 426.8 mm	521.9 x 366.8 x 273.1 mm

Shipping Dimensions

<i>Shipping Dimensions</i>	<u>Without stand</u>	<u>Basic stand</u>	<u>Height adjustable/reclining stand</u>
	24.41 x 11.22 x 22.44 in	24.41 x 11.22 x 22.44 in	29.06 x 12.87 x 23.19 in
<i>Boxed</i>	620 x 285 x 570 mm	620 x 285 x 570 mm	738 x 327 x 589 mm
	<u>Without stand (18 units)</u>	<u>Basic stand (18 units)</u>	<u>Height adjustable/reclining stand (12 units)</u>
<i>Shipping Dimensions</i>	47.24 x 39.37 x 72.05 in	47.24 x 39.37 x 72.05 in	47.24 x 39.37 x 74.29 in
	1200 x 1000 x 1830 mm	1200 x 1000 x 1830 mm	1200 x 1000 x 1887 mm
<i>Pallet</i>	47.24 x 39.37 x 72.05 in	47.24 x 39.37 x 72.05 in	47.24 x 39.37 x 74.29 in
	1200 x 1000 x 1830 mm	1200 x 1000 x 1830 mm	1200 x 1000 x 1887 mm

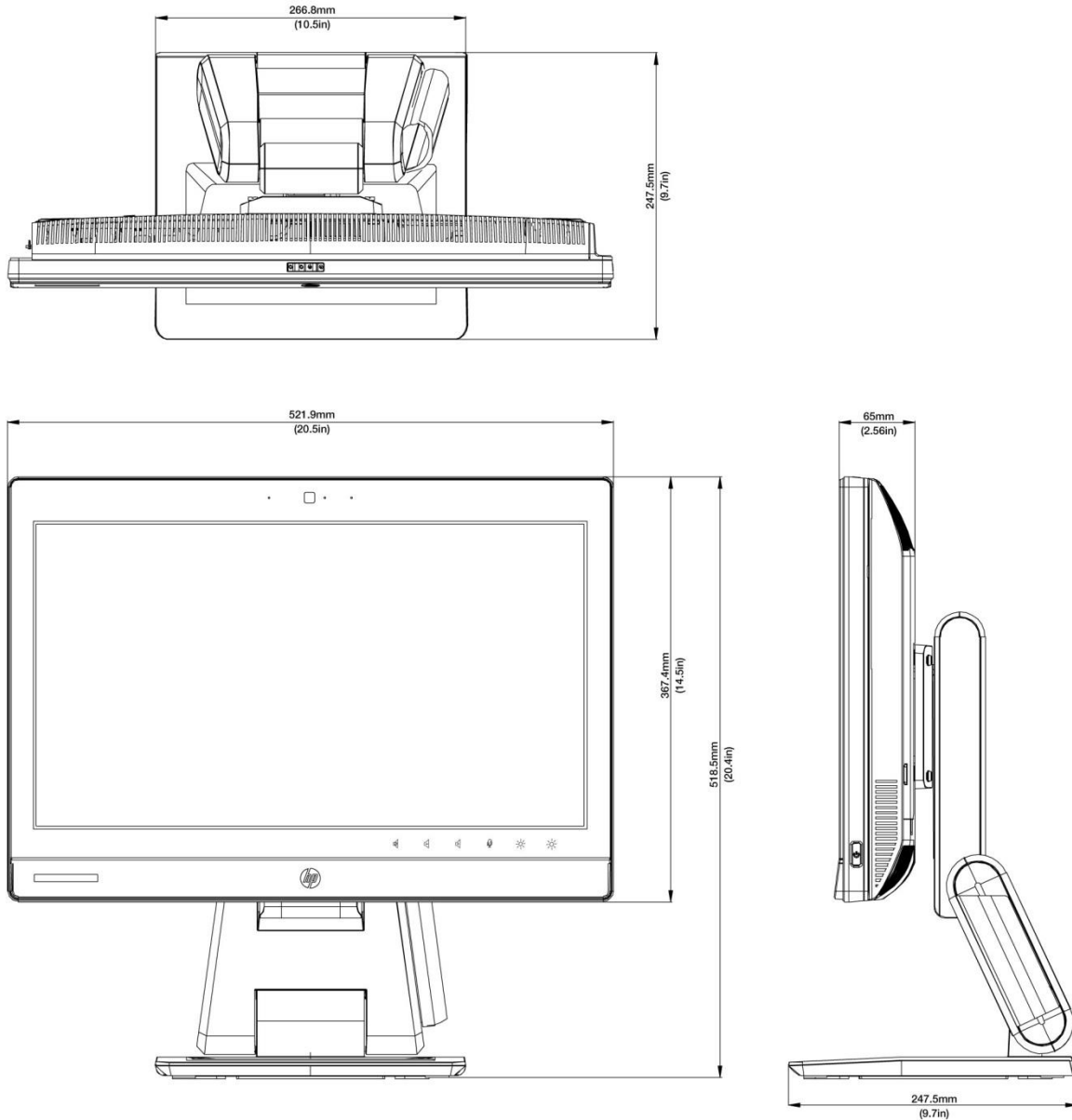
Standard Features and Configurable Components

BASIC STAND DIMENSIONS



Standard Features and Configurable Components

HEIGHT ADJUSTABLE/RECLINING STAND DIMENSIONS



Standard Features and Configurable Components

TEMPERATURE, HUMIDITY, ALTITUDE

Temperature	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)
Altitude (unpressurized)	Operating	10,000 ft (3048 m)
	Non-operating	30,000 ft (9144 m)

PORTS

I/O Ports - Standard

4 - USB 3.0 (2 side including 1 fast charging, 2 rear)

USB Fast Charging Port:

- Up to 2.5A charging current (5 times the maximum current supported by a USB 2.0 port)
- D+/D- CDP/DCP Modes per USB Battery Charging Specification 1.2
- D+/D- Shorted Mode per Chinese Telecommunication Industry Standard YD/T 1591-2009
- Supports non-BC1.2 Charging Modes by Automatic Selection
- D+/D- Divider Modes 2.0V/2.7V and 2.7/2.0V
- D+/D- 1.2V Mode
- Supports Sleep-Mode Charging
- Automatic SDP/CDP Switching for Devices That do not Connect to CDP Ports

2 - USB 2.0 (2 rear)

2 – PS/2 (legacy) (one keyboard, one mouse)

1 – Microphone in (side)

1 – Headphone jack (side)

1 – Serial RS-232 (rear) (optional)

1 – Stereo audio line out (rear)

1 – Power connector (rear)

1 – RJ-45 (rear)

1 – DisplayPort with multi-stream²

DisplayPort connector supports multimode technology to support connection to DVI-D, HDMI and VGA monitors with optional adapters or to a DisplayPort monitor with a DisplayPort Cable.

DisplayPort Cable Provides a direct connection between the PC's DisplayPort interface to the display's DisplayPort interface

² Using the Integrated Graphics, two (2) external displays are supported via one of these methods

1) DisplayPort multi-stream monitors 'daisy-chained' together or

2) DisplayPort multi-stream hub – hub requires power through power cable provided. DisplayPort multi-stream hub provides 4 DisplayPort ports, adapters are required for support of DVI, VGA or HDMI displays.

Standard Features and Configurable Components

DisplayPort To DVI-D Adapter	Provides a connection from the PC's DisplayPort interface to the display's DVI-D interface; adapts the DP output to the DVI-D input
DisplayPort To HDMI Adapter	Provides a connection from the PC's DisplayPort interface to the display's HDMI interface; adapts the DP output to the HDMI input
DisplayPort To VGA Adapter	Provides a connection from the PC's DisplayPort interface to the display's analog VGA interface; adapts the digital DP output to the analog VGA input

SLOTS

- 1 – Mini PCIe half-length (used by wireless LAN module)
- 1 – mSATA
- 1 – Custom Mini PCIe MCR slot (Optional)

BAYS

- 1 – 3.5" internal or up to Two – 2.5" hard drives with rubber grommets (HDD/SSD/SED/SSHD)
- 1 – 5.25" Slimtray ODD

SERVICE AND SUPPORT

On-site Warranty ¹: Three-year (3-3-3) limited warranty delivers three years of on-site, next business day ² service for parts and labor and includes free telephone support ³ 24 x 7. Three-year onsite and labor are not available in all countries. Service offers terms up to 5 years by choosing a Care Pack. To choose the right level of service for your HP product, visit HP Care Pack Central: www.hp.com/go/cpc

NOTE 1: Terms and conditions may vary by country. Certain restrictions and exclusions apply. Other warranty variations may be offered in your region.

