Overview

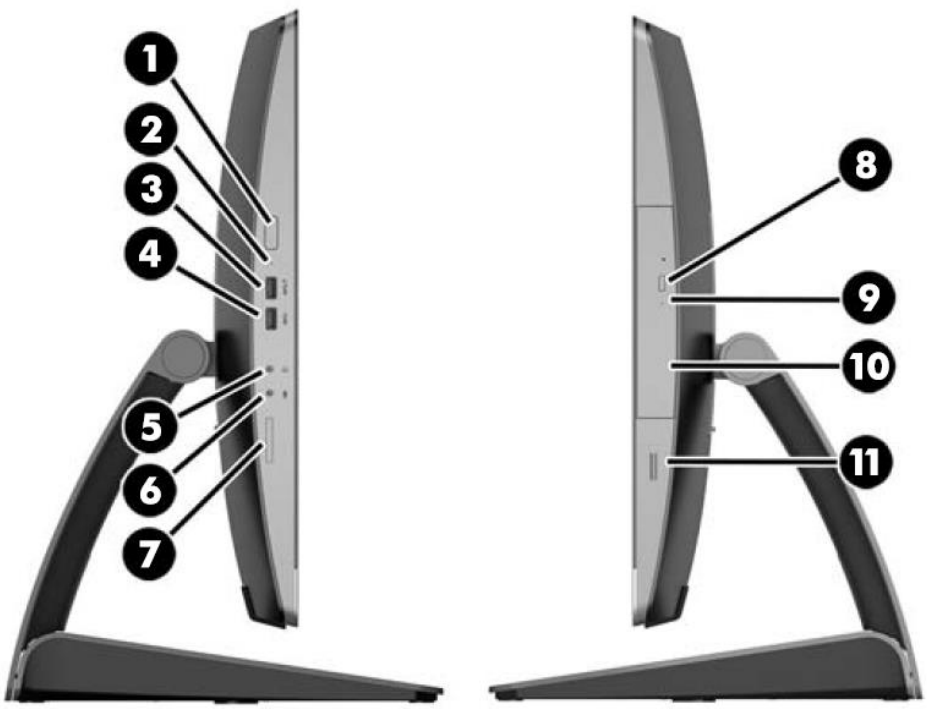
HP EliteOne 705 G2 All-in-One Business PC (23-inch Touch)

FRONT

1. Dual microphone array (with webcam)
2. Webcam activity LED (with webcam)
3. Webcam privacy shutter slide switch (with optional webcam)
4. Webcam (standard but deselectable)
5. 23” 16:9 widescreen LED-backlit LCD display with projected capacitive touch panel
6. High performance stereo speakers with Bang & Olufsen Audio (standard but deselectable)

Overview

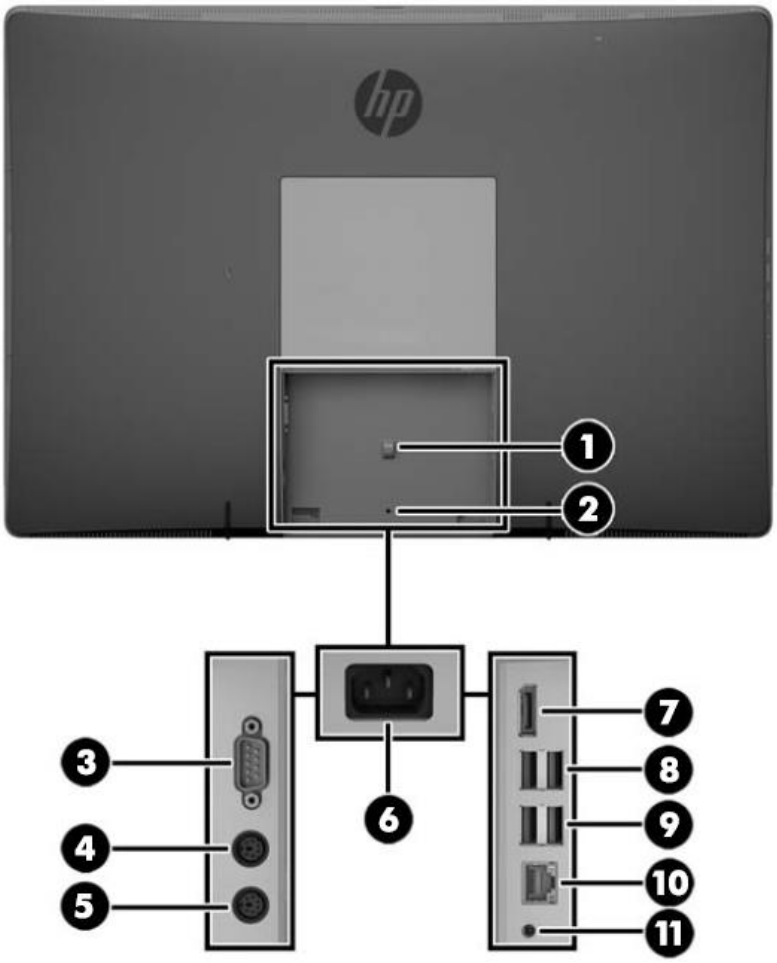
HP EliteOne 705 G2 All-in-One Business PC (23-inch Touch)



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

Overview

HP EliteOne 705 G2 All-in-One Business PC (23-inch Touch)



REAR/PORTS (BEHIND SECURITY COVER)

1. Power cable retention loop
2. Port cover security screw hole
3. Serial port (optional)
4. PS/2 keyboard connector (optional)
5. PS/2 mouse connector (optional)
6. Power connector
7. DisplayPort connector
8. (2) USB 3.0 ports
9. (2) USB 2.0 ports with wake-up functionality
10. RJ-45 Gigabit Ethernet port
11. Stereo audio line out jack

AT A GLANCE

Overview

- Windows 10, Windows 8.1, Windows 7, FreeDOS 2.0
- UEFI BIOS developed and engineered by HP for better security, manageability and software image stability
- 23”-diagonal non-glare LCD panel, 16:9 format, 1920x1080 resolution, IPS, 10-point capacitive touch
- Landscape or portrait display orientation – with adjustable height stand or VESA mount
- Can be configured with no stand, easel stand, adjustable height stand, or recline stand
- AMD® A78 FCH chipset
- AMD® A-Series Business-Class APUs
- AMD® DASH 1.1 Technology available
- Integrated AMD® Graphics
- Integrated Broadcom NetXtreme Gigabit Ethernet Plus Gigabit Network Connection
- Optional wireless connectivity:
  - Intel® 802.11ac with/without Bluetooth® 4.0
  - Broadcom 802.11 a/b/g/n with/without Bluetooth® 4.0
- Optional Integrated 2.0 MP Full HD Webcam & Dual Microphone Array
- Integrated fingerprint reader
- Audio by Bang & Olufsen utilizing DTS Studio Sound™ *
- Up to 16 GB of DDR3 SDRAM, dual channel memory support, two SODIMM slots
- Up to 3 storage drives: (2) SATA, (1) Turbo Drive M.2. PCIe SSD
- RAID support on dual SATA drive configurations (supported on SATA drives only)
- Up to 1TB Solid State Hybrid Drive, 1 TB SATA Hard Drive, 500 GB SATA Self-Encrypting Opal 2 Hard Drive, 512 GB SATA Solid State Drive, 256 GB SATA Self-Encrypting Opal 2 Solid State Drive, 500 GB FIPS 140-2 Self-Encrypting Hard Drive, and 256 GB Turbo Drive G2 SSD
- Optional 9.5mm Tray-load DVD-ROM, SuperMulti DVD Writer, or BDXL Blu-ray Writer Optical Disc Drive
- Optional SD 4 Card Reader
- Optional serial port
- DisplayPort 1.2 out
- Integrated VESA 100 x 100 mounting holes
- Lockable rear access panel with intrusion sensor
- ENERGY STAR® certified. EPEAT® registered where applicable/supported. See www.epeat.net for registration status by country.
- Optimized for Skype for Business
- TCO AiO and TCO Edge
- Low halogen
- Arsenic-free
- Protected by HP Customer Support, including limited warranties up to 3-3-3 (terms and conditions vary by country; certain restrictions and exclusions apply)

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

* For DTS patents, see http://patents.dts.com. Manufactured under li
together are registered trademarks, and DTS Studio Sound is a trademark o

Standard Features and Configurable Components

CHIPSET

AMD® A78 FCH

PROCESSORS

AMD® Quad-Core PRO A10 APU with AMD Radeon™ R7 HD Graphics*

AMD® Quad-Core PRO A10 -8750B Accelerated Processor with AMD® Radeon™ R7 Series
Up to 4.0 GHz Max. Boost Frequency (3.6 GHz base frequency)
4 MB L2 cache, 4 cores, 8 Graphics Core Next Cores
Discrete-Class Graphics
Supports DDR3L memory up to 1600 MT/s data rate
Supports AMD® DASH 1.1 Technologies

AMD® Quad-Core PRO A8 APU with AMD Radeon™ R7 HD Graphics*

AMD® Quad-Core PRO A8 -8650B Accelerated Processor with AMD® Radeon™ R7 Series
Up to 3.9 GHz Max. Boost Frequency (3.2 GHz base frequency)
4 MB L2 cache, 4 cores, 6 Graphics Core Next Cores
Discrete-Class Graphics
Supports DDR3L memory up to 1600 MT/s data rate
Supports AMD® DASH 1.1 Technologies

AMD® Dual-Core PRO A6 APU with AMD® Radeon™ R5 HD Graphics*

AMD® Dual-Core PRO A6 – 8550B Accelerated Processor with AMD® Radeon™ R5 Graphics
Up to 4.0 GHz Max. Boost Frequency (3.7 GHz base frequency)
1 MB L2 cache, 2 cores, 4 Graphics Core Next Cores
Discrete-Class Graphics
Supports DDR3L memory up to 1600 MT/s data rate
Supports AMD® DASH 1.1 Technologies

AMD® Dual-Core PRO A4 APU with AMD® Radeon™ R5 HD Graphics*

AMD® Dual-Core PRO A4– 8350B Accelerated Processor with AMD® Radeon™ R5 Graphics
Up to 3.9 GHz Max. Boost Frequency (3.5 GHz base frequency)
1 MB L2 cache, 2 cores, 4 Graphics Core Next Cores
Discrete-Class Graphics
Supports DDR3L memory up to 1600 MT/s data rate
Supports AMD® DASH 1.1 Technologies

*Multi-Core is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. 64-bit computing system required. Performance and clock frequency will vary depending on application workload and your hardware and software configurations. AMD's numbering is not a measurement of clock speed.

Standard Features and Configurable Components

GRAPHICS

System Integrated Graphics

AMD® Radeon™ HD Graphics (integrated on processor)

Graphics controller	AMD® Processor Graphics
DisplayPort	Display Port 1.2 multi-stream (supports three additional external displays)[1]
Memory	Up to 1.8GB DDR3 Note: Maximum memory capacities assume Windows 64-bit operating systems or Linux. With Windows 32-bit operating systems, memory above 3 GB may not all be available due to system resource requirements.
Supported Graphics APIs	DX12, OpenGL 4.0, OpenCL 1.2, full 1080p Blu-Ray Disc (H264) playback in hardware

SMBIOS

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

DISPLAY

Touch

23"-diagonal IPS widescreen WLED backlit anti-glare LCD Panel with 10-point capacitive touch; orientation designed to operate in portrait or landscape

Display Panel	Type	IPS WLED Backlit LCD
	Viewable image area (mm)	509.18 x 286.42
	Screen opening (mm)	510.6 x 287.6
	Native Resolution (HxV)	1920 x 1080
	Aspect ratio	16:9
	Pixel pitch (HxV)(mm)	0.265 x 0.265
	Contrast ratio (typical)	1000:1
	Brightness (typical)	250 nits (cd/m2 on non-touch model)
	Viewing angle (typical) (HxV)	178 ° x 178 °
	Backlight lamp life (to half brightness)	30,000 hours minimum
	Color support	Over 16 million colors
	Color gamut (typical)	72%
	Anti-glare	Yes (non-touch model only)
	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.	
Easel Stand	Tilt Angle	+10° to +70° (±3°)

[1] Using the Integrated Graphics, three (3) external displays are supported via one of these methods:
1) DisplayPort multi-stream monitors 'daisy-chained' together or
2) DisplayPort multi-stream hub – hub requires power through power cable provided. DisplayPort multi-stream hub provides 4 DisplayPort ports, adapters are required for support of DVI, VGA or HDMI displays.

