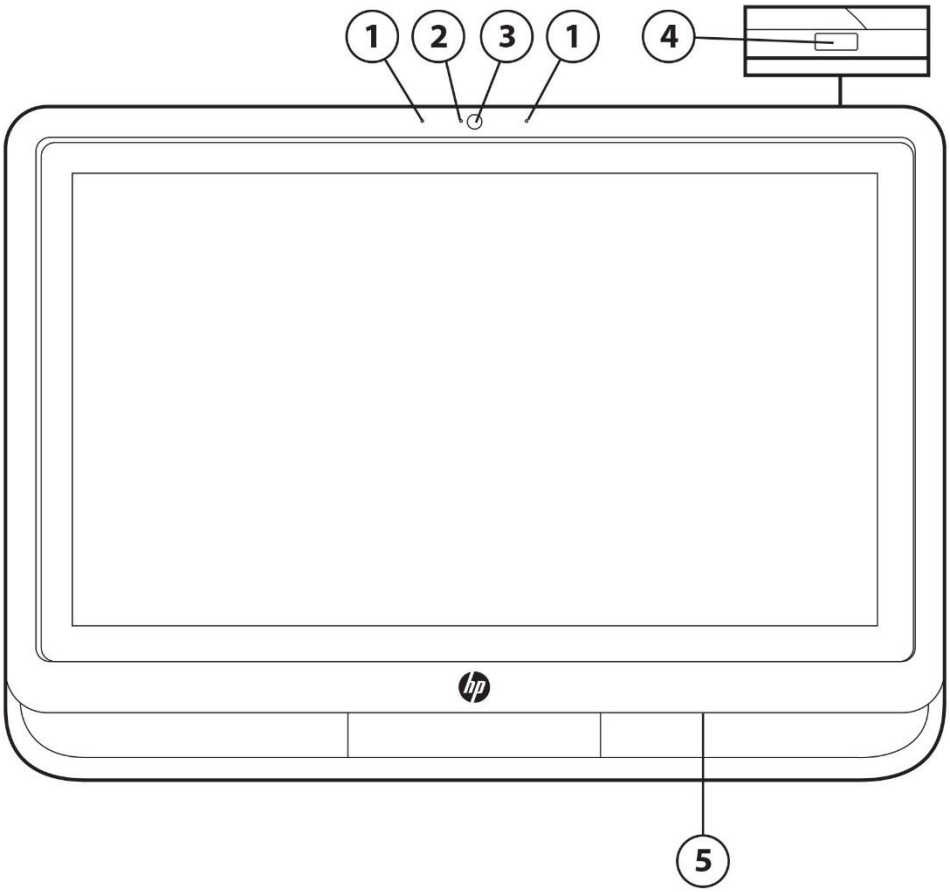
Overview

HP ProOne 400 G1 All-In-One Business PC

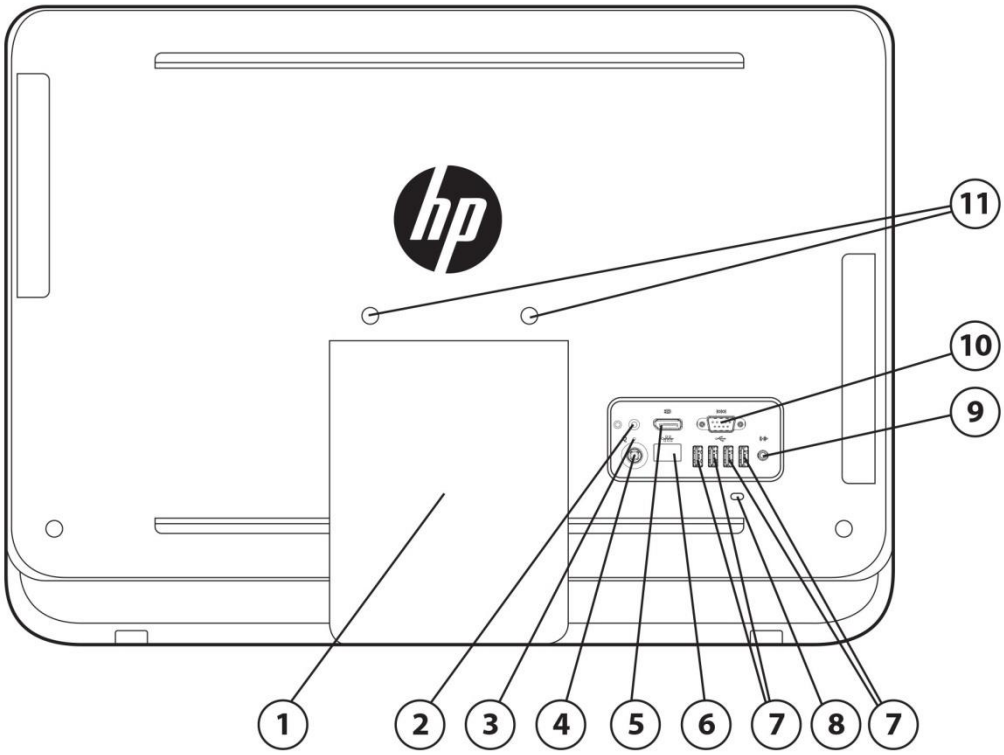


FRONT

1. Microphones (optional)
2. Webcam activity LED
3. Webcam (optional)
4. Power button
5. Speakers

Overview

Hp ProOne 400 G1 All-In-One Business PC

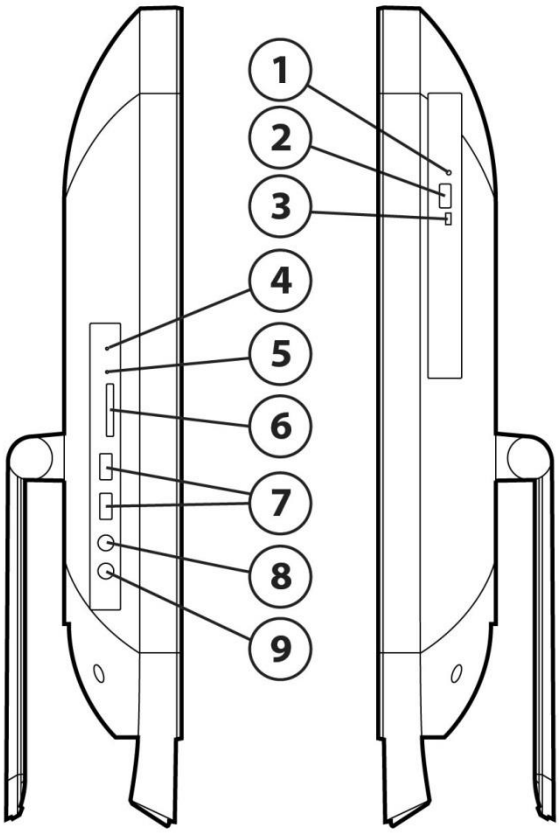


BACK

1. Stand
2. Security screw
3. Power connector LED indicator
4. Power connector
5. DisplayPort
6. RJ-45 Gigabit Ethernet port
7. (4) USB 2.0 ports
8. Security lock slot
9. Stereo audio line out
10. Serial RS-232 port
11. VESA mount