NOTE 2: 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.

NOTE 3: Technical telephone support applies only to HP-configured Compaq and third-party HP qualified hardware and software. Toll-free calling and 24 x 7 support may not be available in some countries.

Technical Specifications – Graphics

Intel HD Graphics		
VGA Controller	Integrated	
DisplayPort	Multimode capable; supports HDCP, Display Port Audio (2 streams), HBR2 link rates and Multi-Stream Technology for a maximum of 3 displays (including the integrated panel)	
Bus Type	N/A	
RAMDAC	N/A	
Memory	<p>Intel graphics do not have dedicated memory but utilizes some of the computer's system memory. The amount of memory used for graphics depends on the amount of system memory installed, BIOS settings, operating system, and system load. 32 MB is pre-allocated for graphics use at system boot time. Additional memory can be allocated at boot time by the BIOS for PAVP (Protected Audio Video Playback) support for playback of protected video content.</p> <p>Additional memory is allocated for graphics as needed using Intel's Dynamic Video Memory Technology (DVMT), to provide an optimal balance between graphics and system memory use.</p>	
Maximum Graphics Memory	Microsoft Windows 7	Windows 8
	Up to 1.7GB	Up to 1.8GB
	Note: the actual amount of maximum graphics memory can be less than the amounts listed above depending upon your computer's configuration.	
Maximum Color Depth	32 bits/pixel	
Graphics/Video API Support	<p>4th Generation Core processors:</p> <ul style="list-style-type: none"> • The Processor Graphics contains a refresh of the seventh generation graphics core enabling substantial gains in performance and lower power consumption. Up to 16 EU support. • Next Generation Intel Clear Video Technology HD Support is a collection of video playback and enhancement features that improve the end user's viewing experience <ul style="list-style-type: none"> ○ Encode/transcode HD content ○ Playback of high definition content including Blu-ray Disc ○ Superior image quality with sharper, more colorful images • DirectX Video Acceleration (DXVA) support for accelerating video processing <ul style="list-style-type: none"> ○ Full AVC/VC1/MPEG2 HW Decode • Advanced Scheduler 2.0, 1.0 • Windows 7, Windows 8, Linux OS Support • DirectX 11.1 • OpenGL 4.0 • Open CL 1.2 	
Supported Display Resolutions and Refresh Rates		

Technical Specifications – Graphics

Note: other resolutions may be available but are not recommended as they may not have been tested and qualified by HP

Resolution	Refresh Rates
800x600	60 Hz
1024x768	60 Hz
1152x864	60 Hz
1280x600	60 Hz
1280x720	60 Hz
1280x800	60 Hz
1280x960	60 Hz
1280x1024	60 Hz
1360x768	60 Hz
1366x768	60 Hz
1400x1050	60 Hz
1440x900	60 Hz
1600x900	60 Hz
1600x1200*	60 Hz
1680x1050	60 Hz
1920x1080	60 Hz
1920x1200*	60 Hz
1920x1440*	60 Hz
2560x1440*	60 Hz
2560x1600*	60 Hz

* Only supported on displays connected to the external DisplayPort connector.

Technical Specifications – Hard Disk and Solid State Storage

Introduction:

HP Serial Advanced Technology Attachment (SATA) Hard Drives maximize the performance of HP Business PCs by providing the technologies to meet your increasing storage demands with high-capacity drives offering superior reliability and performance.

SATA provides faster data transfer speeds, better system cooling airflow, more bandwidth, more headroom for speed increases in future generations and better data integrity. A next-generation technology, the SATA interface connects hard drives to the PC platform enabling easy aggregation of multiple hard drives into a single PC. This offers you the additional benefits of dedicated bandwidth, the ability to more easily identify device failures and scalability. The HP Elite 800 Series supports the latest SATA 6.0Gb/s specification.

HP Drive Lock

HP Serial ATA Hard Drives offer enhanced security via a new Drive Lock. When enabled, this ATA security feature set prevents software access to user data on the drive until one or two user-defined passwords are provided.

SMART IV Technology

Self Monitoring Analysis and Reporting Technology (SMART) hard drive technology allows hard drives to monitor their own health and to raise flags if imminent failures are predicted. If the drive determines that a failure is imminent, the SMART hard drive technology enables the intelligent manageability or management software to generate a fault alert. While the current versions of SMART hard drives do a good job monitoring the data on the hard drive media, the ever increasing emphasis on reliability and quality has promoted HP to implement SMART IV technology which constantly checks that the data flow from host interface to media and media to host interface is not compromised. This is accomplished by inserting a 2 byte parity code into every 512 byte block in the data path of the hard drive's Cache RAM. This unique parity checking performed by HP's SMART IV technology hard drives, allows for more complete error detection coverage encompassing the entire data path between the host and the hard drive.

Smart IV is also known as IOEDC: I/O Error Detection Code.

Native Command Queuing

NCQ or Native Command Queuing is a SATA protocol extension that allows the hard drive to have several write or read commands outstanding at the same time. In contrast, normal non-queued operation requires each command to be completed before the next command is issued by the host system. Queuing allows the drive to complete the commands in the order that allows for best overall throughput. It also involves an advanced method of transferring data to or from the host, called First Party Direct Memory Access (FPDMA), which allows the hard drive and the host controller to manage the data transfers for multiple outstanding commands, without involving the host processor. NCQ can contribute to better performance but the results are dependent on many factors, including the access patterns of the various applications and operating system functions that are initiating drive accesses. Enabling NCQ features in the hard drive requires AHCI support from the host system BIOS, controller, and driver. AHCI support is typically implemented in RAID configurations.

NOTE: GB = 1 billion bytes. Actual available capacity is less.

Technical Specifications – Hard Disk and Solid State Storage

HP 320-GB 7.2K SATA 6.0Gb/s 2.5” Hard Disk Drive*

Capacity	320,072,933,376 bytes	
Rotational Speed	7,200 rpm	
Interface	SATA 6 Gb/s	
Buffer Size	16 MB	
Logical Blocks	488,397,168	
Seek Time (typical reads, includes controller overhead, including settling)	Single Track:	2.0 ms
	Average:	12 ms
	Full-Stroke:	22 ms
Height (nominal)	0.374 in/9.5 mm	
Width (nominal)	Media diameter: 2.5 in/63.5 mm	
	Physical size: 2.75 in/70 mm	
Operating Temperature	41° to 131° F (5° to 55° C)	
<p>**For hard drives and solid state drives, GB = 1 billion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and 30 GB (for Windows 8.1) of system disk is reserved for the system recovery software.</p>		

HP 500-GB 7.2K SATA 6.0Gb/s 2.5” Hard Disk Drive*

Capacity	500,107,862,016 bytes	
Rotational Speed	7,200 rpm	
Interface	SATA 6 Gb/s	
Buffer Size	16 MB	
Logical Blocks	976,773,168	
Seek Time (typical reads, includes controller overhead, including settling)	Single Track:	2.0 ms
	Average:	12 ms

Technical Specifications – Hard Disk and Solid State Storage

	Full-Stroke:	25 ms
Height (nominal)	0.374 in/9.5 mm	
Width (nominal)	Media diameter: 2.5 in/63.5 mm	
	Physical size: 2.75 in/70 mm	
Operating Temperature	41° to 131° F (5° to 55° C)	
<p>*For hard drives and solid state drives, GB = 1 billion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and 30 GB (for Windows 8.1) of system disk is reserved for the system recovery software.</p>		

HP 120 GB Solid State Drive

Unformatted Capacity	120 GB	
Architecture	Multi Level Cell (MLC) NAND Flash with wear leveling 10 channel controller	
Interface	SATA 3 Gb/s	
Dimensions (W x H x D)	2.74 x 0.37 x 4 in (6.98 x 0.95 x 10.2 cm)	
Weight	0.18 lb (80 g)	
Bandwidth Performance	Sustained Sequential Read:	Up to 250 MB/s
	Sustained Sequential Write:	Up to 70 MB/s
	Random Read:	Up to 35K IOPs
	Random Write:	Up to 6.6K IOPs
Latency	Read:	65-ms
	Write:	85-ms
Power	DC power requirement:	5 VDC 5%-100 mV ripple p-p
	Total power consumption:	0.15W (active); 0.075W (idle)
Useful Drive Life	35TB written, up to 20GB/day for 5 years	
Environmental (all conditions, non-condensing)	Operating Temperature:	32° to 158° F (0° to 70° C)
	Relative Humidity:	5% to 95%
	Maximum Wet Bulb	84° F (29° C)

Technical Specifications – Hard Disk and Solid State Storage

	Temperature (operating):	
	Shock:	1,500 G/0.5-ms
* For solid state disk drives, GB means 1 billion bytes. Actual formatted capacity is less. Up to 30GB (for Windows 8.1) of system disk is reserved for system recovery software.		