Standard Features and Configurable Components

Adjustable Height Stand:	Vertical/Landscape Adjustment	125 mm (±3 mm)
	Portrait Adjustment	34 mm (±3 mm)
	Tilt Angle	-5° to +20°(±3°) in landscape and portrait
	Rotation	360° swivel and portrait or landscape orientation
Recline Stand:	Vertical Adjustment	25 mm (±3 mm)
	Tilt Angle	-5° to +65° (+/-3°), low position +24° to +65° (+/-3°)
	Recline Angle	Low position sliding height adjustment => -5° to +60°
	Rotation	360° swivel

WEBCAM & MIC

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

STORAGE*

2.5 inch 7.2k RPM Hard Disk Drives
1TB SATA (projected availability December, 2015)
1TB SATA 2nd* (projected availability December, 2015)
500GB SATA
500GB SATA 2nd

PCIe Cards
HP 256GB Turbo Drive SSD-M.2 PCIe Card
HP 128GB Turbo Drive SSD-M.2 PCIe Card

2.5 inch Solid State Drives (SSD)
512GB SATA TLC SSD
512GB SATA TLC SSD 2nd
256GB SATA SSD
256GB SATA SSD 2nd
256GB SATA TLC SSD
256GB SATA TLC SSD 2nd
180GB SATA (Intel® Pro 2500)
180GB SATA (Intel® Pro 2500) 2nd
128GB SATA SSD
128GB SATA SSD 2nd
128GB SATA TLC SSD
128GB SATA TLC SSD 2nd
120GB SATA SSD (Intel® Pro 2500)
120GB SATA SSD (Intel® Pro 2500) 2nd

2.5 inch Self-encrypting Solid State Drives (SED)
256GB SATA Opal2 SED SSD
256GB SATA Opal2 SED SSD 2nd
180GB SATA Opal2 SED SSD (Intel® Pro 2500)
180GB SATA Opal2 SED SSD (Intel® Pro 2500) 2nd
128GB SATA Opal2 SED SSD
128GB SATA Opal2 SED SSD 2nd
120GB SATA Opal2 SED SSD (Intel® Pro 2500)
120GB SATA Opal2 SED SSD (Intel® Pro 2500) 2nd

2.5 inch Solid State Hybrid Drives (SSHD)
1TB SATA 6G 2.5 8G SSHD
1TB SATA 2.5 8G SSHD 2nd
500GB SATA 6G 2.5 8G SSHD
500GB SATA 6G 2.5 8G SSHD 2nd

Removable HDD
HP 9.5mm Slim Removable SATA 500GB (projected availability December, 2015)

*NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and 36 GB (for Windows 8.1/10) of system disk is reserved for the system recovery software.

Optical Disc Drive
HP 9.5mm EliteOne AIO 705/800 G2 Slim DVD-ROM Drive
HP 9.5mm EliteOne AIO 705/800 G2 Slim SuperMulti DVD Writer Drive
HP 9.5mm EliteOne AIO 705/800 G2 Slim SATA BDXL Blu-Ray Writer

SD Card Reader (optional)*
SD 4 Card Reader (Supports Secure Digital (SD, SDXC, SDHC, UHS-I, UHS-II))
*Card sold separately

MEMORY*

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

Maximum
16 GB

# of Slots
2
204-pin supporting dual-channel memory
Maximized dual-channel performance requires SODIMMs of the same size and speed in both memory slots.

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

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

NETWORKING/COMMUNICATIONS

Ethernet (RJ-45)
Integrated Broadcom NetXtreme Gigabit Ethernet Plus Gigabit Network Connection

Wireless LAN (optional)*
Broadcom BCM943228Z 802.11a/b/g/n with Bluetooth M.2 PCIe card
Up to 300 Mbps data rate
Bluetooth 4.0 compliant
Works with a wide range of Bluetooth devices

Broadcom BCM943228Z 802.11a/b/g/n M.2 PCIe card
Up to 300 Mbps data rate

Intel® 802.11 ac wireless 7265 M.2 PCIe minicard with Bluetooth Combo
Up to 300 Mbps data rate
Bluetooth 4.0 compliant
Works with a wide range of Bluetooth devices

Intel® 802.11 ac wireless 7265 M.2 PCIe minicard
Up to 300 Mbps data rate

Intel® 802.11 a/b/g/n wireless 7265 M.2 PCIe minicard with Bluetooth Combo
Up to 300 Mbps data rate
Bluetooth 4.0 compliant
Works with a wide range of Bluetooth devices

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

AUDIO/MULTIMEDIA

DTS Studio Sound™

Clear Sound Amp

High performance integrated Bang & Olufsen stereo speakers

Function keys available on slim keyboard models

Stereo headphone jack

Side Headphone/Microphone/Line-In (function is configurable by audio driver; re-task able to provide Headphone, Microphone, or Line-In)

Stereo line out

Integrated 2.0 MP webcam (up to 30 frames/sec) & dual microphone array (optional)

KEYBOARDS AND POINTING DEVICES

Keyboards

HP Conferencing Keyboard
HP USB PS/2 Washable Keyboard
HP USB Smart Card (CCID) Keyboard
HP USB Business Slim Keyboard*
HP PS/2 Business Slim Keyboard*
HP PS/2 Keyboard

Mice

HP USB Mouse
HP USB 1000dpi Laser Mouse
HP PS/2 Mouse
HP USB PS/2 Washable Mouse

Combo

HP Wireless Business Slim Keyboard and Mouse*

Other

HP Mouse Pad
*Projected availability, October 2015

Regional/Country Specific

HP USB Antimicrobial Keybard (China only)
HP USB Grey Keyboard (EMEA only)
HP USB Grey Smart Card (CCID) Keyboard (EMEA only)
HP USB Grey Mouse (EMEA only)

HP BIOSphere

HP BIOS

Key features of the HP BIOS include:

- Deployment and manageability – HP BIOS provides several technologies that help integrate the HP Elite 800 G2 Business PC into the enterprise, such as PXE, remote configuration, remote control, and F10 Setup support for 12 languages.
- Update your BIOS via the cloud or standardize on a BIOS version hosted on Enterprise network.
- 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.
- UEFI specification 2.1

- Absolute Persistence agent – For tracking and tracing services, available in select countries, separate software and purchase of a subscription is required.
- Thermal and power management – The HP BIOS provides and enables thermal and power management technologies so component temperatures are managed for high reliability and to assist in operating the HP Business Desktop computer in any enterprise environment.
- Acoustic performance – Industry leading acoustic emissions across the range of operating conditions.
- Serviceability – HP BIOS provides diagnostic and detailed service information.
- Upgrades and recovery – HP BIOS provides numerous ways to upgrade HP Business Desktop computers, including BIOS updates from within DOS (DOSFlash), BIOS updates from within Windows (HPQFlash), HP Client Manager, and fail-safe recovery. In addition, the HP Business Desktop BIOS Utilities tool enables replicated BIOS setup throughout the Enterprise; it is available from within the BIOS software and from the support website.
- HP BIOS uses PKI signing of the BIOS for trusted BIOS upgrades and recovery..

Additional HP BIOS Features

- Power-On password – Helps prevent an unauthorized user from powering on the system.
- Administrator password – Also known as the setup password, this helps prevent unauthorized changes to the system configuration. If the administrator password is not known, the BIOS 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.

Sure Start (not available on all systems)

- BIOS Integrity checking – Sure Start protection ensures that only trusted BIOS code is executed and not rootkits, viruses and malware. Verification is done upon boot up, shutdown and while On.
- Sure Start is set by default to automatically repair the BIOS if corrupted or compromised but is policy driven for better manageability.
- Protecting beyond BIOS – Integrity checking and repair is extended to other data that should be protected such as network configuration parameters (network name), platform specific information (i.e. system IDs) and other code the system needs to boot.
- Audit enabled – System Audit via Sure Start Event Logs capture data such as incident, repair date and time for troubleshooting and investigating.

SECURITY

Trusted Platform Module, SLB9660TT1.2FW4.40 (TPM) 1.2 (Common Criteria EAL4+ certified)

SATA port disablement (via BIOS)

Drive lock

RAID configurations (1 TB and 500 GB 7200 rpm HDD; 256 GB SSD)

Serial, USB enable/disable (via BIOS)

Optional USB Port Disable at factory (user configurable via BIOS)

Removable media write/boot control

Power-On password (via BIOS)

Setup password (via BIOS)

Hood Sensor
Support for chassis cable lock devices

POWER

Internal 160W, up to 90% efficient, active PFC
100-240V AC

High Efficiency	160W active PFC
	87/90/87% efficient at 20/50/100% load (100/115V)
	88/91/88% efficient at 20/50/100% load (230V)
Operating Voltage Range	90 - 264 VAC
Rated Voltage Range	100 - 240 VAC
Rated Line Frequency	50/60 Hz
Operating Line Frequency	47 – 63 Hz
Rated Input Current	2A
Rated Input Current with Energy Efficient* Power Supply	2A
Current Leakage (NFPA 99: 2102)	Less than 500 micro amps of leakage current at 120 Vac with the ground wire disconnected, as required for Non-patient Electrical Appliances and Equipment used in a patient care facility or that contact patients in normal use. Per section 10.3.5.1. Less than 100 micro amps of leakage current at 120 Vac with the ground wire intact with normal polarity, as required for Non-patient Electrical Appliances and Equipment used in a patient care facility or that contact patients in normal use. Per section 10.3.5.1.
Power Supply Fan	N/A
Power cord length	6.0 ft. (1.83 m)

SOFTWARE COMPONENTS AND APPLICATIONS WITH WINDOWS

OPERATING SYSTEMS

Preinstalled

Windows 10 Pro 64*
Windows 10 Home 64*
Windows 8.1 Pro 64*
Windows 8.1 64*
Windows 7 Professional 64 (available through downgrade rights from Windows 10 Pro)**
Windows 7 Professional 32 (available through downgrade rights from Windows 10 Pro)**
Windows 7 Professional 64*
Windows 7 Professional 32*

Pre-installed (Other)
FreeDOS 2.0

Web-supported
Windows 10 Pro 64
Windows 10 Home 64
Windows 8.1 Pro 64
Windows 8.1 64
Windows 7 Professional 64
Windows 7 Professional 32
Windows 10 Enterprise 64
Windows 8.1 Enterprise 64
Windows 7 Enterprise 64
Windows 7 Enterprise 32

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

**This system is preinstalled with Windows 7 Pro software and also comes with a license and media for Windows 10 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.

SOFTWARE AND SECURITY

BIOS

HP BIOSphere with Sure Start[1]
HP DriveLock
HP BIOS Protection[2]
BIOS Update via Network
Master Boot Record Security
Power On Authentication
Pre-Boot Security
Secure Erase[3]
Hybrid Boot (Windows 8.1 only)

Measured Boot (Windows 8.1 only)
Secure Boot (Windows 8.1 only)
Absolute Persistence Module[4]

Multimedia

Cyberlink Power DVD, BD
Cyberlink Power2Go (Secure Burn)
Cyberlink YouCam BE (Windows 7 only)
HP Noise Reduction Software

Communication

Native Miracast Support [7]

HP Value Add Software

HP ePrint Driver [8]
HP Recovery Disc Creator
HP Recovery Manager
HP Support Assistant
HP Pixel Sharp

3rd Party

Foxit PhantomPDF Express for HP (US only)

Microsoft Products

Buy Office
Bing Search
Skype

Manageability

HP Driver Packs [9]
HP SoftPaq Download Manager (SDM)
HP System Software Manager (SSM) [9]
HP BIOS Config Utility (BCU) [9]
HP Client Catalog [9]
HP CIK for Microsoft SCCM [9]
LANDESK Management[10]

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

Client Security Software

HP Drive Encryption [11]
HP Security Manager
Microsoft Security Essentials (Windows 7 only)[13]

Microsoft Defender (Windows 8.1 only)

Standard

TPM 1.2/2.0
Smart Card Reader
Security lock slot
Preboot Authentication

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

Footnotes:

[1] Available only on business PCs with HP BIOS.