Overview

Hp ProOne 400 G1 All-In-One Business PC



SIDE

1. Optical Disc Drive (optional)
2. Optical eject button
3. Optical activity LED
4. Hard Disc Drive activity LED
5. SD Reader activity LED
6. SD Reader (optional)
7. (2) USB 3.0 Ports, including 1 fast charging port
8. Microphone jack
9. Headphone jack

Overview

AT A GLANCE

- Windows 7 or Windows 8.1
- 21.5 inch Touch diagonal widescreen WLED backlit LCD
- Integrated all-in-one form factor
- Intel® H81 Express chipset
- Intel 4th Generation Core™ processors
- Integrated Intel HD Graphics
- Integrated Realtek RTL8151GH-CG GbE Ethernet Controller
- Optional wireless connectivity:
  - Intel Dual Band Wireless-N 7260 (mini PCI Express)
    - Intel 802.11 a/b/g/n
  - Intel 7260 802.11 a/b/g/n PCIe mini card with Bluetooth
  - WLAN and Bluetooth Combo Card
    - HP 802.11 a/b/g/n Bluetooth® 4.0
- WiDi support (with Intel 7260 WLAN and Intel® HD Graphics)
- Optional Integrated 1 MP webcam & dual microphone array
- Business quality speakers
- DTS Sound +™
- Up to 16 GB of DDR3 SDRAM, dual channel memory support, two SODIMM slots
- Up to 2 TB SATA Hard Drive, up to 180GB Solid State Drive, 256GB Self-Encrypting Solid State Drive, 500GB Self-encrypting Drive, 1TB Solid State Hybrid Drive
- Optional Slim Tray-load SuperMulti DVD Writer, DVD-ROM, or BDXL Blu-ray Writer Optical Disc Drive
- Optional SD Reader
- Serial port
- DisplayPort out
- Integrated VESA 100 x 100 mounting holes
- Skype Ready
- Low Halogen
- ENERGY STAR® qualified. EPEAT® registered where applicable/supported. See www.epeat.net for registration status by country.
- CCC, CECP & SEPA Certified

Standard Features and Configurable Components

OPERATING SYSTEM

Preinstalled

Windows 8.1 Pro (64-bit)*
Windows 8.1 (64-bit)*
Windows 7 Professional (32-bit)**
Windows 7 Professional (64-bit)**
Windows 7 Professional (32-bit) (available through downgrade rights from Windows 8.1 Pro)***
Windows 7 Professional (64-bit) (available through downgrade rights from Windows 8.1 Pro)***

FreeDOS
Novell SUSE Linux Enterprise Desktop 11
Ubuntu Linux (64-bit)

*Not all features are available in all editions of Windows 8.1. Systems may require upgraded and/or separately purchased hardware, drivers and/or software to take full advantage of Windows 8.1 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 8.1 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™ i7-4790T
Up to 3.9 GHz Max. Turbo Frequency (2.7 GHz base frequency), 8 MB cache, 4 cores, 8 threads
Intel® HD Graphics 4600
Supports DDR3 memory up to 1600 MT/s data rate
Intel® Stable Image Platform Program (SIPP)

Intel® Core™ i7-4785T
Up to 3.2 GHz Max. Turbo Frequency (2.2 GHz base frequency), 8 MB cache, 4 cores, 8 threads
Intel® HD Graphics 4600
Supports DDR3 memory up to 1600 MT/s data rate
Intel® Stable Image Platform Program (SIPP)

Intel® Core™ i7-4770T
Up to 3.7 GHz Max. Turbo Frequency (2.5 GHz base frequency), 8 MB cache, 4 cores, 8 threads
Intel HD Graphics 4600
Supports DDR3 memory up to 1600 MT/s data rate
Intel Stable Image Platform Program (SIPP)

Intel® Core™ i7-4765T
Up to 3.0 GHz Max. Turbo Frequency (2.0 GHz base frequency), 8 MB cache, 4 cores, 8 threads
Intel HD Graphics 4600
Supports DDR3 memory up to 1600 MT/s data rate
Intel Stable Image Platform Program (SIPP)

Standard Features and Configurable Components

Intel® 4th Generation Core™ i5 Processors

Intel® Core™ i5-4690T
Up to 3.5 GHz Max. Turbo Frequency (2.5 GHz base frequency), 6 MB cache, 4 cores, 4 threads
Intel® HD Graphics 4600
Supports DDR3 memory up to 1600 MT/s data rate
Intel® Stable Image Platform Program (SIPP)

Intel® Core™ i5-4670T
Up to 3.3 GHz Max. Turbo Frequency (2.3 GHz base frequency), 6 MB cache, 4 cores, 4 threads
Intel HD Graphics 4600
Supports DDR3 memory up to 1600 MT/s data rate
Intel Stable Image Platform Program (SIPP)

Intel® Core™ i5-4590T
Up to 3.0 GHz Max. Turbo Frequency (2.0 GHz base frequency), 6 MB cache, 4 cores, 4 threads
Intel® HD Graphics 4600
Supports DDR3 memory up to 1600 MT/s data rate
Intel® Stable Image Platform Program (SIPP)

Intel® Core™ i5-4570T
Up to 3.6 GHz Max. Turbo Frequency (2.9 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 Stable Image Platform Program (SIPP)

Intel® 4th Generation Core™ i3 Processors

Intel® Core™ i3-4350T
3.1 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 T
3.0 GHz base frequency, 4 MB cache, 2 cores, 4 threads
Supports DDR3 memory 1600 MT/s data rate
Intel HD Graphics 4600

Intel® Core™ i3-4150T
3.0 GHz base frequency, 4 MB cache, 2 cores, 4 threads
Intel® HD Graphics 4400
Supports DDR3 memory up to 1600 MT/s data rate

Intel® Core™ i3-4130T
2.9 GHz base frequency, 3 MB cache, 2 cores, 4 threads
Supports DDR3 memory 1600 MT/s data rate
Intel HD Graphics 4400

Intel® 4th Generation Pentium® Processors

Intel® Pentium™ G3440T
2.8 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® G3420T
2.7 GHz base frequency, 3 MB cache, 2 cores, 2 threads
Intel HD Graphics
Supports DDR3 memory 1600 MT/s data rate

Intel® Pentium™ G3240T
2.7 GHz base frequency, 3 MB cache, 2 cores, 2 threads

Standard Features and Configurable Components

Intel® HD Graphics
Supports DDR3 memory up to 1600 MT/s data rate

Intel® Pentium® G3220T
2.6 GHz base frequency, 3 MB cache, 2 cores, 2 threads
Intel HD Graphics
Supports DDR3 memory 1333 MT/s data rate

Intel® 4th Generation Celeron® Processors
Intel® Celeron™ G1840T
2.5 GHz base frequency, 2 MB cache, 2 cores, 2 threads
Intel® HD Graphics
Supports DDR3 memory up to 1600 MT/s data rate

Intel® Celeron® G1820T
2.4 GHz base frequency, 2 MB cache, 2 cores, 2 threads
Intel HD Graphics
Supports DDR3 memory 1333 MT/s data rate

CHIPSET

Intel® H81 Express

SMBIOS

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

HP BIOSphere

Key features of the HP BIOS include:

- Deployment and manageability - HP BIOS provides several technologies that help integrate the HP ProOne 400 Business PC into the enterprise, such as PXE, and F10 Setup support for 12 languages.
- Support UEFI specification 2.3.1
- 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.

