QuickSpecs

Overview

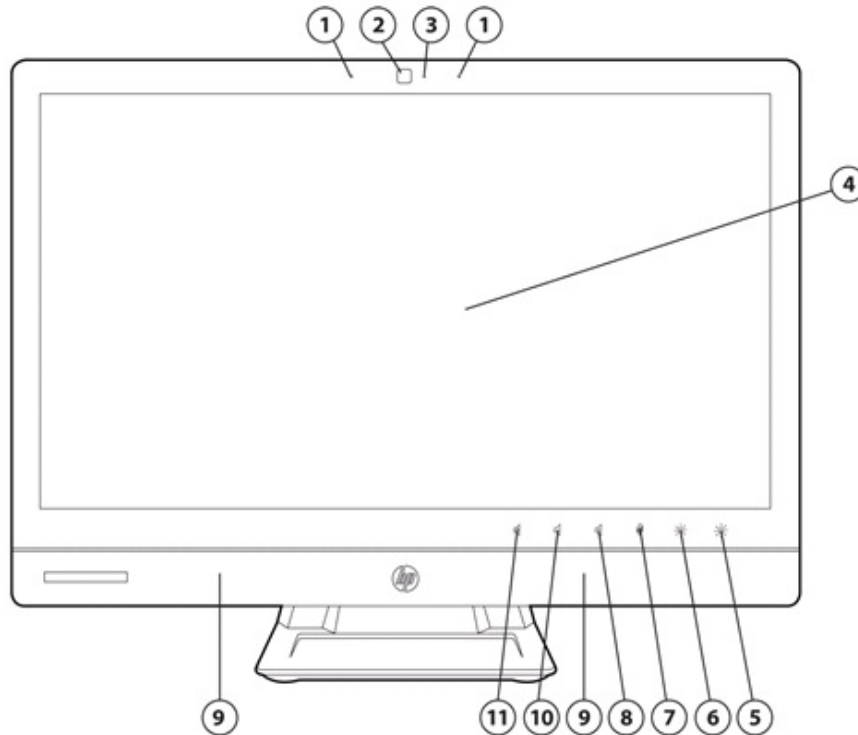### HP EliteOne 800 G1 All-in-One Business PC

FRONT

1. Dual microphone array (only on models with Webcam)
2. 2.0 MP Webcam (optional)
3. Webcam Activity LED
4. 23-inch IPS Full HD capable screen (with or without projected capacitive touch panel option)
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 All-in-One Business PC
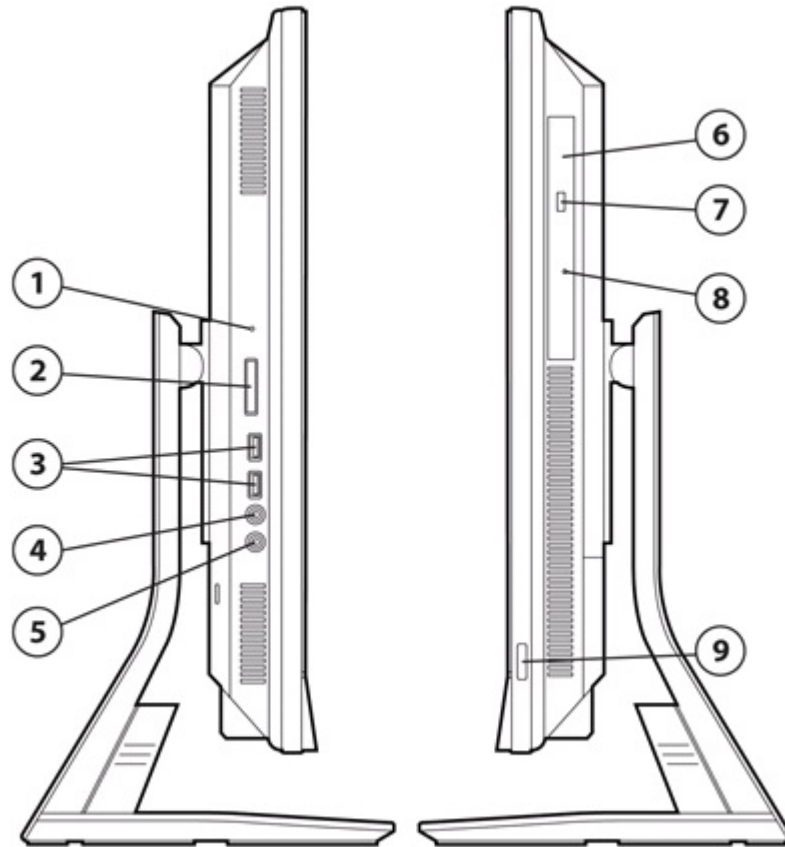
SIDE