HP 128 GB Solid State Drive

Unformatted Capacity	128 GB*	
Architecture	Multi Level Cell (MLC) NAND	
Interface	SATA 6 GB/sec	
Dimensions (W x H x D)	2.75 x 0.276 x 3.96 in (6.985 x 0.7 x 10.05 cm)	
Weight	0.16 lb (73 g)	
Bandwidth Performance	Sustained Sequential Read:	Up to 450 MB/ss
	Sustained Sequential Write:	Up to 260 MB/s
	Random Read (4KB):	up to 46K IOPs
	Random Write (4KB):	up to 56K IOPs
Latency	Read:	55ms (TYP)
	Write:	55ms (TYP)
Power	DC power requirement:	Min 4.5 V; Max 5.5 V
	Total power consumption:	160 mW (Active) ; <85 mW; (Idle)
Useful Drive Life	1.2 million device hours**	
Environmental (all conditions, non-condensing)	Operating Temperature:	32° to 158° F (0° to 70° C)
	Relative Humidity (operating):	5% to 95%
	Shock:	1,500 G/1.0 msec
Regulations	UL, CSA, EN 60950-2000, CISPR Pub 22 Class B, CNS 13438, AS/NZS CISPR 22:2002 Class B, Korea KCC, CE Mark	

* For solid state disk drives, GB means 1 billion bytes. Actual formatted capacity is less. Up to 30GB (for Windows 8.1) of system disk is reserved for system recovery software.

** The product achieves a mean time between failure (MTBF) based on population statistics not relevant to individual units.

Technical Specifications – Hard Disk and Solid State Storage

HP 160 GB Solid State Drive*		
Unformatted Capacity	160 GB*	
Architecture	Multi Level Cell (MLC) NAND	
Interface	SATA 3 GB/sec	
Dimensions (W x H x D)	2.74 x 0.37 x 4 in (6.98 x 0.95 x 10.2 cm)	
Weight	0.18 lb (80 g)	
Bandwidth Performance	Sustained Sequential Read:	Up to 250 MB/s
	Sustained Sequential Write:	Up to 70 MB/s
	Random Read (4KB):	up to 35K IOPs
	Random Write (4KB):	up to 6.6K IOPs
Latency	Read:	65 ms
	Write:	85 ms
Power	DC power requirement:	5 VDC 5%-100 mV ripple p-p
	Total power consumption:	0.15 Watt (Active); 0.075 Watt (Idle)
Useful Drive Life	35TB written, up to 20GB/day for 5 years **	
Environmental (all conditions, non-condensing)	Operating Temperature:	32° to 158° F (0° to 70° C)
	Relative Humidity (operating):	5% to 95%
	Shock:	1,500 G/0.5 msec
Regulations	UL, CSA, EN 60950-2000, CISPR Pub 22 Class B, CNS 13438, AS/NZS CISPR 22:2002 Class B, Korea KCC, CE Mark	
* For solid state disk drives, GB means 1 billion bytes. Actual formatted capacity is less. Up to 30GB (for Windows 8.1) of system disk is reserved for system recovery software.		
** The product achieves a mean time between failure (MTBF) based on population statistics not relevant to individual units.		

HP 256 GB SATA 2.5" Self-Encrypting (SED) Solid State Drive*

Unformatted Capacity	256,186,209,271 bytes
Architecture	Self-Encrypting (SED) Solid State Drive with 25nm MLC NAND Flash and SATA interface

Technical Specifications – Hard Disk and Solid State Storage

Interface	SATA 6 Gb/s	
NAND Flash	25nm MLC NAND Flash	
Height	.275 in/7mm	
Width	2.75 in/69.85 mm	
Length	3.95 in/100.5 mm	
Weight	0.161 lb (73 g)	
Bandwidth Performance	Sustained Sequential 128k Read:	Up to 450 MB/s
	Sustained Sequential 128k Write:	Up to 260 MB/s
	Random 4k Read:	Up to 46K IOPs
	Random 4k Write:	Up to 56K IOPs
Latency	Read:	55 μ s
	Write:	55 μ s
Power	SATA power consumption:	160 mW (active average); <85 mW (idle average)
Useful Drive Life	72TB written, up to 40GB/day for 5 years	
Environmental (all conditions, non-condensing)	Operating Temperature:	32° to 158° F (0° to 70° C)
	Relative Humidity:	5% to 95%
	Shock:	1,500 G/1 ms
*For solid state disk drives, GB means 1 billion bytes. Actual formatted capacity is less. Up to 30GB (for Windows 8.1) of system disk is reserved for system recovery software.		

HP 500-GB 7200 RPM SATA 2.5" Self-Encrypting (SED) Hard Disk Drive

Capacity	500,107,862,016 bytes
Rotational Speed	7,200 rpm
Drive Type	Self-Encrypting Drive (SED) with SATA interface
Interface	SATA 6 Gb/s

Technical Specifications – Hard Disk and Solid State Storage

Segmented Buffer with write cache	32768 KB - A portion of buffer capacity used for firmware	
Number of Sectors	976,773,168	
Seek Time (typical reads)	Single Track:	1.0 ms
	Average:	13 ms
	Full-Stroke:	25 ms
Media Diameter	2.5 in/63.5 mm	
Height	0.267 in/6.8 mm, ±0.2mm	
Width	2.75 in/69.85 mm, ±0.25mm	
Length	3.945 in/100.2 mm, ±0.25mm	
Weight	3.35 oz/95 g (max)	
Operating Temperature	32° to 140° F (0° to 60° C)	
<p>*For hard drives and solid state drives, GB = 1 billion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and 30 GB (for Windows 8.1) of system disk is reserved for the system recovery software.</p>		

HP 500 GB SATA 6G 2.5" 8GB Solid State Hybrid Drive (SSHD)*

Formatted Capacity	500 GB	
Spindle Speed	5,400 rpm +/- 0.2%	
Drive Type	Solid State Hybrid Drive (SSHD) technology with NAND Flash	
Interface	SATA 6 Gb/s	
Cache Buffer	64 MB	
NAND Flash Commercial Multilevel Cell (cMLC)	8 GB	
Number of Sectors	976,773,168	
Seek Time (typical reads)	Single Track:	2.0 ms

Technical Specifications – Hard Disk and Solid State Storage

	Average:	12 ms
Height	0.268 +/- .008 in (6.8 +/- 0.2 mm)	
Width	2.750 +/- 0.010 in (69.85 +/- 0.25 mm)	
Length	3.951 +0.008 / -0.010 in (100.35 +0.20 / -0.25 mm)	
Weight	0.209 lb/95 g (max)	
Operating Temperature	32° to 140° F (0° to 60° C)	
* For solid state disk drives, GB means 1 billion bytes. Actual formatted capacity is less. Up to 30GB (for Windows 8.1) of system disk is reserved for system recovery software.		

HP 1-TB SATA 6G 2.5" 8GB Solid State Hybrid Drive (SSHD)*

Formatted Capacity	1 TB	
Spindle Speed	5,400 rpm +/- 0.2%	
Drive Type	Solid State Hybrid Drive (SSHD) technology with NAND Flash	
Interface	SATA 6 Gb/s	
Cache Buffer	64 MB	
NAND Flash Commercial Multilevel Cell (cMLC)	8 GB	
Number of Sectors	976,773,168	
Seek Time (typical reads)	Single Track:	2.0 ms
	Average:	12 ms
Height	0.374 +/- .008 in (9.5 +/- 0.2 mm)	
Width	2.750 +/- 0.010 in (69.85 +/- 0.25 mm)	
Length	3.951 +0.008 / -0.010 in (100.35 +0.20 / -0.25 mm)	
Weight	0.254 lb/115 g (max)	

Technical Specifications – Hard Disk and Solid State Storage

Operating Temperature	32° to 140° F (0° to 60° C)
------------------------------	-----------------------------

*For solid state disk drives, GB means 1 billion bytes. Actual formatted capacity is less. Up to 30GB (for Windows 8.1) of system disk is reserved for system recovery software.