[2] May require a manual recovery step if all copies of BIOS are compromised or deleted.

[3] For the methods outlined in the National Institute of Standards and Technology Special Publication 800-88.

[4] 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.

[7] Miracast is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming media players that also support Miracast. You can use Miracast to share what you're doing on your PC and present a slide show. Miracast is available for Windows 8.1 and Windows 10. For more information: http://windows.microsoft.com/en-us/windows-8/project-wireless-screen-miracast

[8] 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 http://www.hp.com/go/eprintcenter).

[9] Not preinstalled, however available on manageability website.

[10] Subscription required.

[11] 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] Opt in and internet connection required for updates.

AMD® DASH CAPABLE

The DASH standards are designed to assist in the remote management of common desktop infrastructure tasks, such as deploying new operating systems, monitoring of computer system health, power control and power state monitoring, and asset inventory collection. As new hardware technologies are introduced or additional requirements are placed on the IT infrastructure, DASH will continue to evolve to include new functionality.

DASH has been designed to solve many of the pitfalls and constraints of previous management standards by leveraging well-proven technologies from the Service Oriented Architecture domain, advancements in security standards, and extensive modeling of management components, configuration data and relationships first introduced in the server management domain.

DASH is a web services-based management protocol and relies on security and network routing concepts familiar to web site and web services administrators.

Key Features

- Service availability without the requirement of an installed operating system and/or system power states
- Interoperability between various DASH-capable device implementations and management consoles
- Descriptive data model allowing for the discovery of iterative specification updates (new profiles) or vendor-specific extensions (custom profiles)
- Well understood transport level security (HTTPS basic and digest authentication models with optional TLS client/server certificate support)
- Secured setup with support for multiple DASH users and multiple access roles (administrator, operator, auditor)
- Forward POST logs to specified destination
- Monitor and inventory the HW of the managed clients

Management Profiles
A management profile is a specification that defines a normative set of behaviors and characteristics for addressing a particular management domain.

A profile consists of the following information:

- A data model representing the problem domain that consists of objects, properties and methods exposed by the profile
- Use cases to be addressed by the profile
- Steps required to traverse the data model and derive results

When a substantive block of new profiles become available, or fundamental changes are introduced to the DASH ecosystem, the DASH Implementation Requirements document is updated to reflect a new version of the standard. Profiles are continually being developed by the DMTF and DASH is designed to support them as they become available.

AMD® STANDARD MANAGEABILITY

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

Includes DASH 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

Standard Features and Configurable Components

Feature	DMTF Specification(s)
Alert Standard Format (ASF 2.0)	DSP0136
DASH Implementation Requirements	DSP0232
System inventory and control	DSP1058, DSP1033, DSP1029, DSP1027, DSP1026, DSP1023, DSP1022, DSP1015, DSP1013, DSP1012, DSP1011
Boot control	DSP1012
User account management	DSP1034, DSP1039
BIOS management	DSP1061
Offline mailboxes/Opaque management data	DSP1070
Indications	DSP1054
In-band NIC management	DSP1014
Sensors	DSP1009
Text console redirection (+Telnet and SSHv2)	DSP1024
Broadcom defined SMBIOS Extensions for Sensors	DSP0134
MCTP / SMBus	DSP0236, DSP0237, DSP0239
PLDM	DSP0240, DSP0241, DSP0245
PLDM for SMBIOS Data Transfer	DSP0246
PLDM for BIOS Control and Configuration	DSP0247
PLDM Numeric Sensors	DSP0248
WMI provider for Ethernet port & SW inventory	DSP1014, DSP1023
WMI provider for User account Mgmt	DSP1034, DSP1039
WMI provider for firmware update	DSP1025
USB redirection (storage media; read only)	DSP1077
Power State management or Power Control (including graceful shutdown	DSP1027
Event logging	DSP1010, DSP8007
Record log audit or security log	DSP1010
WMI provider for Opaque Mgmt data	DSP1070
PLDM Platform Event Messages	DSP0248
Service Processor	DSP1018
Physical Computer System View	in progress

ENVIRONMENTAL & INDUSTRY

ENERGY STAR® certified models available

EPEAT® registered where applicable. *

* EPEAT registration varies by country. See http://www.epeat.net for registration status by country.

Industry standard certifications:

UL
CSA
FCC compliance
ENERGY STAR® certified
EPEAT® Gold*
EUP Lot 3 Tier 2
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.

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

WEIGHTS & DIMENSIONS

Weight

Product Weight *Unboxed Base Model [kg/lb]* *(without Webcam & ODD module& serial kit & Finger printer)*	Without stand 16.95-17.39 lbs 7.69-7.89 kg	Easel stand 18.48-18.92 lbs 8.38-8.58 kg	Reclining stand 23.72-24.17 lbs 10.76-10.96 kg	Adjustable height stand 25.34-25.78 lbs 11.49-11.69 kg
Shipping Weight *Box*	Without stand 21.87 lbs 9.92kg	Easel stand 23.36 lbs 10.6 kg	Reclining stand 29.42 lbs 13.35 kg	Adjustable height stand 31.04 lbs 14.08 kg
Shipping Weight *Pallet*	Without stand (32 units) 732.4 lbs 332.21 kg	Easel stand (32units) 780.74 lbs 354 kg	Reclining stand (15 units) 474.38 lbs 215 kg	Adjustable Height stand (15 units) 498.65 lbs 226 kg

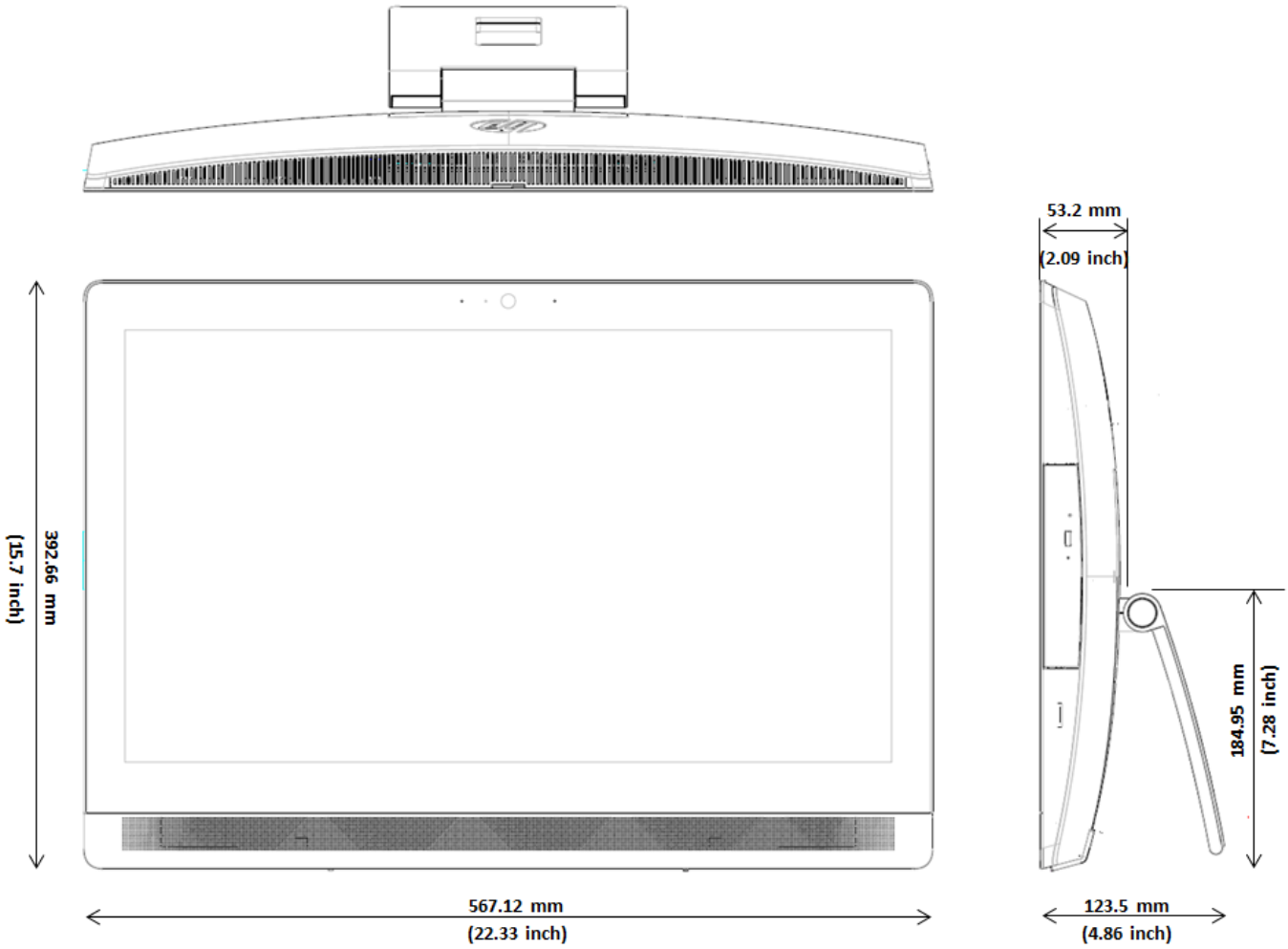
Dimensions (W x D x H)

Product Dimensions	Without stand 22.33x15.7x2.3 in 567.12x392.66x58.56 mm	Easel stand 22.33x15.7x4.83 in 567.12x392.66x122.66 mm	Reclining stand (maximum) 22.33x17.38x10.96 in 567.12x441.51x278.36 mm	Adjustable Height (maximum) 22.33x21.38x8.27 in 567.12 x 543.08 x209.95 mm
			Reclining stand (minimum) 22.33x16.08x11.17 in 567.12x408.37x283.76 mm	Adjustable Height (minimum) 22.33x16.79x8.27 in 567.12x416.52x209.95 mm