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 All-in-One Business PC
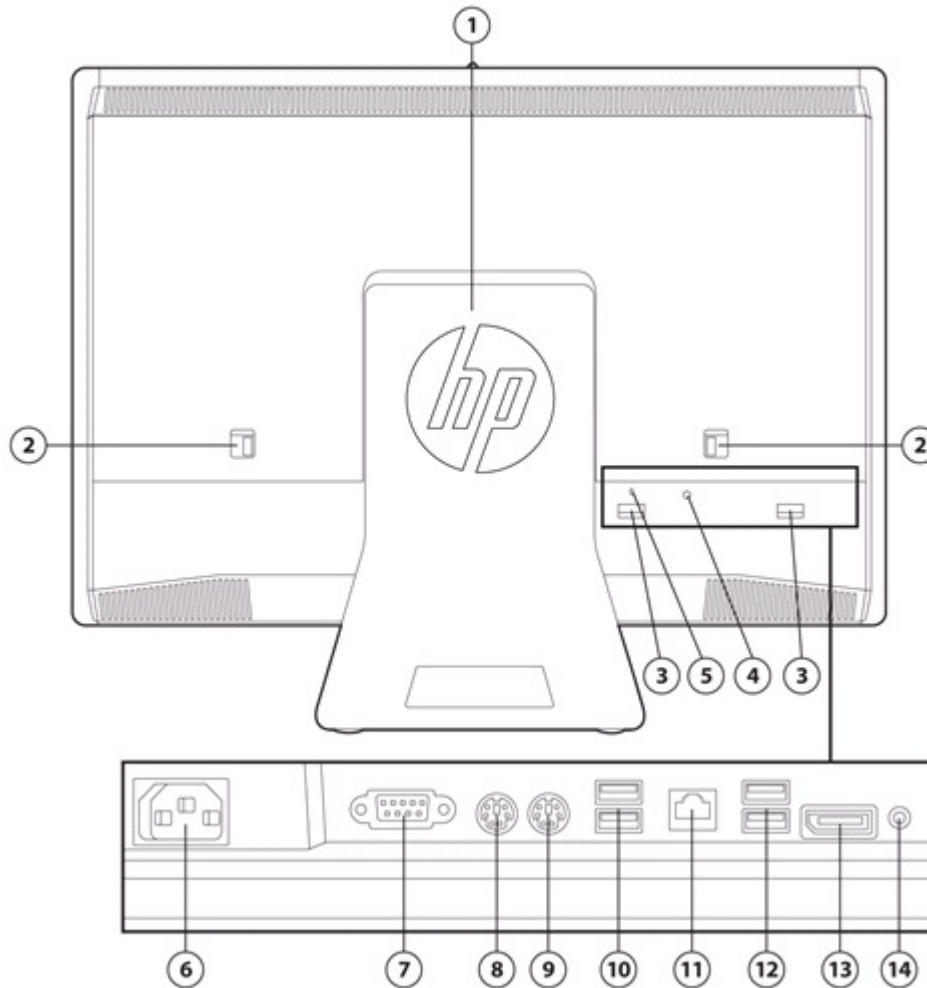
REAR/PORTS (BEHIND SECURITY COVER)

1.	Basic Stand*	8.	PS/2 mouse connector
2.	Access panel latches	9.	PS/2 keyboard connector
3.	I/O security cover latch	10.	(2) USB 3.0 ports
4.	Security Screw hole	11.	RJ-45 Gigabit Ethernet port
5.	Security lock slot	12.	(2) USB 3.0 ports
6.	Power connector	13.	DisplayPort connector
7.	Serial port	14.	Stereo line out

* Can be configured with no stand, basic stand, or height adjustable/reclining stand

QuickSpecs

Overview

At A Glance

- 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
- 23-inch IPS (1920 x 1080) diagonal widescreen WLED backlit anti-glare LCD, with or without Projected Capacitive Touch Panel option
- 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
- Optional MXM Discrete 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 WLAN 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)

Standard Features and Configurable Components (availability may vary by country)

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.

PROCESSOR

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)

Standard Features and Configurable Components (availability may vary by country)

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)

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

CHIPSET

Intel® 8 Series (Q87) Chipset

Standard Features and Configurable Components (availability may vary by country)

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)
- 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

Standard Features and Configurable Components (availability may vary by country)

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

Intel® HD Graphics 4600

Graphics controller	Intel® Processor Graphics
DisplayPort	Multi-Stream support (supports up to 2 external displays)[4]
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

Discrete (optional)

AMD® Radeon HD 7650A 2GB DDR3 MXM Graphics

Graphics controller	AMD® Radeon HD 7650A
DisplayPort	Multi-Stream support (supports up to 4 external displays at 1920x1080)[4]
Core clock	600MHz max
Memory clock	800MHz max
Memory frame buffer	2GB, DDR3, 128-bit wide
Memory	2GB DDR3
Supported Graphics APIs	DX11, OpenGL 4.1, OpenCL 1.1, full 1080p Blu-Ray Disc (H264) playback in hardware

Standard Features and Configurable Components (availability may vary by country)

[4]Using the Integrated Graphics, two (2) external displays are supported via one of these methods:
Using the MXM Graphics, up to four (4) 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.