Technical Specifications – Removable Storage

HP Slim SuperMulti DVD Writer Drive*		
Height	12.7mm 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)	5.0 x 0.5 x 5.0 in (128 x 13.6 x 129 mm)	
Weight	0.42 lb (190 g)	
Write speeds	DVD-RAM	Up to 5X
	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 24X
Read speeds	DVD-RAM	Up to 5X
	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

Technical Specifications – Removable Storage

	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 \pm 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 90%
	Maximum Wet Bulb Temperature	84° F (29° C)

* 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 that DVD-RAM cannot read or write to 2.6GB Single Sided/5.2 GB Double Sided – Version 1.0 media. Don't copy copyright protected materials.

HP Slim Blu-ray BDXL Drive*

Height	12.7mm 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 0.5 x 5.0 in (128 x 12.7 x 127 mm) without bezel		
Weight (max)	Up to 0.37 lb (170 g) without bezel		
Write speeds		Triple-layer	Quadruple-layer
	BD-R	Up to 4X	Up to 4X
	BD-RE	Up to 2X	Not supported

Technical Specifications – Removable Storage

		Single-layer	Double-layer
	BD-R	Up to 6X	Up to 6X
	BD-RE	Up to 2X	Up to 2X
	DVD-R	Up to 8X	Up to 6X
	DVD-RW	Up to 6X	Not supported
	DVD+R	Up to 8X	Up to 6X
	DVD+RW	Up to 8X	Not supported
	DVD-RAM	Up to 5X	N/A
	CD-R	Up to 24X	N/A
	CD-RW	Up to 24X	N/A
		Triple-layer	Quadruple-layer
	BD-R	Up to 4X	Up to 4X
	BD-RE	Up to 4X	Not supported
		Single-layer	Double-layer
	BD-ROM	Up to 6X	Up to 6X
	BD-R	Up to 6X	Up to 6X
Read speeds	BD-RE	Up to 6X	Up to 6X
	DVD-ROM	Up to 8X	Up to 8X
	DVD-R	Up to 8X	Up to 8X
	DVD-RW	Up to 8X	N/A
	DVD+R	Up to 8X	Up to 8X
	DVD+RW	Up to 8X	N/A
	BDMV (AACs Compliant Disc)	Up to 6X/2X (Read/Play)	N/A
	DVD-RAM	Up to 5X	N/A

Technical Specifications – Removable Storage

	DVD-Video (CSS Compliant Disc)	Up to 8X/4X (Read/Play)	N/A
	CD-R/RW/ROM	Up to 24X	N/A
	CD-DA(DAE)	Up to 20X/10X (Read/Play)	N/A
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 \pm 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)	

*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. HD-DVD movies cannot be played on this Desktop PC. Don't copy copy-right protected materials.

HP Slim DVD-ROM Drive

Height	12.7mm		
Orientation	Either horizontal or vertical		
Interface type	SATA/ATAPI		
Dimensions (W x H x D)	5.04 x 0.5 x 5.0 in (128 x 12.7 x 127 mm) without bezel		
Weight (max)	Up to 0.37 lb (170 g) without bezel		
Read speeds	DVD+R/-R/+RW/ -RW/+R DL /-R DL	Up to 8X	

Technical Specifications – Removable Storage

	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 \pm 5%-100 mV ripple p-p
	DC Current	5 VDC - <1000 mA typical, < 1600 mA maximum
Environmental (all conditions non-condensing)	Temperature	41° to 122° F (5° to 50° C)
	Relative Humidity	10% to 80%
	Maximum Wet Bulb Temperature (operating)	84° F (29° C)

*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 that DVD-RAM cannot read or write to 2.6GB Single Sided/5.2 GB Double Sided – Version 1.0 media. Don't copy copyright protected materials.

Technical Specifications – Memory

System Memory Support

HP EliteOne 800 G1 21.5-inch diagonal Non-Touch All-in-One PC supports the 4th generation Intel® Core™ processor families. Based on a new PC micro-architecture, the processor is designed for a two-chip platform consisting of a processor and Platform Controller Hub (PCH). Unlike previous generations, the processor includes an integrated memory controller (IMC). The IMC supports DDR3 protocols with two independent, 64-bit wide channels each accessing one SODIMM.

- Two channels of non-ECC DDR3 unbuffered small outline dual in-line memory modules (SODIMM) with a maximum of one SODIMM per channel
- Single-channel and dual-channel memory organization modes
- Data burst length of eight for all memory organization modes
- DDR3 memory data transfer rates of up to 1600 MT/s; actual supported DDR3 data transfer rate determined by the configured processor
- 64-bit wide channels
- DDR3 system memory I/O voltage of 1.5V and 1.35V
- Theoretical Maximum Memory Bandwidth:
 - 10.6 GB/s in single-channel mode of 21.3 GB/s in dual-channel mode assuming DDR3 1333 MT/s
 - 12.8 GB/s in single-channel mode or 25.6 GB/s in dual-channel mode assuming DDR3 1600 MT/s
 - 16 GB maximum memory support

CAUTION: You must shut down the computer and disconnect the power cord before adding or removing memory modules. Regardless of the power-on state, voltage is always supplied to the memory modules as long as the computer is plugged in to an active AC outlet. Adding or removing memory modules while voltage is present may cause irreparable damage to the memory modules or system board.

Memory Configurations:

Slot 1 must always be populated. Not all memory configurations possible are represented below.

NOTE: For systems configured with more than 3 GB of memory and a 32-bit operating system, all memory may not be available due to system resource requirements. Addressing memory above 4 GB requires a 64-bit operating system.

Total Memory	Socket	
	Channel A (black)	Channel B (black)
2 GB	2 GB	Unpopulated
4 GB	4 GB	Unpopulated
8 GB (dual channel)	4 GB	4 GB
8 GB	8 GB	Unpopulated
16 GB (dual channel)	8 GB	8 GB

Technical Specifications – Networking and Communications

Intel® I217LM GbE Network Connection (integrated)		
Connector	RJ-45	
System Interface	Integrated on PCA	
Controller	Intel® Ethernet Controller I217LM	
Memory	24 KB FIFO packet buffer memory Two Queues (Tx & Rx)	
Data rates supported	10/100/1000 Mbps	
IEEE Compliance	802.1P 802.1Q 802.1as/1588 802.3 802.3ab 802.3az 802.3u	
Bus architecture	PCI Express and SMBus	
Data transfer mode	PCIe-based interface for active state operation (S0 state) and SMBus for host and management traffic (Sx low power state)	
Power requirement	Requires 3.3Vdc with integrated regulators Thermal Design Power (TDP) 0.535 Watts	
Boot ROM support	Yes	
Network transfer mode	Full-duplex	
	Half-duplex (not supported for the 1000BASE-T transceiver)	
Network transfer rate	10BASE-T (half-duplex) 10 Mbps	
	10BASE-T (full-duplex) 20 Mbps	
	100BASE-TX (half-duplex) 100 Mbps	
	100BASE-TX (full-duplex) 200 Mbps	
	1000BASE-T (full-duplex) 2000 Mbps	
Environmental	Operating Temperature:	0° to 85° C
	Operating Humidity:	60% RH

Technical Specifications – Networking and Communications

Management	WOL, auto MDI crossover, PXE, Multi-port teaming, RSS, Advanced cable diagnostic, Smart speed operation
Alerting	ASF 2.0 support; AMT 7.0 support

Intel Centrino Advance-N 6205 Wireless Network Interface Connection

Wireless LAN Standards	IEEE 802.11a/b/g/n
	IEEE 802.11 e, 802.11i, 802.11d, 802.11d, 802.11h* * Wireless access point and Internet service required and not included. Availability of public wireless access points limited.
Interoperability	Wi-Fi certified (802.11 a/b/g/n WMM, WPA, WPA2 and WPS)
	Tested with wireless access points from several major manufacturers
	OS compatible with Microsoft Windows, Win7 and XP
	Cisco Compatible Extensions Program compliant (802.11a/b/g only) with Microsoft Windows XP and Windows 7
Frequency Band	2.4 GHz and 5 GHz
Antenna Structure	2 transmit; 2 receive (2x2)
Data Rates	802.11b: 1, 2, 5.5, 11 Mbps
	802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
	802.11n: 66 possible data rates, ranging from 6 Mbps to 300 Mbps, depending on the combination of Bandwidth, Modulation Coding Scheme, and Guard Interval used, as defined in IEEE 802.11n specification
Modulation	Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM, BPSK, QPSK, 16-QAM, 64-QAM
Security	Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated AES (support for key sizes of 128bits), TKIP, 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP, MSCHAP, PEAP-MSCHAPv2, LEAP, EAP-FAST, EAP-SIM, EAP-AKA PAP, CHAP, TLS, GTC
	Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program Version 4) with Microsoft Windows XP only.