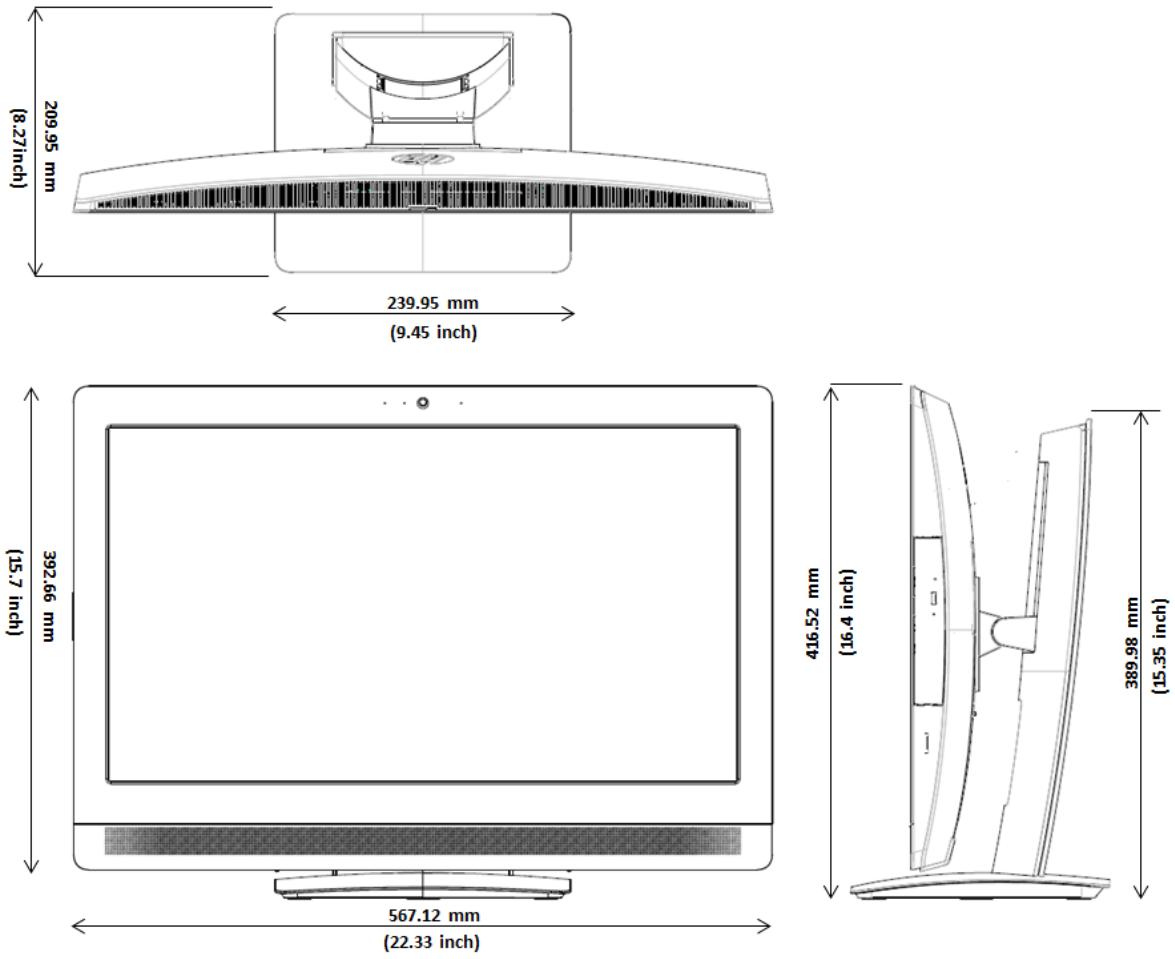
Shipping Dimensions

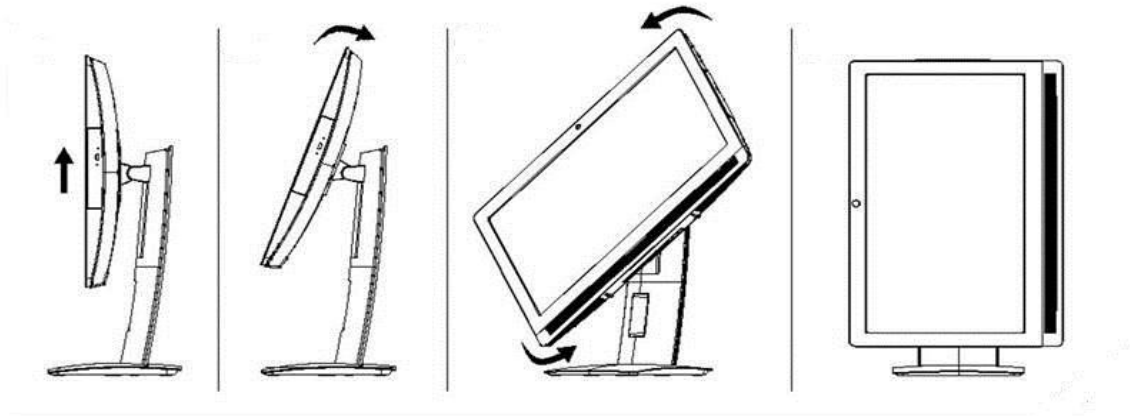
Shipping Dimensions *Boxed*	Without stand 26.22*6.96*19.88(H) in 666*177*505(H) mm	Easel stand 26.22*6.96*19.88(H) in 666*177*505(H) mm	Reclining stand 26.33*11.53*20.78(H) in 669*293*528(H) mm	Adjustable Height 26.33*11.53*20.78(H) in 669*293*528(H) mm
Shipping Dimensions *Pallet*	Without stand (32 units) 48*40*85.23(H) in 1219*1016*2165(H) mm	Easel stand(32 units) 48*40*85.23(H) in 1219*1016*2165(H) mm	Reclining stand (15 units) 48*40*67.95(H) in 1219*1016*1729(H) mm	Adjustable Height (15 units) 48*40*67.95(H) in 1219*1016*1729(H) mm

EASEL STAND DIMENSIONS

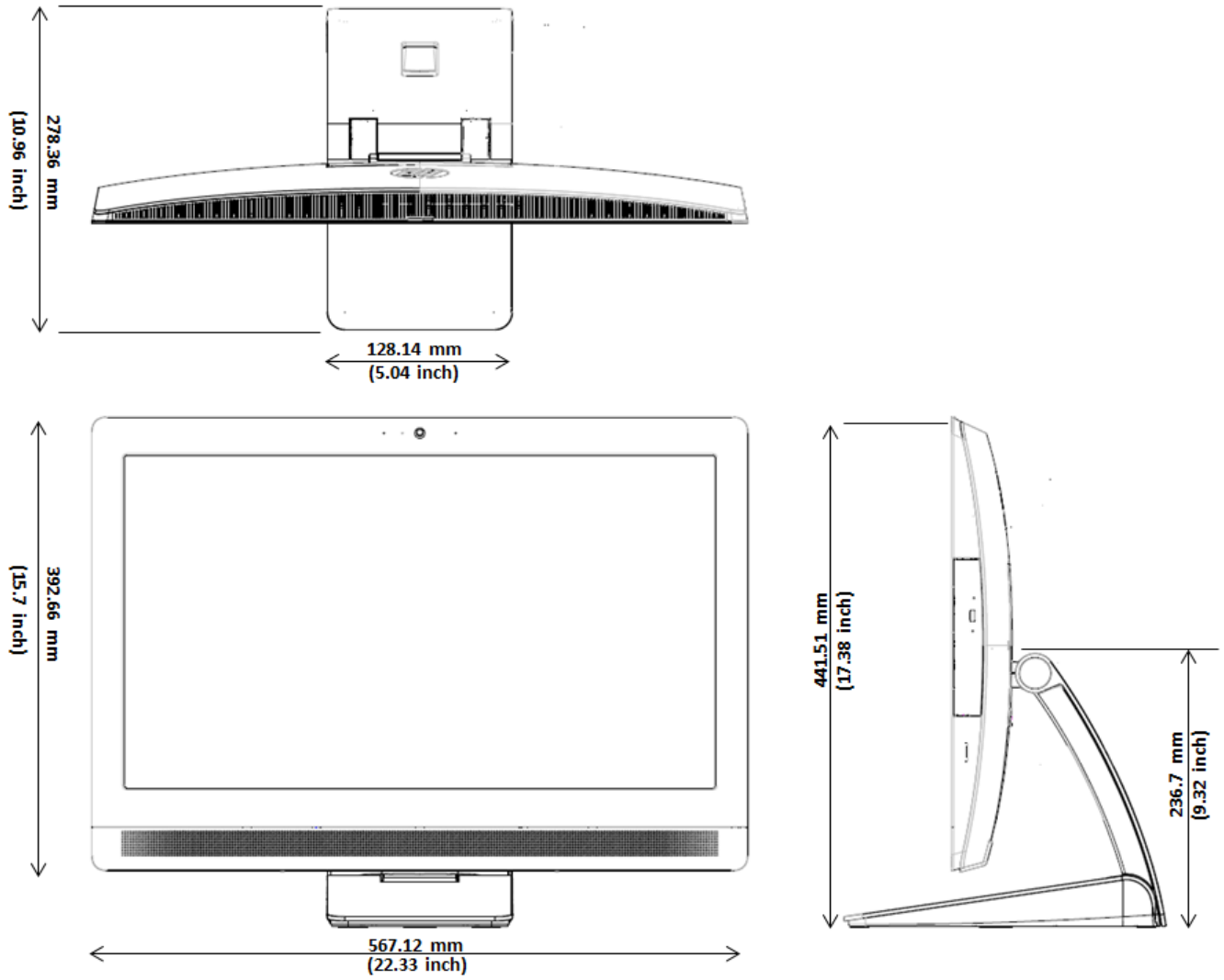


ADJUSTABLE HEIGHT STAND DIMENSIONS

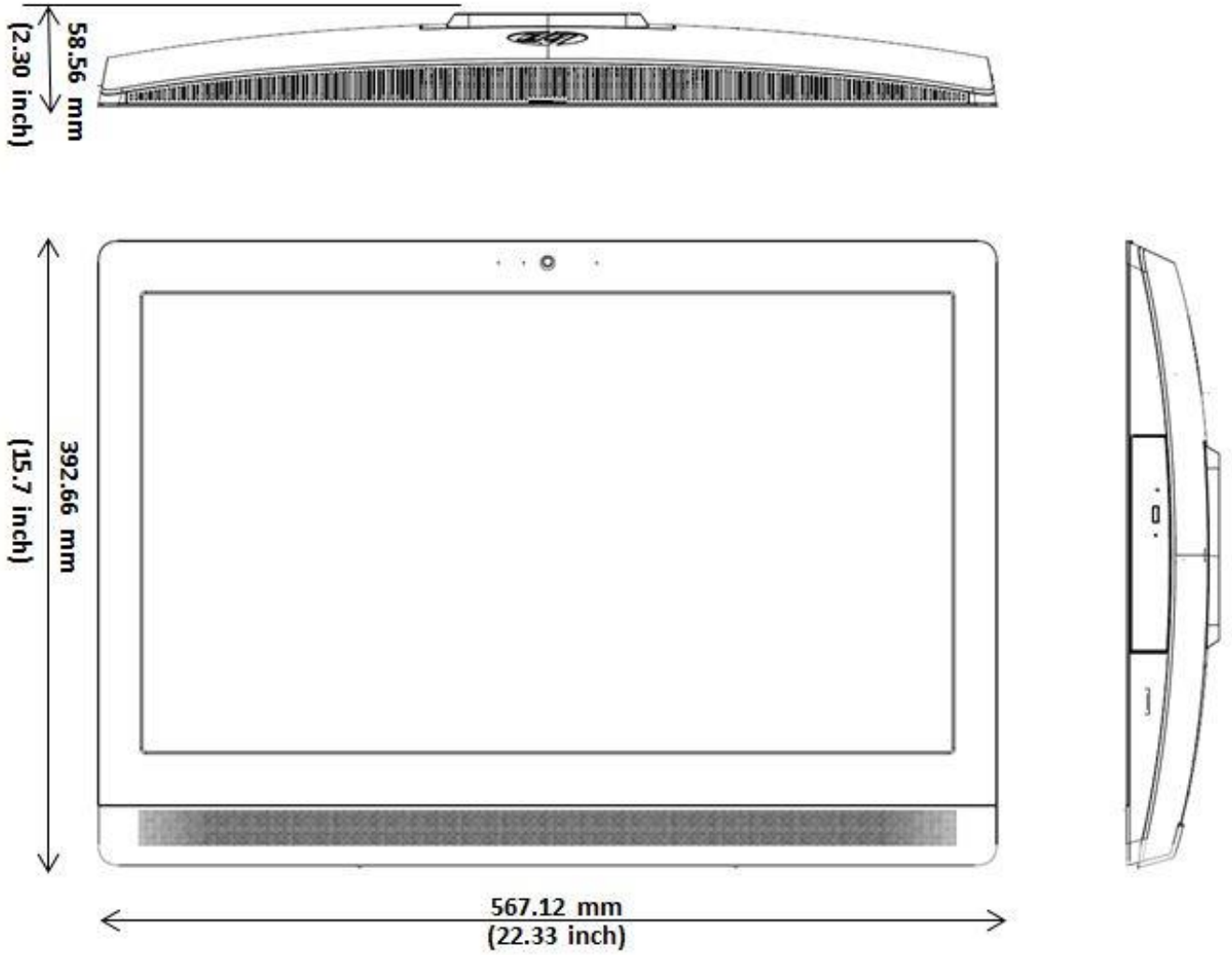




RECLINE STAND DIMENSIONS



NON-STAND DIMENSIONS



TEMPERATURE, HUMIDITY, ALTITUDE

Standard Features and Configurable Components

Temperature	Operating	50° to 95° F (10° to 35° C)*
	Non-operating	–22° to 140° F(–30° to 60° C)
Relative humidity	Operating	10% to 90% (non-condensing at ambient)
	Non-operating	5% to 95% (non-condensing at ambient)
Altitude (unpressurized)	Operating	10,000 ft (3048 m)
	Non-operating	30,000 ft (9144 m)

PORTS

I/O Ports - Standard

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

USB Fast Charging Port:

- Up to 2.5A charging current (5 times the maximum current supported by a USB 2.0 port; 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 – USB 2.0 (rear, keyboard wake-capable)

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

1 – Microphone in (side)

1 – Headphone jack (side)

1 – Optional Serial RS-232 (rear)

1 – Stereo audio line out (rear)

1 – Power connector (rear)

1 – RJ-45 (rear)

1 – DisplayPort 1.2 supporting up to three (3) external displays

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

SLOTS

1 – M.2 PCIe x1 (used by wireless LAN module)

1 – M.2 PCIe x4 (used by Turbo Drive SSD)

BAYS

2 – 2.5" internal; supports up to two – 2.5" drives (HDD/SSD/SED/SSHD)

1 – 9.5mm external; slim optical drive

1- SD 4 card reader

SERVICE AND SUPPORT

On-site Limited 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 an optional HP Care Pack. To choose the right level of service for your HP product, visit HP Care Pack Central[4]: http://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.
NOTE 4: Service levels and response times for HP Care Packs may vary depending on your geographic location. Service starts on date of hardware purchase. Restrictions and limitations apply. For details, visit www.hp.com/go/cpc. HP services are governed by the applicable HP terms and conditions of service provided or indicated to Customer at the time of purchase. Customer may have additional statutory rights according to applicable local laws, and such rights are not in any way affected by the HP terms and conditions of service or the HP Limited Warranty provided with your HP Product.

