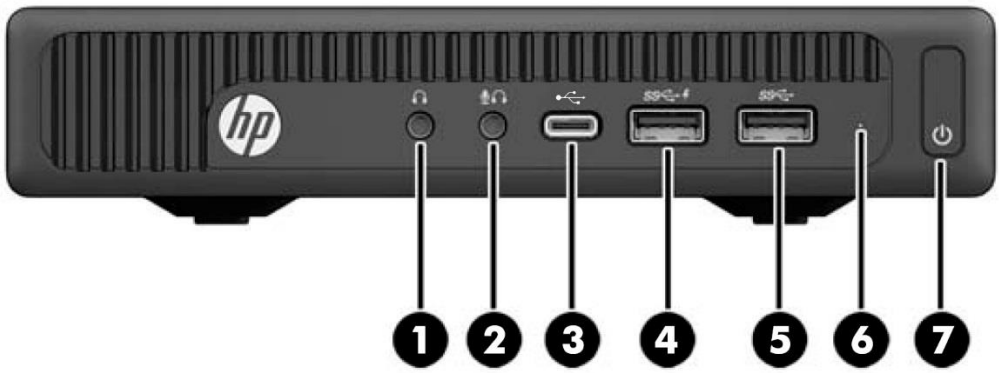
Overview

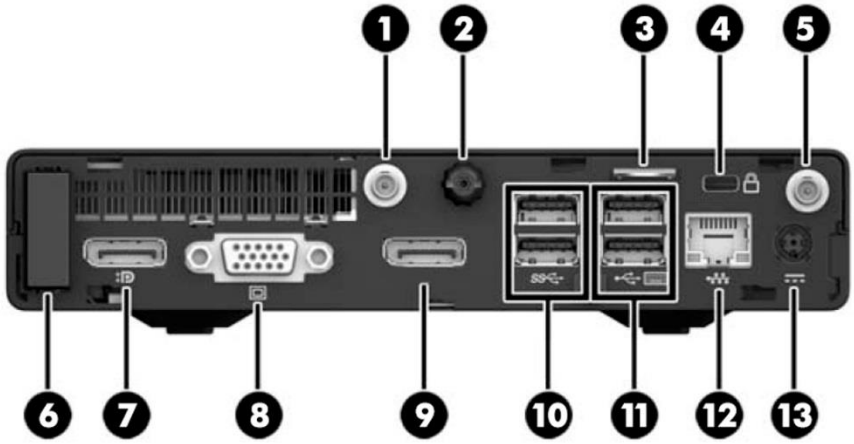
## HP EliteDesk 800 G2 Desktop Mini Business PC




1. Headphone Connector
2. Microphone or Headphone Connector (software selectable, default mode is microphone)
3. USB Type-C™ port
4. USB 3.0 -Charging
5. USB 3.0 port
6. HDD indicator
7. Dual-State Power Button

Overview

## HP EliteDesk 800 G2 Desktop Mini Business PC



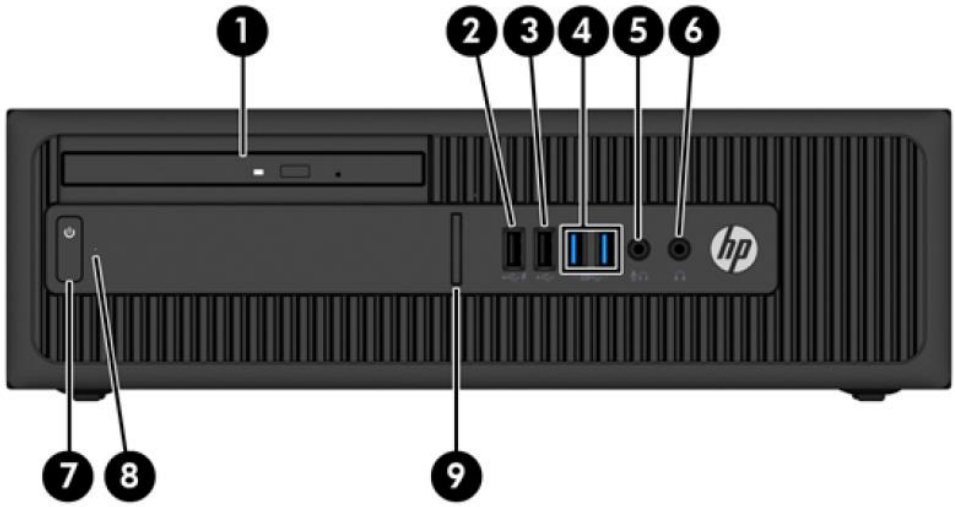

1. Optional External Antenna Connector
2. Thumbscrew
3. Padlock Loop
4. Ultra-slim cable lock
5. Optional External Antenna Connector
6. Antenna Cover
7. DisplayPort Monitor Connector
8. VGA Monitor Connector
9. Choice of DisplayPort (shown), HDMI, or Serial Connector
10. (2) USB 3.0 Ports (blue)
11. (2) USB 3.0 ports (blue), allows for wake from S4/S5 with keyboard/mouse when connected and enabled in BIOS.
12. RJ-45 Network Connector
13. Power Connector

Not Shown

| | |
|---|---|
| Slots | (1) internal M.2 PCIe x1 connector for optional wireless NIC<br>(1) internal M.2 PCIe x4 connector for optional Turbo Drive SSD drive |
| Bays | (1) 2.5” internal HDD storage drive bay |
| VESA | Support for VESA 100 mounting system on bottom of PC chassis |

Overview

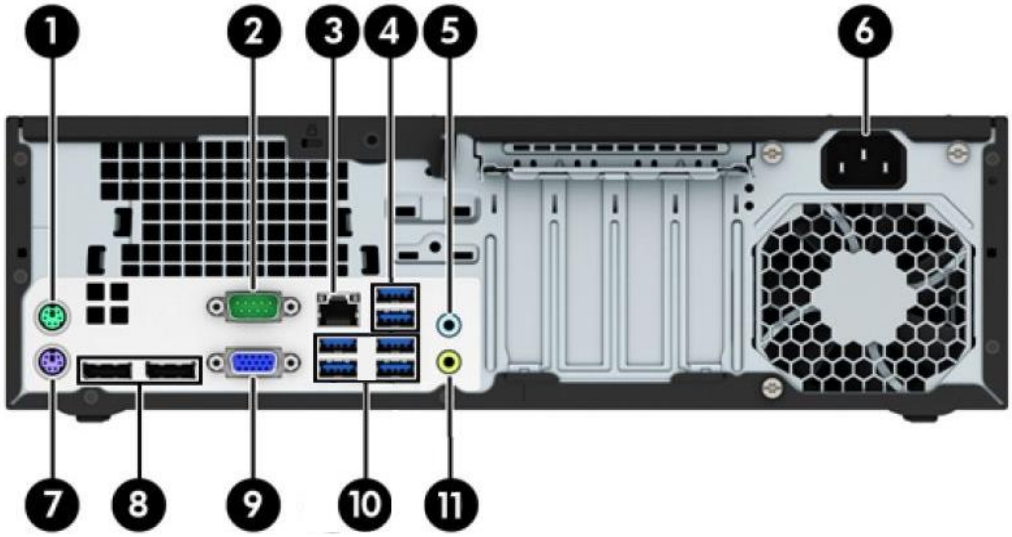
## HP EliteDesk 800 G2 Small Form Factor Business PC




1. Slim Optical Drive (optional)
2. USB 2.0 Fast Charging Port (black)
3. USB 2.0 Port (black)
4. (2) USB 3.0 Ports (blue)
5. Microphone/Headphone Connector
6. Headphone Connector
7. Dual-State Power Button
8. Hard Drive Activity Light
9. SD 4 Card Reader (optional)

Overview

## HP EliteDesk 800 G2 Small Form Factor Business PC




1. PS/2 Mouse Connector (green)
2. Serial Connector
3. RJ-45 Network Connector
4. (2) USB 3.0 Ports with Wake from S4/S5 feature (blue)
5. Line-In Audio Connector (blue)
6. Power Cord Connector
7. PS/2 Keyboard Connector (purple)
8. (2) DisplayPort Monitor Connectors
9. VGA Monitor Connector
10. (4) USB 3.0 Ports (blue)
11. Line-Out Connector for powered audio devices (green)

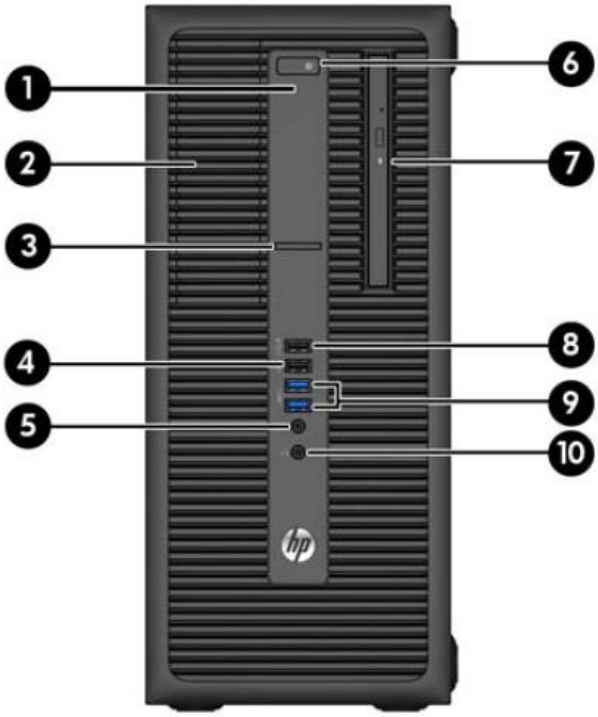
NOTE: An optional second serial port and an optional parallel port are available from HP.

Not Shown

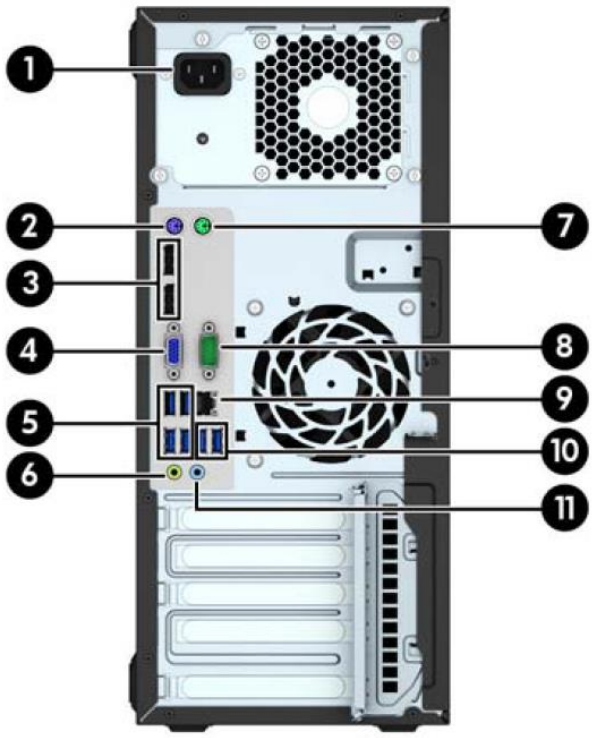
| | |
|---|---|
| Slots | (2) PCI Express x16 graphics connectors; one wired as a x4<br>(2) PCI Express x1 accessory connectors |
| Bays | (1) 2.5” internal storage drive bay<br>(2) 3.5” internal storage drive bay |

Overview

## HP EliteDesk 800 G2 Tower Business PC



1. Hard Drive Activity Light
2. 5.25-inch Half-Height Drive Bay (behind bezel)
3. SD 4 Card Reader (optional)
4. USB 2.0 Port (black)
5. Microphone/Headphone Connector
6. Dual-State Power Button
7. Slim Optical Drive (optional)
8. USB 2.0 Fast Charging (powered) Port (black)
9. (2) USB 3.0 Ports (blue)
10. Headphone Connector



1. Power Cord Connector
2. PS/2 Keyboard Connector (purple)
3. (2) DisplayPort Monitor Connectors
4. VGA Monitor Connector
5. (4) USB 3.0 Ports (blue)
6. Line-Out Connector for powered audio devices
7. PS/2 Mouse Connector (green)
8. Serial Connector
9. RJ-45 Network Connector
10. (2) USB 3.0 Ports with Wake from S4/S5 feature (blue)
11. Line-In Audio Connector (blue)

NOTE: An optional second serial port and an optional parallel port are available from HP.

| | Not Shown |
|---|---|
| Slots | (2) PCI Express x16 graphics connectors; one wired as a x4<br>(2) PCI Express x1 accessory connectors |

## Overview

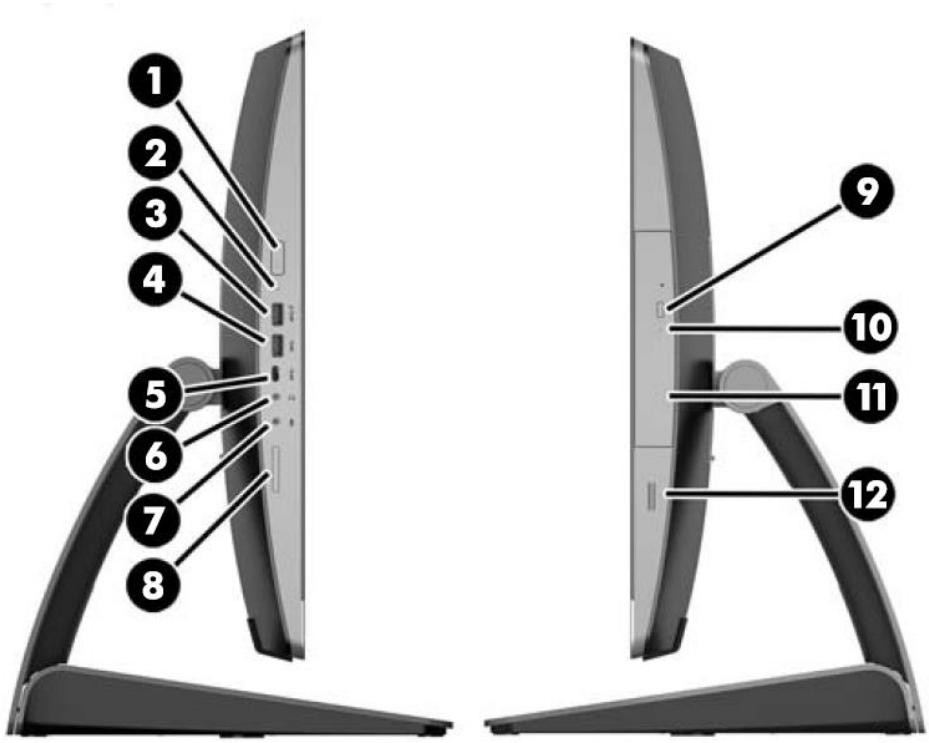
| | |
|---|---|
| | (1) PCI (optional) |
| Bays | (1) 2.5” internal storage drive bay<br>(2) 3.5” internal storage drive bays |

## HP EliteOne 800 G2 All-in-One Business PC (23.0” Touch and Non-Touch)


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” diagonal 16:9 widescreen LED-backlit LCD display (available with or without projected capacitive touch panel)
6. High-performance stereo speakers (standard but deselectable)

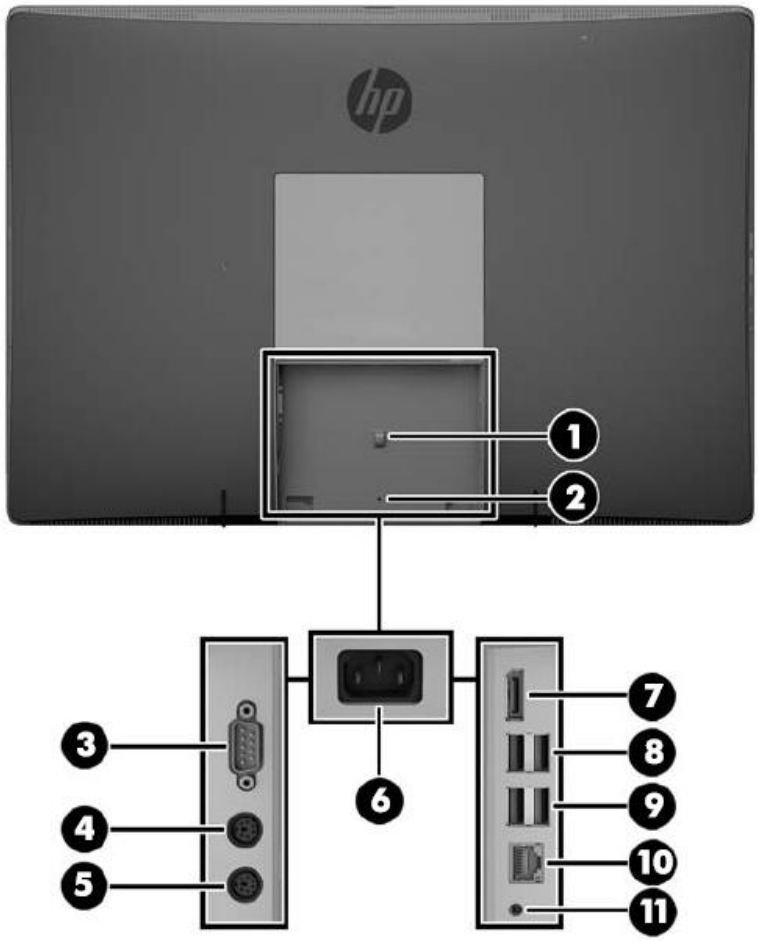
Overview

## HP EliteOne 800 G2 All-in-One Business PC




1. Power button
2. Hard disk drive activity LED
3. USB 3.0 port, fast-charging
4. USB 3.0 port
5. USB Type-C™ port, fast-charging
6. Headphone jack
7. Microphone/Headphone/Line–In jack
8. HP SD card reader (optional)
9. Optical disc drive eject button (with optional optical disk drive)
10. Optical disc drive activity LED (with optional optical disk drive)
11. Tray-load optical disc drive (optional)
12. Fingerprint reader (touch model only)

## HP EliteOne 800 G2 All-in-One Business PC




**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 3.0 ports with wake-up functionality
10. RJ-45 Gigabit Ethernet port
11. Stereo audio line out

**Not Shown**

Slots (1) internal M.2 PCIe x1 connector for optional wireless NIC
(1) internal M.2 PCIe x4 connector for optional Turbo Drive SSD

Bays (2) 2.5" internal storage drive bay

## Standard Features and Configurable Components

| | |
|---|---|
| VESA | Support for VESA 100 mounting system on bottom of PC chassis*<br>*Mounting hardware sold separately (see Accessories section). |

Standard Features and Configurable Components

## At A Glance

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

- Choice of four form factors: Desktop Mini, Small Form Factor, Tower and All-in-One
- 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
- Choice of four form factors: Desktop Mini, Small Form Factor, Tower and All-in-One (touch/non touch)
- Intel® Q170 chipset supporting Intel 6th generation Core™ processors, featuring integrated Intel HD Graphics and Intel® vPro™ Technology (available with select processors)
- Processor support up to 65W on all form factors
- Intel® HD graphics or optional discrete graphics (except desktop mini)
- Intel® Ethernet Connection I219LM GbE LOM integrated network connection
- DDR4 Synchronous Dynamic Random Access Memory (SDRAM)
- Multi-independent monitor support via VGA (TWR/SFF/DM only), HDMI (DM only) and digital DisplayPort video interfaces with multi-stream (Dual DisplayPort connectors on TWR/SFF/DM only); AiO supports multi-stream (up to two external displays) via DisplayPort[1]
- DTS Studio Sound™ Standard on the Desktop Mini, Small Form Factor, Tower[2]
- Audio by Bang and Olufsen utilizing HP Clear Sound Amp on the All-in-One
- High efficiency energy saving power supply options
- AiO, SFF and TWR models can be configured with multiple data drives in a RAID array
- ENERGY STAR® certified. EPEAT® Gold registered where applicable/supported. See www.epeat.net for registration status by country.
- CCC, CECP and SEPA Certified
- Optimized for Skype for Business
- TCO AiO and TCO Edge
- Low halogen [3]
- Arsenic-free
- Protected by HP Services, including limited warranties up to 3-3-3 (terms and conditions vary by country; certain restrictions and exclusions apply); Care Packs available with up to 5 years Next Business Day Onsite Hardware Support
- Lengthy purchase lifecycles and image stability

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

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

2 For DTS patents, see http://patents.dts.com. Manufactured under license from DTS Licensing Limited. DTS, the Symbol, & DTS and the Symbol together are registered trademarks, and DTS Studio Sound is a trademark of DTS, Inc. © DTS, Inc. All Rights Reserved.