WIRELESS DISPLAY

WiDi support with Intel® Advanced-N 6205 WLAN or 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 Advanced-N 6205 WLAN
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

DISPLAY

Projected Capacitive Touch or Non-touch

23"diagonal IPS widescreen WLED backlit anti-glare LCD; With or without Projected Capacitive Touch Panel[5] option; Orientation designed to operate in portrait or landscape

Display Panel		
	Type	IPS WLED Backlit LCD
	Viewable image area (mm)	509.18 x 286.42
	Touch Active Area (mm)	509.18 x 286.42[6]
	Screen opening (mm)	510.6 x 287.6[7]
	Native Resolution (HxV)	1920 x 1080
	Aspect ratio	16:9
	Pixel pitch (HxV)(mm)	0.256 x 0.256
	Contrast ratio (typical)	1000:1
	Brightness (typical)	Touch - 225nits (cd/m2)/ Non-Touch 250nits (cd/m²)
	Viewing angle (typical) (HxV)	179 ° x 179 °
	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.

Standard Features and Configurable Components (availability may vary by country)

[5]Projected Capacitive Touch panel is not anti-glare
[6]With Projected Capacitive Touch Panel
[7]Without Projected Capacitive Touch Panel

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

WEBCAM & MIC

Optional integrated 2 MP 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

Optical Disc Drive

Standard Features and Configurable Components (availability may vary by country)

Slim Tray-load SATA DVD-ROM
Slim Tray-load SATA SuperMulti DVD Writer
Slim Tray-load SATA BDXL 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)

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.

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.

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

Standard Features and Configurable Components (availability may vary by country)

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
Up to 300 mbps data rate

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

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

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)

QuickSpecs

Standard Features and Configurable Components (availability may vary by country)

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	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) (Keyboard contains 25% post-consumer recycled plastic content)
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 8.8 ft total 70 cm+ 2m extension

Standard Features and Configurable Components (availability may vary by country)

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 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.

Standard Features and Configurable Components (availability may vary by country)

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 200W, 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]	Computrace (status tracing)[1]
	Device Access Manager	Device Access Manager
	Drive Encryption[2]	Drive Encryption[2]
	File Sanitizer (Activated via Wizard)	File Sanitizer (Activated via Wizard)
	Disk Sanitizer (External Version)[3]	Disk Sanitizer (External Version)[3]
	Microsoft Security Essentials	Microsoft Defender
	Security Manager	Secure Erase
		Security Manager
Multimedia	Cyberlink Power DVD, BD	Cyberlink Power DVD, BD
	Cyberlink Power2Go (Secure Burn)	Cyberlink Power2Go (Secure Burn)
Communication		HP Wireless Hotspot
HP Value Add	HP ePrint Driver[5]	HP ePrint Driver[5]
	HP PageLift	HP PageLift
	HP Support Assistant	HP Recovery Manager
	HP Recovery Disk Creator	HP Support Assistant
		HP Quick Start[6]
3rd Party	Adobe Flash Player	Bing Search[7]
	Bing Search for Internet Explorer 10	PDF Complete, Corporate Edition
	Box[7]	Skype
	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.

Standard Features and Configurable Components (availability may vary by country)

[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
[5]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.
[6]Non-Touch model only
[7]UK only

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
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.

QuickSpecs

Standard Features and Configurable Components (availability may vary by country)

WEIGHTS & DIMENSIONS

Weight with Touch Panel

Product Weight Unboxed	Without stand 19.3 - 19.7 lbs 8.74 - 8.94 kg	Basic stand 24.1 - 24.5 lbs 10.91 - 11.11 kg	Height adjustable/reclining stand 33.4 - 33.9 lbs 15.17 - 15.37 kg
Shipping Weight Boxed	Without stand 28.38 lbs 12.87 kg	Basic stand 31.39 lbs 14.24 kg	Height adjustable/reclining stand 41.68 lbs 18.91 kg
Shipping Weight Pallet	Without stand (24 units) 595.35 lbs 270 kg	Basic stand (24 units) 795.87 lbs 361 kg	Height adjustable/reclining stand (12 units) 542.16 lbs 245.92 kg