Technical Specifications – Networking and Communications

Sub-channels	Multinational support with frequency bands and channels compliant to local regulations.	
Media Access Protocol	CSMA/CA (Collision Avoidance) with ACK	
Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required) Intel® My Wifi Technology (iPAN)	
Roaming	Provide seamless roaming between like access points (same frequency band)	
Output Power (for CCK)	15 dBm	
Output Power (for OFDM; power varies by data rate)	15 dBm	
Power Consumption	Transmit: 2.3 Watts (average, with one spatial streams)	
	Receive: 1.9 Watts (average with two receive chains)	
	Idle mode: 30mW – 40mW (average)	
	Radio off: 20 mW (max)	
Power Management	ACPI compliant power management 802.11 compliant power saving mode	
Antenna Connections	3 U.FL type connectors, 50 ohm nominal impedance	
Range	802.11 a - Typical (@6 Mbps)	600 feet - Outdoor Open Area 150 feet - Indoor, Office environment
	802.11 b - Typical (@1 Mbps)	1200 feet - Outdoor Open Area 300 feet - Indoor, Office environment
	802.11 g - Typical (@1 Mbps)	1200 feet - Outdoor Open Area 300 feet - Indoor, Office environment
Form Factor	MiniPCI-Express	
Weight	0.013 lb (4.0 g)	
Dimensions	1.1 x 1.2 in (26.8 x 30.0 mm)	
Operating Voltage	3.3V +/- 9%, 1.5V +/- 5%	

Technical Specifications – Networking and Communications

Temperature	Operating: Non-operating:	32° to 176° F (0° to 80° C) -40° to 176° F (-40° to 80° C)
Humidity	Operating: Non-operating:	10% to 90% (non-condensing) 50% to 90% (non-condensing)
Configuration Utility	Microsoft Windows XP	Microsoft Windows Win 7
	<ul style="list-style-type: none"> Microsoft Windows XP Wireless Network Connection Manager Intel PROSet for Microsoft Windows XP (required for Cisco Compatible Extensions support) 	<ul style="list-style-type: none"> Intel IHV extensions for Win7 available to support Cisco Compatible Extensions

Intel 7260 802.11 a/b/g/n PCIe x1 WLAN Card *

Dimensions (L x H)	0.12 x 1.06 x 1.18 in (3.1 x 26.8 x 30.0 mm)	
Chipset	Atheros AR9462	
System interface	PCI-Express Mini Card	
Network standard	802.11 a/b/g/n	
Frequency band	Wi-Fi: 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 802.11b/g/n 2.402-2.482 GHz	
Operating temperature	14° to 158°F, operating (-10° to 70°C, operating)	
Storage temperature	-40° to 176°F, non-operating (-40° to 80°C, non-operating)	
Humidity	10-90% operating 5-95% non-operating	
Operating voltage	3.3 V ±9% I/O supply voltage	
	Platform/WLAN Mode	Power Consumption

Technical Specifications – Networking and Communications

Power Consumption	Wi-Fi	
	Transmit Mode	2 W
	Receive Mode	1.6 W
	Idle mode (PSP) (WLAN Associated)	250mW
	Idle mode (WLAN unassociated)	100mW
	Radio disabled	75mW
Output Power	2.4G: +13.5dBm minimum	
	5G: +12dBm minimum	
Security	IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only	
	802.1x authentication	
	WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES	
	IEEE 802.11i	
	Cisco Certified Extensions, all versions through CCX4 and CCX Lite	
	WAPI	
Antenna	2 transmit; 2 receive (2x2)	
* Wireless access point and Internet service required and not included. Availability of public wireless access points limited.		

HP WLAN 802.11a/b/g/n Wireless 2x2 Dual-Band Minicard with Bluetooth Combo*

Dimensions (L x H)	1.18 x 1.06 in (30 x 26.8 mm)
Chipset	Atheros AR9462
System interface	PCI-Express Mini Card

Technical Specifications – Networking and Communications

Network standard	802.11 a/b/g/n	
Frequency band	Bluetooth: 2.402 - 2.480 GHz	
	Wi-Fi: 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	
	802.11b/g/n 2.402-2.482 GHz	
Bluetooth	The WLAN + Bluetooth Combo Mini Card meets all of the requirements to support Bluetooth 4.0 and is backwards compatible with 2.1 with EDR and 3.0 High speed.	
Operating temperature	14° to 158°F, operating (-10° to 70°C, operating)	
Storage temperature	-40° to 176°F, non-operating (-40° to 80°C, non-operating)	
Humidity	10-90% operating 5-95% non-operating	
Operating voltage	3.3 V ±9% I/O supply voltage	
Power Consumption	Platform/WLAN Mode	Power Consumption
	Wi-Fi	
	Transmit Mode	2 W
	Receive Mode	1.6 W
	Idle mode (PSP) (WLAN Associated)	250mW
	Idle mode (WLAN unassociated)	100mW
	Radio disabled	75mW
	Bluetooth	
	Peak Operating	330 mW
	Receive	230 mW
	USB Selective Suspend	17 mW

Technical Specifications – Networking and Communications

Output Power	2.4G: +13.5dBm minimum	
	5G: +12dBm minimum	
Security	IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only	
	802.1x authentication	
	WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES	
	IEEE 802.11i	
	Cisco Certified Extensions, all versions through V5	
	WAPI	
Antenna	Dual antenna connectors	
* Wireless access point and Internet service required and not included. Availability of public wireless access points limited.		

Near Field Communications Controller, with Embedded Secure Element¹

Dimensions (L x W x H)	Module 10mm by 17mm by 1.8mm
Chipset	NXP PN650 (PN544C3 and P5CN145 dies in a single VFBGA64 package)
System interface	I ² C
NFC RF standards	ISO/IEC 14443 A ISO/IEC 14443 B ISO/IEC 15693 ISO/IEC 18092 ECMA-340 NFCIP-1 Target and Initiator ECMA-320 NFCIP-2
NFC Forum Support	Tag Type 1, Type 2, Type3 and Type 4, NFCIP-1 and NFCIP-2

Technical Specifications – Networking and Communications

Reader (PCD-VCD) Mode⁽¹⁾	ISO/IEC 14443 A ISO/IEC 14443 B ISO/IEC 15693 MIFARE 1K MIFARE 4K FeliCa	
Card Emulation (PICC-VICC) Mode⁽¹⁾	ISO/IEC 14443 A ISO/IEC 14443 B and B' MIFARE FeliCa	
Frequency	13.56 MHz	
NFC Modes Supported	Reader/Writer, Peer-to-Peer, Card Emulation	
Raw RF Data Rates	106, 212, 424 kbps	
Embedded Secure Element	144 KB EEPROM, Data Memory or Program Memory 264 KB User ROM 7.5 KB RAM PKI (Public Key Infrastructure) coprocessor Dual Triple DES Key coprocessor NFC-WI interface to NFC controller, PN544 MIFARE 4 KB card emulation EEPROM data retention time 20 years, minimum	
Operating temperature	0°C to 70°C	
Storage temperature	-40° to 80°C	
Humidity	10-90% operating 5-95% non-operating	
Supply Operating voltage	2.97 to 5.25 Volts	
I/O Voltage	1.8V or 3.3V	
Power Consumption (Supply)	Mode	Power Consumption, Typical⁽²⁾

Technical Specifications – Networking and Communications

3.3 Volts)	Reset	10 μ W
	Standby	150 μ W
	Card Emulation within Polling Loop	297 μ W
	When generating RF	120 mW
	Transmitter Supply Current (Continuous wave)	30 mA
Antenna	Antenna connector, 0.5mm pitch, 5 connector FPC. Antenna matching is external to module.	
(1) NFC software required and sold separately (2) With application or UICC support (3) Actual Power Consumption is dependent on NFC antenna and matching circuit and on the particular polling sequence and period configured.		