Standard Features and Configurable Components

Additional HP BIOS Features:

- Power-On password - Helps prevent an unauthorized user from powering on the system.
- BIOS 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 Pro 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 is 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.

GRAPHICS

Integrated (*depends on processor*)
Intel HD Graphics: Basic, 4600, or 4400. Please see specific processors for graphics configuration.

Graphics controller	Intel® Processor Graphics
DisplayPort	Support for 1 external display
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

WIRELESS DISPLAY

WiDi support with Intel Dual Band Wireless-N 7260 (mini PCI Express) and Intel® HD graphics

Desktop system requirements for Intel® Wireless Display

System Component	Requirement
Processor	4th generation Intel® Core processor
Graphics	Intel® HD Graphics
Wireless	Intel Dual Band Wireless-N 7260
Software	Intel® My WiFi Technology and Intel® Wireless Display must be pre-installed and enabled
OS[1]	Windows 7 32-bit/64-bit Home Premium, Ultimate, Professional; Windows 7 32-bit Home

DISPLAY

Six camera Optical Touch; five Touch points

[1] Windows 8.1 supports Wireless Display natively.

Standard Features and Configurable Components

21.5" diagonal Wide Viewing Angle widescreen WLED backlit LCD

Display Panel	Type	Wide Viewing Angle WLED Backlit LCD
	Viewable image area (H x V) (mm)	(min) 476.064 x 267.786
	Screen opening (H x V) (mm)	517.8 ×309.3
	Resolution(H x V)	1920 x 1080
	Aspect ratio	16:9
	Contrast ratio (typical)	1000:1
	Brightness (typical)	250 nits (cd/m²)
	Viewing angle (typical)	R/L 178°, U/D 178°
	Pixel pitch (H x V) (mm)	0.248 x 0.248
	Backlight lamp life (to half brightness)	30,000 hours minimum
	Color support	Over 16 million colors (through FRM)
	Anti-glare	No
	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.

Basic Adjustable Tilt Stand/Tilt Angle	10º to +25º to the vertical plane	
Height Adjustable/ Reclining Stand	Vertical Adjustment	Up to 110 mm
	Recline Angle	Low position sliding height adjustment => -5º to +60º
	Tilt Angle	High position sliding height adjustment => -5° to +30°

WEBCAM & MIC

Optional integrated 1 MP webcam & dual microphone array; maximum resolution of 1280x720

STORAGE

3.5" SATA Hard Drive
500 GB, 7200 rpm, SATA 6.0 Gb/s, SMART IV
1 TB, 7200 rpm, SATA 6.0 Gb/s, SMART IV
2 TB, 7200 rpm, SATA 6.0 Gb/s, SMART IV

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" Self-Encrypting Solid State Drive
120 GB Intel Pro 1500, SATA, Self-Encrypting Opal 1 Solid State Drive
128 GB, SATA, Self-Encrypting Opal 2 Solid State Drive
180 GB Intel Pro 1500, SATA, Self-Encrypting Opal 1 Solid State Drive
256 GB, SATA, Self-Encrypting Opal 2 Solid State Drive

Standard Features and Configurable Components

2.5" Self-Encrypting Drive
500 GB, SATA, Self-Encrypting Drive

2.5" Solid State Drive
128GB SATA 2.5 TLC SSD (Non-SED_TLC)
128GB SATA 2.5 TLC w/caddy SSD (Non-SED_TLC)
256GB SATA 2.5 SSD (Non-SED)
256GB SATA 2.5 w/ca SSD (Non-SED)
256GB SATA 2.5 TLC SSD (Non-SED_TLC)
256GB SATA 2.5 TLC w/caddy SSD (Non-SED_TLC)

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

Optical Disc Drive
Slim SATA DVD-ROM
Slim SATA SuperMulti DVD Writer
Slim SATA BDXL Blu-ray Writer
No included Optical Disc Drive

Removable
HP Slim Removable SATA HDD Frame/Carrier

Media Card Reader
HP 5-in-1
Supports Secure Digital (SD, SDHC, SDXC, Memory Stick (MS), Memory Stick Pro (MS Pro))

MEMORY

Type
Non-ECC, DDR3 SDRAM, 1600 MHz, 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.
NOTE: 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.

NETWORKING/COMMUNICATIONS

Ethernet (RJ-45)
Integrated Realtek RTL8151GH-CG GbE LOM 10/100/1000
- With Wake-on-LAN

  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
Intel 802.11 a/b/g/n wireless 7260 PCIe minicard (optional)

Standard Features and Configurable Components

- Up to 300 mbps data rate

Intel 7260 802.11 a/b/g/n wireless PCIe mini card with Bluetooth Combo (optional)

HP 802.11 a/b/g/n wireless PCIe minicard with Bluetooth Combo (optional)
- Up to 300 mbps data rate
- Bluetooth 4.0 compliant
- Works with a wide range of Bluetooth devices

AUDIO/MULTIMEDIA

DTS Sound +™

Realtek ALC3228 codec – 16 & 24-bit PCM

Integrated business class 2.0 speakers (2W x 2)

Stereo headphone jack

Microphone in

Stereo line out

Optional integrated 1.0 MP webcam & dual microphone array – Up to 30 frames/sec

KEYBOARDS AND POINTING DEVICES

Keyboard	
HP USB Standard	104 keys plus special functions for Mute, Volume Up, Volume Down, Sleep & Multimedia control keys Separate numeric keypad Cable length 71 in (180 cm)
HP Wireless Keyboard & Mouse	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 23 ft (7m) Keyboard contains 25% post-consumer recycled plastic material
HP USB CCID SmartCard 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 USB Optical Mouse	Two buttons with scroll wheel 71 in (180 cm)

Standard Features and Configurable Components

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 8.8 ft total 70 cm+ 2m extension

SECURITY

Security lock slot

HP UltraSlim Cable Lock (optional)

USB port disable (configurable at factory)