GRAPHICS

Integrated AMD® HD Graphics

VGA Controller **Integrated**

DisplayPort

- DP++
- DisplayPort audio:
  - Linear PCM, Dolby Digital (AC-3), Dolby® TrueHD, Bang & Olufsen Audio
  - LPCM at sample rates: 32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz, 176.4 kHz, and 192 kHz, Bits per sample: 16, 20, and 24
  - Supports up to 8 channels
- 4, 2, or 1-lane transmission
- 5.4 Gbps (HBR2), 2.7 Gbps, and 1.62 Gbps link bit rates
- DisplayPort Multi-Stream Transport (MST) for up to four independent video and audio streams on one connector
- Maximum resolution of 4096 x 2160 at 30 Hz and 24 bpp (single stream)
  - Supports 2560 x 1600 at 60 Hz (single stream)
  - Support for tiled displays with resolution of up to 4096 x 2160 at 60 Hz DisplayPort 1.2 MST

Supports stereoscopic 3D gaming, Blu-ray 3D, and stereoscopic 3D video for 120-Hz frame sequential monitors

Memory Allocated at system startup and configurable using F10 setup with values of 128MB, 256MB, 512MB and 1024MB. Additional memory that is not in use by the host will be dynamically allocated and will vary depending on the total installed system memory.

Maximum Graphics Memory	Microsoft Windows 7	Windows 8.1
	Variable*	Variable*

* Actual amount of maximum graphics memory can vary depending on the amount of installed system memory

Maximum Color Depth 32 bits/pixel, 8-bits per color component

Graphics/Video API Support

- Discrete-level graphics processor embedded alongside the x86 CPU complex
- Dedicated graphics memory controller

AMD® Eyefinity
AMD® Eyefinity support for up to four displays when at least two displays are operating with DisplayPort 1.2 multi-streaming.

Power Management

- AMD® PowerPlay™ power management technology
  - Dynamic power gating for GPU, UVD, VCE, GFX, DCE, and Graphics Memory Controller (GMC)
- Dynamic refresh rate supported with digital panels that support this feature
- Dynamic refresh rate
- Frame Buffer Compression
- Panel Self-Refresh

3D Acceleration Features
DirectX® 11.1 compliant, including full speed 32-bit floating point per component operations:

- Shader Model 5 geometry and pixel support in a unified shader architecture
  - Graphics Core Next (GCN) architecture

  - Advanced shader instructions, including flexible flow control with CPU-level flexibility on branching
  - Read/Write caching system, replacing texture cache with a unified read-write two-level cache
  - Vertex, pixel, geometry, compute, domain, and hull shaders
  - 32-bit and 64-bit floating point processing per component
  - High performance dynamic branching and flow control
  - Shader instruction store, using an advanced caching system
  - Advanced shader design, with ultra-threading sequencer for high efficiency operations
  - Advanced, high performance branching support, including static and dynamic branching
  - High dynamic range rendering with floating point blending, texture filtering, and anti-aliasing support
  - 16-bit and 32-bit floating point components for high dynamic range computations
  - Full anti-aliasing on render surfaces up to and including 128-bit floating point formats
- Support for OpenCL™ 1.2, DirectCompute 11 and Microsoft C++ AMP
- Support for OpenGL 4.1/4.1+

Motion Video Acceleration Features

- Supports DVD, Blu-ray, and SDTV/HDTV content playback with low CPU usage
- Supports stereoscopic 3D Blu-ray
- Video compression engine:
  - Dedicated hardware (VCE 2.0) assisted encoding of HD video streams to H.264 (main profile)
  - Support H.264 SVC temporal scalability
  - Real-time transcoding by encoding the output from UVD with reduction of CPU utilization and power consumption
- Motion video decode acceleration technology:
  - Dedicated hardware (UVD) for H.264, MPEG4, VC-1, MVC, and MPEG2 decode:
    - H.264 implementation based on the ISO/IEC 14496-10 specification
    - MPEG**6** implementation based on the ISO/IEC 14496-2 specification
    - VC-1 implementation based on the SMPTE 421M specification
    - MPEG2 implementation based on the ISO 13818-2 specification
    - Multi View Coding (MVC) for Blu-ray 3D content
    - WMV-9 implementation
  - Real time high-definition and standard definition stream decode
  - Real time dual high-definition stream decode

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 EliteOne 705 G2 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:** For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and 36 GB (for Windows 8.1) of system disk is reserved for the system recovery software.

HP 128 GB Turbo Drive SSD-M.2 PCIe Card*		
Unformatted Capacity	128 GB*	
Interface	M.2 PCIe x4 Gen 2	
Architecture	Solid State Drive M.2 PCIe Gen 2 x4 AHCI; NCQ Command Set	
Form Factor	M.2 2280	
Dimensions (Width x Length x Thickness)	.899 x 3.149 x .146 in (22 x 80 x 3.73 mm)	
Weight	0.017 lb (8 g) Max	
Bandwidth Performance - Performance measured using IOMeter 2008 on Windows 8 64bit. Actual performance may vary depending on use conditions and environment.	Sustained Sequential Read (128KB):	Up to 920 MB/ss
	Sustained Sequential Write (128KB):	Up to 430 MB/s
	Random Read (4KB):	up to 8500 IOPs
	Random Write (4KB):	up to 32000 IOPs
Power	Allowable voltage	3.3V ± 5%
	Total power consumption:	5.8 W (Active) ; 80 mW; (Idle)
MTBF	1.5 M 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
Regulations	Safety TUV UL CB c-UL-us	TUV
		UL CB
		c-UL-us
		TUV
	EMC/EMI	CE (EU)
		BSMI (Taiwan)
		KCC (South Korea)
		VCCI (Japan)

		C-Tick (Austrailia)
		FCC (USA)
*For Solid State Drives (SSD), GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and up to 36 GB (for Windows 8 and 10) is reserved for system recovery software.		

HP 256 GB Turbo Drive SSD-M.2 PCIe Card*			
Formatted Capacity	256 GB		
Architecture	Solid State Drive M.2 PCIe Gen 2 x4 AHCI; NCQ Command Set		
Interface	M.2 PCIe Gen 2 x4		
Form Factor	M.2 2280		
Height	7 mm ± 0.20		
Width	.8 mm ± 0.08		
Length	50 mm ± 0.15		
Weight (typical)	Up to 10 g		
Data Transfer Rate (128k Sequential)	Sequential Read	Up to 2150 MB/s	
	Sequential Write	Up to 1200 MB/s	
Power Watts	Power consumption (avg):	Power-Up: N/A Read: 4 W Write: 5.1 W Standby: 700 mW Idle: 70 mW	
Environmental (all conditions, non-condensing)	Operating Temperature:		32° to 158° F (0° to 70° C)
	Relative Humidity:		5% to 95%
	Shock (Linear 2 m/Sec half-sine):		1000 G peak (operating)
*For Solid State Drives (SSD), GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and up to 36 GB (for Windows 8 and 10) is reserved for system recovery software.			

120 GB SATA 2.5" Non-SED SSD*			
Unformatted Capacity	120 GB		
Architecture	Multi-Level Cell (MLC) NAND		
Interface	Serial ATA 3.0 (6.0 Gb/s)		
Form Factor	2.5 inch		
Height	Low profile, 7mm height		
Width	69.85 mm ± 0.25		
Length	100.45 mm max		
Weight	Up to 78 g		
Bandwidth Performance	Sustained Sequential Read:	Up to 540 MB/s	
	Sustained Sequential Write:	Up to 480 MB/s	
Power	Power consumption:	Average: Read <3.7W; Write 3.7W; Standby <55mW	
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 ms
*For Solid State Drives (SSD), GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and up to 36 GB (for Windows 8 and 10) is reserved for system recovery software.			

120 GB SATA 2.5" Opal2 SED Solid State Drive (Pro 2500)*	
Unformatted Capacity	120 GB 234,441,648 (Total Logical Sectors)

Technical Specifications – Hard Disk and Solid State Storage

Architecture	ATA 8 Compliant and SATA 3.0 compliant Supports Mode 2 Multiword DMA Supports Drive Failure Prediction Supports SMART Offline Read Scan Supports Mode 4 PIO Supports Mode 5 UDMA Supports HP Drive Protection System ATA 8 ACS-2 Data / TRIM Support Support DEVSLP feature Supports TRIM Command per ATA8 / ACS 2 Supports FIPS-197 features Support TCG Storage Architecture Core Specification 2.0		
Interface	Serial ATA 3.0 (6.0 Gb/s)		
Form Factor	2.5 inch		
Height	Low profile, 7mm height		
Width	69.85 mm ± 0.25		
Length	100.45 mm max		
Weight	Up to 78 g		
Bandwidth Performance	Sustained Sequential Read:	Up to 540 MB/s	
	Sustained Sequential Write:	Up to 480 MB/s	
Power	Power consumption:	Average: Read <3.7W; Write 3.7W; Standby <55mW	
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 ms
*For Solid State Drives (SSD), GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and up to 36 GB (for Windows 8 and 10) is reserved for system recovery software.		

128 GB SATA 2.5" Opal2 SED Solid State Drive*		
Unformatted Capacity	128 GB 250,069,680 (User Addressable Sectors)	
Architecture	Self-Encrypting (SED) Solid State Drive with NAND Flash and SATA interface. Trusted Computing Group(TCG) OPAL compliant encrypted solid state drive	
Interface	Serial ATA (6.0 Gb/s)	
Form Factor	2.5 inch	
Height	6.80 mm ± 0.20	
Width	69.85 mm ± 0.25	
Length	100.20 mm ± 0.25	
Weight	Up to 73 g	
Bandwidth Performance	Sustained Sequential Read:	Up to 520 MB/s
	Sustained Sequential Write:	Up to 340 MB/s
Power	Power consumption:	Active: 0.78A / 3.891W; Idle: 0.005A / 0.026W
Mean Time Between Failure (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:	1,500 G/0.5 ms
*For Solid State Drives (SSD), GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and up to 36 GB (for Windows 8 and 10) is reserved for system recovery software.		

HP 128 GB 2.5" (non-SED) Solid State Drive*		
Unformatted Capacity	128 GB*	
Architecture	Multi Level Cell (MLC) NAND	
Interface	SATA 6 GB/sec	
Dimensions (W x H x D)	2.75 x 0.276 x 3.96 in (6.985 x 0.7 x 10.05 cm)	
Weight	0.16 lb (73 g)	
Bandwidth Performance	Sustained Sequential Read:	Up to 450 MB/ss
	Sustained Sequential Write:	Up to 260 MB/s
	Random Read (4KB):	up to 46K IOPs
	Random Write (4KB):	up to 56K IOPs
Latency	Read:	55ms (TYP)
	Write:	55ms (TYP)
Power	DC power requirement:	Min 4.5 V; Max 5.5 V
	Total power consumption:	160 mW (Active) ; <85 mW; (Idle)
Useful Drive Life	1.2 million device hours**	
Environmental (all conditions, non-condensing)	Operating Temperature:	32° to 158° F (0° to 70° C)
	Relative Humidity (operating):	5% to 95%
	Shock:	1,500 G/1.0 msec
Regulations	UL, CSA, EN 60950-2000, CISPR Pub 22 Class B, CNS 13438, AS/NZS CISPR 22:2002 Class B, Korea KCC, CE Mark	
*For Solid State Drives (SSD), GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and up to 36 GB (for Windows 8 and 10) is reserved for system recovery software.		