Technical Specifications – Audio

Realtek ALC3228 High Definition Audio	
Type	Integrated
HD Stereo Codec	Realtek ALC3228 4-channel codec
Ports	Line-In/Microphone input ports are 47K (nominal) at the pin
	Line-Out intended to drive an external 10K load (nominal) and an on board shunt resistor of 20-47K (nominal)
	Headphone-Out designed to drive 32 ohm (nominal) headphones or a 10K (nominal) load
	All ports are 3.5 mm
Internal Speaker Amplifier	2.2W/channel Class-D stereo BTL speaker amplifier@ 4 ohms and 5V
Sampling	The ALC3228 audio CODEC provides stereo 24-bit, full duplex resolution supporting sample rates up to 192kHz by the DAC and ADC. Additional sample rates are supported by the driver software.
Analog Audio	Yes
# of Channels on Line-Out	4 Channels (2 stereo DACs and 2 stereo ADCs) with 24-bit resolution
Internal Speaker	Yes

DTS Studio Sound Technology

Introduction	DTS Studio Sound provides the ultimate audio and entertainment experience for all PC applications related to music, movies and games. Utilizing DTS' revolutionary 3D audio technology, DTS Studio Sound provides the most immersive and realistic listening experience unlike any solution ever offered for a two speaker playback environment. DTS Studio Sound offers a wider surround effect and significantly more natural positioning of audio for both 2D and 3D content and delivers immersive surround complete with deep, rich enveloping bass and crystal clear dialog. It also delivers high-frequency definition for crisp detail in any listening environment, ensuring users a premium and natural entertainment experience across any speaker configuration (desktop speakers or headphones).
---------------------	--

Technical Specifications – Audio

DTS Studio Sound Features	<ul style="list-style-type: none">• The ultimate multimedia audio experience• Immersive surround sound from two speakers or headphones• Extracts acoustic placement cues from original audio signal and adds near and far depth to the sound field to maximize 3D surround effect• Custom-tuned solutions to provide superior natural sound from desktop speakers and headphones• Maximum volume from small speakers• Deep, rich bass and crystal clear dialog• Intuitive user interface with presets for ease of use
DTS Studio Sound Benefits	<ul style="list-style-type: none">• Provides a remarkably immersive 3D surround sound experience for business multimedia applications, complete with deep, rich enveloping bass, and crystal clear dialog• Ability to personalize acoustic preferences with speaker and headphone optimization

Technical Specifications – Environmental Data

HP USB Keyboard		
Physical characteristics	Keys	104, 105, 106, 107, 109 layout (depending upon country)
	Dimensions (L x W x H)	18.12 x 6.47 x 0.96 in (46.03 x 16.43 x 2.44 cm)
	Weight	2 lb (0.9 kg)
Electrical	Operating voltage	+ 5VDC ± 5%
	Power consumption	50-mA maximum (with three LEDs ON)
	System interface	USB Type A plug connector
	ESD	CE level 4, 15-kV air discharge
	EMI - RFI	Conforms to FCC rules for a Class B computing device
	Microsoft® PC 99 - 2001	Functionally compliant
Mechanical	Keycaps	Low-profile design
	Switch actuation	55-g nominal peak force with tactile feedback
	Switch life	20 million keystrokes (using Hasco modified 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
Environmental	Acoustics	43-dBA maximum sound pressure level
	Operating temperature	50° to 122° F (10° to 50° C)
	Non-operating temperature	-22° to 140° F (-30° to 60° C)
	Operating humidity	10% to 90% (non-condensing at ambient)
	Non-operating humidity	20% to 80% (non-condensing at ambient)

Technical Specifications – Environmental Data

	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, CSA, FCC, CE Mark, TUV, TUV GS, VCCI, BSMI, C-Tick, KC	
Ergonomic compliance	ANSI HFS 100, ISO 9241-4, and TUVGS	
Kit contents	Keyboard	Installation Guide
	Warranty Card	Safety and Comfort Guide

HP PS/2 Keyboard

Physical Characteristics	Keys	104, 105, 106, 107, 109 layout (depending upon country)
	Dimensions (L x W x H)	18.22 x 6.47 x 1.1 in (46.28 x 16.43 x 2.79 cm)
	Weight	2 lb (0.9 kg) minimum
Electrical	Operating voltage	+ 5VDC \pm 10%
	Power consumption	50-mA maximum (with three LEDs ON)
	System interface	PS/2 6-pin mini din connector
	ESD	CE level 4, 15-kV air discharge
	EMI - RFI	Conforms to FCC rules for a Class B computing device
	Microsoft PC 99 - 2001	Functionally compliant
	Keycaps	Low-profile design
Switch actuation	55-g nominal peak force with tactile feedback	

Technical Specifications – Environmental Data

	Switch life	20 million keystrokes (using Hasco modified 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
Environmental	Acoustics	50-dBA maximum sound pressure level
	Operating temperature	32° to 104° F (0° to 40° C)
	Non-operating temperature	-22° to 149° F (-30° to 65° C)
	Operating humidity	15% to 80% (non-condensing at ambient)
	Non-operating humidity	15% to 90% (non-condensing at ambient)
	Operating shock	N/A
	Non-operating shock	65 inch 2.9 ms, six surface; 30g 266 inch/second; 50g 266 inch/second six surface
	Operating vibration	2-g peak acceleration
	Non-operating vibration	Starting at 5 Hz, vary the frequency of vibration from 5 to 500 Hz and back to 5 Hz at a Logarithmic sweep rate of 1 octave per minute.
	Drop (out of box)	26 in (66 cm) on carpet, six-drop sequence
Drop (in box)	29.93 in (76 cm) on concrete, 16-drop sequence	
Approvals	CUL, ICES-003 Class B, FCC, CE Mark, TUV GS, VCCI, BSMI, C-Tick, KC	
Ergonomic compliance	ANSI HFS 100, ISO 9241-4, and TUVGS	

Technical Specifications – Environmental Data

HP USB Smart Card (CCID) Keyboard

Introduction:

Boost your security, simplify access procedures and reduce the costs associated with managing networks by preventing unauthorized access to your computers and networks using smartcard technology with the HP Smart Card (CCID) Keyboard.

The USB Smart Card (CCID) Keyboard is a full-sized keyboard that takes advantage of digital signatures and certificates to secure the environment for transactions performed on both public and private networks. The USB Smart Card (CCID) Keyboard works with all smart cards that comply with ISO standard 7816.

Smart cards are easy-to-use credit card-sized devices which require multiple forms of information to be validated before you gain access to your accounts or resources. Used worldwide, smart cards strengthen access to a network or other resource using dual-factor authentication. Implementing a two-factor authentication (or multi-factor authentication) process reduces the risk of unauthorized access by verifying and validating your identity in one of the following ways:

- Something you know - a combination of username and password or PIN
- Something you have - a smart card or security token.

Something you have (smart card) plus something you know (PIN), improves user-access security within corporate network environments. Smart cards are used in government agencies, healthcare companies and the finance industry.

HP ProtectTools Smart Card Manager provides authentication software for the smart card. The Smart Card Reader module works with the HP ProtectTools Security Manager and enables the user to setup, use, and manage the smart card.