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

## CHIPSET

| | DM | SFF | TWR | AiO |
|---|---|---|---|---|
| Intel® Q170 PCH-H vPro™ | X | X | X | X |

## PROCESSORS

| Intel® 6th Generation Core™ i7 Processors | DM | SFF | TWR | AiO |
|---|---|---|---|---|

## Standard Features and Configurable Components

| | | | | |
|---|---|---|---|---|
| Intel® Core™ i7-6700 Processor<br>65W<br>Up to 4.0 GHz Max. Turbo Frequency (3.4 GHz base frequency)<br>8 MB cache, 4 cores, 8 threads<br>Intel® HD Graphics 530<br>Supports DDR4 memory up to 2133 MT/s data rate<br>Supports Intel® vPro™ Technology and Intel® Stable Image Platform Program (SIPP) | **X (65W model only)** | **X** | **X** | **X** |
| | | | | |
| Intel® Core™ i7-6700T Processor<br>35W<br>Up to 3.6 GHz Max. Turbo Frequency (2.8 GHz base frequency)<br>8 MB cache, 4 cores, 8 threads<br>Intel® HD Graphics 530<br>Supports DDR4 memory up to 2133 MT/s data rate<br>Supports Intel® vPro™ Technology and Intel® Stable Image Platform Program (SIPP) | **X (35W model only)** | | | |

| **Intel® 6th Generation Core™ i5 Processors** | **DM** | **SFF** | **TWR** | **AiO** |
|---|---|---|---|---|
| Intel® Core™ i5-6600 Processor<br>65W<br>Up to 3.9 GHz Max. Turbo Frequency (3.3 GHz base frequency)<br>6 MB cache, 4 cores, 4 threads<br>Intel® HD Graphics 530<br>Supports DDR4 memory up to 2133 MT/s data rate<br>Supports Intel® vPro™ Technology and Intel® Stable Image Platform Program (SIPP) | **X (65W model only)** | **X** | **X** | **X** |
| | | | | |
| Intel® Core™ i5-6500 Processor<br>65W<br>Up to 3.6 GHz Max. Turbo Frequency (3.2 GHz base frequency)<br>6 MB cache, 4 cores, 4 threads<br>Intel® HD Graphics 530<br>Supports DDR4 memory up to 2133 MT/s data rate<br>Supports Intel® vPro™ Technology and Intel® Stable Image Platform Program (SIPP) | **X (65W model only)** | **X** | **X** | **X** |
| | | | | |
| Intel® Core™ i5-6600T Processor<br>35W<br>Up to 3.5 GHz Max. Turbo Frequency (2.7 GHz base frequency) | **X (35W model only)** | | | |

## Standard Features and Configurable Components

| | | | | |
|---|---|---|---|---|
| 6 MB cache, 4 cores, 4 threads<br>Intel® HD Graphics 530<br>Supports DDR4 memory up to 2133 MT/s data rate<br>Supports Intel® vPro™ Technology and Intel® Stable Image Platform Program (SIPP) | | | | |
| | | | | |
| Intel® Core™ i5-6500T Processor<br>35W<br>Up to 3.1 GHz Max. Turbo Frequency (2.5 GHz base frequency)<br>6 MB cache, 4 cores, 4 threads<br>Intel® HD Graphics 530<br>Supports DDR4 memory up to 2133 MT/s data rate<br>Supports Intel® vPro™ Technology and Intel® Stable Image Platform Program (SIPP) | **X (35W model only)** | | | |

**Intel® 6th Generation Core™ i3 Processors**

| (Planned to be available November, 2015) | **DM** | **SFF** | **TWR** | **AiO** |
|---|---|---|---|---|
| Intel® Core™ i3-6320 Processor<br>51W<br>3.9 GHz base frequency<br>4 MB cache, 2 cores, 4 threads<br>Intel® HD Graphics 530<br>Supports DDR4 memory up to 2133 MT/s data rate | **X (65W model only)** | **X** | **X** | **X** |
| | | | | |
| Intel® Core™ i3-6300 Processor<br>51W<br>3.8 GHz base frequency<br>4 MB cache, 2 cores, 4 threads<br>Intel® HD Graphics 530<br>Supports DDR4 memory up to 2133 MT/s data rate | **X (65W model only)** | **X** | **X** | **X** |
| | | | | |
| Intel® Core™ i3-6100 Processor<br>51W<br>3.7 GHz base frequency<br>3 MB cache, 2 cores, 4 threads<br>Intel® HD Graphics 530<br>Supports DDR4 memory up to 2133 MT/s data rate | **X (65W model only)** | **X** | **X** | **X** |
| | | | | |
| Intel® Core™ i3-6300T Processor<br>35W<br>3.3 GHz base frequency<br>4 MB cache, 2 cores, 4 threads<br>Intel® HD Graphics 530 | **X (35W model only)** | | | |

## Standard Features and Configurable Components

| | | | | |
|---|---|---|---|---|
| Supports DDR4 memory up to 2133 MT/s data rate | | | | |
| | | | | |
| Intel® Core™ i3-6100T Processor<br>35W<br>3.2 GHz base frequency<br>3 MB cache, 2 cores, 4 threads<br>Intel® HD Graphics 530<br>Supports DDR4 memory up to 2133 MT/s data rate | **X (35W model only)** | | | |

**Intel® 6th Generation Pentium® Processors**

| (Planned to be available November, 2015) | DM | SFF | TWR | AiO |
|---|---|---|---|---|
| Intel® Pentium® G4520 Processor<br>51W<br>Up to 3.6 GHz Base Frequency<br>3 MB cache, 2 cores, 2 threads<br>Intel® HD Graphics 530<br>Supports DDR4 memory up to 2133 MT/s data rate | **X (65W model only)** | **X** | **X** | **X** |
| | | | | |
| Intel® Pentium® G4500 Processor<br>51W<br>Up to 3.5 GHz Base Frequency<br>3 MB cache, 2 cores, 2 threads<br>Intel® HD Graphics 530<br>Supports DDR4 memory up to 2133 MT/s data rate | **X (65W model only)** | **X** | **X** | **X** |
| | | | | |
| Intel® Pentium® G4400 Processor<br>51W/54W**<br>Up to 3.3 GHz Base Frequency<br>3 MB cache, 2 cores, 2 threads<br>Intel® HD Graphics 510<br>Supports DDR4 memory up to 2133 MT/s data rate | **X (65W model only)** | **X** | **XX (65W model only)** | **X X X** |
| | | | | |
| Intel® Pentium® G4500T Processor<br>35W<br>Up to 3.0 GHz Base Frequency<br>3 MB cache, 2 cores, 2 threads<br>Intel® HD Graphics 530<br>Supports DDR4 memory up to 2133 MT/s data rate | **X (35W model only)** | | | |
| | | | | |
| Intel® Pentium® G4400T Processor<br>35W<br>Up to 2.9 GHz Base Frequency<br>3 MB cache, 2 cores, 2 threads | **X (35W model only)** | | | |

## Standard Features and Configurable Components

| | | | | |
|---|---|---|---|---|
| Intel® HD Graphics 510<br>Supports DDR4 memory up to 2133 MT/s data rate | | | | |

***Note:** 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. Intel's numbering is not a measurement of higher performance.

** Intel® Pentium® G4400 has a source die of 2+2 and 4+2. The 2+2 will run at 51W, while the 4+2 fused-down version will run at 54W.

## GRAPHICS

| System Integrated Graphics | DM | SFF | TWR | AiO |
|---|---|---|---|---|
| Intel® HD Graphics on all models (integrated on processor) | X | X | X | X |

| Optional Discrete Graphics Solutions | DM | SFF | TWR | AiO |
|---|---|---|---|---|
| AMD Radeon™ R9 350 2GB DH PCIe x16 | | | X | |
| AMD Radeon™ R9 360 2GB GDDR5 x16 | | | | X |
| AMD Radeon R5 320 1GB PCIe x16 Card (China only) | | | X | |
| NVIDIA GeForce GT 730 2GB PCIe x8 | | X | X | |
| NVIDIA GeForce GT 720 2GB PCIe x16 (China only) | | | X | |
| NVIDIA Quadro NVS 310 1GB PCIe x16 | | X | X | |
| NVIDIA GeForce GTX 960 2GB PCIe x16 | | | X | |

## ADAPTERS AND CABLES

| | DM | SFF | TWR | AiO |
|---|---|---|---|---|
| HP DisplayPort Cable | X | X | X | X |
| HP DisplayPort Cable 2nd | X | X | X | |
| HP DisplayPort to DVI-D Adapter | X | X | X | X |
| HP DisplayPort to DVI-D Adapter 2nd | X | X | X | |
| HP DisplayPort to HDMI 4K Adapter | X | X | X | X |
| HP DisplayPort to HDMI 4K Adapter 2nd | X | X | X | |
| HP DisplayPort to VGA Adapter | X | X | X | X |
| HP DisplayPort to VGA Adapter 2nd | X | X | X | |
| HP USB-C™ to USB 3.0 | X | X | X | X |
| HP USB to Serial Port Adapter | X | | | |
| HP PCI Expansion Slot | | | X | |
| HP 700mm DisplayPort Cable | X | | | |

## STORAGE*, **

## Standard Features and Configurable Components

| 2.5 inch 5.4k RPM Hard Disk Drives | DM** | SFF | TWR | AiO |
|---|---|---|---|---|
| 2TB SATA HDD | X | | | |
| 2TB SATA HDD 2nd | X | | | |

| 2.5 inch 7.2k RPM Hard Disk Drives | DM** | SFF | TWR | AiO |
|---|---|---|---|---|
| 1TB SATA (Planned to be available 12/07/15) | X | X | X | X |
| 1TB SATA 2nd (Planned to be available 12/07/15) | X | X | X | X |
| 1TB 7200 RPM SATA 6G 2.5 HDD | X | X | X | X |
| 500GB SATA | X | X | X | X |
| 500GB SATA 2nd | X | X | X | X |

| 3.5" SATA 7.2k RPM Hard Disk Drives | DM | SFF | TWR | AiO |
|---|---|---|---|---|
| 2TB SATA | | X | X | |
| 2TB SATA 2nd | | X | X | |
| 1TB SATA | | X | X | |
| 1TB SATA 2nd | | X | X | |
| 500GB SATA | | X | X | |
| 500GB SATA 2nd | | X | X | |

| 2.5 inch Solid State Hybrid Drives (SSHD) | DM** | SFF | TWR | AiO |
|---|---|---|---|---|
| 1TB SATA 6G 2.5 8G SSHD | X | X | X | X |
| 1TB SATA 6G 2.5 8G 2nd SSHD | X | X | X | X |
| 500GB SATA 6G 2.5 8G SSHD | X | X | X | X |
| 500GB SATA 6G 2.5 8G SSHD 2nd | X | X | X | X |

| 3.5 inch Solid State Hybrid Drives (SSHD) | DM | SFF | TWR | AiO |
|---|---|---|---|---|
| 1TB 7200 RPM SATA 8GB | | X | X | |

| 2.5 inch Solid State Drives (SSD) | DM** | SFF | TWR | AiO |
|---|---|---|---|---|
| 512GB SATA 3D SSD | X | X | X | X |
| 512GB SATA 2nd 3D SSD | X | X | X | X |
| 256GB SATA SSD | X | X | X | X |
| 256GB SATA SSD 2nd | X | X | X | X |
| 256GB SATA 3D SSD | X | X | X | X |
| 256GB SATA 3D SSD 2nd | X | X | X | X |
| 180GB SATA (Intel® Pro 2500) | X | X | X | X |
| 180GB SATA (Intel® Pro 2500) 2nd | X | X | X | X |

## Standard Features and Configurable Components

| | | | | |
|---|---|---|---|---|
| 128GB SATA SSD | X | X | X | X |
| 128GB SATA SSD 2nd | X | X | X | X |
| 128GB SATA 3D SSD | X | X | X | X |
| 128GB SATA 3D SSD 2nd | X | X | X | X |
| 120GB SATA SSD (Intel® Pro 2500) | X | X | X | X |
| 120GB SATA SSD (Intel® Pro 2500) 2nd | X | X | X | X |

| **2.5 inch Self-encrypting Solid State Drives (SED)** | **DM**** | **SFF** | **TWR** | **AiO** |
|---|---|---|---|---|
| 1TB SATA 6G 2.5 Opal 2 SED SSD (Planned to be available 12/07/15) | X | X | X | X |
| 256GB SATA Opal2 SED SSD | X | X | X | X |
| 256GB SATA Opal2 SED SSD 2nd | X | X | X | X |
| 180GB SATA Opal2 SED SSD (Intel® Pro 2500) | X | X | X | X |
| 180GB SATA Opal2 SED SSD (Intel® Pro 2500) 2nd | X | X | X | X |
| 128GB SATA Opal2 SED SSD | X | X | X | X |
| 128GB SATA Opal2 SED SSD 2nd | X | X | X | X |
| 120GB SATA Opal2 SED SSD (Intel® Pro 2500) | X | X | X | X |
| 120GB SATA Opal2 SED SSD (Intel® Pro 2500) 2nd | X | X | X | X |
| 500GB SATA Opal2 SED SSD | | X | X | |
| 500GB SATA Opal 2 SED SSD 2nd | | X | X | |
| 1TB SATA 6G Opal2 SED SSD | | X | X | |
| 1TB SATA 6G Opal2 SED SSD 2nd | | X | X | |
| 512GB SATA 6G Opal2 SED SSD | | X | X | |
| 512GB SATA 6G Opal2 SED SSD 2nd | | X | X | |

*__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.

**__NOTE:__ Desktop Mini second HDD only available when the first storage drive is an M2 drive.

| **PCIe Cards** | **DM** | **SFF** | **TWR** | **AiO** |
|---|---|---|---|---|
| HP 512GB Turbo Drive G2 SSD-PCIe Card | | X | X | |
| HP 256GB Turbo Drive SSD-PCIe Card | | X | X | |
| HP 256GB Turbo Drive G2 SSD-PCIe Card | | X | X | |
| HP 256GB Turbo Drive SSD - M.2 PCIe Card | X | | | X |
| HP 256GB Turbo Drive G2 SSD- M.2 PCIe Card | X | | | X |
| HP 128GB Turbo Drive SSD-PCIe Card | | X | X | |

## Standard Features and Configurable Components

| | | | | |
|---|---|---|---|---|
| HP 128GB Turbo Drive G2 SSD-PCIe Card | | X | X | |
| HP 128GB Turbo Drive SSD - M.2 PCIe Card | X | | | X |
| HP 128GB Turbo Drive G2 SSD- M.2 PCIe Card | X | | | X |

| **Optical Disc Drives** | **DM** | **SFF** | **TWR** | **AiO** |
|---|---|---|---|---|
| HP 9.5mm Slim Desktop DVD-ROM ODD Drive | | X | X | |
| HP 9.5mm Slim Desktop BDXL Blu-Ray Drive | | X | X | |
| HP 9.5mm Slim Desktop SuperMulti DVDRW Drive | | X | X | |
| HP 9.5mm Slim 800 G2 AIO DVD-ROM Drive | | | | X |
| HP 9.5mm Slim 800 G2 AIO SuperMulti DVD Drive | | | | X |
| HP 9.5mm Slim 800 G2 AIO BDXL Blu-Ray Drive | | | | X |

| **Media Card Reader** (optional)* | **DM** | **SFF** | **TWR** | **AiO** |
|---|---|---|---|---|
| 5-in 1 PCIe Interface (Supports SD, SDXC, SDHC, UHS-I, UHS-II) | | | | X |
| SD4 with 5-in-1 Interface from SD option to PCA is USB (Supports SD, SDXC, SDHC, UHS-I, UHS-II) | | X | X | |

*Card sold separately

## MEMORY

| **Form Factor** | **Type** | **Maximum** | **# of Slots** |
|---|---|---|---|
| Desktop Mini | DDR4-2133 (Transfer rates up to 2133 MT/s) | 32 GB | 2 SODIMM |
| Small Form Factor | DDR4-2133 (Transfer rates up to 2133 MT/s) | 64 GB | 4 DIMM |
| Tower | DDR4-2133 (Transfer rates up to 2133 MT/s) | 64 GB | 4 DIMM |
| All-in-One | DDR4-2133 (Transfer rates up to 2133 MT/s) | 32 GB | 2 SODIMM |

Both slots are customer accessible / upgradeable.

- 2,048 MB (2048 MB x 1)
- 4,096 MB (4096 MB x 1)
- 8,192 MB (4096 MB x 2)
- 8,192 MB (8192 MB x 1)
- 16,384 MB (8192 MB x 2)

- 32,768 (16,384 MB x 2) – Maximum for DM and AiO
- 65,536 (16,384 MB x 2)– Maximum for SFF and TWR

**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.

Memory modules support data transfer rates up to 2133 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)** | **DM** | **SFF** | **TWR** | **AiO** |
|---|---|---|---|---|
| Intel® I219LM Gigabit Network Connection LOM (standard) | X | X | X | X |
| Intel® Ethernet I210-T1 PCIe x1 Gb Network Interface Card (optional) | | X | X | |

| **Wireless*** | **DM** | **SFF** | **TWR** | **AiO** |
|---|---|---|---|---|
| Broadcom BCM943228Z 802.11n M.2 Bluetooth® NIC | X | | | X |
| Broadcom BCM943228Z 802.11n M.2 Bluetooth® Disabled NIC | X | | | X |
| Broadcom BCM943228Z 802.11n PCIe Bluetooth® NIC | | X | X | |
| Broadcom BCM943228Z 802.11n PCIe Bluetooth® Disabled NIC | | X | X | |
| Intel® 8260 802.11ac M.2 Bluetooth® Disabled NIC | X | | | X |
| Intel® 8260 802.11ac PCIe-CL Bluetooth® NIC | | X | X | |
| Intel® 8260 802.11ac PCIe-CL Bluetooth® Disabled NIC | | X | X | |
| Intel® 3165 802.11ac M.2 Bluetooth® NIC | X | | | |
| Intel® 3165 802.11ac M.2 Bluetooth® Disabled NIC | X | | | |
| Intel® 7265 802.11n M.2 Bluetooth® NIC | X | | | |
| Intel® 7265 802.11n M.2 Bluetooth® Disabled NIC | X | | | |
| Intel® 7265 802.11n PCIe Bluetooth® Disabled NIC | | X | X | |
| Intel® 7265 802.11ac PCIe Bluetooth® NIC | | X | X | |
| Intel® 7265 802.11ac PCIe Bluetooth® Disabled NIC | | X | X | |

*Wireless access point and internet service 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

Standard Features and Configurable Components

## Audio/Multimedia

| | DM | SFF | TWR | AiO |
|---|---|---|---|---|
| HD audio with Realtek ALC221 codec (all ports are stereo) | X | X | X | |
| HP Clear Sound Amp | | | | X |
| Audio by Bang and Olufsen utilizing HP Clear Sound Amp which supports the integrated high-performance stereo 2.2W internal speakers, microphone array, headphone jack, line-out jack and a microphone jack that is re-taskable to second headphone or line in. | | | | X |
| DTS Studio Sound™ audio management technology | X | X | X | |
| Microphone* and headphone front ports (3.5mm) | X | X | X | |
| Line-out and Line-In rear Ports* (3.5mm) | | X | X | X - Line-out only |
| Headphone side ports (3.5mm) | | | | X |
| Headphone/Microphone/Line-in side port (3.5mm) | | | | X |
| Multi-streaming capable* | X | X | X | X |
| Internal speaker (standard) | X | X | X | |
| High performance integrated stereo speakers | | | | X |
| Integrated 2.0 MP webcam (up to 30 frames/sec ) & dual microphone array (optional) | | | | X |

**DTS Studio Sound™ Technology** (DM, SFF, & TWR only)

**Introduction**

DTS Studio Sound™ provides an outstanding audio and entertainment experience for all PC applications related to music, movies and games. Utilizing DTS's 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).

**DTS Studio Sound™** (DM, SFF, & TWR only)

**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

* The side microphone port is re-taskable as a line-in, microphone-in or headphone-out port. The rear audio jack is line-out only. External speakers must be powered externally.

## Display (All-in-One models only)

23"diagonal IPS widescreen WLED backlit anti-glare LCD display
Orientation designed to operate in portrait or landscape mode
Non-touch or optional touch
Projected capacitive touch supports up to 10 touch-points

| | | |
|---|---|---|
| **Display Panel** | Type | IPS WLED Backlit LCD |
| | Touch Active Area (mm) | 509.18 x 286.42* |
| | Screen opening (mm) | 511.6 x 288.7** |
| | 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) | Touch - 225nits (cd/m2)/ Non-Touch 250nits (cd/m2) |

## Standard Features and Configurable Components

| | | |
|---|---|---|
| | Viewing angle (typical) (HxV) | 178 ° x 178 ° |
| | Backlight lamp life (to half brightness) | 30,000 hours minimum |
| | Color support | Over 16 million colors |
| | Color gamut (typical) | 72% |
| | Anti-glare | Yes** |
| | Default color temperature | Warm (6500K) |

*With Projected Capacitive Touch Panel
**Without Projected Capacitive Touch Panel

**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° |
| **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°) |
| | Rotation | 360° swivel |

### WEBCAM & MIC (All-in-One models only)

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

# KEYBOARDS AND POINTING DEVICES

| Keyboard | DM | SFF | TWR | AiO |
|---|---|---|---|---|
| HP PS/2 Business Slim Keyboard* | | X | X | X |
| HP PS/2 Keyboard* | | X | X | X |
| HP USB Business Slim Keyboard | X | X | X | X |
| HP USB Conferencing Keyboard | X | X | X | X |
| HP USB Antimicrobial Keyboard (China only) | X | X | X | X |
| HP USB and PS/2 Washable Keyboard | X | X | X | X |
| HP USB Smart Card (CCID) Keyboard | X | X | X | X |
| HP Wireless Business Slim Keyboard and Mouse | X | X | X | X |

*Optional PS/2 port required on All-in-One

| Mice | DM | SFF | TWR | AiO |
|---|---|---|---|---|
| HP PS/2 Mouse* | | X | X | X |
| HP USB Mouse | X | X | X | X |
| HP USB 1000dpi Laser Mouse | X | X | X | X |
| HP USB and PS/2 Washable Mouse | X | X | X | X |
| HP USB Antimicrobial Mouse | X | X | X | X |
| HP USB Hardened Mouse | X | X | X | X |

*Optional PS/2 port required on All-in-One

## 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.

## Standard Features and Configurable Components

- 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

| | DM | SFF/TWR | AiO |
|---|---|---|---|
| Trusted Platform Module,SLB9670TT1.2FW4.40 (TPM) 1.2 (Common Criteria EAL4+ certified), Field upgradeable to 2.0 | X | X | X |
| SATA port disablement (via BIOS) | X | X | X |
| Drive lock | X | X | X |
| RAID configurations | | X | X |
| Intel® Identify Protection Technology (IPT)[1] | X | X | X |

## Standard Features and Configurable Components

| | | | |
|---|---|---|---|
| Serial, parallel, USB enable/disable (via BIOS) | X | X | X |
| Optional USB Port Disable at factory (user configurable via BIOS) | X | X | X |
| Removable media write/boot control | X | X | X |
| Power-On password (via BIOS) | X | X | X |
| Setup password (via BIOS) | X | X | X |
| HP Chassis (1 bay) Security Kit | | TWR only | |
| Solenoid Hood Lock | | X | |
| Intrusion Sensor | X | X | X |
| Support for chassis padlocks devices | X | X | |
| Support for chassis cable lock devices | X | X | X |

[1]Models configured with Intel® Core™ processors have the ability to utilize advanced security protection for online transactions. IPT, used in conjunction with participating web sites, provides double identity authentication by adding a hardware component in addition to the usual user name and password. IPT is initialized through an HP Client Security module

## ENVIRONMENTAL & REGULATORY

ENERGY STAR® certified configurations available

EPEAT® Gold registered where applicable/supported. See http://www.epeat.net for registration status by country.