128 GB SATA 2.5" TLC Solid State Drive*	
Formatted Capacity	128 GB

Technical Specifications – Hard Disk and Solid State Storage

Architecture	Solid State Drive with SATA interface; ATA 8 Compliant and SATA 3.2 compliant		
Interface	Serial ATA 3 (6.0 Gb/s)		
Form Factor	2.5 inch		
Height	7 mm ± 0.20		
Width	69.85 mm ± 0.25		
Length	100.2 mm ± 0.25		
Weight (typical)	36.5 g (+2)		
Data Transfer Rate (128k Sequential)	Sequential Read	Up to 500 MB/s	
	Sequential Write	Up to 300 MB/s	
Power Watts	Power consumption (avg):	Read: 95 mW Write: 95 mW Standby: 70 mW DEVSLP: <7 mW	
Environmental (all conditions, non-condensing)	Operating Temperature:		32° to 158° F (0° to 70° C)
	Relative Humidity:		5% to 95%
	Shock (2 m Sec half-sine):		1500 G peak 0.5ms (operating)
*For Solid State Drives (SSD), GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and up to 36 GB (for Windows 8 and 10) is reserved for system recovery software.			

Intel® Pro 2500 180 GB Solid State Drive*	
Unformatted Capacity	180 GB*
Architecture	Multi Level Cell (MLC) NAND
Interface	SATA 3.0 (6.0 Gb/s)
Dimensions (W x H x D)	6.98 x 0.7 x 10.05 cm

Technical Specifications – Hard Disk and Solid State Storage

Weight	78 g	
Bandwidth Performance	Sustained Sequential Read:	Up to 540 MB/s
	Sustained Sequential Write:	Up to 490 MB/s
	Random Read (4KB):	up to 41K IOPs
	Random Write (4KB):	up to 80K IOPs
Latency	Read:	80 us
	Write:	85 us
Power	DC power requirement:	5 VDC 5%-100 mV ripple p-p
	Total power consumption:	195 mW (Active); 55 mW (Idle)
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 (operating):	5% to 95%
*For Solid State Drives (SSD), GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and up to 36 GB (for Windows 8 and 10) is reserved for system recovery software.		

180 GB SATA Opal2 SED SSD (Intel® Pro 2500)*	
Formatted Capacity	180 GB
Architecture	Solid State Drive with SATA interface; ATA 8 Compliant and SATA 3.0 compliant
Interface	Serial ATA 3 (6.0 Gb/s)
Form Factor	2.5 inch
Height	7 mm ± 0.5
Width	69.85 mm ± 0.25
Length	100.45 mm Max

Technical Specifications – Hard Disk and Solid State Storage

Weight (typical)	Up to 78 g		
Data Transfer Rate (128k Sequential)	Sequential Read	Up to 540 MB/s	
	Sequential Write	Up to 490 MB/s	
Power Watts	Power consumption (avg):	Power-Up: 6W (max) Read: <3.7W Write: 3.7W Standby: <55mW DEVSLP: <7mW	
Environmental (all conditions, non-condensing)	Operating Temperature:		32° to 158° F (0° to 70° C)
	Relative Humidity:		5% to 95%
	Shock:		1500 G Max - operating (operating)
*For Solid State Drives (SSD), GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and up to 36 GB (for Windows 8 and 10) is reserved for system recovery software.			

HP 1 TB 7.2K SATA 6.0Gb/s 2.5" 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:	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 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	41° to 131° F (5° to 55° C)	

*For Solid State Drives (SSD), GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and up to 36 GB (for Windows 8 and 10) is reserved for system recovery software.

256 GB SATA 2.5" Opal2 SED Solid State Drive*			
Unformatted Capacity	256 GB 500,118,192 (User Addressable Sectors)		
Architecture	Self-Encrypting (SED) Solid State Drive with NAND Flash and SATA interface. Trusted Computing Group(TCG) OPAL compliant encrypted solid state drive		
Interface	Serial ATA (6.0 Gb/s)		
Form Factor	2.5 inch		
Height	6.80 mm ± 0.20		
Width	69.85 mm ± 0.25		
Length	100.20 mm ± 0.25		
Weight	Up to 73 g		
Bandwidth Performance	Sustained Sequential Read:	Up to 520 MB/s	
	Sustained Sequential Write:	Up to 460 MB/s	
Power	Power consumption:	Active: 3.891W; Idle: 0.085W	
Mean Time Between Failure (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:		1,500 G/0.5 ms
*For Solid State Drives (SSD), GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and up to 36 GB (for Windows 8 and 10) is reserved for system recovery software.			

256 GB SATA (non-SED) Solid State Drive*		
Unformatted Capacity	256 GB*	
Architecture	Three storage layers: • Volatile cache - DDR DRAM cache • nCache™ - A non-volatile flash write cache • Mass storage – MLC NAND flash	
Form Factor	SATA 2.5”	
Dimensions (Width x Length x Thickness)	2.75 x 3.95 x .27 in (69.85 x 100.5 x 7 mm)	
Weight	0.08 lb (36.5 g)	
Bandwidth Performance	Sustained Sequential Read:	Up to 515 MB/ss
	Sustained Sequential Write:	Up to 465 MB/s
	Random Read (4KB):	up to 8500 IOPs
	Random Write (4KB):	up to 22000 IOPs
Latency	Read:	60ms (TYP)
	Write:	65ms (TYP)
Power	DC power requirement:	5V ± 5%
Useful Drive Life	Up to 2 million device hours**	
Environmental (all conditions, non-condensing)	Operating Temperature:	32° to 158° F (0° to 70° C)
	Relative Humidity (operating):	5% to 85%
	Shock:	1,500 G/0.5 ms
Regulations	FCC Part 15 Class B, IECS-003 Class B, EN 55022 Class B, EN 55024, KCC No. 2008-39, KCC No. 2008-38, CNS 13438 2006 (full version), VCCI: VCCI rules and regulations (latest rev), AS/NZS CISPR 22: 2009	
*For Solid State Drives (SSD), GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and up to 36 GB (for Windows 8 and 10) is reserved for system recovery software.		

256 GB SATA 2.5" TLC Solid State Drive*			
Formatted Capacity	256 GB		
Architecture	Solid State Drive with SATA interface; ATA 8 Compliant and SATA 2.6 compliant		
Interface	Serial ATA 3 (6.0 Gb/s)		
Form Factor	2.5 inch		
Height	7 mm ± 0.20		
Width	69.85 mm ± 0.25		
Length	100.2 mm ± 0.25		
Weight (typical)	36.5 g (+2)		
Data Transfer Rate (128k Sequential)	Sequential Read	Up to 500 MB/s	
	Sequential Write	Up to 455 MB/s	
Power Watts	Power consumption (avg):	Read: 95 mW Write: 95 mW Standby: 70 mW DEVSLP: <7 mW	
Environmental (all conditions, non-condensing)	Operating Temperature:		32° to 158° F (0° to 70° C)
	Relative Humidity:		5% to 95%
	Shock (2 m Sec half-sine):		1500 G peak 0.5ms (operating)
*For Solid State Drives (SSD), GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and up to 36 GB (for Windows 8 and 10) is reserved for system recovery software.			

HP 500 GB 7.2K SATA 6.0Gb/s 2.5" Hard Disk Drive	
Capacity	500,107,862,016 bytes

Technical Specifications – Hard Disk and Solid State Storage

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)	0.267 in/6.8 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 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	41° to 131° F (5° to 55° C)	
*For Solid State Drives (SSD), GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and up to 36 GB (for Windows 8 and 10) is reserved for system recovery software.		

512 GB SATA 2.5" TLC Solid State Drive*		
Formatted Capacity	512 GB	
Architecture	Solid State Drive with SATA interface; ATA 8 Compliant and SATA 2.6 compliant	
Interface	Serial ATA 3 (6.0 Gb/s)	
Form Factor	2.5 inch	
Height	7 mm ± 0.20	
Width	69.85 mm ± 0.25	
Length	100.2 mm ± 0.25	
Weight (typical)	56 g (+2)	
Data Transfer Rate (128k Sequential)	Sequential Read	Up to 502 MB/s
	Sequential Write	Up to 455 MB/s
Power Watts	Power consumption (avg):	Power-Up: 7500 mW Read: 2500 mW Write: 3900 mW Standby: 70 mW DEVSLP: <7 mW

Environmental (all conditions, non-condensing)	Operating Temperature:	32° to 158° F (0° to 70° C)
	Relative Humidity:	5% to 95%
	Shock (0.5 mSec half-sine):	1000 G peak (operating)
*For Solid State Drives (SSD), GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and up to 36 GB (for Windows 8 and 10) is reserved for system recovery software.		

HP 9.5mm EliteOne AIO 705/800 G2 Slim SuperMulti DVD Writer Drive		
Height	9.5 mm height	
Orientation	Either horizontal or vertical	
Interface type	SATA/ATAPI	
Disc recording capacity	Up to 8.5 GB DL or 4.7 GB standard	
Dimensions (W x H x D)	5.04 x 0.37 x 5.0 in (128 x 9.5 x 127 mm) without bezel	
Weight (max)	0.31 lb (140 g)	
Write speeds	DVD-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 10X
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)

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

HP 9.5mm EliteOne AIO 705/800 G2 Slim DVD-ROM Drive		
Height	9.5mm	
Orientation	Either horizontal or vertical	
Interface type	SATA/ATAPI	
Dimensions (W x H x D)	5.04 x 0.37 x 5.0 in (128 x 9.5 x 127 mm) without bezel	
Weight (max)	Up to 0.31 lb (140g) without bezel	
Read speeds	DVD+R/-R/+RW/ -RW/+R DL /-R DL	Up to 8X
	DVD-ROM	Up to 8X
	CD-ROM, CD-R	Up to 24X
	CD-RW	Up to 24X
Access time (typical reads, including settling)	Random	DVD-ROM: 170 ms (typical), CD-ROM: 170 ms (typical)
	Full Stroke	DVD-ROM: 320 ms (typical), CD-ROM: 320 ms (typical)
Power	Source	Slimline SATA DC power receptacle
	DC Power Requirement	5 VDC ± 5%-100 mV ripple p-p
	DC Current	5 VDC - <1000 mA typical, < 1600 mA maximum
Environmental (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)

HP 9.5mm EliteOne AIO 705/800 G2 Slim SATA BDXL Blu-Ray Writer	
Height	9.5mm height
Orientation	Either horizontal or vertical
Interface type	SATA/ATAPI
Disc recording capacity	Up to 128 GB QL, 100 GB TL, 50 GB DL or 25 GB standard SL
Dimensions (W x H x D)	5.04 x 0.37 x 5.0 in (128 x 9.5 x 127 mm) without bezel
Weight (max)	Up to 0.29 lb (132g) 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 10X	
	(This should be for read speeds)	**Triple-layer**	**Quadruple-layer**
	BD-R	Up to 6X	Up to 6X
	BD-RE	Up to 4X	Not supported
		Single-layer	**Double-layer**
	BD-ROM	Up to 6X	Up to 6X
	BD-R	Up to 6X	Up to 6X
Read speeds	BD-RE	Up to 6X	Up to 6X
	DVD-ROM	Up to 8X	Up to 8X
	DVD-R	Up to 8X	Up to 8X
	DVD-RW	Up to 8X	
	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 24X/10X (Read/Play)	
	Random	BD-ROM: 205 ms (typical), DVD-ROM: 185 ms (typical), CD-ROM: 165 ms (typical)	

Technical Specifications – Removable Storage

Access time (typical reads, including settling)	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)

*Duplication of copyrighted material is strictly prohibited. Actual speeds may vary. Double Layer media compatibility will widely vary with some home DVD players and DVD-ROM drives. Note that DVD-RAM cannot read or write to 2.6GB Single Sided/5.2 Double Sided-Version 1.0 Media.