Weight without Touch Panel

Product Weight Unboxed	Without stand 17.4 - 17.8 lbs 7.89 - 8.09 kg	Basic stand 22.2 - 22.6 lbs 10.06 - 10.26 kg	Height adjustable/reclining stand 31.6 - 32 lbs 14.32 - 14.52 kg
Shipping Weight Box	Without stand 26.06 lbs 11.82 kg	Basic stand 29.23 lbs 13.26 kg	Height adjustable/reclining stand 39.38 lbs 17.86 kg
Shipping Weight Pallet	Without stand (24 units) 510.41 lbs 231.48 kg	Basic stand (24 units) 743.49 lbs 337.24 kg	Height adjustable/reclining stand (12 units) 514.38 lbs 233.32 kg

Dimensions (W x D x H)

Product Dimensions	Without stand 22 x 1.98 x 15.3 in 560 x 50.3 x 389 mm	Basic stand 22 x 6 x 17.2 in 560 x 153.4 x 437.2 mm	Height adjustable/reclining stand 0 degrees 22 x 7.7 x 20.8 in 560 x 194.8 x 528.9 mm Height adjustable/reclining stand 60 degrees 22 x 14.6 x 10.5 in 560 x 370.2 x 265.9 mm

Shipping Dimensions

Shipping Dimensions Boxed	Without stand 25.83 x 10.59 x 20.39 in 656 x 269 x 518 mm	Basic stand 25.83 x 10.59 x 20.39 in 656 x 269 x 518 mm	Height adjustable/reclining stand 26.46 x 12.56 x 21.10 in 672 x 319 x 536 mm
Shipping Dimensions Pallet	Without stand (24 units) 47.24 x 39.37 x 86.30 in 1200 x 1000 x 2129 mm	Basic stand (24 units) 47.24 x 39.37 x 86.30 in 1200 x 1000 x 2129 mm	Height adjustable/reclining stand (12 units) 47.24 x 39.37 x 68.03 in 1200 x 1000 x 1728 mm

Standard Features and Configurable Components (availability may vary by country)

BASIC STAND DIMENSIONS

QuickSpecs
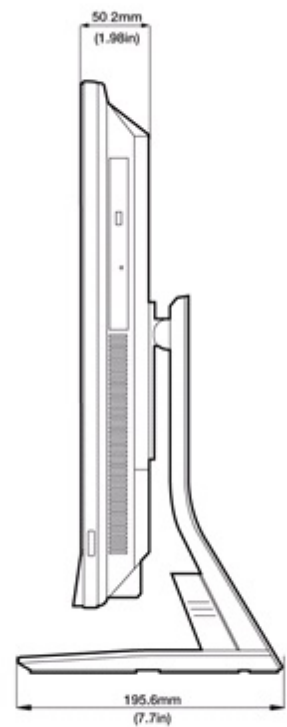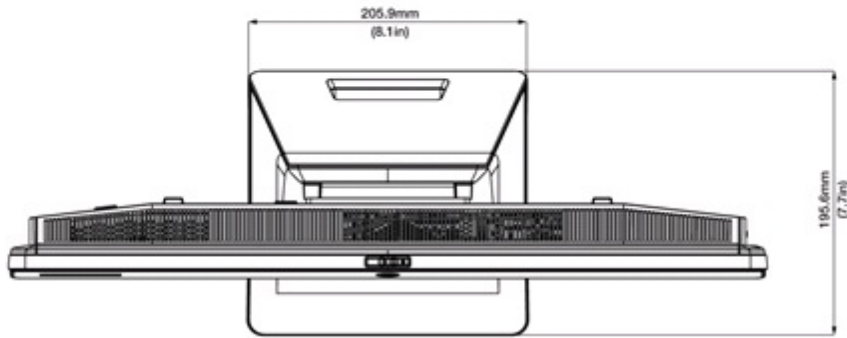
Standard Features and Configurable Components (availability may vary by country)