Low halogen (chassis, all internal components and modules)

TAA compliant models available

# PORTS

**I/O Ports – Standard**

| | DM | SFF | TWR | AiO |
|---|---|---|---|---|
| USB 2.0 | N/A | 2 (front) including 1 fast charging; | 2 (front) including 1 fast charging; | N/A |
| USB 3.0 | 2 (front); 4 (rear) | 2 (front); 6 (rear) | 2 (front); 6 (rear) | 2 (side) including 1 fast charging, 4 (rear) |
| USB Type-C™3.0 port | 1 (front) | | | 1 (side) |
| Serial (RS-232) | (optional)* | 1 | 1 | 1 (optional) |
| PS/2 | N/A | 1 keyboard (purple)<br>1 mouse (green) | 1 keyboard (purple)<br>1 mouse (green) | (Optional legacy card)<br>1 keyboard (purple)<br>1 mouse (green) |
| Video | 1 VGA<br>2* DisplayPort with multi-stream<br>• 2nd DisplayPort (optional)<br><br>1 HDMI (optional) | 1 VGA<br>2 DisplayPort with multi-stream | 1 VGA<br>2 DisplayPort with multi-stream | 1 DisplayPort with multi-stream |
| Audio | Front: headphone/mic | Front: headphone/mic<br>Rear: line in/out<br>3.5mm diameter | Front: headphone/mic<br>Rear: line in/out<br>3.5mm diameter | Side: headphone/line-out, headphone/mic/line-in<br>Rear: line out<br>3.5mm diameter |
| Network Interface | RJ-45 | RJ-45 | RJ-45 | RJ-45 |

*Replaces 1 DisplayPort 1.2

**I/O Ports – Optional**

| | DM | SFF | TWR | AiO |
|---|---|---|---|---|
| 2nd Serial (RS-232) | N/A | 1 | 1 | N/A |
| Parallel | N/A | 1 | 1 | N/A |

**I/O Ports — Internal ports**

| | DM | SFF | TWR | AiO |
|---|---|---|---|---|
| DM SATA storage connector | 1 | N/A | N/A | N/A |
| AiO SATA storage connector | N/A | N/A | N/A | 2 |

| | | | | |
|---|---|---|---|---|
| Internal SATA storage connector(s) | N/A | 3 | 5 | N/A |

## SLOTS

| | DM | SFF | TWR | AiO |
|---|---|---|---|---|
| Turbo Drive (M.2 PCIe) | 1 ea. M.2 PCIe x4-2230 (for WLAN)<br>1 ea. M.2 PCIe x4-2280 (for storage) | N/A | N/A | 1 ea. M.2 PCIe x4-2230 (for WLAN)<br>1 ea. M.2 PCIe x4-2280 (for storage) |
| PCI Express x1 (v3.0) | N/A | 2 ea.<br>2.5” low profile<br>6.6” length<br>10W max. power | 2 ea.<br>4.2” full height<br>6.6” length<br>10W max. power | N/A |
| PCI Express x16 (v3.0) (wired as a x4) | N/A | 1 ea.<br>2.5” low profile<br>6.6” length<br>35W max. power | 1 ea.<br>4.2” full height<br>6.6” length<br>35W max. power | N/A |
| PCI Express x16 (v3.0) | N/A | 1 ea.<br>2.5” low profile<br>6.6” length<br>35W max. power | 1 ea.<br>4.2” full height<br>6.6” length<br>75W max. power | N/A |
| Optional PCI | N/A | N/A | 1 ea.<br>4.2” full height<br>6.6” length | N/A |

**NOTE:** The TWR can support a single graphics card up to 75W. When configured with dual graphics cards support is limited to 35W for each.

## BAYS

| | DM | SFF | TWR | AiO |
|---|---|---|---|---|
| 5.25" Half Height ODD | N/A | N/A | 1 ea. | N/A |
| 9mm Slim ODD | N/A | 1 ea. | 1 ea. | 1 ea. |
| Secure Digital (SD) 4 Reader | N/A | 1 ea. | 1 ea. | N/A |
| 2.5” internal storage drive | 1 ea. | 1 ea. | 1 ea. | 2 ea. |
| 3.5” internal storage drive | N/A | 2 ea. | 2 ea. | N/A |

## SERVICE AND SUPPORT

On-site Warranty [1]: Three-year (3-3-3) limited warranty delivers three years of on-site, next business day [2] service for parts and labor and includes free 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.[4] To choose the right level of service for your HP product, visit HP Care

## Standard Features and Configurable Components

Pack Central: www.hp.com/go/cpc

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

NOTE 2: On-site service may be provided pursuant to a service contract between HP and an authorized HP third-party provider, and is not available in certain countries. Global service response times are based on commercially reasonable best effort and may vary by country.

NOTE 3: Technical telephone support applies only to HP-configured 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.

Standard Features and Configurable Components

## 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

*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.
**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. 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.

Standard Features and Configurable Components

## 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
Secure Erase[3]
Hybrid Boot (Windows 8.1 & higher)
Measured Boot (Windows 8.1 & higher)
Secure Boot (Windows 8.1 & higher
Absolute Persistence Module[4]

### Multimedia

Cyberlink Power DVD, BD
Cyberlink Power2Go (Secure Burn)

### Communication

Intel® Wireless Display (WiDi) Software for Windows[5]
Native Miracast Support[6]

### HP Value Add Software

HP ePrint Driver[7]
HP Recovery Disc Creator (Windows 7 only)
HP Recovery Manager
HP Support Assistant
Windows 10 Welcome App

### 3rd Party

Foxit PhantomPDF Express for HP

### Microsoft Products

Buy Office
Bing Search
Skype

## Standard Features and Configurable Components

### Manageability

HP SoftPaq Download Manager (SDM)
HP System Software Manager (SSM)[8]
HP BIOS Config Utility (BCU)[8]
HP Client Catalog[8]
HP CIK for Microsoft SCCM[8]
LANDESK Management[8]
HP BIOS Config Utility (BCU)[8]
Discover HP Touchpoint Manager[9]

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

### Client Security Software

HP Client Security Manager
Microsoft Security Essentials[10]
Microsoft Defender
TPM 1.2/2.0

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

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

**Footnotes:**

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.
5 Integrated Intel® Wi-Di Display is available on select configurations only and requires a separate projector, TV or monitor with an integrated or external Wi-Di receiver. For more information on Intel® Wi-Di Display visit http://www.intel.com/go/wirelessdisplay
6 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. For more information: http://windows.microsoft.com/en-us/windows-8/project-wireless-screen-miracast
7 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). Requires optional broadband module. Broadband use requires separately purchased service contract. Check with service provider for

coverage and availability in your area. Separately purchased data plans or usage fees may apply. Print times and connection speeds may vary.

8 Not preinstalled, however available for download at http://www.hp.com/go/clientmanagement

9 Subscription required.

10 Opt in and internet connection required for updates.

## CORE™ vPRO™ PROCESSORS

### INTEL® 6th GENERATION CORE™ vPRO™ PROCESSORS

All HP Elite 800 G2 Business PC models featuring this technology include processors that are part of the Intel® Stable Image Platform Program (SIPP) designed to ensure the stability promise inherent in the value proposition of the HP Elite 800 G2 Business PC, thus making these models the most stable, secure, and manageable platforms available to enterprises today.

**Intel® Advanced Management Technology (AMT) v9.0** – An advanced set of remote management features and functionality which provides network administrators the latest and most effective tools to remotely discover, heal, and protect networked client systems regardless of the system's health or power state. AMT 9.0 includes the following advanced management functions:

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

Technical Specifications – Graphics

## GRAPHICS

| Intel® HD Graphics (integrated) | | | |
|---|---|---|---|
| **DisplayPort** | Multimode capable; supports HDCP, Display Port Audio (2 streams), HBR2 link rates and Multi-Stream Technology for a maximum of 3 displays (including the integrated panel) | | |
| **Memory** | The BIOS has options for selecting the dedicated memory size of 128MB, 256MB or 512MB<br>Additional memory is allocated for graphics as needed using Intel's Dynamic Video Memory Technology (DVMT), to provide an optimal balance between graphics and system memory use. | | |
| **Maximum Graphics Memory** | Microsoft Windows 7 | Windows 8.1 | Windows 10 |
| | Up to 1.7GB | Up to 1.8GB | >4 GB |
| | Note: the actual amount of maximum graphics memory can be less than the amounts listed above depending upon your computer's configuration. | | |
| **Maximum Color Depth** | 32 bits/pixel | | |
| **Graphics/Video API Support** | 6th Generation Core™ processors:<br>• Next Generation Intel® Clear Video Technology HD Support is a collection of video playback and enhancement features that improve the end user's viewing experience<br>  ○ Encode/transcode HD content<br>  ○ Playback of high definition content including Blu-ray Disc<br>  ○ Superior image quality with sharper, more colorful images<br>• DirectX Video Acceleration (DXVA) support for accelerating video processing<br>  ○ Full AVC/VC1/MPEG2/HEVC HW Decode<br>• Advanced Scheduler 2.0, 1.0<br>• Windows 7, Windows 8.1, Windows 10, Linux OS Support<br>• DirectX 12.1<br>• OpenGL 4.4<br>• Open CL 1.2 (Intel® HD Graphics 510)<br>• Open CL 1.2/2.0 (Intel® HD Graphics 530) | | |

**Supported Display Resolutions and Refresh Rates**

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

| Resolution | Refresh Rates |
|---|---|
| 800x600 | 60 Hz |
| 1024x768 | 60 Hz |
| 1152x864 | 60 Hz |
| 1280x600 | 60 Hz |
| 1280x720 | 60 Hz |
| 1280x800 | 60 Hz |
| 1280x960 | 60 Hz |
| 1280x1024 | 60 Hz |

Technical Specifications – Graphics

| | |
|---|---|
| 1360x768 | 60 Hz |
| 1366x768 | 60 Hz |
| 1400x1050 | 60 Hz |
| 1440x900 | 60 Hz |
| 1600x900 | 60 Hz |
| 1600x1200* | 60 Hz |
| 1680x1050 | 60 Hz |
| 1920x1080 | 60 Hz |
| 1920x1200* | 60 Hz |
| 1920x1440* | 60 Hz |
| 2560x1440* | 60 Hz |
| 2560x1600* | 60 Hz |
| 3840x2160* | 60 Hz |
| * Only supported on displays connected to the external DisplayPort connector. | |

## AMD® Radeon™ R9 350 2GB PCIe x16

| | |
|---|---|
| **Memory** | 2GB 128-bit wide frame buffer operating at 1150MHz. |
| **Controller Clock Speed** | AMD® Radeon™ R9 350 GPU operating at 925 MHz |
| **Multidisplay Support** | A maximum of 4 displays are supported by the card. A maximum of 2 legacy displays (Native VGA, DVI, or displays connected with passive DisplayPort adapters are considered as legacy) |
| **Graphics /API support** | DIRECTX 12, Open GL 4.3, Open CL1.2, UVD 3 |
| **Output Connectors** | 1 x Dual-Link DVI-I, 2x DisplayPort; Includes DVI to VGA adapter |

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

| Resolution | Refresh Rate* | VGA (DVI-VGA adapter) | DVI-D | DisplayPort | Standard |
|---|---|---|---|---|---|
| 640 x 480 | 60, 75, 85 | X | X | X | VESA DMT, CVT 0.31M3 |
| 720 x 400 | 70 | X | X | X | IBM VGA |
| 800 x 600 | 60, 75, 85 | X | X | X | VESA DMT, CVT0.48M3 |
| 1024 x 768 | 60, 75, 85 | X | X | X | VESA DMT, CVT 0.79M3 |
| 1152 x 864 | 60, 75, 85 | X | X | X | VESA DMT, CVT 0.83MA |
| 1280 x 720 | 60, 75, 85 | X | X | X | VESA DMT, CVT 0.92M9, CEA-770.3 |
| 1280 x 768 | 60, 60RB, 75, 85 | X | X | X | VESA DMT, CVT 0.98M9/0.98M9-R |
| 1280 x 800 | 60, 75, 85 | X | X | X | VESA DMT |

## Technical Specifications – Graphics

| | | | | | |
|---|---|---|---|---|---|
| 1280 x 960 | 60, 75, 85 | X | X | X | VESA DMT |
| 1280 x 1024 | 60, 75, 85 | X | X | X | VESA DMT, CVT 1.31M4 |
| 1366 x 768 | 60, 60RB | X | X | X | VESA DMT |
| 1440 x 900 | 60, 60RB | X | X | X | VESA DMT |
| 1600 x 900 | 60, 60RB, 75, 85 | X | X | X | VESA DMT |
| 1680 x 1050 | 60, 60RB, 75 | X | X | X | VESA DMT, CVT 1.76MA/1.76MA-R |
| 1920 x 1080 | 60 | X | X | X | VESA DMT, CVT 2.07M9, SMPTE 274M |
| 1920 x 1200 | 60, 60RB, 75, 85 | X | X | X | DMT, CVT 2.30MA/2.30MA-R |
| 1600 x 1200 | 60, 75, 85 | X | X | X | VESA DMT, 1.92M3 |
| 1920 x 1440 | 60, 75, 85 | X | X | X | VESA DMT, CVT 2.76M3 |
| 2048 x 1536 | 60,75 | X | X | X | CVT 3.15M3 |
| 2560 x 1440 | 59.951 | | X | X | CVT 3.69M9-R |
| 2560 x 1600 | 60, 60RB | | X | X | VESA DMT, CVT 4.10MA/4.10MA-R |
| 3840 x 2160 | 24 | | | X | CVT-RBv1/v2 (8.29M9-R), SMPTE 274M |
| 3840 x 2160 | 25 | | | X | CVT-RBv1/v2 (8.29M9-R), SMPTE 274M |
| 3840 x 2160 | 30 | | X | X | CVT-RBv1/v2 (8.29M9-R), SMPTE 274M |
| 3840 x 2160 | 50 | | | X | CVT-RBv1/v2 (8.29M9-R), SMPTE 274M |
| 3840 x 2160 | 60 | | | X | CVT-RBv1/v2 (8.29M9-R), SMPTE 274M |
| 4096 x 2160 | 24 | | | X | CVT-RBv1/v2 (8.85M-R), SMPTE 274M |
| 4096 x 2160 | 25 | | | X | CVT-RBv1/v2 (8.85M-R), SMPTE 274M |
| 4096 x 2160 | 30 | | | X | CVT-RBv1/v2 (8.85M-R), SMPTE 274M |
| 4096 x 2160 | 50 | | | X | CVT-RBv1/v2 (8.85M-R), SMPTE 274M |
| 4096 x 2160 | 60 | | | X | CVT-RBv1/v2 (8.85M-R), SMPTE 274M |
| 1920 x 1080 | 60 | | X | X | VESA (SMPTE 274M) |
| 1920 x 1080 | 50 | | X | X | SMPTE 274M |
| 1920 x 1080 | 30 | | X | X | SMPTE 274M |
| 1920 x 1080 | 24 | | X | X | SMPTE 274M |
| 1280 x 720 | 60 | | X | X | VESA (CEA-770.3) |
| 1280 x 720 | 50 | | X | X | SMPTE 296M |
| 720 x 480 | 60 | | X | X | MHL (CEA-770.2) |
| * >60 refresh rates only for analog (VGA) signaling | | | | | |

Technical Specifications – Graphics

| **NVIDIA® GeForce® GT 730 2GB PCIe x8 Graphics Card** (option only for 800 G2 MT and SFF) | |
|---|---|
| **Introduction** | Get impressive graphics and high resolution dual-display performance in a low profile, PCI Expr x8 graphics add-in card based on the NVIDIA® Kepler™ Graphics Processor. Improve your everyd PC, Web conferencing, and video or photo editing. |
| **Memory** | 2GB DDR3 64-bit wide frame buffer operating at 900 MHz |
| **Controller Clock Speed** | NVIDIA® Kepler™ GPU operating at 902 MHz |
| **Multi-display Support** | A maximum of 4 displays are supported by the card. |
| **Graphics /API support** | Supports Microsoft DirectX 12, OpenGL 4.4 and OpenCL 2 APIs, Shade Model 5, UVD 4.2, VCE 2.0 DirectCompute 11 |
| **Output Connectors** | 1 x Dual-Link DVI-I, 1x DisplayPort; Includes DVI to VGA adapter<br>Display Port output is multi-mode capable, support Audio, HBR2 and MST |

**Supported Display Resolutions and Refresh Rates**

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

| Resolution | Refresh Rate* | VGA (DVI-VGA [illegible]) | DVI-D | DisplayPort | Standard |
|---|---|---|---|---|---|
| 640 x 480 | 60, 75, 85 | X | X | X | VESA DMT, CVT 0.31M3 |
| 720 x 400 | 70 | X | X | X | IBM VGA |
| 800 x 600 | 60, 75, 85 | X | X | X | VESA DMT, CVT0.48M3 |
| 1024 x 768 | 60, 75, 85 | X | X | X | VESA DMT, CVT 0.79M3 |
| 1152 x 864 | 60, 75, 85 | X | X | X | VESA DMT, CVT 0.83MA |
| 1280 x 720 | 60, 75, 85 | X | X | X | VESA DMT, CVT 0.92M9, CEA-770.3 |
| 1280 x 768 | 60, 60RB, 75, 85 | X | X | X | VESA DMT, CVT 0.98M9/0.98M9-R |
| 1280 x 800 | 60, 75, 85 | X | X | X | VESA DMT |
| 1280 x 960 | 60, 75, 85 | X | X | X | VESA DMT |
| 1280 x 1024 | 60, 75, 85 | X | X | X | VESA DMT, CVT 1.31M4 |
| 1366 x 768 | 60, 60RB | X | X | X | VESA DMT |
| 1440 x 900 | 60, 60RB | X | X | X | VESA DMT |
| 1600 x 900 | 60, 60RB, 75, 85 | X | X | X | VESA DMT |
| 1680 x 1050 | 60, 60RB, 75 | X | X | X | VESA DMT, CVT 1.76MA/1.76MA-R |
| 1920 x 1080 | 60 | X | X | X | VESA DMT, CVT 2.07M9, SMPTE 274M |
| 1920 x 1200 | 60, 60RB, 75, 85 | X | X | X | DMT, CVT 2.30MA/2.30MA-R |

| | | | | | |
|---|---|---|---|---|---|
| 1600 x 1200 | 60, 75, 85 | X | X | X | VESA DMT, 1.92M3 |
| 1920 x 1440 | 60, 75, 85 | X | X | X | VESA DMT, CVT 2.76M3 |
| 2048 x 1536 | 60,75 | X | X | X | CVT 3.15M3 |
| 2560 x 1440 | 59.951 | | X | X | CVT 3.69M9-R |
| 2560 x 1600 | 60, 60RB | | X | X | VESA DMT, CVT 4.10MA/4.10MA-R |
| 3840 x 2160 | 24 | | | X | CVT-RBv1/v2 (8.29M9-R), SMPTE 274M |
| 3840 x 2160 | 25 | | | X | CVT-RBv1/v2 (8.29M9-R), SMPTE 274M |
| 3840 x 2160 | 30 | | X | X | CVT-RBv1/v2 (8.29M9-R), SMPTE 274M |
| 3840 x 2160 | 60 | | | X | CVT-RBv1/v2 (8.29M9-R), SMPTE 274M |
| 4096 x 2160 | 24 | | | X | CVT-RBv1/v2 (8.85M-R), SMPTE 274M |
| 4096 x 2160 | 25 | | | X | CVT-RBv1/v2 (8.85M-R), SMPTE 274M |
| 4096 x 2160 | 30 | | | X | CVT-RBv1/v2 (8.85M-R), SMPTE 274M |
| 4096 x 2160 | 60 | | | X | CVT-RBv1/v2 (8.85M-R), SMPTE 274M |
| 1920 x 1080 | 60 | | X | X | VESA (SMPTE 274M) |
| 1920 x 1080 | 50 | | X | X | SMPTE 274M |
| 1920 x 1080 | 30 | | X | X | SMPTE 274M |
| 1920 x 1080 | 24 | | X | X | SMPTE 274M |
| 1280 x 720 | 60 | | X | X | VESA (CEA-770.3) |
| 1280 x 720 | 50 | | X | X | SMPTE 296M |
| 720 x 480 | 60 | | X | X | MHL (CEA-770.2) |
| 720 x 576 | 50 | | X | X | ITU-R BT.1358 |
| 640 x 480 | 60 | | X | X | CEA (VESA DMT) |
| * >60 refresh rates only for analog (VGA) signaling | | | | | |

## NVIDIA® NVS™ 310 Graphics Card

**(Not allowed when 180W chassis and 65W processor both are selected on 400/480/490/498 MT)**

| | |
|---|---|
| **Introduction** | The NVIDIA® NVS™ 310 Graphics Card is a PCI Express low profile form factor graphics add-in card targeted as an active low cost graphics solution for the corporate business and enterprise markets.<br><br>The NVIDIA® NVS™ 310 graphics card is an ideal solution for customers requiring a small form factor graphics add-in card for either standard or small form factor PC designs. |