Rear cover security screw

POWER

External 120W, up to 89% efficient, active PFC
100-240V AC

Power Efficiency	89%	88%
Volts	230	100/115

SOFTWARE COMPONENTS AND APPLICATIONS WITH WINDOWS

Included	**Windows 7**	**Windows 8.1**
BIOS	HP BIOSphere[1] HP DriveLock HP BIOS Protection[3] BIOS Update via Network Master Boot Record Security Power On Authentication Pre-Boot Security Secure Erase[6] Absolute Persistence Module[7]	HP BIOSphere[1] HP DriveLock HP BIOS Protection[3] HP Disk Sanitizer[4] BIOS Update via Network Master Boot Record Security Power On Authentication Pre-Boot Security Secure Erase[6] Hybrid Boot Measured Boot Secure Boot Absolute Persistence Module[7]
Multimedia	CyberLink Power DVD, BD CyberLink Power2Go (Secure Burn) CyberLink YouCam BE	CyberLink Power DVD, BD CyberLink Power2Go (Secure Burn)

Standard Features and Configurable Components

Communication		HP Wireless Hotspot[8]
HP Value Add	HP Ceement HP ePrint Driver[9] HP PageLift HP Recovery Disk Creator HP Recovery Manager HP Support Assistant	HP ePrint Driver[9] HP PageLift HP Recovery Manager HP Support Assistant
3rd Party	Foxit PhantomPDF Express for HP Box 50 GB Offer	Foxit PhantomPDF Express for HP Box 50 GB Offer Box App
Microsoft Products	Buy Office Bing Search Skype	Buy Office Bing Search Skype
Manageability	HP Drive Packs[10] HP SoftPaq Download Manager (SDM) HP System Software Manager (SSM) [10] HP BIOS Config Utility (BCU) [10] HP Client Catalog [10] HP CIK for Microsoft SCCM [10] LANDESK Management [11]	HP Drive Packs[10] HP SoftPaq Download Manager (SDM) HP System Software Manager (SSM) [10] HP BIOS Config Utility (BCU) [10] HP Client Catalog [10] HP CIK for Microsoft SCCM [10] LANDESK Management [11]

For more information on HP Client Management Solutions refer to: http://www.hp.com/go/clientmanagement.

Security	Absolute Persistence Module HP Device Access Manager HP Drive Encryption HP File Sanitizer HP Disk Sanitizer External Edition HP Security Manager Microsoft Security Essentials[14]	Absolute Persistence Module HP Device Access Manager HP Drive Encryption[12] HP File Sanitizer [13] HP Disk Sanitizer External Edition HP Security Manager Microsoft Defender
Standard	Smart Card Reader Security lock slot Preboot Authentication	Smart Card Reader Security lock slot Preboot Authenticationion

NOTE: The Absolute Persistence agent is shipped turned off, and must be activated by customers when they purchase a subscription. Subscriptions can be purchased for terms ranging multiple years. Service is limited, check with Absolute for availability outside the U.S.

For more information on HP Client Security Software Suite, refer to http://www.hp.com/go/clientsecurity.

Footnotes:

Standard Features and Configurable Components

1 Available only on business PCs with HP BIOS.
2 HP Sure Start is the first and only self-healing technology solution created to protect against malware and virus attacks aimed at the BIOS. 3 May require a manual recovery step if all copies of BIOS are compromised or deleted.
4 For the use cases outlined in the DOD 5220.22-M Supplement. Only supports traditional Hard Drives.
5 Requires initial user set up.
6 For the methods outlined in the National Institute of Standards and Technology Special Publication 800-88.
7 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.
8 The wireless hotspot application requires an active internet connection that is shared with the connecting devices. Wireless hotspot data usage may incur additional charges. Check with your service provider for plan details.
9 Requires an Internet connection to HP web-enabled printer and HP ePrint account registration (for a list of eligible printers, supported documents and image types and other HP ePrint details, see www.hp.com/go/eprintcenter). Requires optional broadband module. Broadband use requires separately purchased service contract. Check with service provider for coverage and availability in your area. Separately purchased data plans or usage fees may apply. Print times and connection speeds may vary.
10 Not preinstalled, however available on manageability website.
11 Subscription required.
12 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.
13 For the use cases outlined in the DOD 5220.22-M Supplement. Supports standard Hard Drives. Initial setup required.
14 Opt in and internet connection required for updates.

ENVIRONMENTAL & INDUSTRY

ENERGY STAR® qualified models available
EPEAT® registered where applicable/supported. 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
CEL
TAA Compliant
For accessibility information on HP products, please visit: http://www.hp.com/accessibility.

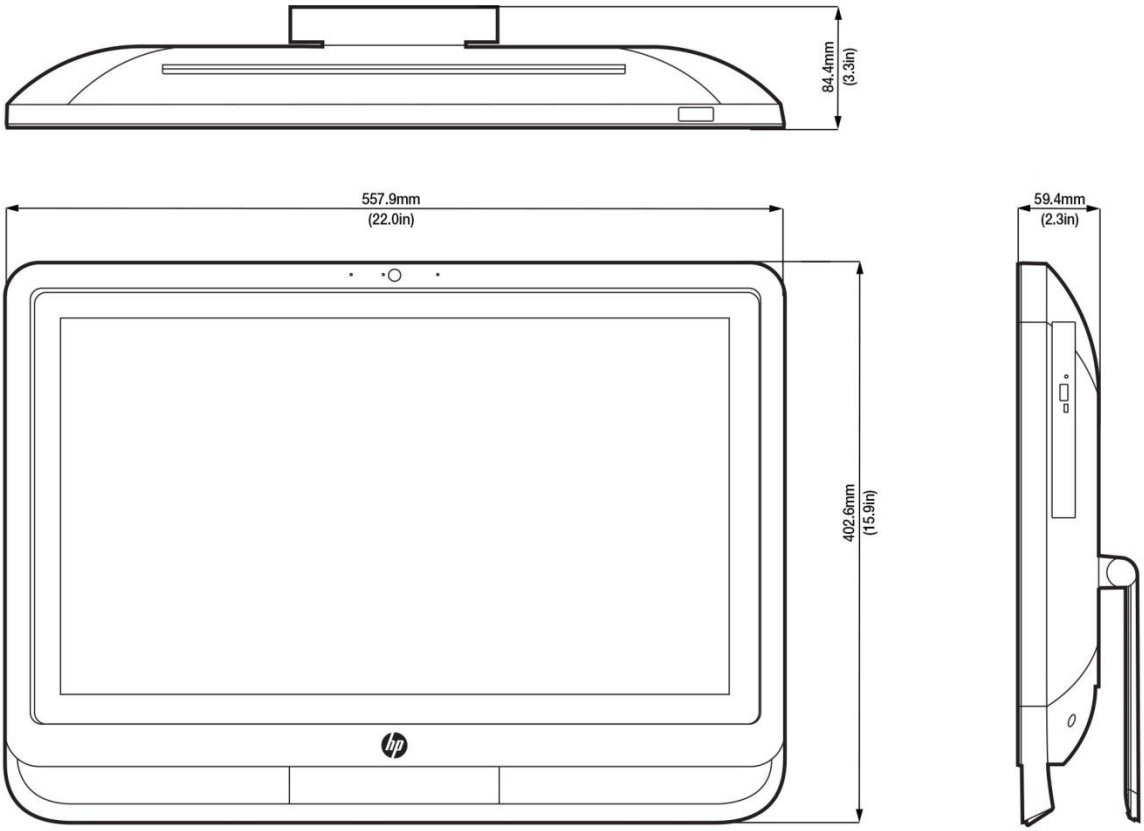
Standard Features and Configurable Components