HEIGHT ADJUSTABLE/RECLINING STAND DIMENSIONS
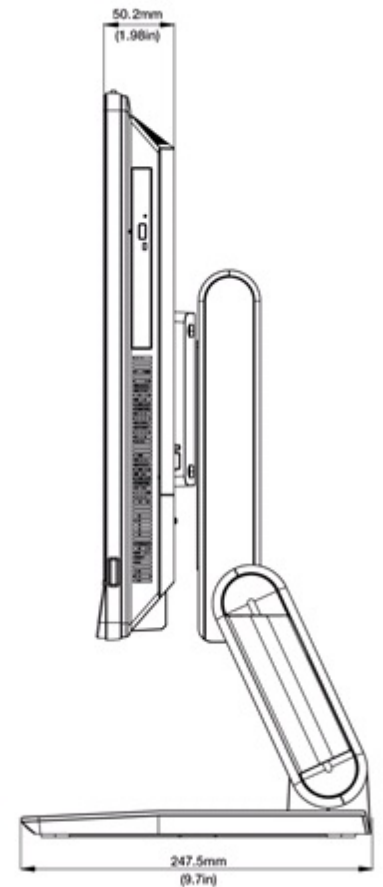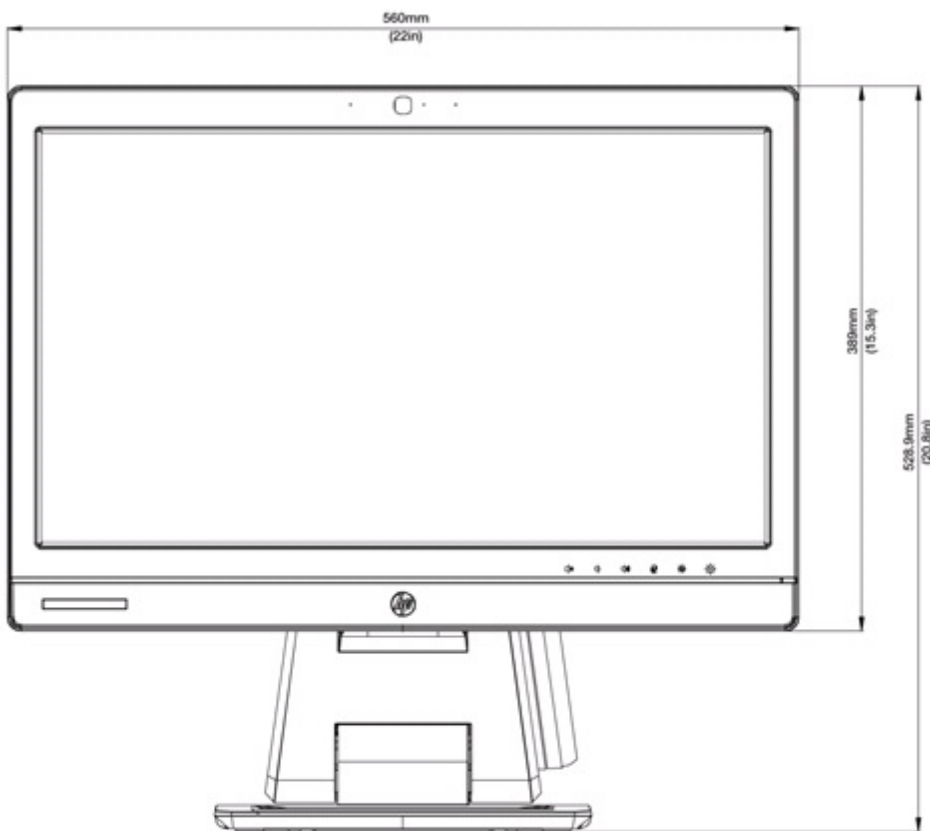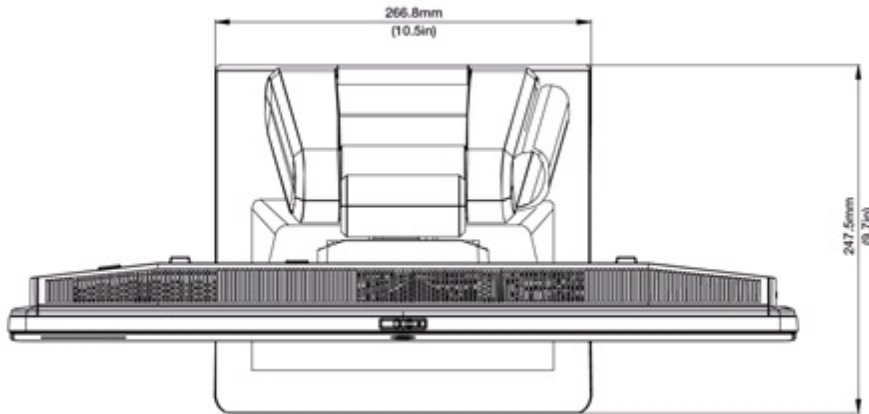
Standard Features and Configurable Components (availability may vary by country)

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

PORTS

I/O Ports - Standard

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

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

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

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 with multi-stream[11]

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 (availability may vary by country)

[11]Using the Integrated Graphics, two (2) external displays are supported via one of these methods:
Using the MXM Graphics, up to four (4) 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.