Key Benefits:

- Protects against unauthorized access with smart card technology
- Delivers even greater security when combined with a HP ProtectTools smart card and the HP ProtectTools Security Software
- Combination of username and password or pin with a smart card or security token
- Secures online transactions using digital signatures and certificates
- Conforms to industry standards for ease of setup and use
- Delivers long product life and quiet operation with high-impact materials and lubricated keys
- Spill drain feature

Physical Characteristics

Keys	104, 105, 106, 107, 109 layout (depending upon country)
Form factor	USB basic smart card keyboard
Colors	Carbonite/Silver
Dimensions (H x W x D)	18.2 x 6.3 x 1.3 in (46.3 x 16.1 x 3.3 cm)

Technical Specifications – Environmental Data

	Weight	2 lb (0.9 kg) minimum
Electrical	Operating voltage	+ 5VDC \pm 5%
	Power consumption	100-mA maximum (with four LEDs ON)
	System interface	USB Type A plug connector
	ESD	CE level 4, 15-kV air discharge
	EMI - RFI	Conforms to FCC rules for a Class B computing device
	Microsoft PC 99 - 2001	Functionally compliant
Mechanical	Languages	30+ available
	Keycaps	Standard design
	Switch actuation	55 g nominal peak force with tactile feedback
	Switch life	20 million keystrokes (using Hasco modified tester)
	Switch type	Contamination-resistant 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
Environmental	Acoustics	43-dBA maximum sound pressure level
	Operating temperature	50° to 122° F (10° to 50° C)
	Non-operating temperature	-22° to 140° F (-30° to 60° C)
	Operating humidity	10% to 90% (non-condensing at ambient)
	Non-operating humidity	20% to 80% (non-condensing at ambient)
	Operating shock	40 g, six surfaces
	Non-operating shock	80 g, six surfaces
	Operating vibration	2-g peak acceleration

Technical Specifications – Environmental Data

	Non-operating vibration	4-g peak acceleration		
	Drop (out of box)	26 in (66 cm) on carpet, six-drop sequence		
	Drop (in box)	42 in (107 cm) on concrete, 16-drop sequence		
SmartCard Function	Support	All ISO 7816 smart cards		
	Interface	Reads from and writes to all ISO7816-1, 2, 3, 4 memory and microprocessor smart cards (T=0, T=1)		
	Chipset	SCM STCII		
	Standard APIs supported	PC/SC, EMV2000, SET		
	Power	USB Port		
		Short circuit detection (protects smart card and reader)		
		Power supply compliant with ISO7816 and EMV (5V, 60 mA)		
		Supports 3-V and 5-V cards		
	Power consumption	100-mA maximum draw		
	Communication	From card	9600 bps to 330,000 bps	
		From computer	12 Mbps (USB transfer speed)	
	Landing mechanism	Contact device	Friction contact	
		Card insertions rating	Up to 100,000 insertion cycles	
	Interface modes	CCID protocol		
	Reader performance interface	USB connection		
Electro-magnetic standards	Europe	2004/108/EC		
	USA	USAFCC part 15		

Technical Specifications – Environmental Data

Approvals	CE-Mark, UL, CSA, FCC, CE Mark, TUV, TUV GS, VCCI, BSMI, C-Tick, MIC, EMV2000, USB-IF
Ergonomic Compliance	ISO 9241-4, TUVGS
Kit Contents	Keyboard, I/O Security and Documentation CD, warranty card

HP USB PS/2 Washable Keyboard

Physical Characteristics	Keys	104 (US) Layout, 105 (EU) layout – depending upon country
	Dimensions (L x W x H)	17.67x 6.62 x 1.38 in (449 x 168 x 35 mm)
	Weight	1.7 lb (0.77 kg) minimum
Electrical	Operating voltage	+ 5VDC ±5%
	Power consumption	50-mA maximum (with three LEDs ON)
	System interface	USB Type A plug connector
	ESD	CE level 4, 15-kV air discharge
	EMI - RFI	Conforms to FCC rules for a Class B computing device
	Microsoft PC 99 - 2001	Functionally compliant
Mechanical	Keycaps	Stepped -profile design
	Switch actuation	55-g nominal peak force with tactile feedback
	Switch life	20 million keystrokes
	Switch type	Contamination-resistant switch membrane
	Key-leveling mechanisms	For all double-wide and greater-length keys
	Cable length	7 ft (2.2 m)
	Microsoft PC 99 - 2001	Mechanically compliant
	Acoustics	43-dBA maximum sound pressure level
Environmental	Operating temperature	50° to 122° F (10° to 50° C)
	Non-operating temperature	4° to 149° F (-20° to 65° C)
	Operating humidity	10% to 95% (non-condensing at ambient)
	Non-operating humidity	0% to 95% (non-condensing at ambient)
	Operating shock	40 g, six surfaces
	Non-operating shock	80 g, six surfaces

Technical Specifications – Environmental Data

	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)	42 in (107 cm) on concrete, 16-drop sequence
Operating system support	Windows 7, Windows Vista, Windows XP Professional	
Approvals	UL, cUL, FCC, CE, TUV GS, VCCI, BSMI, C-Tick, KCC, USB-IF, WHQL, EN/IEC 60601-1, IP66/NEMA4X	
Ergonomic compliance	ANSI HFS 100, ISO 9241-4, and TUVGS	

HP Wireless Keyboard and Mouse

Keyboard	Dimensions (H x L x W)	1.09 x 18.1 x 6.47 in (27.87 x 460.3 x 164.3 mm)
	Weight – Without Two AA Alkaline Batteries	1.94 lb (880 g)
Mouse	Dimensions (H x L x W)	1.46 x 4.53 x 2.47 in (37 x 115 x 62.9 mm)
	Weight – Without Two AA Alkaline Batteries	0.15 lb (67 g)
Receiver	Dimensions (H x L x W)	0.33x 1.79 x 0.72 in (8.4 x 45.5 x 18.4 mm)
	Weight	0.21 oz (5.9 g)
	Cable Length – Minimum	6 ft (1.8 m)
	Range	32.8 ft (10 m)
System Requirements	<p>Windows 7 Home Basic*, Windows 7 Home Premium*, Windows 7 Professional Edition 32*, Windows 7 Professional Edition 64*, Windows 7 Ultimate Edition 32*, Windows 7 Ultimate Edition 64* Windows Vista or Windows XP</p> <p>Available USB port for the receiver</p> <p>CD-ROM Drive</p> <p>*This system may require upgraded and/or separately purchased hardware and/or a DVD drive to install the Windows 7 software and take full advantage of Windows 7 functionality. See http://www.microsoft.com/windows/windows-7/ for details.</p>	
Approvals	Product Safety	UL; CSA /TUV (Europe only); CE Mark; CB Report
	Ergonomics	ANSI; ISO (Europe only); GS Mark (Germany only)
	EMC	FCC; CE; ACA (-tick); BSMI; KC ; VCCI
	CE Mark	EN 55022:2010; EN 55024; EN 301489-1; EN 61000
	Design Guidelines for PCs	PC 99 – connector overmold colors; PC 2001 – full functionality

Technical Specifications – Environmental Data

	Telecom	All local telecom requirements and approvals for intended markets
	USA	FCC Title 47 CFR, Par 15, Subpart C; other local requirements
	Country Support	US, Belgium, Switzerland, Spain, Denmark, Netherlands, France, Germany, Italy, Portugal, Sweden, Norway, Finland, UK, Poland, Czech Republic, Turkey, Greece, Austria, Bulgaria, Cyprus, Estonia, Hungary, Ireland, Latvia, Lithuania, Luxemburg, Malta, Romania, Slovakia, Slovenia, Vietnam, HK, Australia, NZ, Malaysia, Singapore, Indonesia, Philippines, Thailand, Canada, China, Japan, Korea, Taiwan, India, Venezuela, Ecuador, Russia, Ukraine, Israel, Croatia, United Arab Emirates, Peru, Brazil, Chile, Argentina, Mexico, South Africa, and up to 193 countries worldwide.
Environmental	Keyboard contains 25% post-consumer recycled plastic material.	