System Memory Support

The HP EliteOne 705 G2 All-in-One Business PC supports the AMD® PRO A-Series processor family. Based on a new PC micro-architecture, the processor is designed for a two-chip platform consisting of a processor and Fusion Controller Hub (FCH). 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)
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

Broadcom NetXtreme Gigabit Ethernet Plus (integrated)	
Connector	RJ-45
System Interface	Integrated on PCA
Controller	Broadcom BCM5762 GbE
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

Intel® 7265 802.11ac 2x2 DualBand Combo PCIe x1 Card*		
	Wireless LAN Standards	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac
	Interoperability	Wi-Fi certified
	Frequency Band	802.11b/g/n • 2.402 – 2.482 GHz Note: The FCC has declared as of January 1, 2015 products that utilize passive scanning on channel 12/13 and are capable of transmitting must fully comply with requirements of 15.247 or otherwise disable those channels. 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 Note: Indonesia no support this band)
	Data Rates	• 802.11b: 1, 2, 5.5, 11 Mbps • 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz) • 802.11ac : MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, and 80MHz)
	Modulation	Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM
	Security[1]	• IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only • AES-CCMP: 128 bit in hardware • 802.1x authentication • WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES. • WPA2 certification • IEEE 802.11i • Cisco Certified Extensions, all versions through CCX4 and CCX Lite • WAPI
	Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
	Roaming	IEEE 802.11 compliant roaming between access points
	Output Power[2]	• 802.11b : +16dBm minimum • 802.11g : +14dBm minimum • 802.11a : +14dBm minimum • 802.11n HT20(2.4GHz) : +13dBm minimum • 802.11n HT40(2.4GHz) : +13dBm minimum • 802.11n HT20(5GHz) : +12dBm minimum • 802.11n HT40(5GHz) : +12dBm minimum • 802.11ac 80MHz(5GHz) : +11dBm minimum
	Power Consumption	Transmit: 2.0 W (max) Receive: 1.6 W (max) Idle mode (PSP): 180 mW (WLAN Associated) Idle mode: 60 mW (WLAN unassociated) Radio disabled: 30 mW
	Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
	Receiver Sensitivity[3]	802.11b, 1Mbps : -94dBm maximum 802.11b, 11Mbps : -86dBm maximum 802.11g, 6Mbps : -88dBm maximum 802.11g, 54Mbps : -74dBm maximum 802.11a, 6Mbps : -86dBm maximum 802.11a, 54Mbps : -72dBm maximum 802.11n, MCS07 : -69dBm maximum 802.11n, MCS15 : -66dBm maximum 802.11ac, 1SS, MCS-0 : -86dBm maximum

		802.11ac, 1SS, MCS-9 : -61dBm maximum 802.11ac, 2SS, MCS-0 : -83dBm maximum 802.11ac, 2SS, MCS-9 : -58dBm maximum	
	Antenna type	High efficiency antenna with spatial diversity, mounted in the display enclosure Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth communications	
	Form Factor	PCI-Express M.2 MiniCard	
	Dimensions	Type 2230 : 2.3 x 22.0 x 30.0 mm Or Type 1630 : 2.3 x 16.0 x 30.0 mm	
	Weight	Type 2230 : 2.8g Or Type 1630 : 2g	
	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 95% (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	

1. Check latest software/driver release for updates on supported security features.
2. Maximum output power may vary by country according to local regulations.
3. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).

HP Integrated Module with Bluetooth® 4.0+EDR Wireless Technology		
Bluetooth Specification	4.0+EDR Compliant	
Frequency Band	2402 to 2480 MHz	
Number of Available Channels	79 (1 MHz) available channels	
Data Rates and Throughput	3 Mbps data rate; throughput up to 2.17 Mbps	
	Synchronous Connection Oriented links up to 3, 64 kbps, voice channels	
	Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric or 1306.9 kbps symmetric	
Transmit Power	The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of +4 dBm for BR and EDR.	
Receiver Sensitivity	**Modulation**	**0.01% BER** / **0.001% BER**
	GFSK	-80 dBm / -70 dBm
	π/4-DQPSK	-80 dBm / -70 dBm
	8DPSK	-80 dBm / -70 dBm
Power Consumption	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW	
Range	Up to 33 ft (10 m)	
Electrical Interface	USB 2.0 compliant	
Bluetooth Software Supported Link Topology	Microsoft Windows Bluetooth Software	
Electrical Interface	Point to Point, Multipoint Pico Nets up to 7 slaves	

	Bluetooth Software Supported Security	Full support of Bluetooth Security Provisions
	Power Management **Power Management Certifications**	Microsoft Windows ACPI, and USB Bus Support
		Self-configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff
	Security	All necessary regulatory approvals for supported countries, including:
	Certifications **Bluetooth Profiles Supported**	FCC (47 CFR) Part 15C, Section 15.247 & 15.249
	Power Management Certifications	ETS 300 328, ETS 300 826
		Low Voltage Directive IEC950
	Certifications **Bluetooth Profiles Supported**	UL, CSA, and CE Mark
		Serial Port Profile (SPP)[1] Service Discovery Application Profile (SDAP) Dial-Up Networking (DUN)[1,2] Generic Object Exchange Profile (GOEP)[1,2] Object Push Profile (OPP)[1,2] File Transfer Profile (FTP) Synchronization Profile (SYNC) Hard Copy Cable Replacement (HCRP)[1,2] Personal Area Networking Profile (PAN)[1,2] Human Interface Device Profile (HID)[1,2] FAX Profile (FAX) Basic Imaging Profile (BIP)[2] Headset Profile (HSP) Hands Free Profile (HFP) Advanced Audio Distribution Profile (A2DP)
*Wireless access point and internet access required. The specifications for the 802.11ac WLAN are draft specifications and are not final. If the final specifications differ from the draft specifications, it may affect the ability of the notebook to communicate with other 802.11ac WLAN devices.		

Broadcom BCM943228Z 802.11n 2x2 DualBand Combo PCIe x1 Card*		
	Wireless LAN Standards	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n
	Interoperability	Wi-Fi certified
	Frequency Band	802.11b/g/n • 2.402 – 2.482 GHz Note: The FCC has declared as of January 1, 2015 products that utilize passive scanning on channel 12/13 and are capable of transmitting must fully comply with requirements of 15.247 or otherwise disable those channels.
		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 Note: Indonesia no support this band)
	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[1]	• 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
	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]	• 802.11b : +16dBm minimum • 802.11g : +14dBm minimum • 802.11a : +14dBm minimum • 802.11n HT20(2.4GHz) : +13dBm minimum • 802.11n HT40(2.4GHz) : +13dBm minimum • 802.11n HT20(5GHz) : +12dBm minimum • 802.11n HT40(5GHz) : +12dBm minimum
	Power Consumption	Transmit: 2.0 W (max) Receive: 1.6 W (max) Idle mode (PSP): 180 mW (WLAN Associated) Idle mode: 60 mW (WLAN unassociated) Radio disabled: 30 mW
	Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
	Receiver Sensitivity[4]	802.11b, 1Mbps : -94dBm maximum 802.11b, 11Mbps : -86dBm maximum 802.11g, 6Mbps : -88dBm maximum 802.11g, 54Mbps : -74dBm maximum 802.11a, 6Mbps : -86dBm maximum 802.11a, 54Mbps : -72dBm maximum 802.11n, MCS07 : -69dBm maximum 802.11n, MCS15 : -66dBm maximum
	Antenna type	High efficiency antenna with spatial diversity, mounted in the display enclosure

		Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO and Bluetooth communications	
	Form Factor	PCI-Express M.2 MiniCard	
	Dimensions	Type 2230 : 2.3 x 22.0 x 30.0 mm Or Type 1630 : 2.3 x 16.0 x 30.0 mm	
	Weight	Type 2230 : 2.8g Or Type 1630 : 2g	
	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 95% (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	
	1. Check latest software/driver release for updates on supported security features. 2. Maximum output power may vary by country according to local regulations. 3. In Power Save Polling mode and on battery power. 4. 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). 5. 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.		
	HP Integrated Module with Bluetooth 4.0+EDR Wireless Technology		
	Bluetooth Specification	4.0+EDR Compliant	
	Frequency Band	2402 to 2480 MHz	
	Number of Available Channels	79 (1 MHz) available channels	
	Data Rates and Throughput	3 Mbps data rate; throughput up to 2.17 Mbps	
		Synchronous Connection Oriented links up to 3, 64 kbps, voice channels	
		Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric or 1306.9 kbps symmetric	
	Transmit Power	The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of +4 dBm for BR and EDR.	
	Receiver Sensitivity	**Modulation** / **0.01% BER** / **0.001% BER** GFSK / -80 dBm / -70 dBm π/4-DQPSK / -80 dBm / -70 dBm 8DPSK / -80 dBm / -70 dBm	
	Power Consumption	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW	
	Range	Up to 33 ft (10 m)	
	Electrical Interface	USB 2.0 compliant	
	Bluetooth Software Supported Link Topology	Microsoft Windows Bluetooth Software	

	Electrical Interface **Bluetooth Software Supported** **Security**	Point to Point, Multipoint Pico Nets up to 7 slaves Full support of Bluetooth Security Provisions
	Power Management **Power Management** **Certifications**	Microsoft Windows ACPI, and USB Bus Support Self-configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff
	Security	All necessary regulatory approvals for supported countries, including:
	Certifications **Bluetooth Profiles Supported**	FCC (47 CFR) Part 15C, Section 15.247 & 15.249
	Power Management **Certifications**	ETS 300 328, ETS 300 826 Low Voltage Directive IEC950
	Certifications **Bluetooth Profiles Supported**	UL, CSA, and CE Mark Serial Port Profile (SPP)[1] Service Discovery Application Profile (SDAP) Dial-Up Networking (DUN)[1,2] Generic Object Exchange Profile (GOEP)[1,2] Object Push Profile (OPP)[1,2] File Transfer Profile (FTP) Synchronization Profile (SYNC) Hard Copy Cable Replacement (HCRP)[1,2] Personal Area Networking Profile (PAN)[1,2] Human Interface Device Profile (HID)[1,2] FAX Profile (FAX) Basic Imaging Profile (BIP)[2] Headset Profile (HSP) Hands Free Profile (HFP) Advanced Audio Distribution Profile (A2DP)
*Wireless access point and internet access required. The specifications for the 802.11ac WLAN are draft specifications and are not final. If the final specifications differ from the draft specifications, it may affect the ability of the notebook to communicate with other 802.11ac WLAN devices.		