SLOTS

1 – Mini PCIe half-length (used by wireless LAN module)
1 – MXM 3.0 Type A - 35W
1 – mSATA

BAYS

1 – 2.5" internal; Supports up to Two – 2.5" hard drives (HDD/SSD/SED/SSHD)
1 – 5.25" external; Slim Line Optical Drive

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	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
	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
o 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

Technical Specifications - Graphics

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
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.

AMD Radeon HD 7650A Graphics Card

Form Factor	MXM 3.0
Graphics Controller	AMD Radeon HD 7650A
DisplayPort	Multi-Stream Technology for a maximum of 5 displays (including the integrated panel)
Core Clock	600MHz
Memory Clock	800MHz
Memory	2GB, DDR3, 128-bit wide
Bus Type	MXM
Max. Power	35W
Power Source Support	12V and 19V
3D API Support	DX11, SMS
HDCP Support	Yes
Display Max. Resolution	Digital 2560 x 1600 Analog 2048 x 1536
Supported Graphics APIs	DX11, OpenGL, full 1080p BD (H264) playback in hardware, Multi-Stream DisplayPort support

Technical Specifications - Graphics

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
800 x 600	60 Hz
1024 x 768	60 Hz
1280 x 720	60 Hz
1280 x 768	60 Hz
1280 x 1024	60 Hz
1360 x 768	60 Hz
1440 x 900	60 Hz
1600 x 900	60 Hz
1680 x 1050	60 Hz
1920 x 1080	60 Hz

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)

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)

Technical Specifications – Hard Disk and Solid State Storage

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 Temperature (operating):	84° F (29° C)
	Shock:	1,500 G/0.5-ms

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/s
	Sustained Sequential Write:	Up to 260 MB/s
	Random Read:	up to 46K IOPs
	Random Write:	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	**Operating Temperature:**	32° to 158° F (0° to 70° C)
	Relative Humidity:	5% to 95%

Technical Specifications – Hard Disk and Solid State Storage

Environmental (all conditions, non-condensing)	**Maximum Wet Bulb Temperature** (operating):	84° F (29° C)
	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. 128GB is the unformatted capacity of this drive before a portion of the drive is reserved for flash management features. Actual capacity will vary by content
** The product achieves a mean time between failure (MTBF) based on population statistics not relevant to individual units.

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:	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:	0.15 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:	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. 128GB is the unformatted capacity of this drive before a portion of the drive is reserved for flash management features. Actual capacity will vary by content
** 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 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
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 µs
	Write:	55 µs
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

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
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)

Technical Specifications – Hard Disk and Solid State Storage

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 **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)

QuickSpecs

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 (max)	0.42 lb (190 g)	
	DVD-RAM	Up to 5X
	DVD-R DL	Up to 6X
	DVD+R	Up to 8X
	DVD+RW	Up to 8X
Write speeds	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
	DVD-RAM	Up to 5X
	DVD-RW, DVD+RW	Up to 8X
	DVD-R DL, DVD+R DL	Up to 8X
Read speeds	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
	Source	Slimline SATA DC power receptacle
Power	DC Power Requirement	5 VDC ± 5%-100 mV ripple p-p
	DC Current	5 VDC (< 1000 mA typical, 1600 mA maximum)

Technical Specifications - Removable Storage

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)

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
		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**

Technical Specifications - Removable Storage

Read speeds	BD-ROM	Up to 6X	Up to 6X
	BD-R	Up to 6X	Up to 6X
	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
	DVD-Video (CSS Compliant Disc)	Up to 8X/4X (Read/Play)	N/A
	CD-R/RW/ROM	Up to24X	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 ± 5%-100 mV ripple p-p	
	DC Current	5 VDC -1200 mA typical, 2000 mA maximum	
Environmental conditions (operating - non-condensing)	Temperature	41° to 122° F (5° to 50° C)	
	Relative Humidity	10% to 80%	
	Maximum Wet Bulb Temperature	84° F (29° C)	

Technical Specifications - Removable Storage

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)
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)

QuickSpecs

Technical Specifications – Memory

System Memory Support

The HP EliteOne 800 G1 All-in-One Business 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 - 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
Management	WOL, auto MDI crossover, PXE, Muti-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
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

QuickSpecs

Technical Specifications - Communications

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.
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%
Temperature	**Operating:** 32° to 176° F (0° to 80° C) **Non-operating:** -40° to 176° F (-40° to 80° C)
Humidity	**Operating:** 10% to 90% (non-condensing) **Non-operating:** 5% to 90% (non-condensing)

Technical Specifications - Communications

	Microsoft Windows XP	Microsoft Windows Win 7
Configuration Utility	• Microsoft Windows XP Wireless Network Connection Manager • Intel PROSet for Microsoft Windows XP (required for Cisco Compatible Extensions support)	• Intel IHV extensions for Win7 available to support Cisco Compatible Extensions