HP PS/2 Mouse

Dimensions (H x L x W)	1.46 x 2.48 x 4.53 in (3.70 x 6.29 x 11.50 cm)	
Weight	3.53 oz (100g; +10g/- 5 g)	
Environmental	Operating temperature	-32° to 104°F (0° to 40° C)
	Non-operating temperature	-4° to 140°F (-20° to 60° C)
	Operating humidity	10% to 90% (non condensing at ambient)
	Non-operating humidity	10% to 90% (non condensing at ambient)
	Operating shock	40 g, 6 surfaces
	Non-operating shock	80 g, 6 surfaces
	Operating vibration	2 g peak acceleration
	Non-operating vibration	4 g peak acceleration

Technical Specifications – Environmental Data

	Drop (out of box)	80 cm height onto asphalt tile over concrete or equivalent, 5-drop in 5 direction except the cable face
Electrical	Operating voltage	5 VDC \pm 10%
	Power consumption	100mA
	System consumption	PS/2 mini-din connector
	ESD	CE level 4, 15 kV air discharge
	EMI-RFI	Conforms to FCC rules for a Class B computing device
	Microsoft PC99 - 2001	Functionally compliant
Mechanical	Resolution	800 DPI
	Tracking speed	10 in/s (25.4 cm/s) maximum
	Acceleration	\pm 15%
	Switch actuation	65 \pm 20 gf
	Switch life	3,000,000 operations (using Hasco modified tester)
	Switch type	Low force micro-switches
	Tracking mechanism life	80 km
	Cable length	6 ft (1.8 m)
	Microsoft PC99 - 2001	Mechanically compliant
Scroll wheel	Width	6 mm
	Diameter	22.5 \pm 0.2 mm
	Maximum rotation force	50 gf-cm
	Switch type	Light force micro-switch
	Switch life	1 million operations
	Mechanical life	Minimum 200,000 revolutions

Technical Specifications – Environmental Data

Regulatory Approvals	UL/cUL, FCC, CE Mark, TUV/GS, VCCI, KCC, BSMI, C-Tick
-----------------------------	---

HP USB Optical Mouse

Dimensions (H x L x W)	1.5x 4.5 x 2.5 in (3.7x 11.5 x 6.3 cm)
Weight	0.22 lb (0.10 kg)
Cable length	70.9 in (180 cm)
System requirements	Available USB port

HP USB 1000dpi Laser Mouse

Dimensions (H x L x W)	1.47 x 4.53 x 2.47 in (37.3 x 114.97 x 62.86 mm)	
Weight	3.360 oz (102g)	
Cable length	70.9 in (180 cm)	
System requirements	Available USB port	
Environmental	Operating Temperature	32° to 104° F (0° to 40° C)
	Non-operating Temperature	-4° to 140° F (-20° to 60° C)
	Operating Humidity	10% to 90% (non-condensing at ambient)
Mechanical	Resolution	1000dpi
	Tracking Speed	45 cm/sec
	Cable Length	70.9 in (180 cm)

HP USB PS/2 Washable Mouse

Technical Specifications – Environmental Data

Dimensions (H x L x W)	1.56 x 2.44 x 4.61 in (3.95 x 6.21 x 11.7 cm)	
Weight	4.44 oz (126 g)	
Environmental	Operating temperature	-32° to 104°F (0° to 40° C)
	Non-operating temperature	-4° to 140°F (-20° to 60° C)
	Operating humidity	10% to 90% (non condensing at ambient)
	Non-operating humidity	10% to 90% (non condensing at ambient)
	Operating shock	40 g, 6 surfaces
	Non-operating shock	80 g, 6 surfaces
	Operating vibration	2 g peak acceleration
	Non-operating vibration	4 g peak acceleration
	Drop (out of box)	80 cm height onto asphalt tile over concrete or equivalent, 5-drop in 5 direction except the cable face
Electrical	Operating voltage	5 VDC ± 10%
	Power consumption	100mA
	System consumption	PS/2 mini-din connector
	ESD	CE level 4, 15 kV air discharge
	EMI-RFI	Conforms to FCC rules for a Class B computing device
	Microsoft PC99 - 2001	Functionally compliant
Mechanical	Resolution	400 ± 20% DPI
	Tracking speed	10 in/s (25.4 cm/s) maximum
	Acceleration	100 in/s/s (2.54 m/s/s)
	Switch actuation	61 g nominal peak force
	Switch life	3,000,000 operations (using Hasco modified tester)
	Switch type	Low force micro-switches
	Tracking mechanism life	155 mi (250 km) at average speed of 10 in/s
	Cable length	6 ft (1.8 m)
	Microsoft PC99 - 2001	Mechanically compliant
Scroll wheel	Width	8 mm
	Diameter	1.01 in (25.6 mm)

Technical Specifications – Environmental Data

	Maximum rotation speed	48 rats/sec
	Switch type	Light force micro-switch
	Switch life	1 million operations
	Mechanical life	Minimum 200,000 revolutions
Regulatory Approvals	Compliant	UL, CSA, FCC, CE Mark, TUV, TUV GS, VCCI, BSMI, C-Tick, MIC
Compatibility	Operating system support	Windows 7, Windows Vista Business 64*, Windows Vista Business 32*, Windows Vista Home Basic 32*, Windows 2000, Windows XP Professional or Windows XP Home 32* (No driver is required for this device. Native support is provided by the operating system.), xpe, ce.net, Linux, XP-64 <p>* Certain Windows Vista product features require advanced or additional hardware. Windows Vista Upgrade Advisor can help you determine which features of Windows Vista will run on your computer. To download the tool, visit: http://www.windowsvista.com/upgradeadvisor. For Windows Vista system requirements, visit: http://www.windowsvista.com/systemrequirements.</p>

After-Market Options (availability may vary by region)

AFTER MARKET OPTIONS:

MEMORY

	Part Number
HP 2GB DDR3-1600 (PC3-12800) SODIMM	B4U38AA
HP 4GB DDR3-1600 (PC3-12800) SODIMM	B4U39AA
HP 8GB DDR3-1600 (PC3-12800) SODIMM	B4U40AA

DATA STORAGE DRIVES AND ACCESSORIES

	Part Number
HP 500GB SATA , 6G (8GB cache) Solid State Hybrid Drive (SSHD)	E1C62AA
HP 128GB SATA Solid State Drive	QV063AA
HP 160GB SATA Solid State Drive	QV064AA
HP Slim SATA DVD-ROM Drive	VP033AA
HP Slim SATA BDXL Blu-Ray Writer Drive	E0X94AA
HP Slim SATA SuperMulti DVD Writer Drive	QS209AA

INPUT DEVICES – KEYBOARD AND MOUSE COMBO

	Part Number
HP USB PS/2 Washable Keyboard & Mouse	BU207AA
HP Wireless Keyboard & Mouse (Keyboard contains 25% post-consumer recycled plastic material)	QY449AA

INPUT DEVICES – KEYBOARD

	Part Number
HP PS/2 Keyboard	QY774AA
HP USB Grey Keyboard	B6B64AA
HP USB Smart Card (CCID) Keyboard	E6D77AA
HP USB Keyboard	QY776AA

INPUT DEVICES – MOUSE

	Part Number
HP PS/2 Mouse	QY775AA
HP USB 1000dpi Laser Mouse	QY778AA
HP USB Mouse	QY777AA
HP Mouse Pad	AT485AA

SECURITY

	Part Number
HP UltraSlim Cable Lock	H4D73AA

GRAPHICS – VIDEO ADAPTERS AND CABLES

	Part Number
HP DisplayPort Cable Kit	VN567AA
HP DisplayPort To DVI-D Adapter	FH973AA

After-Market Options (availability may vary by region)

HP DisplayPort To HDMI Adapter	BP937AA
HP DisplayPort To VGA Adapter	AS615AA
HP DVI Cable	DC198A
USB Graphics Adapter	NL571AA

STANDS AND MONITOR ARM

	Part Number
AiO Height Adjustable and Reclining Stand	C1N43AA
HP Single Monitor Arm	BT861AA
HP (Flat Panel Monitor) Quick Release	EM870AA

MISCELLANEOUS

	Part Number
Belkin 7-Outlet Surge Protector for North America 120V	AG290AA
Belkin USB to Serial Adapter	EM449AA
Belkin CAT5e Patch Cable RJ45/RJ45	AH122AA
HP Business Headset	QK550AA

ADDITIONAL MONITORS FOR MULTI-DISPLAY CONFIGURATIONS

	Part Number
HP EliteDisplay E201 20-inch LED Backlit Monitor	C9V73AA
HP EliteDisplay E221 21.5-inch LED Backlit Monitor	C9V76AA
HP EliteDisplay E231 23-inch LED Backlit Monitor	C9V75AA
HP Compaq LA2206xc 21.5-inch Webcam LCD Monitor	LW490AA
HP LA2405x 24-inch LED Backlit Monitor	D0P36AA
HP EliteDisplay E271i 27-inch LED Backlit Monitor	D7Z72AA
HP EliteDisplay E221c 21.5-inch WebCam LED Backlit Monitor	D9E49AA
HP L2206tm 21.5-inch LED Backlit Touchscreen Monitor	B0L55AA

LANDESK SOFTWARE (E-DELIVERY)

	Part Number
Contact your HP representative for available options.	N/A

© Copyright 2014 Hewlett-Packard Development Company, L.P. All rights reserved.

The information contained herein is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. 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 registered trademark of Bluetooth SIG, Inc., in the U.S. and other countries. All other product names mentioned herein may be trademarks of their respective companies. February 2014