WEIGHTS & DIMENSIONS

Weight	With stand 17.6 – 17.9 lbs 7.99 – 8.14 kg	**Dimensions (W x D x H)**	With stand 22 x 3.3 x 15.9 in 557.9 x 84.4 x 402.6 mm
	Without stand 16.4 – 16.7 lbs 7.42 –7.57 kg		Without stand 22 x 2.3 x 14.3 in 557.9 x 59.4 x 362.9 mm
	With Height Adjustable/Reclining Stand 23.04 lbs 10.45 kg		With Height Adjustable/Reclining Stand 21.97x10.51x18.03 in 558x267x458 mm
	Shipping box 26.69 lbs 12.11 kg		Shipping box 25.51 x 6.89 x 21.34 in 648 x 175 x 542 mm
	Shipping box with Height Adjustable/Reclining Stand 32.39 lbs 14.69 kg		Shipping box with Height Adjustable/Reclining Stand 25.95x12.88x22.25 in 659x327x565 mm
	Shipping pallet (20 units) 578.71 lbs 262.5 kg		Shipping pallet (20 units) 47.2 x 39.4 x 48.27 in 1200 x 1000 x 1226 mm
	Shipping pallet with Height Adjustable/Reclining Stand (GP=12 / HQ=16) 454.85 / 584.42 lbs 206.28 / 265.04 kg		Shipping pallet with Height Adjustable/Reclining Stand (GP=12 / HQ=16) 48x40x71.89 / 48x40x94.14 in 1219x1016x1826 / 1219x1016x2391 mm

Detailed dimensions

Standard Features and Configurable Components



Standard Features and Configurable Components

TEMPERATURE, HUMIDITY, ALTITUDE

Temperature	Operating	41 to 95°F 5 - 35°C
	Non-operating	-22 to 149°F -30° to 65°C
Relative humidity	Operating	15 - 80% at 26° C
Altitude (unpressurized)	Operating	0 to 6500 ft (0 to 2000 m)
	Non-operating	0 to 15,000 ft (0 to 4,572 m)

PORTS

I/O Ports - Standard

2 - USB 3.0 (2 side including 1 fast charging)

USB Fast Charging Port:

- Up to 2.5A charging current (5 times the maximum current supported by a USB 2.0 port; 2.8 times the maximum current supported by a USB 3.0 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

4 - USB 2.0 (rear)

1 – Microphone in (side)

1 – Headphone jack (side)

1 – Serial RS-232 (rear)

1 – Stereo audio line out (rear)

1 – Power connector (rear)

1 – RJ-45 (rear)

1 – DisplayPort

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
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

Standard Features and Configurable Components

DisplayPort To HDMI 1.4 Adapter	Provides a connection from the PC's DisplayPort interface to the display's HDMI interface; adapts the DP output to the HDMI input

SLOTS

1 – mini PCIe half-length (used by optional wireless LAN module)

BAYS

1 – 3.5" internal; Supports One – 3.5" hard drive or up to One – 2.5" hard drives (HDD/SSD/SED/SSHD)

1 – 5.25" external; Slim Line Optical Drive

SERVICE AND SUPPORT

On-site Warranty [1]: Standard one-year (1-1-1) limited warranty delivers one year of on-site, next business day [2] service for parts and labor and includes free telephone support [3] 24 x 7. One-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	
Bus Type	N/A	
RAMDAC	N/A	
Memory	Intel graphics do not have dedicated memory but utilizes some of the computer's system memory The amount of memory used for graphics depending 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. 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.	
Maximum Graphics Memory	Microsoft Windows 7	Windows 8.1
	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	4th Generation Core processors:
	• 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
	  ○ 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
	  ○ Full AVC/VC1/MPEG2 HW Decode
	• Advanced Scheduler 2.0, 1.0
	• Windows 7, Windows 8.1, Linux OS Support
	• DirectX 11.1
	• OpenGL 4.0
	• Open CL 1.2	

Supported Display Resolutions and Refresh Rates **Note:** other resolutions may be available but are not recommended as they may not have been tested and qualified by HP.		
Resolution	**Refresh Rates**	

Technical Specifications - Graphics

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 ProOne 400 G1 Series Business PC supports the latest SATA 6.0Gb/s specification.

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 500-GB 7.2K rpm SATA 6.0Gb/s 3.5" 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:	11 ms
	Full-Stroke:	21 ms
Height (nominal)	1 in/2.54 cm	
Width (nominal)	Media diameter: 3.5 in/8.89 cm	
	Physical size: 4 in/10.2 cm	
Operating Temperature	41° to 131° F (5° to 55° C)	

HP 1-TB 7.2K rpm SATA 6.0Gb/s 3.5" Hard Disk Drive		
Capacity	1,000,204,886,016 bytes	
Rotational Speed	7,200 rpm	
Interface	SATA 6 Gb/s	
Buffer Size	32 MB	
Logical Blocks	1,953,525,168	
Seek Time (typical reads, includes controller overhead, including settling)	Single Track:	2.0 ms
	Average:	11 ms
	Full-Stroke:	21 ms
Height (nominal)	1 in/2.54 cm	

Technical Specifications – Hard Disk and Solid State Storage

Width (nominal)	Media diameter: 3.5 in/8.89 cm
	Physical size: 4 in/10.2 cm
Operating Temperature	41° to 131° F (5° to 55° C)

HP 2-TB 7.2K rpm SATA 6.0Gb/s 3.5" Hard Disk Drive		
Unformatted Capacity	2 TB	
Rotational Speed	7,200 rpm	
Interface	SATA 6 Gb/s	
Cache, Multisegmented (MB)	64 MB	
Seek Time (average)	Read	<8.5 ms
	Write	<9.5 ms
Height	1.028 in/26.11 mm	
Width	4.0 in/101.6 mm	
Depth	5.787 in/146.99 mm	
Weight	1.38 lb/626 g	
Operating Temperature	32° to 140° F (0° to 60° C)	

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	
	Single Track:	2.0 ms

Technical Specifications – Hard Disk and Solid State Storage

Seek Time (typical reads, includes controller overhead, including settling)	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)	

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
	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)	

HP 128 GB SATA 2.5" Self-Encrypting (SED) Solid State Drive	
Unformatted Capacity	128 GB
Architecture	Self-Encrypting (SED) Solid State Drive using NAND Flash and SATA interface