## Technical Specifications – Graphics

| | | |
|---|---|---|
| **Performance and Features** | The NVIDIA® NVS™ 310 Graphics Card offers 1GB of ultrafast DDR3 memory and is capable of supporting up to 2 displays.<br>DisplayPort connector supports multimode technology to support connection to DVI-D, VGA and HDMI monitors with optional adapters in kits NR078AA, FH973AT, BP937AA, AS615AA.<br>For a DisplayPort to DisplayPort connections use the optional DisplayPort Cable Kit VN567AA. | |
| **Form Factor** | Low Profile: 2.713 × 6.15 in | |
| **Graphics Controller** | NVIDIA® NVS™ 310 | |
| **Memory Clock** | 875MHz | |
| **Memory Size** | 1GB DDR3 | |
| **Memory Bandwidth** | 14 GB/s | |
| **Max. Power** | 19.5W | |
| **Display Max. Resolution** | Up to 2560 x 1600 (digital display) per display | |
| **Display Output** | Up to 2 displays in the following configurations | |
| | DisplayPort output: | • Drives two DisplayPort enabled digital display at resolutions up to 2560 × 1600 at 60 Hz with reduced blanking, when connected natively using the 2 DisplayPort connectors on the NVS 310 graphics card<br>• Supports 2 monitors up to resolution of 1920 × 1200 at 60 Hz with reduced blanking using DisplayPort Multi-Stream topology technology. |
| | DVI-D output: | • Drives two digital display at resolutions up to 1920 × 1200 at 60 Hz with reduced blanking using DisplayPort to DVI-D single-link cable adaptors<br>• Drives two digital display at resolutions up to 2560× 1600 at 60 Hz with reduced blanking using DisplayPort to DVI-D dual-link cable adaptors |
| | HDMI output: | • NVS 310 is capable of driving two high definition (HD) panels up to resolutions of 1920 × 1080P at 60 Hz using DisplayPort to HDMI cable adaptors |
| | VGA display output: | • Drives two analog display at resolutions up to 1920 × 1200 at 60 Hz using DisplayPort to VGA cable adaptors |

## Technical Specifications – Graphics

| Supported Display Resolutions and Refresh Rates<br>**Note**: other resolutions may be available but are not recommended as they may not have been tested and qualified by HP | | | | |
|---|---|---|---|---|
| **Resolution** | **Maximum Refresh Rates (Hz) by Connection** | | | |
| | DisplayPort to VGA | DisplayPort to DVI-D | DisplayPort to HDMI | DisplayPort |
| 640 x 480 | 85 | 60 | 60 | 60 |
| 800 x 600 | 85 | 60 | 60 | 60 |
| 1024 x 768 | 85 | 60 | 60 | 60 |
| 1280 x 720 | 85 | 60 | 60 | 60 |
| 1280 x 1024 | 85 | 60 | 60 | 60 |
| 1440 x 900 | 75 | 60 | 60 | 60 |
| 1600 x 1200 | 60 | 60 | 60 | 60 |
| 1680 x 1050 | 60 | 60 | 60 | 60 |
| 1920 x 1080 | 60-R | 60-R | 60 | 60 |
| 1920 x 1200 | 60-R | 60-R | | 60 |
| 1920 x 1440 | | | | 60 |
| 2048 x 1536 | | | | 60 |

| **AMD® Radeon™ R9 360 Graphics** (option only for 800 G2 AiO) | |
|---|---|
| **Memory** | 2GB 128-bit wide GDDR5 frame buffer operating at 1125 MHz. |
| **Controller Clock Speed** | AMD® Radeon™ R9 360 GPU operating at 925 MHz |
| **Multidisplay Support** | Support for up to 4 external displays |
| **Graphics /API support** | DIRECTX 12, Open GL 4.3, Open CL1.2, UVD 3 |
| **Output Connectors** | 1 Dual-mode (DP++) DisplayPort output, which supports DP MST, HBR2 and audio on all external displays. Supports HP DP to VGA, DP to DVI and DP to HDMI adapters. |

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

| Resolution | Refresh Rate | Standard |
|---|---|---|
| 640 x 480 | 60 | VESA DMT, CVT 0.31M3 |
| 720 x 400 | 60 | IBM VGA |
| 800 x 600 | 60 | VESA DMT, CVT0.48M3 |
| 1024 x 768 | 60 | VESA DMT, CVT 0.79M3 |
| 1152 x 864 | 60 | VESA DMT, CVT 0.83MA |
| 1280 x 720 | 60 | VESA DMT, CVT 0.92M9, CEA-770.3 |

Technical Specifications – Graphics

| | | |
|---|---|---|
| 1280 x 768 | 60, 60RB | VESA DMT, CVT 0.98M9/0.98M9-R |
| 1280 x 800 | 60 | VESA DMT |
| 1280 x 960 | 60 | VESA DMT |
| 1280 x 1024 | 60 | VESA DMT, CVT 1.31M4 |
| 1366 x 768 | 60 | VESA DMT |
| 1440 x 900 | 60, 60RB | VESA DMT |
| 1600 x 900 | 60, 60RB | VESA DMT |
| 1680 x 1050 | 60, 60RB | VESA DMT, CVT 1.76MA/1.76MA-R |
| 1920 x 1080 | 60 | VESA DMT, CVT 2.07M9, SMPTE 274M |
| 1920 x 1200 | 60, 60RB | DMT, CVT 2.30MA/2.30MA-R |
| 1600 x 1200 | 60 | VESA DMT, 1.92M3 |
| 1920 x 1440 | 60 | VESA DMT, CVT 2.76M3 |
| 2048 x 1536 | 60 | CVT 3.15M3 |
| 2560 x 1440 | 59.951 | CVT 3.69M9-R |
| 2560 x 1600 | 60, 60RB | VESA DMT, CVT 4.10MA/4.10MA-R |
| 3840 x 2160 | 24 | CVT-RBv1/v2 (8.29M9-R), SMPTE 274M |
| 3840 x 2160 | 25 | CVT-RBv1/v2 (8.29M9-R), SMPTE 274M |
| 3840 x 2160 | 30 | CVT-RBv1/v2 (8.29M9-R), SMPTE 274M |
| 3840 x 2160 | 50 | CVT-RBv1/v2 (8.29M9-R), SMPTE 274M |
| 3840 x 2160 | 60 | CVT-RBv1/v2 (8.29M9-R), SMPTE 274M |
| 4096 x 2160 | 24 | CVT-RBv1/v2 (8.85M-R), SMPTE 274M |
| 4096 x 2160 | 25 | CVT-RBv1/v2 (8.85M-R), SMPTE 274M |
| 4096 x 2160 | 30 | CVT-RBv1/v2 (8.85M-R), SMPTE 274M |
| 4096 x 2160 | 50 | CVT-RBv1/v2 (8.85M-R), SMPTE 274M |
| 4096 x 2160 | 60 | CVT-RBv1/v2 (8.85M-R), SMPTE 274M |
| 1920 x 1080 | 60 | VESA (SMPTE 274M) |
| 1920 x 1080 | 50 | SMPTE 274M |
| 1920 x 1080 | 30 | SMPTE 274M |
| 1920 x 1080 | 24 | SMPTE 274M |
| 1280 x 720 | 60 | VESA (CEA-770.3) |
| 1280 x 720 | 50 | SMPTE 296M |
| 720 x 480 | 60 | MHL (CEA-770.2) |

| NVIDIA® GeForce® GTX 960 2GB PCIe x16 Graphics Card | |
|---|---|
| **Controller/Clock Speed** | NVIDIA® GeForce® GTX960 GPU operating at up to 1178 MHz |
| **Memory** | 2GB 128-bit wide frame buffer operating at up to 3505 MHz. |
| **Multidisplay Support** | A maximum of 4 displays are supported by the card. |
| **System Interface** | PCI Express x16 Gen3 |
| **Graphics /API support** | DirectX 12, OpenGL 4.4 |
| **Output Connectors** | 3 x Display Port:<br>• Dual Mode (DP++)<br>• Supports DP MST, HBR2 and audio<br>• Supports HP DP to VGA, DP to DVI and DP to HDMI adapters.<br><br>1 x HDMI :<br>• Supports 2.0 features<br><br>1 x Dual Link DVI-I<br>• Adds VGA support via the supplied DVI-I to VGA adapter |
| **Power Requirements** | 120W max; Requires 2x3 pin power cable & 400W system power supply |
| **Mechanical** | 6.9in x 4.4 in (175mmx112mm) full height double width slot |

**Supported Display Resolutions and Refresh Rates**

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

| Resolution | Refresh Rate* | VGA (WITH DVI-I ADAPTER) | DVI-D | DisplayPort | HDMI | Standard Resolution |
|---|---|---|---|---|---|---|
| 640 x 480 | 60, 75, 85 | X | X | X | X | VESA DMT, CVT 0.31M3 |
| 720 x 400 | 70 | X | X | X | X | IBM VGA |
| 800 x 600 | 60, 75, 85 | X | X | X | X | VESA DMT, CVT0.48M3 |
| 1024 x 768 | 60, 75, 85 | X | X | X | X | VESA DMT, CVT 0.79M3 |
| 1152 x 864 | 60, 75, 85 | X | X | X | X | VESA DMT, CVT 0.83MA |
| 1280 x 720 | 60, 75, 85 | X | X | X | X | VESA DMT, CVT 0.92M9, CEA-770.3 |
| 1280 x 768 | 60, 60RB, 75, 85 | X | X | X | X | VESA DMT, CVT 0.98M9/0.98M9-R |
| 1280 x 800 | 60, 75, 85 | X | X | X | X | VESA DMT |
| 1280 x 960 | 60, 75, 85 | X | X | X | X | VESA DMT |
| 1280 x 1024 | 60, 75, 85 | X | X | X | X | VESA DMT, CVT 1.31M4 |

## Technical Specifications – Graphics

| | | | | | | |
|---|---|---|---|---|---|---|
| 1366 x 768 | 60, 60RB | X | X | X | X | VESA DMT |
| 1440 x 900 | 60, 60RB | X | X | X | X | VESA DMT |
| 1600 x 900 | 60, 60RB, 75, 85 | X | X | X | X | VESA DMT |
| 1680 x 1050 | 60, 60RB, 75 | X | X | X | X | VESA DMT, CVT 1.76MA/1.76MA-R |
| 1920 x 1080 | 60 | X | X | X | X | VESA DMT, CVT 2.07M9, SMPTE 274M |
| 1920 x 1200 | 60, 60RB, 75, 85 | X | X | X | X | DMT, CVT 2.30MA/2.30MA-R |
| 1600 x 1200 | 60, 75, 85 | X | X | X | X | VESA DMT, 1.92M3 |
| 1920 x 1440 | 60, 75, 85 | X | X | X | X | VESA DMT, CVT 2.76M3 |
| 2048 x 1536 | 60,75 | X | X | X | X | CVT 3.15M3 |
| 2560 x 1440 | 59.951 | | X | X | X | CVT 3.69M9-R |
| 2560 x 1600 | 60, 60RB | | X | X | X | VESA DMT, CVT 4.10MA/4.10MA-R |
| 3840 x 2160 | 24 | | | X | X | CVT-RBv1/v2 (8.29M9-R), SMPTE 274M |
| 3840 x 2160 | 25 | | | X | X | CVT-RBv1/v2 (8.29M9-R), SMPTE 274M |
| 3840 x 2160 | 30 | | X | X | X | CVT-RBv1/v2 (8.29M9-R), SMPTE 274M |
| 3840 x 2160 | 50 | | | X | X | CVT-RBv1/v2 (8.29M9-R), SMPTE 274M |
| 3840 x 2160 | 60 | | | X | X | CVT-RBv1/v2 (8.29M9-R), SMPTE 274M |
| 4096 x 2160 | 24 | | | X | X | CVT-RBv1/v2 (8.85M-R), SMPTE 274M |
| 4096 x 2160 | 25 | | | X | X | CVT-RBv1/v2 (8.85M-R), SMPTE 274M |
| 4096 x 2160 | 30 | | | X | X | CVT-RBv1/v2 (8.85M-R), SMPTE 274M |
| 4096 x 2160 | 50 | | | X | X | CVT-RBv1/v2 (8.85M-R), SMPTE 274M |
| 4096 x 2160 | 60 | | | X | X | CVT-RBv1/v2 (8.85M-R), SMPTE 274M |
| 1920 x 1080 | 50 | | X | X | X | SMPTE 274M |
| 1920 x 1080 | 30 | | X | X | X | SMPTE 274M |
| 1920 x 1080 | 24 | | X | X | X | SMPTE 274M |
| 1280 x 720 | 50 | | X | X | X | SMPTE 296M |
| 720 x 576 | 50 | | X | X | X | ITU-R BT.1358 |
| * >60 refresh rates only for analog (VGA) signaling | | | | | | |

## HARD DISK AND SOLID STATE STORAGE

### Introduction:

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

SATA provides faster data transfer speeds, better system cooling airflow, more bandwidth, more headroom for speed increases in future generations and better data integrity. A next-generation technology, the SATA interface connects hard drives to the PC platform enabling easy aggregation of multiple hard drives into a single PC. This offers you the additional benefits of dedicated bandwidth, the ability to more easily identify device failures and scalability. The HP EliteDesk 800 G2 Series Business PC supports the latest SATA 6.0Gb/s specification.

**HP Drive Lock**

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

**SMART IV Technology**

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

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

**Native Command Queuing**

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

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

Technical Specifications – Hard Disk and Solid State Storage

## Redundant Array of Independent Drives (RAID)

Flexible implementation:

- DriveLock is supported while in RAID mode. Users can manage the DriveLock password from within F10 Setup. Locked drives will be displayed as such in the RAID option ROM interface.
- Hard drive information can be viewed within F10 Setup while in RAID mode. Previously, the hard drives will not appear in Drive Configuration when switching to RAID mode.
- DPS Self-Test can be executed on physical hard drives while in RAID mode.
- The RAID Setup Utility (accessed through CTRL-I) can be protected by the F10 Setup password.

NOTE:
RAID 1 is the only RAID configuration offered via factory configurations. The pre-configured systems:

- Are only available on the SFF, TWR and AIO form factors. The DM form factor does not support RAID as it does not allow for multiple common storage drives.
- Are complete RAID systems and have both drives installed. If the TWR is configured with three hard disk drives, the third drive is would be un-partitioned and not part of the RAID array
- Have the necessary Option ROM configuration.
- Are pre-loaded and pre-installed with all required Intel® software.
- Include a preinstalled operating system that is mirrored mode out of the box.
- Are available only for select storage options.

| 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 |

## Technical Specifications – Hard Disk and Solid State Storage

| | | | |
|---|---|---|---|
| **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 |

| **120GB SATA 2.5" Opal2 SED Solid State Drive (Pro 2500)** | |
|---|---|
| **Unformatted Capacity** | 120 GB<br>234,441,648 (Total Logical Sectors) |
| **Architecture** | ATA 8 Compliant and SATA 3.0 compliant<br>Supports Mode 2 Multiword DMA<br>Supports Drive Failure Prediction<br>Supports SMART Offline Read Scan<br>Supports Mode 4 PIO<br>Supports Mode 5 UDMA<br>Supports HP Drive Protection System<br>ATA 8 ACS-2 Data / TRIM Support<br>Support DEVSLP feature<br>Supports TRIM Command per ATA8 / ACS 2<br>Supports FIPS-197 features<br>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 |

## Technical Specifications – Hard Disk and Solid State Storage

| | | | |
|---|---|---|---|
| **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 |

| **128GB SATA 2.5” 3D Non-SED Solid State Drive** | |
|---|---|
| **Unformatted Capacity** | 128 GB<br>250,069,680 (User Addressable Sectors) |
| **Architecture** | Self-Encrypting (SED) Solid State Drive with NAND Flash and SATA interface.<br>Fully complies with ATA/ATAPI-7 Standard (Partially Complies with ATA/ATAPI-8)<br>Power Saving Modes: DIPM (Partial / Slumber mode)<br>Support NCQ : Up to 32 depth<br>Synchronous Signal Recovery |
| **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 54 g |

## Technical Specifications – Hard Disk and Solid State Storage

| | | |
|---|---|---|
| **Bandwidth Performance** | Sustained Sequential Read: | Up to 530 MB/s |
| | Sustained Sequential Write: | Up to 140 MB/s |
| **Power** | Power consumption: | Active: Typical 250mW; Idle: Typical 50mW |
| **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 |

| **128GB SATA 2.5" Opal2 SED Solid State Drive** | |
|---|---|
| **Unformatted Capacity** | 128 GB<br>250,069,680 (User Addressable Sectors) |
| **Architecture** | Self-Encrypting (SED) Solid State Drive with NAND Flash and SATA interface.<br>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 |

## Technical Specifications – Hard Disk and Solid State Storage

| | | |
|---|---|---|
| **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 |

| **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) |

## Technical Specifications – Hard Disk and Solid State Storage

| | | |
|---|---|---|
| **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<br>CISPR 22:2002 Class B, Korea KCC, CE Mark | |
| ***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. | | |

| **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 | |
| 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% |
| ***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. | | |

| 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 | | |
| **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)<br>Read: <3.7W<br>Write: 3.7W<br>Standby: <55mW<br>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) |
| ***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. | | | |

## HP 1TB 7.2K SATA 6.0Gb/s 2.5” Hard Disk Drive

Technical Specifications – Hard Disk and Solid State Storage

| | | |
|---|---|---|
| **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 3.5" 8GB Solid State Hybrid Drive (SSHD)** | |
|---|---|
| **Formatted Capacity** | 1 TB |
| **Spindle Speed** | 7,200 rpm |
| **Drive Type** | Solid State Hybrid Drive (SSHD) technology with NAND Flash |
| **Interface** | Serial ATA (SATA) |
| **Cache Buffer** | 64 MB |
| **NAND Flash Commercial Multilevel Cell (cMLC)** | 8 GB |
| **Number of Sectors** | 1,953,525,168 |

Technical Specifications – Hard Disk and Solid State Storage

| | | |
|---|---|---|
| **Seek Time** (typical reads) | Single Track: | 2.0 ms |
| | Average: | 11 ms |
| **Height** | 0.783 in / 2.01 cm | |
| **Width** | 4 in / 10.2 cm | |
| **Length** | 5.79 in / 14.7 cm | |
| **Weight** | 0.88 lb/400 g | |
| **Operating Temperature** | 41° to 131° F (5° to 55° C) | |

| **HP 1 TB* 7.2K rpm SATA 6.0Gb/s 3.5" Hard Disk Drive** | | |
|---|---|---|
| **Formatted Capacity** | 1,000,204,886,016 bytes | |
| **Rotational Speed** | 7,200 rpm | |
| **Interface** | Serial ATA 3.0 (6.0 Gb/s) | |
| **Buffer Size** | 16 MB | |
| **Logical Blocks** | 1,953,525,168 | |
| **Seek Time** (average) | Single Track: | 2.0 ms |
| | Average: | 11 ms |
| | Full-Stroke: | 21 ms |
| **Height** (nominal) | 1 in/2.54 cm | |
| **Width** (nominal) | Media diameter: 3.5 in/8.89 cm | |
| | Physical size: 4 in/10.2 cm | |
| **Operating Temperature** | 41° to 131° F (5° to 55° C) | |

* 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.

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

## Technical Specifications – Hard Disk and Solid State Storage

| | | |
|---|---|---|
| **Spindle Speed** | 5,400 rpm +/- 0.2% | |
| **Drive Type** | Solid State Hybrid Drive (SSHD) technology with NAND Flash | |
| **Interface** | SATA 6 Gb/s | |
| **Cache Buffer** | 64 MB | |
| **NAND Flash Commercial Multilevel Cell (cMLC)** | 8 GB | |
| **Number of Sectors** | 976,773,168 | |
| **Seek Time (typical reads)** | Single Track: | 2.0 ms |
| | Average: | 12 ms |
| **Height** | 0.374 +/-.008 in (9.5 +/- 0.2 mm) | |
| **Width** | 2.750 +/- 0.010 in (69.85 +/- 0.25 mm) | |
| **Length** | 3.951 +0.008 / -0.010 in (100.35 +0.20 / -0.25 mm) | |
| **Weight** | 0.254 lb/115 g (max) | |
| **Operating Temperature** | 32° to 140° F (0° to 60° C) | |

* 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.

| **256GB SATA 2.5” 3D Non-SED Solid State Drive** | |
|---|---|
| **Unformatted Capacity** | 256 GB<br>500,118,192 (User Addressable Sectors) |
| **Architecture** | Solid State Drive with NAND Flash and SATA interface.<br>Fully complies with ATA/ATAPI-7 Standard (Partially Complies with ATA/ATAPI-8)<br>Power Saving Modes: DIPM (Partial / Slumber mode)<br>Support NCQ : Up to 32 depth<br>Synchronous Signal Recovery |
| **Interface** | Serial ATA (6.0 Gb/s) |
| **Form Factor** | 2.5 inch |

## Technical Specifications – Hard Disk and Solid State Storage

| | | |
|---|---|---|
| **Height** | 6.80 mm ± 0.20 | |
| **Width** | 69.85 mm ± 0.25 | |
| **Length** | 100.20 mm ± 0.25 | |
| **Weight** | Up to 54 g | |
| **Bandwidth Performance** | Sustained Sequential Read: | Up to 540 MB/s |
| | Sustained Sequential Write: | Up to 280 MB/s |
| **Power** | Power consumption: | Active: Typical 250mW; Idle: Typical 50mW |
| **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 |

| **256GB SATA 2.5” Opal2 SED Solid State Drive** | |
|---|---|
| **Unformatted Capacity** | 256 GB<br>500,118,192 (User Addressable Sectors) |
| **Architecture** | Self-Encrypting (SED) Solid State Drive with MLC NAND Flash and SATA interface.<br>Trusted Computing Group(TCG) OPAL2.0 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 |

Technical Specifications – Hard Disk and Solid State Storage

| | | |
|---|---|---|
| **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 average: 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 |

| **256GB SATA 2.5" Non-SED Solid State Drive** | |
|---|---|
| **Unformatted Capacity** | 256 GB<br>500,118,192 (User Addressable Sectors) |
| **Architecture** | Solid State Drive with MLC NAND Flash and SATA interface. |
| **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 |

Technical Specifications – Hard Disk and Solid State Storage

| | | |
|---|---|---|
| **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 average: 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 |

| **HP 2 TB* 7.2K rpm SATA 6.0Gb/s 3.5" Hard Disk Drive** | | |
|---|---|---|
| **Formatted Capacity** | 2 TB | |
| **Rotational Speed** | 7,200 rpm | |
| **Interface** | SATA 6Gb/s NCQ | |
| **Cache, Multisegmented (MB)** | 64 MB | |
| **Seek Time** (average) | Read | <8.5 ms |
| | Write | <9.5 ms |
| **Height** | 1.028 in/26.11 mm | |
| **Width** | 4.0 in/101.6 mm | |
| **Depth** | 5.787 in/146.99 mm | |