High Definition Audio	
Type	Integrated
HD Stereo Codec	Clear Sound Amp
Ports	Side Headphone
	Side Headphone/Microphone/Line-In (function is configurable by audio driver; re-task able to provide Headphone, Microphone, or Line-In)
	Rear Line-Out
	All ports are 3.5mm
Internal Speaker Amplifier	2W amplifier for the internal speaker only. External speakers must be powered externally.
Multi-streaming Capable	Multi-streaming can be enabled in the DTS control panel
Sampling	44.1 kHz - 192 kHz
Wavetable Syntheses	Yes – Uses OS soft wavetable
Analog Audio	Yes
# of Channels on Line-Out	Stereo (Left & Right channels)
Internal Speaker	Yes
External Speaker Jack	Yes

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

Technical Specifications – Audio

Features
• Outstanding 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

HP USB Conferencing Keyboard		
System Requirements (conferencing functions will not work unless requirements are met)	• Available USB port • Windows 7 and Windows 8.x • Server: Microsoft Lync Server 2010 or 2013 • Client: Microsoft Lync 2013 version 15.0.46xxx or newer Notes: • Limited support for Microsoft Lync 2010, Microsoft Lync 2013 Basic and Microsoft Lync Metro Mode. • Screen brightness functions supported in selected HP systems and displays.	
Physical Characteristics	Keys	Keys 110 (US) Layout, 111 (EU) Layout – depending upon country
Electrical	Connectivity	USB cable
Feature Summary	Full-size ultra-quiet keyboard with numerical pad and 12 function keys One-touch simplicity for Microsoft Lync calls with dedicated keys and LED light indicators	
Illuminated keys	Incoming Call – Blinks Green Call in progress –Green Microphone Mute – Orange Audio Mute – Orange Screen Sharing – Orange Stop Webcam – Orange	
Other Call control keys	End/Decline Call Volume up and down rocker key	
Microsoft Lync/Outlook	Fn+F12 – Lync Calendar will open. If Lync is not available will bring Outlook Calendar Fn+F11 – Lync Contact will open. If Lync is not available will bring Outlook Contact list	
Function Keys	Fn+F10 – System Settings Fn+F9 – Devices Fn+F8 – Search Fn+F7 – Blank Fn+F6 – Up Brightness Adjustment Fn+F5 – Down Brightness Adjustment Fn+F4 – Display Options Fn+F3 – File Explorer Fn+F2 – System Lock Fn+F1 – System Sleep	
Approvals	FCC; CE; ACA(C-tick); EAC; UL, CE Mark	
Kit Contents	HP Conferencing Keyboard and documentation	

HP USB Business Slim Keyboard		
Physical characteristics	Keys	104, 105, 106, 107, 109 layout (depending upon country)

Technical Specifications – Input/Output Devices

	Dimensions (L x W x H)	171.97 x 68.35 x 8.27 in (436.8± 1.5 x 137.6± 1.0 x 21.0± 1.0 cm)
	Weight	1.32 lb (0.6± 0.08 kg)
Electrical	Operating voltage	+ 4.4 – 5.25VDC
	Power consumption	50-mA maximum (with 5 VDC power supplied and three LEDs ON)
	System interface	USB Type A plug connector
	ESD	Contact Discharge: 2, 4,6,8KV Air Discharge: 2, 4, 8,10,12.5KV
	EMI - RFI	Conforms to FCC rules for a Class B computing device
	Microsoft® PC 99 - 2001	Functionally compliant
Mechanical	Keycaps	Low-profile design
	Switch actuation	60±12.5g nominal peak force with tactile feedback
	Switch life	10 million keystrokes (Life tester)
	Switch type	Contamination-resistant switch membrane
	Key-leveling mechanisms	For all double-wide and greater-length keys
	Cable length	6 ft (1.8 m)
	Microsoft PC 99 - 2001	Mechanically compliant
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)	30 in (76.2 cm) on concrete, 16-drop sequence
Approvals	UL, FCC, CE Mark, TUV, TUV GS, VCCI, BSMI, C-Tick, KC	
Ergonomic compliance	ANSI HFS 100, ISO 9241-4, and TUVGS	
Kit contents	Keyboard	Installation Guide
	Warranty Card	Safety and Comfort Guide

HP PS/2 Business Slim Keyboard		
Physical Characteristics	Keys	104, 105, 106, 107, 109 layout (depending upon country)
	Dimensions (L x W x H)	171.97 x 68.35 x 8.27 in (436.8± 1.5 x 137.6± 1.0 x 21.0± 1.0 cm)
	Weight	1.32 lb (600± 80 g)
Electrical	Operating voltage	+ 4.4 – 5.25VDC
	Power consumption	50-mA maximum (with 5 VDC power supplied and three LEDs ON)
	System interface	PS/2 6-pin mini din connector
	ESD	Contact Discharge: 2, 4,6,8KV Air Discharge: 2, 4, 8,10,12.5KV
	EMI - RFI	Conforms to FCC rules for a Class B computing device
	Microsoft PC 99 - 2001	Functionally compliant
	Keycaps	Low-profile design

	Switch actuation	60±12.5g nominal peak force with tactile feedback
	Switch life	10 million keystrokes (Life tester)
	Switch type	Contamination-resistant switch membrane
	Key-leveling mechanisms	For all double-wide and greater-length keys
	Cable length	6 ft (1.8 m)
	Microsoft PC 99 - 2001	Mechanically compliant
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	N/A
	Non-operating shock	65 inch 2.9 ms, six surface; 30g 266 inch/second; 50g 266 inch/second six surface
	Operating vibration	2-g peak acceleration
	Non-operating vibration	Starting at 5 Hz, vary the frequency of vibration from 5 to 500 Hz and back to 5 Hz at a Logarithmic sweep rate of 1 octave per minute.
	Drop (out of box)	26 in (66 cm) on carpet, six-drop sequence
	Drop (in box)	29.93 in (76 cm) on concrete, 16-drop sequence
Approvals	UL, FCC, CE Mark, TUV, 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 Client Security Smart Card Manager provides authentication software for the smart card. The Smart Card Reader module works with the HP Client 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 an HP Client Security smart card and the HP Client Security Software • Combination of username and password or pin with a smart card or security token • Secures online transactions using digital signatures and certificates • Conforms to industry standards for ease of setup and use • Delivers long product life and quiet operation with high-impact materials and lubricated keys • Spill drain feature	
Physical Characteristics	Keys	104, 105, 106, 107, 109 layout (depending upon country
	Form factor	USB basic smart card keyboard
	Colors	Carbonite/Silver
	Dimensions (H x W x D)	18.2 x 6.3 x 1.3 in (46.3 x 16.1 x 3.3 cm)

Technical Specifications – Input/Output Devices

	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
	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	
	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
	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
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 Business Slim Keyboard and Mouse		
Keyboard	Dimensions (L x W x H)	171.97 x 68.35 x 8.27 in (436.8± 1.5 x 137.6± 1.0 x 21.0± 1.0 cm)
	Weight – Without Two AA Alkaline Batteries	1.23 lb (560± 80 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	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
	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 PS/2 Mouse		
Dimensions (H x L x W)	1.46 x 2.48 x 4.53 in (3.70 x 6.29 x 11.50 cm)	
Weight	3.53 oz (100g; +10g/- 5 g)	
Environmental	Operating temperature	-32° to 104°F (0° to 40° C)
	Non-operating temperature	-4° to 140°F (-20° to 60° C)
	Operating humidity	10% to 90% (non-condensing at ambient)
	Non-operating humidity	10% to 90% (non-condensing at ambient)
	Operating shock	40 g, 6 surfaces
	Non-operating shock	80 g, 6 surfaces
	Operating vibration	2 g peak acceleration
	Non-operating vibration	4 g peak acceleration
	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	800 DPI
	Tracking speed	10 in/s (25.4 cm/s) maximum
	Acceleration	±15%
	Switch actuation	65±20 gf
	Switch life	3,000,000 operations (using Hasco modified tester)
	Switch type	Low force micro-switches
	Tracking mechanism life	80 km
	Cable length	6 ft (1.8 m)
	Microsoft PC99 - 2001	Mechanically compliant
Scroll wheel	Width	6 mm
	Diameter	22.5 ± 0.2 mm
	Maximum rotation force	50 gf-cm
	Switch type	Light force micro-switch
	Switch life	1 million operations
	Mechanical life	Minimum 200,000 revolutions
Regulatory Approvals	UL/cUL, FCC, CE Mark, TUV/GS, VCCI, KCC, BSMI, C-Tick	

HP USB Mouse	
Dimensions (H x L x W)	1.5x 4.5 x 2.5 in (3. 7x 11.5 x 6.3 cm)
Weight	0.22 lb (0.10 kg)
Cable length	70.9 in (180 cm)
System requirements	Available USB port

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

HP USB PS/2 Washable Mouse	
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)

Technical Specifications – Input/Output Devices

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

After-Market Options (availability may vary by region)

AFTER MARKET OPTIONS: **ADDITIONAL MONITORS FOR MULTI-DISPLAY CONFIGURATIONS**		**Part Number**
	HP ProDisplay P17A 17-inch 5:4 LED Backlit Monitor	F4M97AA
	HP ProDisplay P202 20-inch Monitor	K7X27AA
	HP ProDisplay P222va 21.5-inch Monitor	K7X30AA
	HP ProDisplay P232 23-inch Monitor	K7X31AA
	HP EliteDisplay E190i 18.9-inch LED Backlit Monitor	E4U30AA
	HP EliteDisplay E221c 21.5-inch Webcam LED Backlit Monitor	D9E49AA
	HP EliteDisplay E222 21.5-inch Monitor	M1N96AA
	HP EliteDisplay E232 23-inch Monitor	M1N98AA
	HP EliteDisplay E240c 23.8-inch Video Conferencing Monitor	M1P00AA
	HP EliteDisplay E242 24-inch Monitor	M1P02AA
	HP EliteDisplay S140u 14-inch USB Portable Monitor	G8R65AA
	HP EliteDisplay S230tm 23-inch Touch Monitor	E4S03AA
	HP EliteDisplay S231d 23-in IPS LED BLU Notebook Docking Monitor	F3J72AA
MEMORY		**Part Number**
	HP 2GB DDR3L-1600 SODIMM (DDR3L-1600)	B4U38AA
	HP 4GB DDR3L-1600 SODIMM (DDR3L-1600)	B4U39AA
	HP 8GB DDR3L-1600 SODIMM (DDR3L-1600)	B4U40AA
DATA STORAGE DRIVES AND ACCESSORIES		**Part Number**
	HP 128GB SATA Solid State Drive Desktop	QV063AA
	HP 128GB SED Opal 2 Solid State Drive Desktop	G1K24AA
	Intel® Pro 2500 180GB SATA SED Opal2 Solid State Drive	P3X90AA
	HP 256GB SATA TLC Non-SED Solid State Drive	P1N68AA
	HP 500GB SATA 6G 2.5 (8GB Cache) SSHD Drive	E1C62AA
	HP 9.5mm EliteOne AIO 705/800 G2 Slim DVD-ROM Drive	N3S09AA
	HP 9.5mm EliteOne AIO 705/800 G2 Slim SuperMulti DVD Writer Drive	N3S10AA
	HP 9.5mm EliteOne AIO 705/800 G2 Slim SATA BDXL Blu-Ray Writer	N3S11AA
INPUT DEVICES – KEYBOARD AND MOUSE COMBO		**Part Number**
	HP USB PS/2 Washable Keyboard & Mouse	BU207AA

After-Market Options (availability may vary by region)

	(Keyboard contains 25% post-consumer recycled plastic material)	
	HP Wireless Keyboard & Mouse (Keyboard contains 25% post-consumer recycled plastic material)	QY449AA
	HP Wireless Business Slim Keyboard and Mouse	N3R88AA
INPUT DEVICES – KEYBOARD		**Part Number**
	HP USB Business Slim Keyboard	N3R87AA
	HP PS/2 Business Slim Keyboard	N3R86AA
	HP PS/2 Keyboard	QY774AA
	HP Conferencing Keyboard	K8P74AA
	HP USB Smart Card CCID Keyboard	E6D77AA
INPUT DEVICES – MOUSE		**Part Number**
	HP USB Mouse	QY777AA
	HP USB 1000dpi Laser Mouse	QY778AA
	HP PS/2 Mouse	QY775AA
	HP Mouse Pad	AT485AA
SECURITY		**Part Number**
	HP UltraSlim Cable Lock	H4D73AA
GRAPHICS – VIDEO ADAPTERS AND CABLES		**Part Number**
	HP DVI Cable Kit	DC198A
	HP DisplayPort To VGA Adapter	AS615AA
	HP DisplayPort Cable Kit	VN567AA
	HP DisplayPort To HDMI 4k Adapter	K2K92AA
	HP USB Graphics Adapter	NL571AA
	Dual Output USB Graphics Adapter	C5U89AA
	HP DisplayPort To DVI-D Adapter	FH973AA
NETWORKING/COMMUNICATIONS		**Part Number**
	Intel® 7265 802.11ac M2 Card (AIO)	P3X31AA
MISCELLANEOUS		**Part Number**
	Belkin 7-Outlet Surge Protector	AG290AA
	Belkin Cat5e Patch Cable	AH122AA
	HP Single Monitor Arm	BT861AA

After-Market Options (availability may vary by region)

	HP Multi-Purpose Cleaning Kit	BL528AA
	HP Height Adjustable and Reclining Stand	C1N43AA
	HP 800/705/600 G2 AIO Recline Stand	N7H09AA
	HP 800/705/600 G2 AIO Height Adjustable Stand	N7H08AA
LANDESK SOFTWARE (E-DELIVERY)		
	Contact your HP representative for available options.	

Change Log

Date of change:	Version History:		Description of change:
	Version 1 to 2		