Technical Specifications – Hard Disk and Solid State Storage

Interface	SATA 6 Gb/s	
Height	.267 in/6.80 mm	
Width	2.75 in/69.85 mm	
Length	3.94 in/100.2 mm	
Weight	0.121 lb (55 g) max	
Performance	Host Transfer Rate:	600 MB/s
	Sequential Read:	Up to 520 MB/s
	Sequential Write:	Up to 340 MB/s
	* Actual performance may vary depending on use conditions and environment ** Notes : 1. Measured at HP 8570p@Win7 x64 2. Performance measured using CrystaldiskMark 3.01c 3. Drive was connected as primary	
Power	System power consumption:	Active* - 0.78A / 3.891W (typical)
		Idle** - 0.005A / 0.026W (typical)
	* Active power is measured during execution of IOMeter 2006 in Windows 7 ** Idle power is measured on DOS Idle status with DIPM on	
System Reliability	MTBF - 1,500,000 Hours	
Environmental (all conditions, non-condensing)	Operating Temperature:	32° to 158° F (0° to 70° C)
	Relative Humidity:	5% to 95%
	Shock:	1500G, duration 0.5ms, Half Sine Wave

HP 128 GB* (non-SED) TLC Solid State Drive	
Unformatted Capacity	128 GB*
Architecture	Triple Level Cell (TLC) NAND

Technical Specifications – Hard Disk and Solid State Storage

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	0.1 lb (45 g)	
Bandwidth Performance	Sustained Sequential Read:	Up to 510 MB/ss
	Sustained Sequential Write:	Up to 140 MB/s
	Random Read (4KB):	up to 90K IOPs
	Random Write (4KB):	up to 36K IOPs
Latency	Read:	55ms (TYP)
	Write:	55ms (TYP)
Power	DC power requirement:	Min 4.75 V; Max 5.25 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 16GB for Windows 7 and up to 36GB for Windows 8.1 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 GB
Architecture	Self-Encrypting (SED) Solid State Drive using NAND Flash and SATA interface
Interface	SATA 6 Gb/s

Technical Specifications – Hard Disk and Solid State Storage

Height	.267 in/6.80 mm	
Width	2.75 in/69.85 mm	
Length	3.94 in/100.2 mm	
Weight	0.121 lb (55 g) max	
Performance	Host Transfer Rate:	600 MB/s
	Sequential Read:	Up to 520 MB/s
	Sequential Write:	Up to 460 MB/s
	* Actual performance may vary depending on use conditions and environment ** Notes : 1. Measured at HP 8570p@Win7 x64 2. Performance measured using CrystaldiskMark 3.01c 3. Drive was connected as primary	
Power	System power consumption:	Active* - 0.78A / 3.891W (typical)
		Idle** - 0.005A / 0.026W (typical)
	* Active power is measured during execution of IOMeter 2006 in Windows 7 ** Idle power is measured on DOS Idle status with DIPM on	
System Reliability	MTBF - 1,500,000 Hours	
Environmental (all conditions, non-condensing)	Operating Temperature:	32° to 158° F (0° to 70° C)
	Relative Humidity:	5% to 95%
	Shock:	1500G, duration 0.5ms, Half Sine Wave

HP 256 GB* (non-SED) TLC Solid State Drive	
Unformatted Capacity	256 GB*
Architecture	Triple Level Cell (TLC) NAND
Interface	SATA 6 GB/sec

Technical Specifications – Hard Disk and Solid State Storage

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	0.1 lb (45 g)	
Bandwidth Performance	Sustained Sequential Read:	Up to 510 MB/s
	Sustained Sequential Write:	Up to 280 MB/s
	Random Read (4KB):	up to 90K IOPs
	Random Write (4KB):	up to 70K IOPs
Latency	Read:	55ms (TYP)
	Write:	55ms (TYP)
Power	DC power requirement:	Min 4.75 V; Max 5.25 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 16GB for Windows 7 and up to 36GB for Windows 8.1 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 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

Technical Specifications – Hard Disk and Solid State Storage

Interface	SATA 6 Gb/s	
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)	

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)	

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

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)	5.04 x 0.5 x 5.0 in (128 x 12.7 x 127 mm) without bezel	
Weight (max)	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
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)
	Temperature	41° to 122° F (5° to 50° C)

Technical Specifications – Removable Storage

Environmental conditions (operating - non-condensing)	Relative Humidity	10% to 80%
	Maximum Wet Bulb Temperature	84° F (29° C)

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		
		Triple-layer	**Quadruple-layer**
Write speeds	BD-R	Up to 4X	Up to 4X
	BD-RE	Up to 2X	Not supported
		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	
	CD-R	Up to 24X	
	CD-RW	Up to 24X	
		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

Technical Specifications – Removable Storage

	DVD-RW	Up to 8X	
	DVD+R	Up to 8X	Up to 8X
	DVD+RW	Up to 8X	
	BDMV (AACS 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 to24X	
	CD-DA(DAE)	Up to 20X/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)	

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
	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)

Technical Specifications – Removable Storage

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 (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)

Technical Specifications – Memory

System Memory Support

The HP ProOne 400 G1 Business PC supports the 4th generation Intel® Core™ processor family. 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 4th generation Intel® Core™ processor includes an Integrated Memory Controller (IMC). The IMC supports DDR3/DDR3L protocols with two independent, 64-bit wide channels each accessing one or two DIMMs.

- Two channels of DDR3/DDR3L unbuffered small outline dual in-line memory modules (SO-DIMM) with a maximum of two DIMMs per channel
- Single-channel and dual-channel memory organization modes
- Data burst length of eight for all memory organization modes
- Memory data transfer rates of up to 1600 MT/s; actual supported data transfer rate determined by the configured processor.
- 64-bit wide channels
- DDR3/DDR3L system memory I/O voltage of 1.5V
- Theoretical maximum memory bandwidth of:
    - 21.3 GB/s in dual-channel mode assuming 1333 MT/s
    - 25.6 GB/s in dual-channel mode assuming 1600 MT/s

Platform Memory Support

- The All-in-One supports up to two (2) industry-standard DDR3-SDRAM SO-DIMMs.

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.

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.