## Technical Specifications – Hard Disk and Solid State Storage

| | |
|---|---|
| **Weight** | 1.38 lb/626 g |
| **Operating Temperature** | 32° to 140° F (0° to 60° C) |
| * 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. | |

| **HP 500 GB 7.2K SATA 6.0Gb/s 2.5” Hard Disk Drive** | | |
|---|---|---|
| **Capacity** | 500,107,862,016 bytes | |
| **Rotational Speed** | 7,200 rpm | |
| **Interface** | SATA 6 Gb/s | |
| **Buffer Size** | 16 MB | |
| **Logical Blocks** | 976,773,168 | |
| **Seek Time** (typical reads, includes controller overhead, including settling) | Single Track: | 2.0 ms |
| | Average: | 12 ms |
| | Full-Stroke: | 25 ms |
| **Height** (nominal) | 0.267 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) | |

## 500GB* 7.2K rpm SATA 6.0Gb/s 3.5" Hard Disk Drive

| | |
|---|---|
| **Formatted Capacity** | 500,107,862,016 bytes |
| **Spindle Speed** | 7,200 rpm |
| **Interface** | Serial ATA 3.0 (6.0 Gb/s) |
| **Buffer Size** | 16 MB |

## Technical Specifications – Hard Disk and Solid State Storage

| | | |
|---|---|---|
| **Logical Blocks** | 976,773,168 | |
| **Seek Time** (average) | Single Track: | 2.0 ms |
| | Average: | 11 ms |
| | Full-Stroke: | 21 ms |
| **Height** (nominal) | 1 in/2.54 cm | |
| **Width** (nominal) | Media diameter: 3.5 in/8.89 cm | |
| | Physical size: 4 in/10.2 cm | |
| **Operating Temperature** | 41° to 131° F (5° to 55° C) | |

*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.

| **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) | |

Technical Specifications – Hard Disk and Solid State Storage

***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.

| **512 GB SATA 2.5" 3D Solid State Drive* (Pending specifications)** | | | |
|---|---|---|---|
| **Formatted Capacity** | 512 GB | | |
| **Architecture** | | | |
| **Interface** | | | |
| **Form Factor** | | | |
| **Height** | | | |
| **Width** | | | |
| **Length** | | | |
| **Weight (typical)** | | | |
| **Data Transfer Rate (128k Sequential )** | Sequential Read | | |
| | Sequential Write | | |
| **Power Watts** | Power consumption (avg): | | |
| **Environmental** (all conditions, non-condensing) | Operating Temperature: | | |
| | Relative Humidity: | | |
| | Shock (0.5 mSec half-sine): | | |
| ***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. | | | |

| **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 |

## Technical Specifications – Hard Disk and Solid State Storage

| | | |
|---|---|---|
| **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) |

***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.

| 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<br>Read: 4 W<br>Write: 5.1 W<br>Standby: 700 mW<br>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) |
| ***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. | | | |

| HP 512GB Turbo Drive G2 SSD-M.2 PCIe Card* |
|---|

## Technical Specifications – Hard Disk and Solid State Storage

| | | | |
|---|---|---|---|
| **Formatted Capacity** | 512,288 MB | | |
| **Architecture** | Solid State Drive M.2 PCIe Gen 3 x4 NVMe;<br>NVMe 1.1a Compliant | | |
| **Interface** | M.2 PCIe Gen 3 x4 NVMe | | |
| **Form Factor** | M.2 2280 DS | | |
| **Height** | 22 mm ± 0.16 | | |
| **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 1550 MB/s | |
| **Power Watts** | Power consumption (avg): | Power-Up: N/A<br>Read: 4.3 W<br>Write: 6.5 W<br>Standby: 700 mW<br>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) |

***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.

Technical Specifications – Optical Drives

## OPTICAL DRIVES

| HP Slim SuperMulti DVD Writer Drive | | |
|---|---|---|
| **Height** | 12.7mm height | |
| **Orientation** | Either horizontal or vertical | |
| **Interface type** | SATA/ATAPI | |
| **Disc recording capacity** | Up to 8.5 GB DL or 4.7 GB standard | |
| **Dimensions** (W x H x D) | 5.04 x 0.5 x 5.0 in (128 x 12.7 x 127 mm) without bezel | |
| **Weight** (max) | 0.42 lb (190 g) | |
| **Write speeds** | DVD-RAM | Up to 5X |
| | DVD-R DL | Up to 6X |
| | DVD+R | Up to 8X |
| | DVD+RW | Up to 8X |
| | DVD+R DL | Up to 6X |
| | DVD-R | Up to 8X |
| | DVD-RW | Up to 6X |
| | CD-R | Up to 24X |
| | CD-RW | Up to 24X |
| **Read speeds** | DVD-RAM | Up to 5X |
| | DVD-RW, DVD+RW | Up to 8X |
| | DVD-R DL, DVD+R DL | Up to 8X |
| | DVD+R, DVD-R | Up to 8X |
| | DVD-ROM DL, DVD-ROM | Up to 8X |
| | CD-ROM, CD-R | Up to 24X |
| | CD-RW | Up to 24X |
| **Access time** (typical reads, including settling) | Random | DVD-ROM: 170 ms (typical), CD-ROM: 170 ms (typical) |
| | Full Stroke | DVD-ROM: 320 ms (typical), CD-ROM: 320 ms (typical) |
| | Stop Time | 6 seconds (typical) |
| **Power** | Source | Slimline SATA DC power receptacle |
| | DC Power Requirement | 5 VDC ± 5%-100 mV ripple p-p |

## Technical Specifications – Optical Drives

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

| **HP Slim Blu-ray BDXL Drive** | | | |
|---|---|---|---|
| **Height** | 12.7mm height | | |
| **Orientation** | Either horizontal or vertical | | |
| **Interface type** | SATA/ATAPI | | |
| **Disc recording capacity** | Up to 128 GB QL, 100 GB TL, 50 GB DL or 25 GB standard SL | | |
| **Dimensions** (W x H x D) | 5.04 x 0.5 x 5.0 in (128 x 12.7 x 127 mm) without bezel | | |
| **Weight** (max) | Up to 0.37 lb (170 g) without bezel | | |
| | | **Triple-layer** | **Quadruple-layer** |
| **Write speeds** | BD-R | Up to 4X | Up to 4X |
| | BD-RE | Up to 2X | Not supported |
| | | **Single-layer** | **Double-layer** |
| | BD-R | Up to 6X | Up to 6X |
| | BD-RE | Up to 2X | Up to 2X |
| | DVD-R | Up to 8X | Up to 6X |
| | DVD-RW | Up to 6X | Not supported |
| | DVD+R | Up to 8X | Up to 6X |
| | DVD+RW | Up to 8X | Not supported |
| | DVD-RAM | Up to 5X | |
| | CD-R | Up to 24X | |
| | CD-RW | Up to 24X | |
| | | **Triple-layer** | **Quadruple-layer** |
| | BD-R | Up to 4X | Up to 4X |
| | BD-RE | Up to 4X | Not supported |
| | | **Single-layer** | **Double-layer** |

## Technical Specifications – Optical Drives

| | | | |
|---|---|---|---|
| | 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 20X/10X (Read/Play) | |
| **Access time** (typical reads, including settling) | Random | BD-ROM: 205 ms (typical), DVD-ROM: 185 ms (typical), CD-ROM: 165 ms (typical) | |
| | Full Stroke | BD-ROM: 350 ms (typical), DVD-ROM: 345 ms (typical), CD-ROM: 340 ms (typical) | |
| **Power** | Source | Slimline SATA DC power receptacle | |
| | DC Power Requirement | 5 VDC ± 5%-100 mV ripple p-p | |
| | DC Current | 5 VDC -1200 mA typical, 2000 mA maximum | |
| **Environmental conditions** (operating - non-condensing) | Temperature | 41° to 122° F (5° to 50° C) | |
| | Relative Humidity | 10% to 80% | |
| | Maximum Wet Bulb Temperature | 84° F (29° C) | |

| **HP Slim DVD-ROM Drive** | |
|---|---|
| **Height** | 12.7mm |
| **Orientation** | Either horizontal or vertical |
| **Interface type** | SATA/ATAPI |
| **Dimensions** (W x H x D) | 5.04 x 0.5 x 5.0 in (128 x 12.7 x 127 mm) without bezel |

## Technical Specifications – Optical Drives

| | | |
|---|---|---|
| **Weight** (max) | Up to 0.37 lb (170 g) without bezel | |
| **Read speeds** | DVD+R/-R/+RW/ -RW/+R DL /-R DL | Up to 8X |
| | DVD-ROM | Up to 8X |
| | CD-ROM, CD-R | Up to 24X |
| | CD-RW | Up to 24X |
| **Access time** (typical reads, including settling) | Random | DVD-ROM: 170 ms (typical), CD-ROM: 170 ms (typical) |
| | Full Stroke | DVD-ROM: 320 ms (typical), CD-ROM: 320 ms (typical) |
| **Power** | Source | Slimline SATA DC power receptacle |
| | DC Power Requirement | 5 VDC ± 5%-100 mV ripple p-p |
| | DC Current | 5 VDC - <1000 mA typical, < 1600 mA maximum |
| **Environmental** (all conditions non-condensing) | Temperature | 41° to 122° F (5° to 50° C) |
| | Relative Humidity | 10% to 80% |
| | Maximum Wet Bulb Temperature (operating) | 84° F (29° C) |

Technical Specifications – Memory

## SYSTEM MEMORY SUPPORT

The HP Elite 800 G2 Business PC supports the 6th generation Intel® Core™ processor family. Based on a new PC micro-architecture, the processor is designed for a two-chip platform consisting of a processor and Platform Controller Hub (PCH). Unlike previous generations, the 6th generation Intel® Core™ processor includes an Integrated Memory Controller (IMC). The IMC supports DDR4 protocols with two independent, 64-bit wide channels each accessing one or two DIMMs.

- Two channels of non-ECC DDR4 unbuffered dual in-line memory modules (UDIMM) or DDR4 unbuffered small outline dual in-line memory modules (SO-DIMM) with a maximum of two DIMMs per channel
- Single-channel and dual-channel memory organization modes
- Data burst length of eight for all memory organization modes
- Memory data transfer rates of up to 2133 MT/s; actual supported data transfer rate determined by the configured processor.
- 64-bit wide channels
- DDR4 system memory I/O voltage of 1.2V
- Theoretical maximum memory bandwidth of:
    - 34 GB/s in dual-channel mode assuming 2133 MT/s

## PLATFORM MEMORY SUPPORT

- The Small Form Factor (SFF) and Tower (TWR) platforms support up to four (4) industry-standard DDR4-SDRAM DIMMs.
- The Desktop Mini (DM) supports up to two (2) industry-standard DDR4-SDRAM SO-DIMMs.
- The All-in-One (AiO) platform supports up to two (2) industry-standard DDR4-SDRAM SO-DIMMs.

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

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

## NETWORKING AND COMMUNICATIONS

| Intel® I219LM Gigabit Network Connection LOM (standard) | |
|---|---|
| **Connector** | RJ-45 |
| **System Interface** | PCIe + SMBus |
| **Controller** | Intel® I219LM Gigabit Ethernet Controller |
| **Data rates supported** | Supports operation at 10/100/1000 Mb/s data rates |
| **IEEE Compliance** | IEEE 802.3 Ethernet interface for 1000BASE-T, 100BASETX, and 10BASET applications (802.3ab, 802.3u, and 802.3i, respectively).<br>EEE 802.3az support [Low Power Idle (LPI) mode]<br>IEEE 802.3u auto-negotiation conformance |
| **Performance** | Jumbo Frames (up to 9 kB)<br>802.1Q & 802.1p<br>Receive Side Scaling (RSS)<br>Two Queues (Tx & Rx) |
| **Power** | • Ultra Low Power at cable disconnect (<1 mW) enables platform support for connected standby<br>• Reduced power consumption during normal operation and power down modes<br>• Integrated Intel® Auto Connect Battery Saver (ACBS)<br>• Single-pin LAN Disable for easier BIOS implementation<br>• Fully integrated Switching Voltage Regulator (iSVR)<br>• Low Power Link-Up (LPLU) |
| **MAC/PHY Interconnect** | • PCIe-based interface for active state operation (S0 state)<br>• SMBus-based interface for host and management traffic (Sx low power state) |
| **Management Interface** | • MDC/MDIO management interface |
| **Security & Manageability** | • Intel® vPro™ support with appropriate Intel chipset components |

| Intel® Ethernet I210-T1 Gigabit Network Adapter | |
|---|---|
| **Connector** | RJ-45 |

## Technical Specifications – Networking and Communications

| | | |
|---|---|---|
| **System Interface** | PCI Express x1 | |
| **Controller** | Intel® I210 Gigabit Ethernet Controller | |
| **Memory** | Integrated Dual 48K configurable transmit receive FIFO Buffers | |
| **Data rates supported** | 10/100/1000 Mbps | |
| **IEEE Compliance** | 802.1P<br>802.1Q<br>802.2<br>802.3<br>802.3AB<br>802.3u<br>802.3x flow control | |
| **Bus architecture** | PCI-E 2.1 | |
| **Data path width** | X1, 250 MB/s, Bi-directional interface | |
| **Data transfer mode** | Bus-master DMA | |
| **Hardware certifications** | FCC, B, CE, TUV-c, TUVus Mark Canada and United States, TUV-GS Mark for European Union | |
| **Power requirement** | Aux 3.3 V, 3.0 Watts in 1000 base-T and 1.0 Watts in 100 Base-T | |
| **Boot ROM support** | Yes<br>10BASE-T (half-duplex) 10 Mbps<br>10BASE-T (full-duplex) 20 Mbps | |
| **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 (actual rate limited by PCI bus) | |
| **Environmental** | Operating Temperature: | 32° to 132° F (0° to 55° C ) |
| | Operating Humidity: | 85% at 131° F (55° C) |
| **Management** | WOL, PXE, DMI, WFM 2.0 | |

| Broadcom BCM943228Z 802.11n 2x2 DualBand Combo PCIe x1 Card* | |
|---|---|
| **Wireless LAN Standards** | IEEE 802.11a<br>IEEE 802.11b<br>IEEE 802.11g<br>IEEE 802.11n |
| **Interoperability** | Wi-Fi certified |
| **Frequency Band** | 802.11b/g/n<br>• 2.402 – 2.482 GHz<br>Note:<br>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<br>• 4.9 - 4.95 GHz (Japan)<br>• 5.15 - 5.25 GHz<br>• 5.25 - 5.35 GHz<br>• 5.47 - 5.725 GHz<br>5.825 - 5.850 GHz<br>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<br>802.11b: 1, 2, 5.5, 11 Mbps<br>802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps<br>802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz) |
| **Modulation** | Direct Sequence Spread Spectrum<br>CCK, BPSK, QPSK, 16-QAM, 64-QAM |
| **Security**[1] | • IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only<br>• AES-CCMP: 128 bit in hardware<br>• 802.1x authentication<br>• WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.<br>• WPA2 certification<br>• IEEE 802.11i<br>• Cisco Certified Extensions, all versions through CCX4 and CCX Lite<br>• WAPI |
| **Sub-channels** | Multinational support with frequency bands and channels compliant to local regulations. |
| **Network Architecture Models** | Ad-hoc (Peer to Peer)<br>Infrastructure (Access Point Required) |
| **Roaming** | IEEE 802.11 compliant roaming between band Access Points |
| **Output Power**[2] | • 802.11b : +16dBm minimum<br>• 802.11g : +14dBm minimum<br>• 802.11a : +14dBm minimum<br>• 802.11n HT20(2.4GHz) : +13dBm minimum |

## Technical Specifications – Networking and Communications

| | | |
|---|---|---|
| | • 802.11n HT40(2.4GHz) : +13dBm minimum<br>• 802.11n HT20(5GHz) : +12dBm minimum<br>• 802.11n HT40(5GHz) : +12dBm minimum | |
| **Power Consumption** | Transmit: 2.0 W (max)<br>Receive: 1.6 W (max)<br>Idle mode (PSP): 180 mW (WLAN Associated)<br>Idle mode: 60 mW (WLAN unassociated)<br>Radio disabled: 30 mW | |
| **Power Management** | ACPI and PCI Express compliant power management<br>802.11 compliant power saving mode | |
| **Receiver Sensitivity**[4] | 802.11b, 1Mbps : -94dBm maximum<br>802.11b, 11Mbps : -86dBm maximum<br>802.11g, 6Mbps : -88dBm maximum<br>802.11g, 54Mbps : -74dBm maximum<br>802.11a, 6Mbps : -86dBm maximum<br>802.11a, 54Mbps : -72dBm maximum<br>802.11n, MCS07 : -69dBm maximum<br>802.11n, MCS15 : -66dBm maximum | |
| **Antenna type** | High efficiency antenna with spatial diversity, mounted in the display enclosure<br>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<br>Or<br>Type 1630 : 2.3 x 16.0 x 30.0 mm | |
| **Weight** | Type 2230 : 2.8g<br>Or<br>Type 1630 : 2g | |
| **Operating Voltage** | 3.3v +/- 9% | |
| **Temperature** | Operating<br>Non-operating | 14° to 158° F (-10° to 70° C)<br>-40° to 176° F (-40° to 80° C) |
| **Humidity** | Operating<br>Non-operating | 10% to 90% (non-condensing)<br>5% to 95% (non-condensing) |
| **Altitude** | Operating<br>Non-operating | 0 to 10,000 ft (3,048 m)<br>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**

## Technical Specifications – Networking and Communications

| | |
|---|---|
| **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** | <table><tr><th>Modulation</th><th>0.01% BER</th><th>0.001% BER</th></tr><tr><td>GFSK</td><td>-80 dBm</td><td>-70 dBm</td></tr><tr><td>π/4-DQPSK</td><td>-80 dBm</td><td>-70 dBm</td></tr><tr><td>8DPSK</td><td>-80 dBm</td><td>-70 dBm</td></tr></table> |
| **Power Consumption** | Peak (Tx) 330 mW<br>Peak (Rx) 230 mW<br>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** | Microsoft Windows ACPI, and USB Bus Support |
| **Power Management Certifications** | 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** | ETS 300 328, ETS 300 826 |
| **Certifications** | Low Voltage Directive IEC950 |
| | UL, CSA, and CE Mark |
| **Certifications Bluetooth® Profiles Supported** | Serial Port Profile (SPP)[1]<br>Service Discovery Application Profile (SDAP)<br>Dial-Up Networking (DUN)[1,2]<br>Generic Object Exchange Profile (GOEP)[1,2]<br>Object Push Profile (OPP)[1,2]<br>File Transfer Profile (FTP)<br>Synchronization Profile (SYNC)<br>Hard Copy Cable Replacement (HCRP)[1,2]<br>Personal Area Networking Profile (PAN)[1,2]<br>Human Interface Device Profile (HID)[1,2]<br>FAX Profile (FAX)<br>Basic Imaging Profile (BIP)[2] |

| | |
|---|---|
| | Headset Profile (HSP)<br>Hands Free Profile (HFP)<br>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. | |

| **Intel 7265 802.11ac 2x2 DualBand Combo PCIe x1 Card** | | |
|---|---|---|
| | **Wireless LAN Standards** | IEEE 802.11a<br>IEEE 802.11b<br>IEEE 802.11g<br>IEEE 802.11n<br>IEEE 802.11ac |
| | **Interoperability** | Wi-Fi certified |
| | **Frequency Band** | 802.11b/g/n<br>• 2.402 – 2.482 GHz<br>Note:<br>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.<br>802.11a/n<br>• 4.9 – 4.95 GHz (Japan)<br>• 5.15 – 5.25 GHz<br>• 5.25 – 5.35 GHz<br>• 5.47 – 5.725 GHz<br>• 5.825 – 5.850 GHz<br>Note: Indonesia no support this band) |
| | **Data Rates** | • 802.11b: 1, 2, 5.5, 11 Mbps<br>• 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps<br>• 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps<br>• 802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz)<br>• 802.11ac : MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, and 80MHz) |
| | **Modulation** | Direct Sequence Spread Spectrum<br>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<br>• AES-CCMP: 128 bit in hardware<br>• 802.1x authentication<br>• WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.<br>• WPA2 certification |

## Technical Specifications – Networking and Communications

| | | |
|---|---|---|
| | | • IEEE 802.11i<br>• Cisco Certified Extensions, all versions through CCX4 and CCX Lite<br>• WAPI |
| | **Network Architecture Models** | Ad-hoc (Peer to Peer)<br>Infrastructure (Access Point Required) |
| | **Roaming** | IEEE 802.11 compliant roaming between access points |
| | **Output Power**[2] | • 802.11b : +16dBm minimum<br>• 802.11g : +14dBm minimum<br>• 802.11a : +14dBm minimum<br>• 802.11n HT20(2.4GHz) : +13dBm minimum<br>• 802.11n HT40(2.4GHz) : +13dBm minimum<br>• 802.11n HT20(5GHz) : +12dBm minimum<br>• 802.11n HT40(5GHz) : +12dBm minimum<br>• 802.11ac 80MHz(5GHz) : +11dBm minimum |
| | **Power Consumption** | Transmit: 2.0 W (max)<br>Receive: 1.6 W (max)<br>Idle mode (PSP): 180 mW (WLAN Associated)<br>Idle mode: 60 mW (WLAN unassociated)<br>Radio disabled: 30 mW |
| | **Power Management** | ACPI and PCI Express compliant power management<br>802.11 compliant power saving mode |
| | **Receiver Sensitivity**[3] | 802.11b, 1Mbps : -94dBm maximum<br>802.11b, 11Mbps : -86dBm maximum<br>802.11g, 6Mbps : -88dBm maximum<br>802.11g, 54Mbps : -74dBm maximum<br>802.11a, 6Mbps : -86dBm maximum<br>802.11a, 54Mbps : -72dBm maximum<br>802.11n, MCS07 : -69dBm maximum<br>802.11n, MCS15 : -66dBm maximum<br>802.11ac, 1SS, MCS-0 : -86dBm maximum<br>802.11ac, 1SS, MCS-9 : -61dBm maximum<br>802.11ac, 2SS, MCS-0 : -83dBm maximum<br>802.11ac, 2SS, MCS-9 : -58dBm maximum |
| | **Antenna type** | High efficiency antenna with spatial diversity, mounted in the display enclosure<br>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<br>Or<br>Type 1630 : 2.3 x 16.0 x 30.0 mm |
| | **Weight** | Type 2230 : 2.8g<br>Or<br>Type 1630 : 2g |
| | **Operating Voltage** | 3.3v +/- 9% |