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
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

	Platform/WLAN Mode	Power Consumption
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

Output Power (approximate)	2.4G: +13.5dBm minimum 5G: +12dBm minimum

Technical Specifications - Communications

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

Near Field Communications Controller, with Embedded Secure Element

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	I2C
NFC RF standards	ISO/IEC 14443 A
	ISO/IEC 14443 B
	ISO/IEC 15693
	ISO/IEC 18092
	ECMA-340 NFCIP-1 Target and Initiator
	ECMA-320 NFCIP-2
NFC Forum Support	Tag Type 1, Type 2, Type3 and Type 4, NFCIP-1 and NFCIP-2
Reader (PCD-VCD) Mode[1]	ISO/IEC 14443 A
	ISO/IEC 14443 B
	ISO/IEC 15693
	MIFARE 1K
	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

QuickSpecs

Technical Specifications - Communications

Supply Operating voltage	2.97 to 5.25 Volts	
I/O Voltage	1.8V or 3.3V	

Power Consumption (Supply 3.3 Volts)	**Mode**	**Power Consumption, Typical**[2]
	Reset	10 µW
	Standby	150 µW
	Card Emulation within Polling Loop	297 µW
	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] With application or UICC support

[2] 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).
DTS Studio Sound Features	- 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	- 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 – Keyboards and Pointing Devices

HP USB Keyboard

	Keys	104, 105, 106, 107, 109 layout (depending upon country)
Physical characteristics	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
	Keycaps	Low-profile design
	Switch actuation	55-g nominal peak force with tactile feedback
	Switch life	20 million keystrokes (using Hasco modified tester)
Mechanical	Switch type	Contamination-resistant switch membrane
	Key-leveling mechanisms	For all double-wide and greater-length keys
	Cable length	6 ft (1.8 m)
	Microsoft PC 99 - 2001	Mechanically compliant
	Acoustics	43-dBA maximum sound pressure level
	Operating temperature	50° to 122° F (10° to 50° C)
	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)
Environmental	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
Approvals	UL, CSA, FCC, CE Mark, TUV, TUV GS, VCCI, BSMI, C-Tick, MIC	
Ergonomic compliance	ANSI HFS 100, ISO 9241-4, and TUVGS	

Technical Specifications – Keyboards and Pointing Devices

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)	18.12 x 6.47 x 0.96 in (46.03 x 16.43 x 2.44 cm)
	Weight	2 lb (0.9 kg) minimum
Electrical	Operating voltage	+ 5VDC ± 5%
	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
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
	Acoustics	50-dBA maximum sound pressure level
Environmental	Operating temperature	32° to 104° F (0° to 40° C)
	Non-operating temperature	-22° to 140° F (-30° to 60° 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

Technical Specifications – Keyboards and Pointing Devices

	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	

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.

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

	Keys	104, 105, 106, 107, 109 layout (depending upon country
	Form factor	USB basic smart card keyboard
Physical Characteristics	Colors	Carbonite/Silver

Technical Specifications – Keyboards and Pointing Devices

Electrical	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
	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
	Languages	30+ available
Mechanical	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
	Acoustics	43-dBA maximum sound pressure level
Environmental	Operating temperature	50° to 122° F (10° to 50° C)
	Non-operating temperature	–22° to 140° F (–30° to 60° C)
	Operating humidity	10% to 90% (non-condensing at ambient)
	Non-operating humidity	20% to 80% (non-condensing at ambient)
	Operating shock	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 STCIII
	Standard APIs supported	PC/SC, EMV2000, CT-API
	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 Pointing Devices

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

	Keys	104 (US) Layout, 105 (EU) layout - depending upon country
Physical Characteristics	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
	Operating voltage	+ 5VDC ±5%
	Power consumption	50-mA maximum (with three LEDs ON)
Electrical	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
	Keycaps	Stepped -profile design
	Switch actuation	55-g nominal peak force with tactile feedback
	Switch life	20 million keystrokes
Mechanical	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
	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)

Technical Specifications – Keyboards and Pointing Devices

Environmental	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 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)

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.

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

Technical Specifications – Keyboards and Pointing Devices

System Requirements	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 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)	
	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)
Environmental	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
	Operating voltage	5 VDC ± 10%
	Power consumption	100mA
Electrical	System consumption	PS/2 mini-din connector
	ESD	CE level 4, 15 kV air discharge

Technical Specifications – Keyboards and Pointing Devices

	EMI-RFI	Conforms to FCC rules for a Class B computing device
	Microsoft PC99 - 2001	Functionally compliant
	Resolution	800 DPI
	Tracking speed	10 in/s (25.4 cm/s) maximum
	Acceleration	±15%
	Switch actuation	65±20 gf
Mechanical	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
	Width	6 mm
	Diameter	22.5 ± 0.2 mm
Scroll wheel	Maximum rotation force	50 gf-cm
	Switch type	Light force micro-switch
	Switch life	1 million operations
	Mechanical life	Minimum 200,000 revolutions
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

Technical Specifications – Keyboards and Pointing Devices

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

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)

Technical Specifications – Keyboards and Pointing Devices

	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.