Technical Specifications – Networking/Communication

Realtek RTL8151GH-CG GbE LOM Network Adapter		
Connector	RJ-45	
System Interface	Integrated on PCA	
Controller	Realtek RTL8151GH-CG Gigabit Ethernet Controller	
Memory	16 KB FIFO packet buffer memory	
Data rates supported	10/100/1000 Mbps	
IEEE Compliance	802.1P 802.1Q 802.3 802.3ab 802.3az 802.3u	
Bus architecture	PCI Express	
Data transfer mode	PCIe-based interface for active state operation (S0 state)	
Power requirement	Requires 3.3V and 1V or just 3.3V with integrated regulators Power consumption 0.425 W	
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:	32° to 158° F (0° to 70° C)
	Operating Humidity:	60% RH
Management	WOL, auto MDI crossover, PXE, Muti-port teaming, Advanced cable diagnostic	

Intel Dual Band Wireless-N 7260 802.11 a/b/g/n (2x2) Wireless Network Interface Connection	
Wireless LAN Standards	IEEE 802.11a/b/g/n

Technical Specifications – Networking/Communication

Interoperability	Wi-Fi certified (802.11 a/b/g/n WMM, WPA, WPA2 and WPS)	
	Cisco Compatible Extensions Program compliant with Microsoft Windows 7, Windows Vista and XP.	
	NOTE: WLAN supplier's client utility is required for Cisco Compatible Extensions support with Microsoft Windows XP. WLAN may also be compatible with certain third-party software supplicants. WLAN supplier IHV extensions required for Cisco Compatible Extensions support for Microsoft Windows Vista.	
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
Antenna Structure	2 transmit; 2 receive (2x2)	
Data Rates	802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz)	
Modulation	Direct Sequence Spread Spectrum CCK, BPSK, QPSK, 16-QAM, 64-QAM	
Security	• IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only • AES-CCMP: 128 bit in hardware • 802.1x authentication • WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES. • WPA2 certification • IEEE 802.11i • Cisco Certified Extensions, all versions through CCX4 and CCX Lite • WAPI	
	Note: Check latest software/driver release for updates on supported security features.	
Sub-channels	Multinational support with frequency bands and channels compliant to local regulations.	
Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)	
Roaming	IEEE 802.11 compliant roaming between band Access Points	
Output Power	• 2.4G: +13.5dBm minimum • 5G: +12dBm minimum	
	Note: Maximum output power may vary by country according to local regulations.	
Power Consumption	Transmit: 2.0 Watts	
	Receive: 1.6 Watts	
	Idle mode: 250 mW (WLAN associated) In Power Save Polling mode and on battery power.	

Technical Specifications – Networking/Communication

	Idle mode: 100 mW (WLAN unassociated)	
	Radio off: 100 mW (WLAN unassociated)	
Power Management	ACPI compliant power management 802.11 compliant power saving mode	
Receiver Sensitivity Note: Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CCK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).	802.11g:-90 dBm (6 Mbps), -89 dBm (9 Mbps), -87 dBm (12 Mbps), -85 dBm (18 Mbps), -82 dBm (24 Mbps), -79 dBm (36 Mbps), -76 dBm (48 Mbps), -74 dBm (54 Mbps) 802.11b:-95 dBm (1 Mbps), -93 dBm (2 Mbps), -91 dBm (5.5 Mbps), -88 dBm (11 Mbps) 802.11g:-90 dBm (6 Mbps), -89 dBm (9 Mbps), -87 dBm (12 Mbps), -85 dBm (18 Mbps), -82 dBm (24 Mbps), -79 dBm (36 Mbps), -76 dBm (48 Mbps), -74 dBm (54 Mbps)	
Antenna Connections	2 U.FL type connectors (output impedance of 50 ± 2 ohms)	
Form Factors	PCI-Express Half-MiniCard	
Weight	0.0068 lb (3.1 g)	
Dimensions	0.12 x 1.06 x 1.18 in (3.1 x 26.8 x 30.0 mm)	
Operating Voltage	3.3V +/- 9%	
Temperature	**Operating:** **Non-operating:**	14° to 158° F (-10° to 70° C) -40° to 176° F (-40° to 80° C)
Humidity	**Operating:** **Non-operating:**	10% to 90% (non-condensing) 5% to 90% (non-condensing)
Altitude	**Operating:** **Non-operating:**	0 to 10,000 ft (3,048 m) 0 to 50,000 ft (15,240 m)
LED Activity	LED Amber - Radio OFF; LED White - Radio ON	

HP 802.11a/b/g/n Wireless Minicard with Bluetooth Combo	
Dimensions (L x H)	1.18 x 1.06 in (30 x 26.8 mm)
Chipset	Broadcom BCM43228 + BCM20702
System interface	PCI Express x1
Network standard	802.11 a/b/g/n
Frequency band	Bluetooth: 2.402 - 2.480 GHz
	Wi-Fi: 802.11a – 5.15-5.85 GHz; 802.11bg 2.412-2.4835 GHz

Technical Specifications – Networking/Communication

Operating temperature	32° to 131°F, operating (0° to 55°C, operating)	
Storage temperature	-40° to 176°F, non-operating (-40° to 80°C, non-operating)	
Humidity	5-90% operating 5-95% non-operating	
Operating voltage	3.3 V ±9% I/O supply voltage	
Power Consumption	Platform/WLAN Mode	Power Consumption
	Wi-Fi	
	Tx Mode	515 mA
	Rx Mode	425 mA
	Bluetooth	
	Tx Mode	40 mA
	Rx Mode	38 mA
	Standby Mode	Wi-Fi + Bluetooth – 165 mA
		Wi-Fi only – 165 mA
		Bluetooth only – 0.5 mA
	Radio Off	77 mA
Output Power (2x2 – Tolerance +/- 1.5 dBm)	802.11 a	15.5 dBm@6Mbps; 15.5 dBm@54Mbps
	802.11 b	18.5 dBm@11Mbps
	802.11 g	16.5 dBm@6Mbps; 16.5 dBm@54Mbps
	802.11 n/2.4G	20MHz: 18 dBm@MCS0; 18 dBm@MCS15
		40MHz: 17 dBm@MCs0; 17 dBm@MCS15
	802.11 n/5G	20MHz: 16 dBm@MCS0; 16 dBm@MCS15
		40MHz: 16 dBm@MCs0; 16 dBm@MCS15

Technical Specifications – Networking/Communication

Security	IEEE 802.11i 64-/128-bit WEP encryption
	WPS, WPA, WPA2, WEP 64bit & 128bit, IEEE 802.11x, IEEE 802.11i
Antenna	Dual antenna connectors

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

Technical Specifications – Keyboards and Mice

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)
	Operating shock	40 g, six surfaces

Technical Specifications – Keyboards and Mice

	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 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	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 Available USB port for the receiver CD-ROM Drive *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.	
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

Technical Specifications – Keyboards and Mice

	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
	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 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. This allows strengthened security with HP patented technology.

Technical Specifications – Keyboards and Mice

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)
	Weight	2 lb (0.9 kg) minimum
Electrical	Operating voltage	+ 5VDC ± 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

Technical Specifications – Keyboards and Mice

	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
	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

Technical Specifications – Keyboards and Mice

	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
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

Technical Specifications – Keyboards and Mice

	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
	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 USB Mouse	
Dimensions (H x L x W)	1.5 x 4.5 x 2.5 in (3.7 x 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)

Technical Specifications – Keyboards and Mice

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		
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

Technical Specifications – Keyboards and Mice

	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)
	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 * 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.

Technical Specifications – Environmental Data

Eco-Label Certifications & declarations

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

- IT ECO declaration
- US ENERGY STAR®
- EPEATGold registered in the United States. See http://www.epeat.net for registration status in your country.

System Configuration

The configuration used for the Energy Consumption and Declared Noise Emissions data for the All-in-One PC model is based on a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system.