## Technical Specifications – Networking and Communications

| | | | |
|---|---|---|---|
| | **Temperature** | Operating<br>Non-operating | 14° to 158° F (–10° to 70° C)<br>–40° to 176° F (–40° to 80° C) |
| | **Humidity** | Operating<br>Non-operating | 10% to 90% (non-condensing)<br>5% to 95% (non-condensing) |
| | **Altitude** | Operating<br>Non-operating | 0 to 10,000 ft (3,048 m)<br>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.<br>2. Maximum output power may vary by country according to local regulations.<br>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**<br>GFSK / -80 dBm / -70 dBm<br>π/4-DQPSK / -80 dBm / -70 dBm<br>8DPSK / -80 dBm / -70 dBm |
| | **Power Consumption** | Peak (Tx) 330 mW<br>Peak (Rx) 230 mW<br>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**<br>**Bluetooth® Software Supported Security** | Point to Point, Multipoint Pico Nets up to 7 slaves<br>Full support of Bluetooth® Security Provisions |
| | **Power Management**<br>**Power Management Certifications** | Microsoft Windows ACPI, and USB Bus Support<br>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**<br>**Bluetooth® Profiles Supported** | FCC (47 CFR) Part 15C, Section 15.247 & 15.249 |
| | **Power Management** | ETS 300 328, ETS 300 826 |

## Technical Specifications – Networking and Communications

| | | |
|---|---|---|
| | **Certifications** | Low Voltage Directive IEC950 |
| | | UL, CSA, and CE Mark |
| | **Certifications**<br>**Bluetooth® Profiles Supported** | Serial Port Profile (SPP)[1]<br>Service Discovery Application Profile (SDAP)<br>Dial-Up Networking (DUN)[1,2]<br>Generic Object Exchange Profile (GOEP)[1,2]<br>Object Push Profile (OPP)[1,2]<br>File Transfer Profile (FTP)<br>Synchronization Profile (SYNC)<br>Hard Copy Cable Replacement (HCRP)[1,2]<br>Personal Area Networking Profile (PAN)[1,2]<br>Human Interface Device Profile (HID)[1,2]<br>FAX Profile (FAX)<br>Basic Imaging Profile (BIP)[2]<br>Headset Profile (HSP)<br>Hands Free Profile (HFP)<br>Advanced Audio Distribution Profile (A2DP) |

| **Intel® 8260 2x2 Dual Band 802.11ac WLAN/ Bluetooth® Combo*** | | |
|---|---|---|
| **Wireless LAN Standards** | IEEE 802.11 ac/a/b/g/n | |
| **Interoperability** | Wi-Fi certification | |
| | WLAN + Bluetooth® Combo M.2 Card device shall meet all of the requirements to support Bluetooth® 4.1 and backwards compatible with 2.1 with EDR | |
| **Frequency Band** | 802.11b/g/n | 2.402-2.482 GHz |
| | 802.11a/n/ac | 4.9 – 4.95 GHz (Japan)<br>5.15 – 5.25 GHz<br>5.25 – 5.35 GHz<br>5.47 – 5.725 GHz<br>5.825 – 5.850 GHz (Note: Indonesia does not support this band) |
| **Antenna Interface** | With antennas installed in the system, the antenna peak gain is less than +3dBi in the 2.4GHz band and less than +4dBi in the 5GHz band to allow the device to meet regulatory limits. | |
| **Data Rates** | • 802.11b: 1, 2, 5.5, 11 Mbps<br>• 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps<br>• 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps | |

## Technical Specifications – Networking and Communications

| | |
|---|---|
| | • 802.11n: card will support rates for NSS=1 and NSS=2 for RX and TX for 20 and 40 MHz channels. Short and long guard interval shall be supported.<br>• 802.11ac: card will support rates for NSS=1 and NSS=2 for RX and TX for 80 MHz channels. 433Mbps for 1x1 and 867Mbps for 2x2. |
| **Security** | • IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only<br>• AES-CCMP: 128 bit in hardware<br>• 802.1x authentication<br>• WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.<br>• WPA2 certification<br>• IEEE 802.11i<br>• Cisco Certified Extensions, all versions through V5<br>• WAPI |
| | Note: Check latest software/driver release for updates on supported security features. |
| **Roaming** | 802.11r Fast Roaming |
| **Output Power (Transmitting)** | • 802.11b: +16dBm minimum<br>• 802.11g: +14dBm minimum<br>• 802.11a: +14dBm minimum<br>• 802.11n HT20 (2.4GHz) : +14dBm minimum<br>• 802.11n HT40 (2.4GHz) : +12dBm minimum<br>• 802.11n HT20 (5GHz) : +14dBm minimum<br>• 802.11n HT40 (5GHz) : +12dBm minimum<br>• 802.11ac 80MHz (5GHz) : +12dBm minimum |
| | Notes:<br>1. RF Tx power have to meet minimum criteria and with +1.5dBm tolerance but -1.5dBm.<br>2. RF Parameter will be verified by R&S CMW500 via link mode. . |
| **Power Consumption** | Transmit: 2.0 Watts |
| | Receive: 1.6 Watts |
| | Idle mode (PSP): 180 mW (WLAN associated) |
| | Idle mode: 50 mW (WLAN unassociated) |
| | Connect Standby 10mW (WLAN+BT) |
| | Radio off: 5 mW |
| **Bluetooth® Power Consumption** | Peak operating: 330 mW |

## Technical Specifications – Networking and Communications

| | | |
|---|---|---|
| | Receive: 230 mW | |
| | USB selective suspend: 17 mW | |
| **Power Management** | The product conforms to the ACPI and PCI Express M.2 bus methods to manage power of the WLAN components.<br><br>Supports all 802.11 compliant power-save modes. These include the basic Power Save Polling (PSP) in 802.11 and Automatic Power Save Delivery (APSD) defined in 802.11e. | |
| **Receiver Sensitivity for FER <10%** | 802.11b, 1Mbps: -94dBm maximum<br>802.11b, 11Mbps: -86dBm maximum<br>802.11a/g, 6Mbps: -88dBm maximum<br>802.11a/g, 54Mbps : -74dBm maximum<br>802.11n, MCS07 : -69dBm maximum<br>802.11n, MCS15 : -66dBm maximum<br>802.11ac, 1SS, MCS-0 : -86dBm maximum<br>802.11ac, 1SS, MCS-9 : -61dBm maximum<br>802.11ac, 2SS, MCS-0 : -83dBm maximum<br>802.11ac, 2SS, MCS-9 : -58dBm maximum | |
| | Note:<br>1. Rx sensitivity have to meet maximum criteria and with -1.5dBm tolerance but +1.5dBm.<br>2. Note: RF Parameter will be verified by R&S CMW500 via link mode. | |
| **Form Factors** | PCI Express M.2 form factor | |
| **Operating Voltage** | The card will be powered by a 3.3V, ± 9% supply from the host system. | |
| **Temperature** | **Operating:**<br>**Non-operating:** | 14° to 158° F (-10° to 70° C)<br>-40° to 176° F (-40° to 80° C) |
| **Humidity** | **Operating:**<br>**Non-operating:** | 10% to 90% (non-condensing)<br>5% to 95% (non-condensing) |
| **Altitude** | **Operating:**<br>**Non-operating:** | 0 to 10,000 ft (3,048 m)<br>0 to 50,000 ft (15,240 m) |
| * Wireless access point and Internet service required and not included. Availability of public wireless access points limited. | | |

| **Intel® 3165 1x1 Dual Band 802.11ac WLAN/ Bluetooth® Combo*** | |
|---|---|
| **Wireless LAN Standards** | IEEE 802.11 ac/a/b/g/n |

## Technical Specifications – Networking and Communications

| | | |
|---|---|---|
| **Interoperability** | Wi-Fi certification | |
| | WLAN + Bluetooth® Combo M.2 Card device shall meet all of the requirements to support Bluetooth® 4.1 and backwards compatible with 2.1 with EDR | |
| **Frequency Band** | 802.11b/g/n | 2.402-2.482 GHz |
| | 802.11a/n/ac | 4.9 – 4.95 GHz (Japan)<br>5.15 – 5.25 GHz<br>5.25 – 5.35 GHz<br>5.47 – 5.725 GHz<br>5.825 – 5.850 GHz (Note: Indonesia does not support this band) |
| **Antenna Interface** | With antennas installed in the system, the antenna peak gain is less than +3dBi in the 2.4GHz band and less than +4dBi in the 5GHz band to allow the device to meet regulatory limits. | |
| **Data Rates** | • 02.11b: 1, 2, 5.5, 11 Mbps<br>• 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps<br>• 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps<br>• 802.11n: card will support rates for NSS=1 and NSS=2 for RX and TX for 20 and 40 MHz channels. Short and long guard interval shall be supported.<br>• 802.11ac: card will support rates for NSS=1 and NSS=2 for RX and TX for 80 MHz channels. 433Mbps for 1x. | |
| **Security** | • I IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only<br>• AES-CCMP: 128 bit in hardware<br>• 802.1x authentication<br>• WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.<br>• WPA2 certification<br>• IEEE 802.11i<br>• Cisco Certified Extensions, all versions through V5<br>• WAPI | |
| | Note: Check latest software/driver release for updates on supported security features. | |
| **Roaming** | 802.11r Fast Roaming | |
| **Output Power (Transmitting)** | • 802.11b: +16dBm minimum<br>• 802.11g: +14dBm minimum<br>• 802.11a: +14dBm minimum<br>• 802.11n HT20 (2.4GHz) : +14dBm minimum<br>• 802.11n HT40 (2.4GHz) : +12dBm minimum<br>• 802.11n HT20 (5GHz) : +14dBm minimum | |

## Technical Specifications – Networking and Communications

| | |
|---|---|
| | • 802.11n HT40 (5GHz) : +12dBm minimum<br>• 802.11ac 80MHz (5GHz) : +12dBm minimum |
| | Notes:<br>1. RF Tx power have to meet minimum criteria and with +1.5dBm tolerance but -1.5dBm.<br>2. RF Parameter will be verified by R&S CMW500 via link mode. |
| **Power Consumption** | Transmit: 2.0 Watts |
| | Receive: 1.6 Watts |
| | Idle mode (PSP): 180 mW (WLAN associated) |
| | Idle mode: 50 mW (WLAN unassociated) |
| | Connect Standby 10mW (WLAN+BT) |
| | Radio off: 5 mW |
| **Bluetooth® Power Consumption** | Peak operating: 330 mW |
| | Receive: 230 mW |
| | USB selective suspend: 17 mW |
| **Power Management** | The product conforms to the ACPI and PCI Express M.2 bus methods to manage power of the WLAN components.<br><br>Supports all 802.11 compliant power-save modes. These include the basic Power Save Polling (PSP) in 802.11 and Automatic Power Save Delivery (APSD) defined in 802.11e. |
| **Receiver Sensitivity for FER <10%** | 802.11b, 1Mbps: -94dBm maximum<br>802.11b, 11Mbps: -86dBm maximum<br>802.11a/g, 6Mbps: -88dBm maximum<br>802.11a/g, 54Mbps : -74dBm maximum<br>802.11n, MCS07 : -69dBm maximum<br>802.11n, MCS15 : -66dBm maximum<br>802.11ac, 1SS, MCS-0 : -86dBm maximum<br>802.11ac, 1SS, MCS-9 : -61dBm maximum<br>802.11ac, 2SS, MCS-0 : -83dBm maximum<br>802.11ac, 2SS, MCS-9 : -58dBm maximum |
| | Note:<br>1. Rx sensitivity have to meet maximum criteria and with -1.5dBm tolerance but +1.5dBm.<br>2. Note: RF Parameter will be verified by R&S CMW500 via link mode. |
| **Form Factors** | PCI Express M.2 form factor |

## Technical Specifications – Networking and Communications

| | | |
|---|---|---|
| **Operating Voltage** | The card will be powered by a 3.3V, ± 9% supply from the host system. | |
| **Temperature** | **Operating:**<br>**Non-operating:** | 14° to 158° F (-10° to 70° C)<br>-40° to 176° F (-40° to 80° C) |
| **Humidity** | **Operating:**<br>**Non-operating:** | 10% to 90% (non-condensing)<br>5% to 95% (non-condensing) |
| **Altitude** | **Operating:**<br>**Non-operating:** | 0 to 10,000 ft (3,048 m)<br>0 to 50,000 ft (15,240 m) |
| * Wireless access point and Internet service required and not included. Availability of public wireless access points limited. | | |

Technical Specifications - Audio

## AUDIO

| High Definition Audio | |
|---|---|
| **Type** | Integrated |
| **HD Stereo Codec** | Realtek 2-channel ALC221 codec |
| **Audio I/O Ports** | Front microphone-In (150-K ohm Input Impedance) |
| | Rear Line-In/Microphone input (150-K ohm Input Impedance, function is configurable by audio driver) |
| | Rear Line-Out* (190 ohms Output Impedance, expects at least a 10-K ohm load) |
| | Front Headphone-Out (0.5 Ohm Output Impedance, expects at least a 32 ohm load)<br>Front Microphone/Headphone jack is re-task able to provide Microphone input, line-in or Headphone output to support connecting two headphones to the front of the system. When configured as a second front headphone output, both front headphone outputs are always driven with the same signal. |
| | All ports are 3.5mm |
| **Internal Speaker Amplifier** | 1.5W amplifier for the internal speaker only. External speakers must be powered externally. Rear Line-in audio port is re-taskable as either Line-in or Microphone-In. |
| **Multi-streaming Capable** | Multi-streaming can be enabled in the Realtek control panel to allow independent audio streams to be sent to/from the front and rear jacks. |
| **Sampling** | 8 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 |

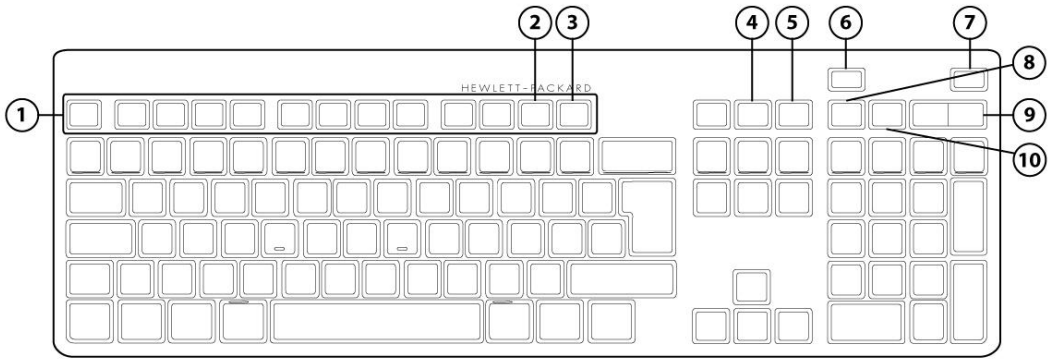
| **High Definition Audio** (All-in-One only) | |
|---|---|
| **Type** | Integrated |
| **HD Stereo Codec** | HP Clear Sound Amp |
| **Audio I/O Ports** | Side Headphone |
| | Side Headphone/Microphone/Line-In (function is configurable by audio driver; re-task able to provide Headphone, Microphone, or Line-In) |
| | Rear Line-Out |

## Technical Specifications - Audio

| | |
|---|---|
| | 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 |

## INPUT/OUTPUT DEVICES

### HP Conferencing Keyboard




| | | | |
|---|---|---|---|
| **1.** | Function Keys | **6.** | End/Decline a Call |
| **2.** | F11 Lync or Skype for Business Contact list * | **7.** | Answer a Call |
| **3.** | F12 Lync or Skype for Business Calendar ** | **8.** | Microphone Mute |
| **4.** | Share Screen | **9.** | Volume Up/Down |
| **5.** | Stop Webcam | **10.** | Audio Mute |
| *Microsoft Lync 2013, or Skype for Business, or Microsoft Outlook 2013 Contact list | | | |
| **Microsoft Lync 2013, or Skype for Business, or Microsoft Outlook 2013 Calendar | | | |
| | | | |

| | |
|---|---|
| **Dimensions (H x L x W)** | 0.85 x 17.34 x 6.10 in (2.16 x 44.05 x 15.50 cm) |
| **Weight** | 24.69 oz. ( 700 g) |
| **Connectivity** | USB cable |
| **Keys** | 110 (US) Layout, 111 (EU) Layout – depending upon country |
| **Feature Summary** | Full-size ultra-quiet keyboard with numerical pad and 12 function keys<br>One-touch simplicity for Microsoft Lync or Skype for Business calls with dedicated keys and LED light indicators |
| **Illuminated keys** | Incoming Call – Blinks Green<br>Call in progress –Green |

## Technical Specifications - Input/Output Devices

| | |
|---|---|
| | Microphone Mute – Orange<br>Audio Mute – Orange<br>Screen Sharing – Orange<br>Stop Webcam – Orange |
| **Other Call control keys** | End/Decline Call<br>Volume up and down rocker key |
| **Microsoft Lync/Outlook** | Fn+F12 – Lync or Skype for Business Calendar will open. If Lync or Skype for Business is not available will bring Outlook Calendar *<br>Fn+F11 – Lync or Skype for Business Contact will open. If Lync or Skype for Business is not available will bring Outlook Contact list *<br><br>* Fn+11 and Fn+12 function keys are not supported in Microsoft Windows 8.x Metro mode |
| **Functions Keys** | Fn+F10 – System Settings<br>Fn+F9 – Devices<br>Fn+F8 – Search<br>Fn+F7 – Blank<br>Fn+F6 – Up Brightness Adjustment<br>Fn+F5 – Down Brightness Adjustment<br>Fn+F4 – Display Options<br>Fn+F3 – File Explorer<br>Fn+F2 – System Lock<br>Fn+F1 – System Sleep |
| **System requirements** | Available USB port<br>Windows 7, Windows 8.x, and Windows 10<br>Server: Microsoft Lync Server 2010 or 2013 and Skype for Business Server 2015<br>Client: Microsoft Lync 2013 version 15.0.46xx or newer or Skype for Business<br>Notes:<br>• Limited support for Microsoft Lync 2010, Microsoft Lync 2013 Basic and Microsoft Metro Mode<br>• Screen brightness functions supported in select HP systems |
| **Approvals**<br>**EMC**<br>**Product Safety** | FCC; CE; ACA(C-tick); EAC<br>UL, CE Mark |

## HP USB Business Slim Keyboard

## Technical Specifications - Input/Output Devices

| | | |
|---|---|---|
| **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 (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<br>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) |

Technical Specifications - Input/Output Devices

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

## Technical Specifications - Input/Output Devices

| | | |
|---|---|---|
| | Keycaps | Low-profile design |
| | Switch actuation | 55-g nominal peak force with tactile feedback |
| | Switch life | 20 million keystrokes (using Hasco modified tester) |
| | Switch type | Contamination-resistant switch membrane |
| | Key-leveling mechanisms | For all double-wide and greater-length keys |
| | Cable length | 6 ft (1.8 m) |
| | Microsoft PC 99 - 2001 | Mechanically compliant |
| **Environmental** | Acoustics | 50-dBA maximum sound pressure level |
| | Operating temperature | 32° to 104° F (0° to 40° C) |
| | Non-operating temperature | -22° to 149° F (-30° to 65° C) |
| | Operating humidity | 15% to 80% (non-condensing at ambient) |
| | Non-operating humidity | 15% to 90% (non-condensing at ambient) |
| | Operating shock | N/A |
| | Non-operating shock | 65 inch 2.9 ms, six surface; 30g 266 inch/second; 50g 266 inch/second six surface |
| | Operating vibration | 2-g peak acceleration |
| | Non-operating vibration | Starting at 5 Hz, vary the frequency of vibration from 5 to 500 Hz and back to 5 Hz at a Logarithmic sweep rate of 1 octave per minute. |
| | Drop (out of box) | 26 in (66 cm) on carpet, six-drop sequence |
| | Drop (in box) | 29.93 in (76 cm) on concrete, 16-drop sequence |
| **Approvals** | CUL, ICES-003 Class B, FCC, CE Mark,TUV GS, VCCI, BSMI, C-Tick, KC | |
| **Ergonomic compliance** | ANSI HFS 100, ISO 9241-4, and TUVGS | |

| **HP PS/2 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 (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<br>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 |

## Technical Specifications - Input/Output Devices

| | | |
|---|---|---|
| | 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 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<br>CD-ROM Drive<br>*This system may require upgraded and/or separately purchased hardware and/or a DVD drive to install the Windows 7 software and take full advantage of Windows 7 functionality. See http://www.microsoft.com/windows/windows-7/ for details. | |
| **Approvals** | Product Safety | UL; CSA /TUV (Europe only); CE Mark; CB Report |
| | Ergonomics | ANSI; ISO (Europe only); GS Mark (Germany only) |
| | EMC | FCC; CE; ACA (-tick); BSMI; KC ; VCCI |

## Technical Specifications - Input/Output Devices

| | | |
|---|---|---|
| | CE Mark | EN 55022:2010; EN 55024; EN 301489-1; EN 61000 |
| | Design Guidelines for PCs | PC 99 – connector overmold colors; PC 2001 – full functionality |
| | Telecom | All local telecom requirements and approvals for intended markets |
| | USA | FCC Title 47 CFR, Par 15, Subpart C; other local requirements |
| | Country Support | US, Belgium, Switzerland, Spain, Denmark, Netherlands, France, Germany, Italy, Portugal, Sweden, Norway, Finland, UK, Poland, Czech Republic, Turkey, Greece, Austria, Bulgaria, Cyprus, Estonia, Hungary, Ireland, Latvia, Lithuania, Luxemburg, Malta, Romania, Slovakia, Slovenia, Vietnam, HK, Australia, NZ, Malaysia, Singapore, Indonesia, Philippines, Thailand, Canada, China, Japan, Korea, Taiwan, India, Venezuela, Ecuador, Russia, Ukraine, Israel, Croatia, United Arab Emirates, Peru, Brazil, Chile, Argentina, Mexico, South Africa, and up to 193 countries worldwide. |
| **Environmental** | Keyboard contains 25% post-consumer recycled plastic material. | |