QuickSpecs

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:		

- US ENERGY STAR®
- EPEAT® Gold where HP registers integrated desktop products. See http://www.epeat.net for registration status in your country.
- IT ECO declaration

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 product

Energy Consumption	**115 VAC**	**230 VAC**	**100 VAC**
Normal Operation	21.64 W	22.10 W	21.01 W
Sleep (ENERGY STAR® low power mode)	1.70 W	1.78 W	1.69 W
Off	1.26 W	1.24 W	1.28 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 model.

Heat Dissipation	**115 VAC**	**230 VAC**	**100 VAC**
	74 BTU/hr	76 BTU/hr	72 BTU/hr
	6 BTU/hr	6 BTU/hr	6 BTU/hr
	4 BTU/hr	4 BTU/hr	4 BTU/hr

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

Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)	Sound Power (LWAd, bels)	Sound Pressure (LpAm, decibels)
	3.4	22
	3.4	22

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

Batteries used in the product do not contain:
Mercury greater the1ppm by weight
Cadmium greater than 20ppm by weight

Battery size: CR2032 (coin cell)
Battery type: Lithium

Additional Information

- This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2002/95/EC.
- This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive - 2002/96/EC.
- This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986).
- This product is in compliance with the IEEE 1680 (EPEAT) standard at the Gold where HP registers

Technical Specifications – Environmental Data

commercial desktop products. See http://www.epeat.net for registration status in your country.
- Plastics parts weighing over 25 grams used in the product are marked per ISO 11469 and ISO1043.
- This product contains 36.9% post-consumer recycled plastic (by wt.)
- This product is 97.6% recyclable when properly disposed of at end of life.

Packaging Materials
- External:
  - PAPER/Corrugated 1516 g
  - PAPER/Paper 94 g
- Internal:
  - PLASTIC/EPE - Expanded Polyethylene 533 g
  - PLASTIC/Polyethylene high density 39 g
  - The PAPER/Cardboard packing material is made from 100% recycled content.
  - The PAPER/PAPER packing material is made from 100% recycled content.
  - The PLASTIC/EPE- Expanded Polyethylene packing material contains at least 5% recycled content.
  - The PLASTIC/Polyethylene high density packing material contains at least 5% recycled content.

RoHS Compliance

Hewlett-Packard is committed to compliance with all applicable environmental laws and regulations, including the European Union Restriction of Hazardous Substances (RoHS) Directive. HP's goal is to exceed compliance obligations by meeting the requirements of the RoHS Directive on a worldwide basis. By July 1, 2006, RoHS substances will be virtually eliminated (virtually = to levels below legal limits) for all HP electronic products subject to the RoHS Directive, except where it is widely recognized that there is no technically feasible alternative (as indicated by an exemption under the EU RoHS Directive).

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/supplychain/gen_specifications.html):

- Asbestos
- Certain Azo Colorants
- Certain Brominated Flame Retardants - may not be used as flame retardants in plastics
- Cadmium
- Chlorinated Hydrocarbons
- Chlorinated Paraffins
- Formaldehyde
- Halogenated Diphenyl Methanes
- Lead carbonates and sulfates
- Lead and Lead compounds
- Mercuric Oxide Batteries
- Nickel - finishes must not be used on the external surface designed to be frequently handled or carried by the user.
- Ozone Depleting Substances
- Polybrominated Biphenyls (PBBs)
- Polybrominated Biphenyl Ethers (PBBEs)
- Polybrominated Biphenyl Oxides (PBBOs)
- Polychlorinated Biphenyl (PCB)
- Polychlorinated Terphenyls (PCT)
- Polyvinyl Chloride (PVC) - except for wires and cables, and certain retail packaging has been voluntarily removed from most applications.
- Radioactive Substances
- Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)

Packaging

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

Technical Specifications – Environmental Data

- 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://www.hp.com/hpinfo/globalcitizenship/environment/productdesign/ecolabels.html ISO 14001 certificates: http://www.hp.com/hpinfo/globalcitizenship/environment/operations/envmanagement.html

Options and Accessories (sold separately)

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
HP DisplayPort To HDMI Adapter	BP937AA
HP DisplayPort To VGA Adapter	AS615AA

Options and Accessories (sold separately)

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