Energy Consumption (in accordance with US ENERGY STAR® test method)	**115VAC, 60Hz**	**230VAC, 50Hz**	**100VAC, 60Hz**
Normal Operation (short_Idle)	40.69 W	39.90 W	39.08 W
Normal Operation (Long_Idle)	24.95 W	23.93 W	22.73W
Sleep	1.32 W	1.42 W	1.33 W
Off (WOL enable)	0.91 W	1.00 W	0.91 W

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

Heat Dissipation*	**115VAC, 60Hz**	**230VAC, 50Hz**	**100VAC, 60Hz**
Normal Operation (short_Idle)	139 BTU/hr	136 BTU/hr	134 BTU/hr
Normal Operation (Long_Idle)	85 BTU/hr	82 BTU/hr	78 BTU/hr
Sleep	4BTU/hr	5 BTU/hr	5 BTU/hr
Off	3 BTU/hr	3 BTU/hr	3 BTU/hr

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

Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)	Sound Power (LWAd, bels)	Sound Pressure (LpAm, decibels)
Typically Configured - Idle	3.2	22
Fixed Disk - Random writes	3.3	23

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:

- 6 USB ports
- 2 memory slots
- 1 Mini PCIe half-length slot

Technical Specifications – Environmental Data

- 1 mSATA slot
- 1 2.5" internal bay supporting up to Two 2.5" hard drives (HDD/SSD/SED/SSHD)
- 1 5.25" external supporting optical drive

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

Battery size: AA
Battery type: Alkaline

Additional Information

- This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC.
- This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive - 2002/96/EC.
- This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986).
- This product is in compliance with the IEEE 1680 (EPEAT) standard at the Gold level, see www.epeat.net
- Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043.
- This product contains 2.7% post-consumer recycled plastic (by wt.)
- This product is 98% recycle-able when properly disposed of at end of life.

Packaging Materials

External:	PAPER/Corrugated	1542 g
Internal:	PLASTIC/EPE-Expanded Polyethylene	308 g

The corrugated packaging material contains at least 60% recycled content.

The plastic packaging materials contains at least 0 % recycled content.

Material Usage

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

- Asbestos
- Certain Azo Colorants
- Certain Brominated Flame Retardants - may not be used as flame retardants in plastics
- Cadmium
- Chlorinated Hydrocarbons
- Chlorinated Paraffins
- Formaldehyde
- Halogenated Diphenyl Methanes
- Lead carbonates and sulfates
- Lead and Lead compounds

Technical Specifications – Environmental Data

- Mercuric Oxide Batteries
- Nickel - finishes must not be used on the external surface designed to be frequently handled or carried by the user.
- Ozone Depleting Substances
- Polybrominated Biphenyls (PBBs)
- Polybrominated Biphenyl Ethers (PBBEs)
- Polybrominated Biphenyl Oxides (PBBOs)
- Polychlorinated Biphenyl (PCB)
- Polychlorinated Terphenyls (PCT)
- Polyvinyl Chloride (PVC) - except for wires and cables, and certain retail packaging has been voluntarily removed from most applications.
- Radioactive Substances
- Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)

Packaging Usage

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

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

End-of-life Management and Recycling

Hewlett-Packard offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: http://www.hp.com/go/reuse-recycle or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/recyclers. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

Hewlett-Packard Corporate Environmental Information

For more information about HP's commitment to the environment:

Global Citizenship Report
http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html
Eco-label certifications
http://www8.hp.com/us/en/hp-information/environment/ecolabels.html
ISO 14001 certificates:
http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC_GBU_Product_Design_ISO_14K_Certificate.pdf
and
http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf

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 1TB, 7200 rpm, SATA -6.0 Gb/s	QK555AA
HP 500GB, 7200 rpm, SATA -6.0 Gb/s	QK554AA
HP 500GB SATA , 6G (8GB cache) Solid State Hybrid Drive (SSHA)	E1C62AA
HP 128GB SATA Solid State Drive	QV063AA
HP 180GB SATA Solid State Drive	TBD
HP Slim SATA DVD-ROM Drive	VP033AA
HP Slim SATA BDXL Blu-Ray Writer Drive	E0X94AA
HP Slim SATA SuperMulti DVD Writer Drive	QS209AA
HP Slim Removable SATA HDD Frame/Carrier	C1N41AA
HP Slim Removable SATA HDD Carrier	E3F39AA
INPUT DEVICES – KEYBOARD AND MOUSE COMBO	**Part Number**
HP USB PS/2 Washable Keyboard & Mouse	BU207AA
HP Wireless Keyboard & Mouse	QY449AA
INPUT DEVICES – KEYBOARD	**Part Number**
HP USB Grey Keyboard	B6B64AA
HP USB Smart Card (CCID) Keyboard	BV813AA
HP USB Keyboard	QY776AA
INPUT DEVICES – MOUSE	**Part Number**
HP USB 1000dpi Laser Mouse	QY778AA
HP USB Mouse	QY777AA
HP USB Gray Mouse	K7W54AA
HP Mouse Pad	AT485AA
SECURITY	**Part Number**
HP UltraSlim Cable Lock	H4D73AA
GRAPHICS – VIDEO ADAPTERS AND CABLES	**Part Number**
HP DisplayPort Cable Kit	VN567AA

After-Market Options (availability may vary by region)

HP DisplayPort To DVI-D Adapter	FH973AA
HP DisplayPort To HDMI Adapter	BP937AA
HP DisplayPort To HDMI 1.4 Adapter	K2K92AA
HP DisplayPort To VGA Adapter	AS615AA
HP DVI Cable	DC198A
HP USB Graphics Adapter	NL571AA
HP Dual Output USB Graph Adapter	C5U89AA
STANDS AND MONITOR ARM	**Part Number**
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 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)	
Contact your HP representative for available options.	

After-Market Options (availability may vary by region)

January 2014

After-Market Options (availability may vary by region)

Summary of Changes

Date of change:	Version History:		Description of change:
May 14, 2014	From v1.3 to v1.4	Added	Intel processors.
May 30, 2014	From v1.4 to v1.5	Changed	3rd party software
July 17, 2014	From v1.5 to v8	Upgrade	Change the version so it will be in sync with the PB
September 16, 2014	From v8 to v9	Change	
September 26, 2014	From v9 to v10	Add	Added the value "TAA compliant" to the environmental & industrial list
November 14, 2014	From v10 to v11	Added	Several additions across the file: added Ubuntu Linux (64-bit) Height Adjustable/ Reclining Stand Intel 7260 802.11 a/b/g/n wireless PCIe mini card with Bluetooth Combo (optional) With Height Adjustable/Reclining Stand 23.04 lbs 10.45 kg DisplayPort To HDMI 1.4 Adapter HP 128 GB* (non-SED) TLC Solid State Drive HP 256 GB* (non-SED) TLC Solid State Drive HP USB Gray Mouse HP DisplayPort To HDMI 1.4 Adapter
December 2, 2014	From v11 to v10	Downgrade	To sync up with concentra versions