### HP USB 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 |

## Technical Specifications - Input/Output Devices

| | | |
|---|---|---|
| | Cable length | 7 ft (2.2 m) |
| | Microsoft PC 99 - 2001 | Mechanically compliant |
| | Acoustics | 43-dBA maximum sound pressure level |
| **Environmental** | Operating temperature | 50° to 122° F (10° to 50° C) |
| | Non-operating temperature | 4° to 149° F (-20° to 65° C) |
| | Operating humidity | 10% to 95% (non-condensing at ambient) |
| | Non-operating humidity | 0% to 95% (non-condensing at ambient) |
| | Operating shock | 40 g, six surfaces |
| | Non-operating shock | 80 g, six surfaces |
| | Operating vibration | 2-g peak acceleration |
| | Non-operating vibration | 4-g peak acceleration |
| | Drop (out of box) | 26 in (66 cm) on carpet, six-drop sequence |
| | Drop (in box) | 42 in (107 cm) on concrete, 16-drop sequence |
| **Operating system support** | Windows® 7, Windows Vista, Windows XP Professional | |
| **Approvals** | UL, cUL, FCC, CE, TUV GS, VCCI, BSMI, C-Tick, KCC, USB-IF, WHQL, EN/IEC 60601-1, IP66/NEMA4X | |
| **Ergonomic compliance** | ANSI HFS 100, ISO 9241-4, and TUVGS | |

## HP USB 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.

## Technical Specifications - Input/Output Devices

| | | |
|---|---|---|
| HP ProtectTools Smart Card Manager provides authentication software for the smart card. The Smart Card Reader module works with the HP ProtectTools Security Manager and enables the user to setup, use, and manage the smart card. This allows strengthened security with HP patented technology. | | |
| **Key Benefits:** | • Protects against unauthorized access with smart card technology<br>• Delivers even greater security when combined with a HP ProtectTools smart card and the HP ProtectTools Security Software<br>• Combination of username and password or pin with a smart card or security token<br>• Secures online transactions using digital signatures and certificates<br>• Conforms to industry standards for ease of setup and use<br>• Delivers long product life and quiet operation with high-impact materials and lubricated keys<br>• Spill drain feature | |
| **Physical Characteristics** | Keys | 104, 105, 106, 107, 109 layout (depending upon country |
| | Form factor | USB basic smart card keyboard |
| | Colors | Carbonite/Silver |
| | Dimensions (H x W x D) | 18.2 x 6.3 x 1.3 in (46.3 x 16.1 x 3.3 cm) |
| | Weight | 2 lb (0.9 kg) minimum |
| **Electrical** | Operating voltage | + 5VDC ± 5% |
| | Power consumption | 100-mA maximum (with four LEDs ON) |
| | System interface | USB Type A plug connector |
| | ESD | CE level 4, 15-kV air discharge |
| | EMI - RFI | Conforms to FCC rules for a Class B computing device |
| | Microsoft PC 99 - 2001 | Functionally compliant |
| **Mechanical** | Languages | 30+ available |
| | Keycaps | Standard design |
| | Switch actuation | 55 g nominal peak force with tactile feedback |
| | Switch life | 20 million keystrokes (using Hasco modified tester) |
| | Switch type | Contamination-resistant membrane |
| | Key-leveling mechanisms | For all double-wide and greater-length keys |
| | Cable length | 6 ft (1.8 m) |
| | Microsoft PC 99 - 2001 | Mechanically compliant |
| | Acoustics | 43-dBA maximum sound pressure level |
| **Environmental** | Operating temperature | 50° to 122° F (10° to 50° C) |
| | Non-operating temperature | -22° to 140° F (-30° to 60° C) |
| | Operating humidity | 10% to 90% (non-condensing at ambient) |
| | Non-operating humidity | 20% to 80% (non-condensing at ambient) |
| | Operating shock | 40 g, six surfaces |
| | Non-operating shock | 80 g, six surfaces |
| | Operating vibration | 2-g peak acceleration |

## Technical Specifications - Input/Output Devices

| | | | |
|---|---|---|---|
| | Non-operating vibration | 4-g peak acceleration | |
| | Drop (out of box) | 26 in (66 cm) on carpet, six-drop sequence | |
| | Drop (in box) | 42 in (107 cm) on concrete, 16-drop sequence | |
| **SmartCard Function** | Support | All ISO 7816 smart cards | |
| | Interface | Reads from and writes to all ISO7816-1, 2, 3, 4 memory and microprocessor smart cards (T=0, T=1) | |
| | Chipset | SCM STCIII | |
| | Standard APIs supported | PC/SC, EMV2000, CT-API | |
| | Power | USB Port | |
| | | Short circuit detection (protects smart card and reader) | |
| | | Power supply compliant with ISO7816 and EMV (5V, 60 mA) | |
| | | Supports 3-V and 5-V cards | |
| | Power consumption | 100-mA maximum draw | |
| | 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 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) |

## Technical Specifications - Input/Output Devices

| | | |
|---|---|---|
| | Operating Humidity | 10% to 90%<br>(non-condensing at ambient) |
| **Mechanical** | Resolution | 1000dpi |
| | Tracking Speed | 45 cm/sec |
| | Cable Length | 70.9 in (180 cm) |

Technical Specifications – Power

## POWER

## Unit Environment and Operating Conditions

General Unit Operating Guidelines

- Keep the computer away from excessive moisture, direct moisture and the extremes of heat and cold, to ensure that unit is operated within the specified operating range.
- Leave a 10.2 cm (4 in) clearance on all vented sides of the computer to permit the required airflow.
- Never restrict airflow into the computer by blocking any vents or air intakes.
- Do not stack computers on top of each other or place computers so near each other that they are subject to each other's re-circulated or preheated air.
- Occasionally clean the air vents on the front, back, and any other vented side of the computer. Lint, dust and other foreign matter can block the vents and limit the airflow.
- If the computer is to be operated within a separate enclosure, intake and exhaust ventilation must be provided on the enclosure, and the same operating guidelines listed above will still apply.

| | |
|---|---|
| Temperature Range | Operating: 50° to 95° F (10° to 35° C)*<br>Non-operating: –22° to 140° F(–30° to 60° C) |
| Relative Humidity | Operating: 10% to 90% (non-condensing at ambient)<br>Non-operating: 5% to 95% (non-condensing at ambient) |
| Maximum Altitude (unpressurized) | Operating: 5000m<br>Non-operating: 50,000 ft (15240 m) |

*Operating temperature is de-rated 1.0 deg C per 300 m (1000 ft) to 3000 m (10,000 ft) above sea level, no direct sustained sunlight. Maximum rate of change is 10 deg C/Hr. The upper limit may be limited by the type and number of options installed.

| POWER SUPPLY | DM | SFF | TWR | AiO |
|---|---|---|---|---|
| Standard Efficiency | 65W* active PFC 89% average efficiency at 115V and 230V<br>90W active PFC 89% average efficiency at 115V and 230V<br><br>*not for 65W DM | 200W active PFC | 280W active PFC | N/A |
| 80 PLUS Bronze | N/A | 200W active PFC 82/85/82% efficient at 20/50/100% load (115V) | 280W active PFC 82/85/82% efficient at 20/50/100% load (115V) | N/A |
| 80 PLUS Gold | N/A | N/A | N/A | 160W active PFC 87/90/87% efficient at 20/50/100% load (115V) 88/91/88% efficient at 20/50/100% load (230V) |

## Technical Specifications – Power

| | | | | |
|---|---|---|---|---|
| | | | | |
| 80 PLUS Platinum | N/A | 200W active PFC<br><br>90/92/89% efficient at 20/50/100% load (115V)<br><br>91/93/90% efficient at 20/50/100% load (230V) | 400W active PFC<br>280W active PFC<br><br>90/92/89% efficient at 20/50/100% load (115V)<br><br>91/93/90% efficient at 20/50/100% load (230V) | 200W active PFC<br><br>90/92/89% efficient at 20/50/100% load (115V)<br>91/93/90% efficient at 20/50/100% load (230V) |
| Operating Voltage Range | 90 - 264 VAC | 90 - 264 VAC | 90 - 264 VAC | 90 – 264 VAC |
| Rated Voltage Range | 100 - 240 VAC | 100 - 240 VAC | 100 - 240 VAC | 100-240V AC |
| Rated Line Frequency | 50/60 Hz | 50/60 Hz | 50/60 Hz | 50/60 HZ |
| Operating Line Frequency | 47 – 63 Hz | 47 – 63 Hz | 47 – 63 Hz | 47 – 63 Hz |
| Rated Input Current | N/A | 3.5A | 4.4A | 200W : 3A<br>160W : 2A |
| Rated Input Current with Energy Efficient* Power Supply | | 3A | 3.6A | 200W : 3A<br>160W : 2A |
| DC Output | +19.5V | +12.1V | +12.1V | +12.1V |
| Current Leakage (NFPA 99: 2102) | Less than 500 microamps of leakage current at 120 Vac with the ground wire disconnected, as required for Non-patient Electrical Appliances and Equipment used in a patient care facility or that contact patients in normal use. Per section 10.3.5.1. | Less than 500 microamps of leakage current at 120 Vac with the ground wire disconnected, as required for Non-patient Electrical Appliances and Equipment used in a patient care facility or that contact patients in normal use. Per section 10.3.5.1. | | Less than 500 microamps of leakage current at 120 Vac with the ground wire disconnected, as required for Non-patient Electrical Appliances and Equipment used in a patient care facility or that contact patients in normal use. Per section 10.3.5.1. |
| | Less than 100 microamps of leakage current at 120 Vac with the ground wire intact | Less than 100 microamps of leakage current at 120 Vac with the ground wire intact with normal polarity, as required for Non-patient Electrical Appliances and Equipment used in a patient care | | Less than 100 microamps of leakage current at 120 Vac with the ground wire intact |

## Technical Specifications – Power

| | | | | |
|---|---|---|---|---|
| | 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. | facility or that contact patients in normal use. Per section 10.3.5.1. | | 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 | 70mm variable speed | 80mm variable speed | N/A |
| Power cord length | N/A | 6.0 ft. (1.83 m) | 6.0 ft. (1.83 m) | 6.0 ft. (1.83 m) |
| External Power Adapter | | N/A | N/A | N/A |
| Dimensions | 1.77 x 1.18 x 4.25 in<br>45 x 30 x 108 mm | N/A | N/A | N/A |
| Total Cord Length | 6 ft | N/A | N/A | N/A |

Technical Specifications – Weights & Dimensions

## WEIGHTS & DIMENSIONS

| (configured with 1 HDD & 1 ODD; DM configured with 1 HDD only) | | | | |
|---|---|---|---|---|
| | **DM** | **SFF** | **TWR** | **AiO** |
| Chassis (W x H x D) | 6.9 x 1.3 x 7.0 in<br>175 x 34 x 177 mm | 13.3 x 3.95 x 14.9 in<br>338 x 100 x 379 mm | 6.7 x 15.3 x 16.7 in<br>170 x 389 x 425.4 mm | **See table below.** |
| System Volume | 62.79 cu in<br>1.05 L | 782.7 cu in<br>12.8 L | 1711.9 cu in<br>28L | |
| System Weight* | 2.9 lb<br>1.3 kg | 16.7 lb<br>7.6 kg | 20.8 lb<br>9.434 kg | |
| Max Supported Weight (desktop orientation) | 77.0 lb<br>35.0 kg | 77.0 lb<br>35.0 kg | 77.0 lb<br>35.0 kg | |
| Stand Dimensions | 77x 4.6 x 6.3 in<br>19.5 x 117 x 160 mm<br>Weight: 47g/ .1 lbs. | 1.1 x 7.0 x 7.9 in<br>29 x 178 x 200 mm | N/A | |
| Packaging (H x W x D) | 7.8 x 11.4 x 19.7 in<br>198 x 290 x 500 mm | 9.0 x 19.7 x 23.4 in<br>229 x 500 x 594 mm | 11.6 x 19.6 x 23.6 in<br>295 x 499 x 599 mm | |
| Shipping Weight | 9.0 lb.<br>4.1 kg | 17.9 lb<br>8.1 kg | 28.8 lb<br>13.1 kg | |
| Palletization Profile | 8-units per layer<br>10/12 layer max<br>80/96 per pallet<br>47.126 x 39.291 x 99.252 in (including pallet) | 4-units per layer<br>10-layer max.<br>40-units per pallet<br>47.126 x 39.291 x 88.858 in (including pallet) | 4-units per layer<br>8-layer max.<br>32-units per pallet<br>47.126 x 39.291 x 98.622 in (including pallet) | |
| | *Dependent on 40-Ft Stnd. Sea Container or 40-Ft High-cube Sea Container is used)* | | | |

## ALL-IN-ONE WEIGHTS AND DIMENSIONS

**Weight with Touch Panel**

| | | | | |
|---|---|---|---|---|
| *Product Weight*<br>*Unboxed* | Without Stand<br>16.95-17.39 lbs<br>7.69-7.89 kg | Easel Stand<br>18.48-18.92 lbs<br>8.38-8.58 kg | Adjustable Height Stand<br>25.34-25.78 lbs<br>11.49-11.69 kg | Recline Stand<br>23.72-24.17 lbs<br>10.76-10.96 kg |
| *Shipping Weight*<br>*Boxed* | Without Stand<br>21.87 lbs<br>9.92kg | Easel Stand<br>23.36 lbs<br>10.6 kg | Adjustable Height Stand<br>31.04 lbs<br>14.08 kg | Recline Stand<br>29.42 lbs<br>13.35 kg |

## Technical Specifications – Weights & Dimensions

| | | | | |
|---|---|---|---|---|
| *Shipping Weight*<br>*Pallet* | Without Stand (32 units)<br>732.4 lbs<br>332.21 kg | Easel Stand (32 units)<br>780.74 lbs<br>354 kg | Adjustable Height Stand (15 units)<br>498.65 lbs<br>226 kg | Recline Stand (15units)<br>474.38 lbs<br>215 kg |

**Weight without Touch Panel**

| | | | | |
|---|---|---|---|---|
| *Product Weight*<br>*Unboxed* | Without Stand<br>15.08-15.52 lbs<br>6.84-7.04kg | Easel Stand<br>16.58-17.02 lbs<br>7.52-7.72 kg | Adjustable Height Stand<br>25.34-25.78 lbs<br>11.49-11.69 kg | Recline Stand<br>21.82-22.26 lbs<br>9.90-10.10 kg |
| *Shipping Weight*<br>*Box* | Without Stand<br>19.97 lbs<br>9.06kg | Easel Stand<br>21.47 lbs<br>9.74 kg | Adjustable Height Stand<br>29.15 lbs<br>13.22 kg | Recline Stand<br>27.53 lbs<br>12.49 kg |
| *Shipping Weight*<br>*Pallet* | Without Stand (32 units)<br>672.85 lbs<br>305.21 kg | Easel Stand (32 units)<br>720.14 lbs<br>327 kg | Adjustable Height Stand (15 units)<br>470.25 lbs<br>213 kg | Recline Stand (15units)<br>445.97 lbs<br>202 kg |

**Dimensions (W x D x H)**

| | | | | |
|---|---|---|---|---|
| *Product Dimensions* | Without Stand<br>22.3 x 2.3 x 15.5 in<br>567.2 x 59 x 392.7 mm | Easel Stand 0 degrees<br>22.3 x 3.2 x 15.5 in<br>567.2 x 81 x 392.7 mm | Adjustable Height Stand 0 degrees<br>22.3 x 8.3 x 21.6 in<br>567.2 x 210 x 549 mm | Recline Stand 0 degrees<br>22.3 x 11 x 17.1 in<br>567.2 x 280 x 435 mm |
| | | Easel Stand 70 degrees<br>22.3 x 14 x 6.8 in<br>567.2 x 355 x 173 mm | | Recline Stand 65 degrees<br>22.3 x 16.9 x 8 in<br>567.2 x 430 x 203 mm |

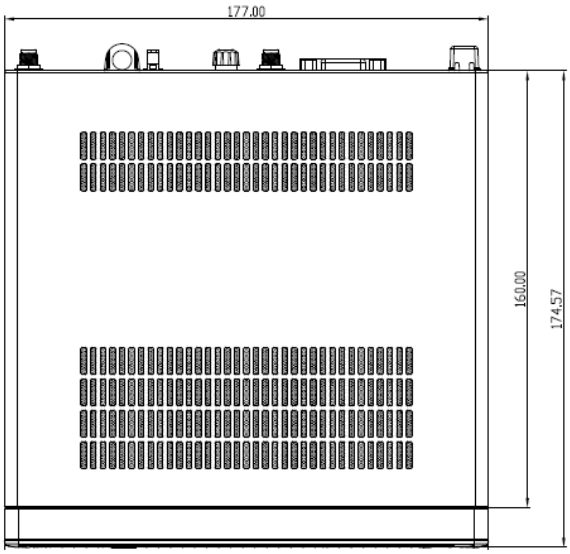
**Shipping Dimensions**

| | | | | |
|---|---|---|---|---|
| *Shipping Dimensions*<br>*Boxed* | Without Stand<br>26.22*6.96*19.88(H) in<br>666*177*505(H) mm | Easel Stand<br>26.22*6.96*19.88(H) in<br>666*177*505(H) mm | Adjustable Height Stand<br>26.33*11.53*20.78(H) in<br>669*293*528(H) mm | Recline Stand<br>26.33*11.53*20.78(H) in<br>669*293*528(H) mm |
| *Shipping Dimensions*<br>*Pallet* | Without Stand (32 units)<br>48*40*85.23(H) in | Easel Stand (32 units)<br>48*40*85.23(H) in | Adjustable Height Stand (15 units)<br>48*40*67.95(H) in | Recline Stand (15units)<br>48*40*67.95(H) in |

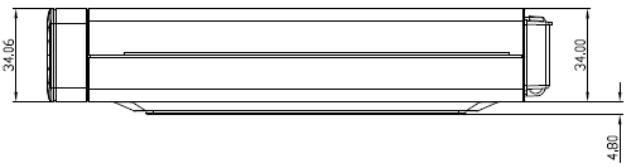
Technical Specifications – Weights & Dimensions

| | | | | |
|---|---|---|---|---|
| | 1219*1016*2165(H) mm | 1219*1016*2165(H) mm | 1219*1016*1729(H) mm | 1219*1016*1729(H) mm |

## DESKTOP MINI DIMENSIONS

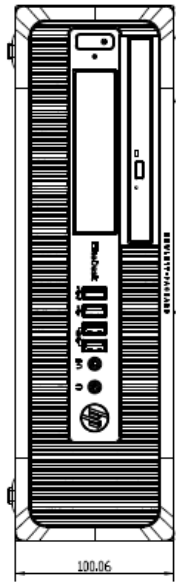


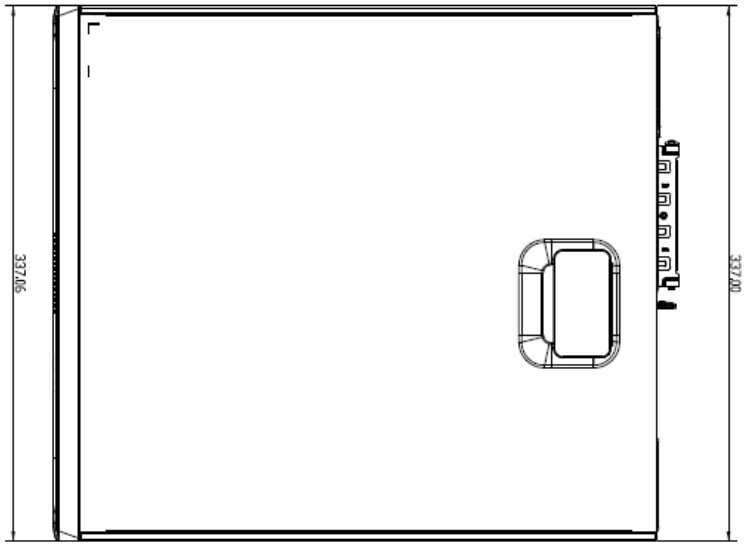


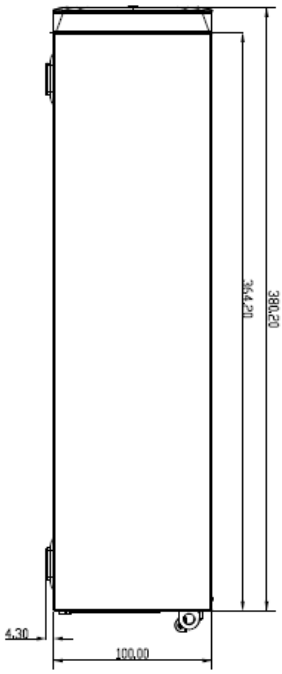


## SMALL FORM FACTOR DIMENSIONS

## Technical Specifications – Weights & Dimensions

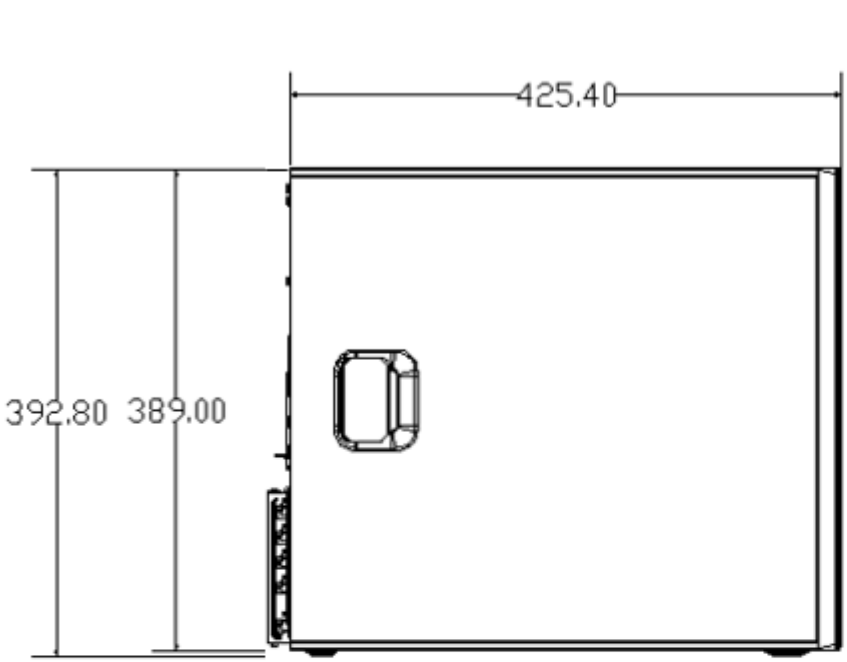


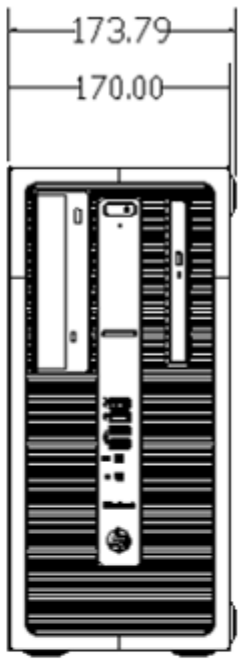



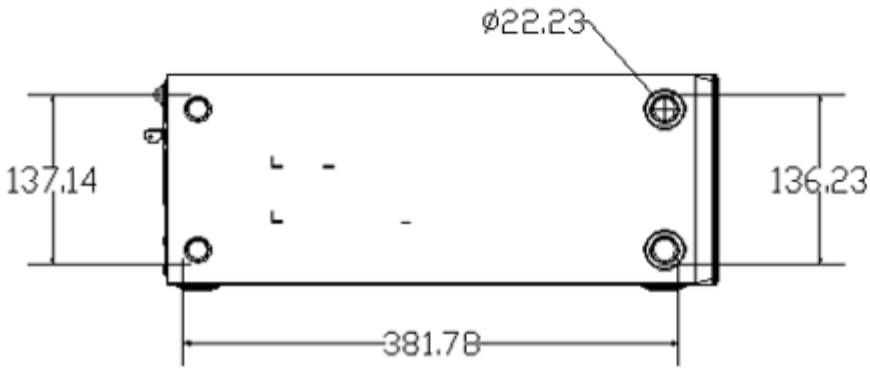



Technical Specifications – Weights & Dimensions

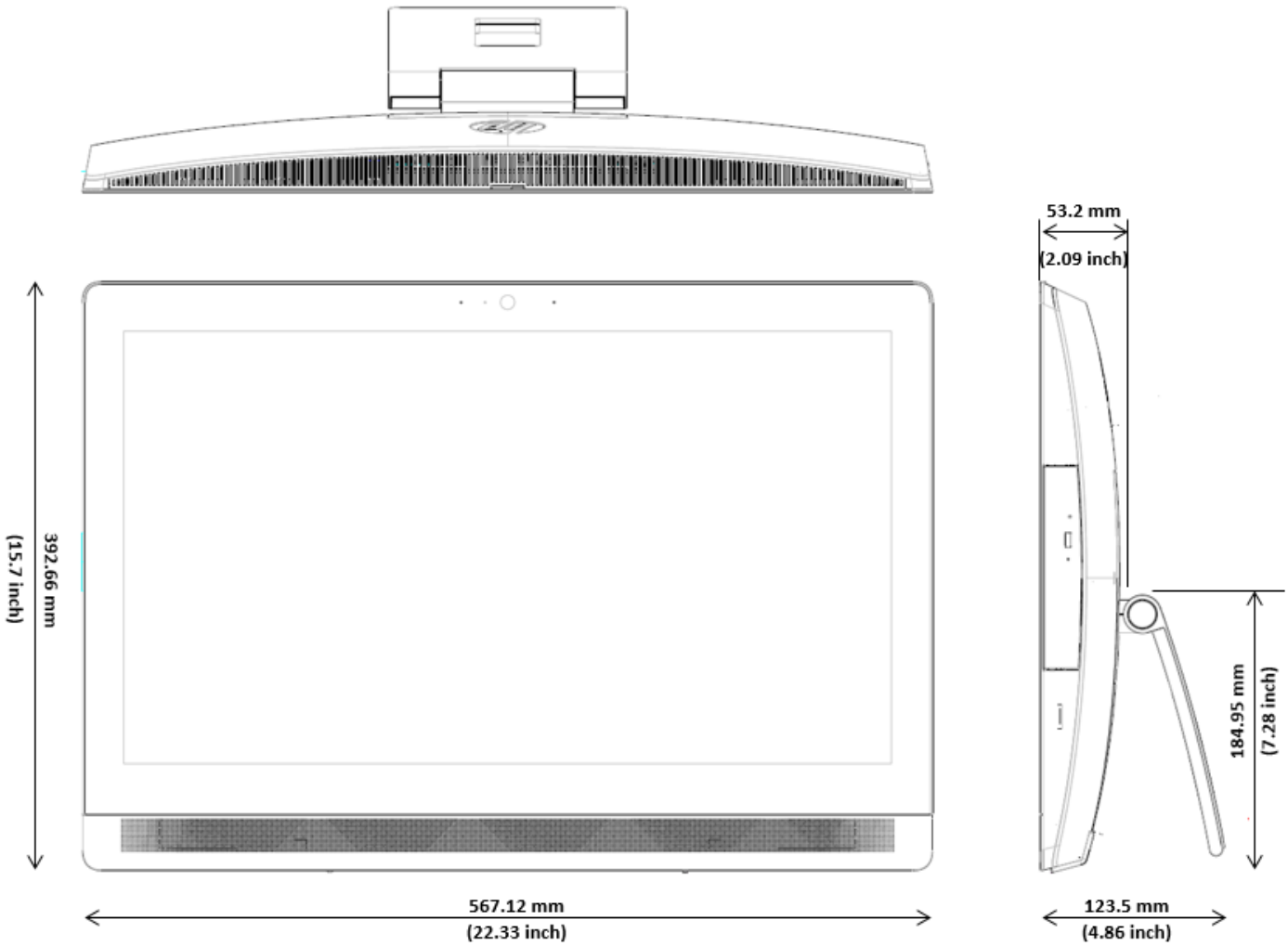
## TOWER DIMENSIONS



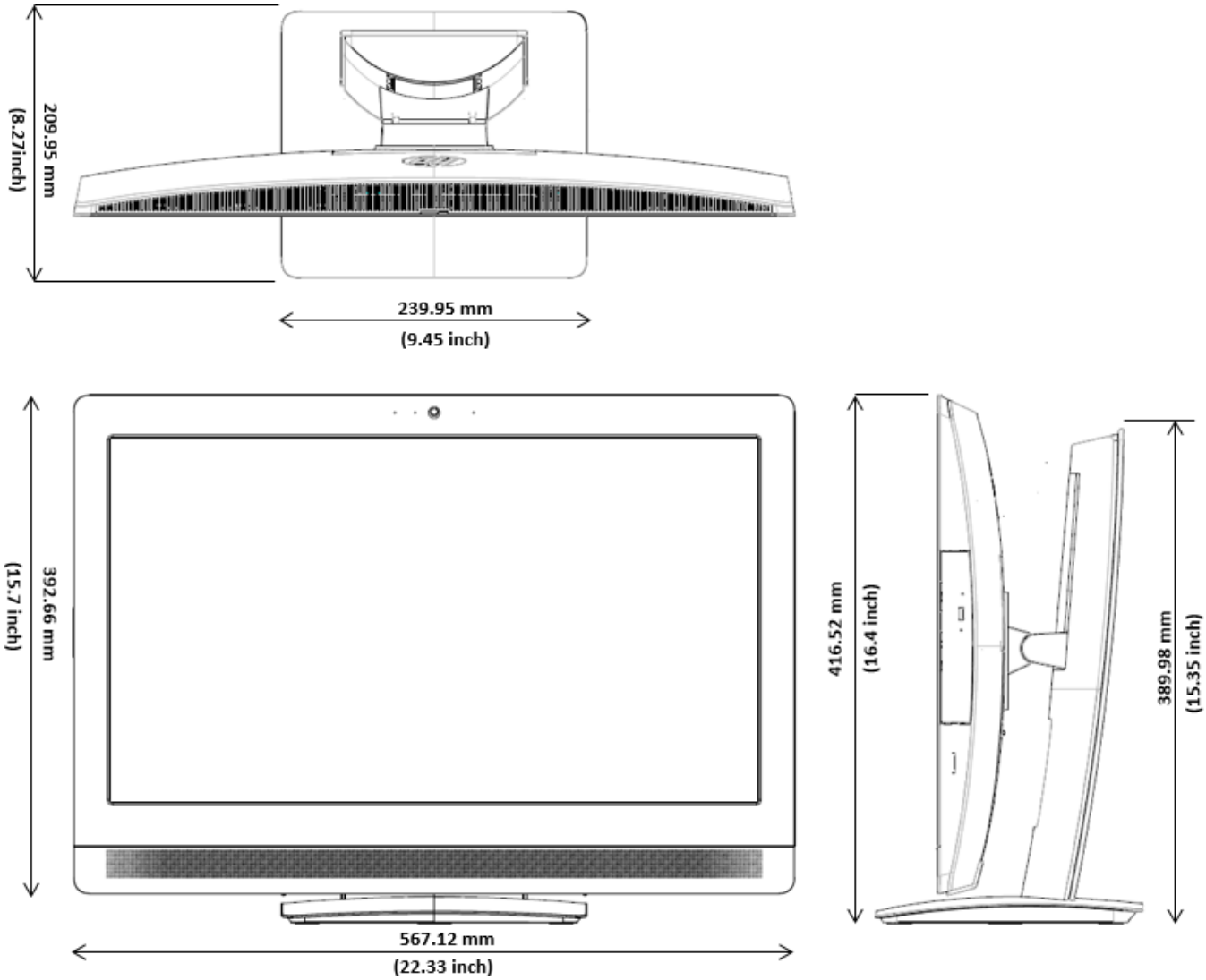



## ALL-IN-ONE EASEL STAND DIMENSIONS



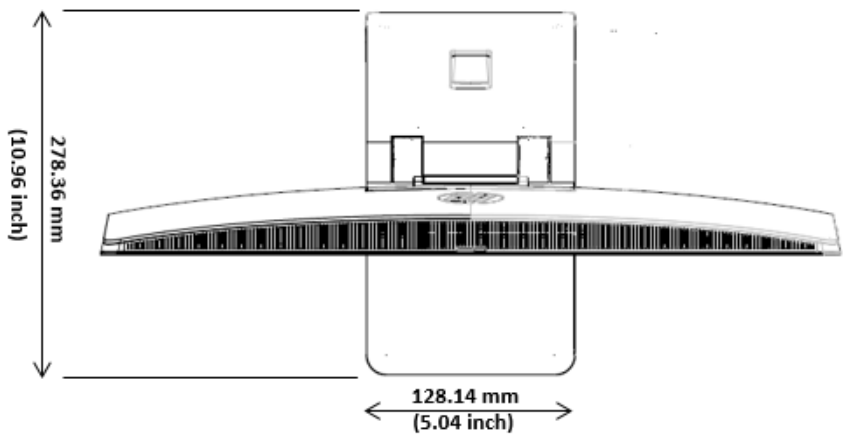
Technical Specifications – Weights & Dimensions

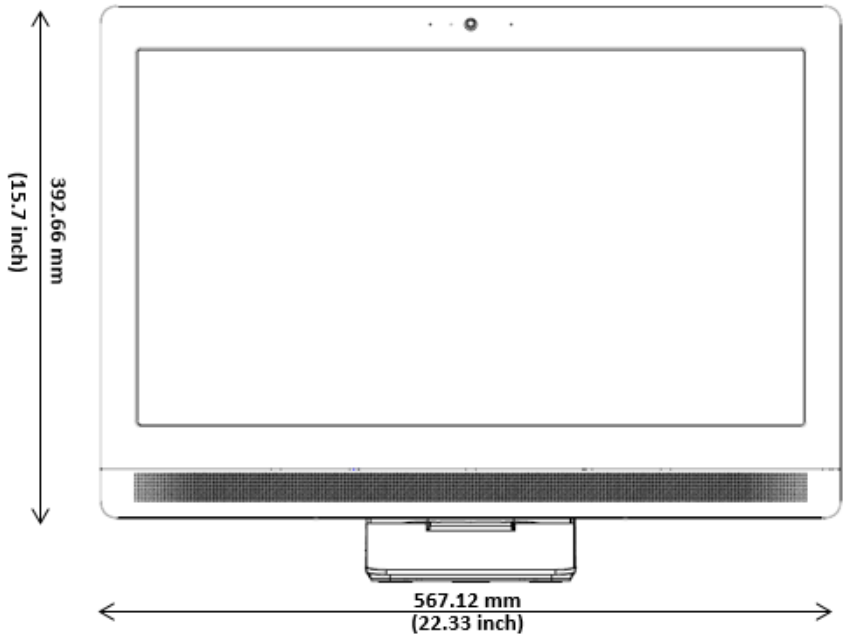
## ALL-IN-ONE ADJUSTABLE HEIGHT STAND DIMENSIONS

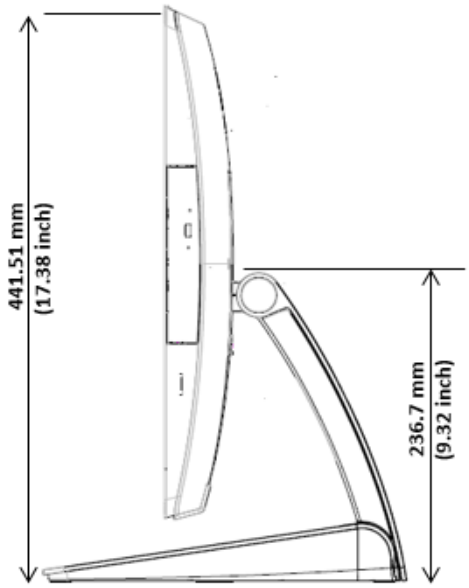


Technical Specifications – Weights & Dimensions

## ALL-IN-ONE RECLINING STAND DIMENSIONS

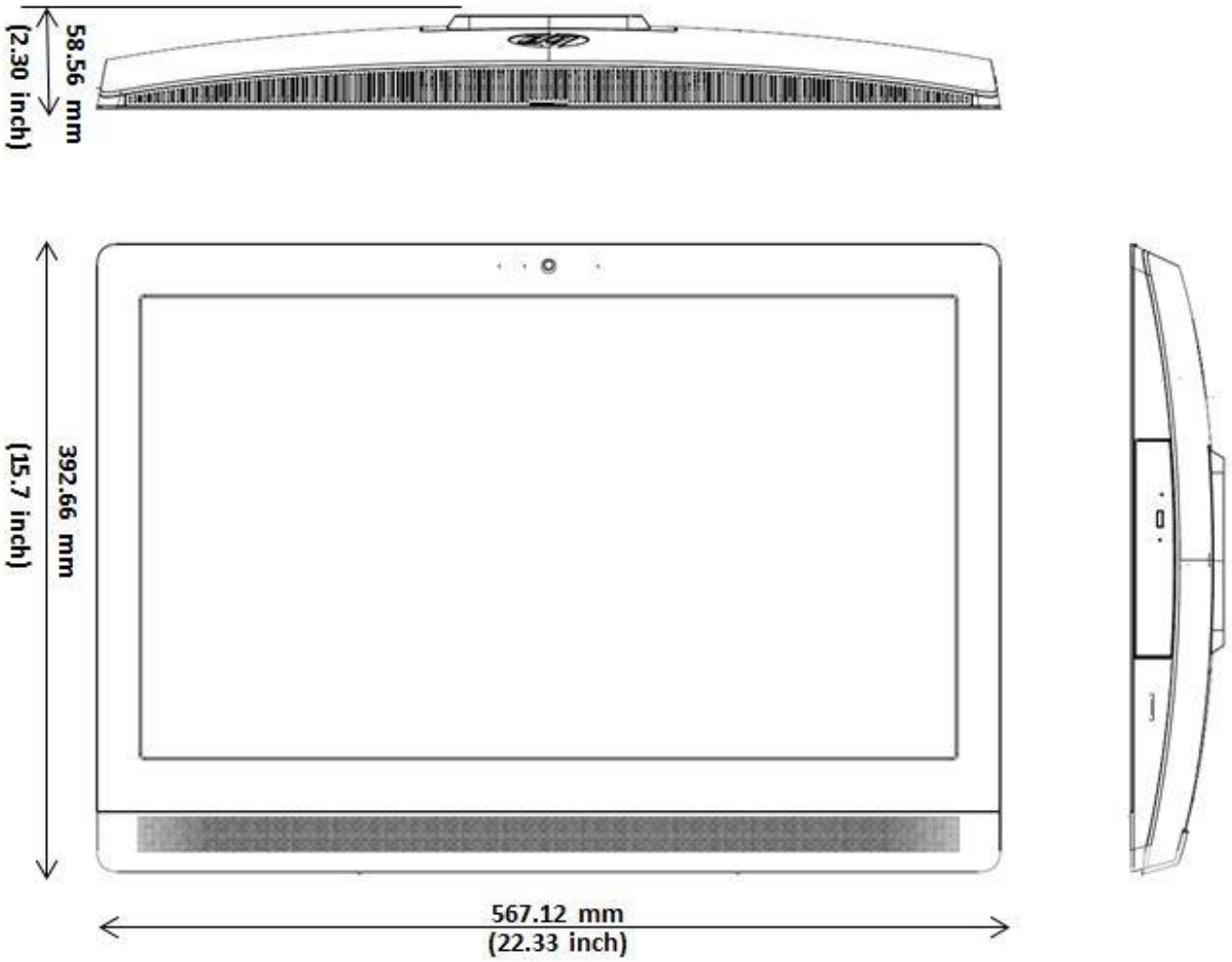


Technical Specifications – Weights & Dimensions

### ALL-IN-ONE NO STAND DIMENSIONS



Technical Specifications – Miscellaneous Features

## MISCELLANEOUS FEATURES

### Management Features

- Advanced Configuration and Power Management Interface (ACPI). Allows the system to wake from a low power mode. Controls system power consumption, making it possible to place individual cards and peripherals in a low-power or powered-off state without affecting other elements of the system.
- Intel® Wired for Management support; industry wide initiative to make Intel® architecture based PCs, servers and mobile computers more inherently manageable out-of-the-box and over the network
- Dual State Power Button; acts as both an on/off button and a suspend-to-sleep button

### Serviceability Features

- Dual colored power LED on front of computer to indicate either normal or fault condition
- Diagnostic LED Explanation Table:
    - Number of 1-second red LED blinks followed by a 2-second pause, then repeats:
        - 2 - processor thermal protection activated
        - 3 - processor not installed
        - 4 - power supply failure
        - 5 -- memory error
        - 6 - video error
        - 7 - PCA failure (ROM detected failure prior to video)
        - 8 - invalid ROM, boot block recovery mode
        - 9 - system not fetching code
        - 10 - system hang while loading an option ROM
- HP PC Hardware Diagnostics UEFI:
    - This utility enables hardware level testing outside the operating system on many components. The diagnostics can be invoked by pressing F2 at POST, and is available as a download from HP Support
- System/Emergency ROM
- Flash ROM
- CMOS Battery Holder for easy replacement
- Flash Recovery with Video Configuration Record Software
- 5 Aux Power LED on System PCA
- Processor ZIF Socket for easy Upgrade
- Over-Temp Warning on Screen (Requires IM Agents)
- Clear Password Jumper
- DIMM Connectors for easy Upgrade
- Clear CMOS Button
- NIC LEDs (integrated) (Green & Amber)
- Dual Color Power and HD LED - To Indicate Normal Operations and Fault Conditions
- Color coordinated cables and connectors
- Tool-less Hood Removal
- Front power switch
- System memory can be upgraded without removing the system board or any internal components
- Tool-less Hard Drive, CD & Diskette Removal
- Green Pull Tabs, and Quick Release Latches for easy Identification

### Additional Features

**Description**

## Technical Specifications – Miscellaneous Features

| | |
|---|---|
| **Towerable Orientation** | Product can be oriented as either a desktop (horizontal) or a tower (vertical) |
| **Drive Lock** | Implementation of the industry standard ATA Security feature set. When enabled, it prevents software access to user data on the drive until one or two user-defined passwords are provided. |
| **Drive Protection System** | DPS Access through F10 Setup during Boot<br>A diagnostic hard drive self-test. It scans critical physical components and every sector of the hard drive for physical faults and then reports any faults to the user<br>Running independently of the operating system, it can be accessed through a Windows-based diagnostics utility or through the computer's setup procedure. It produces an evaluation on whether the hard drive is the source of the problem and needs to be replaced |
| **SMART Technology (Self-Monitoring, Analysis and Reporting Technology)** | The system expands on the Self-Monitoring, Analysis, and Reporting Technology (SMART), a continuously running systems diagnostic that alerts the user to certain types of failures<br>Allows hard drives to monitor their own health and to raise flags if imminent failures were predicted |
| **SMART I - Drive Failure Prediction** | Predicts failures before they occur. Tracks fault prediction and failure indication parameters such as re-allocated sector count, spin retry count, calibration retry count |
| **SMART II - Off-Line Data Collection** | By avoiding actual hard drive failures, SMART hard drives act as "insurance" against unplanned user downtime and potential data loss from hard drive failure |
| **SMART III - Off-Line Read Scanning with Defect Reallocation** | IOEDC: I/O Error Detection Circuitry<br>Detects errors in Read/Write buffers on HDD cache RAM |
| **SMART IV - End-to-End CRC for hard drives** | Interface in F10 setup provides confirmation of SMART IV support. |

Technical Specifications – Environmental

| HP EliteDesk 800 G2 DM 65W Business PC | | | | |
|---|---|---|---|---|
| **Environmental Data** | **Eco-Label Certifications & declarations** | This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks:<br>• IT ECO declaration<br>• US ENERGY STAR®<br>• EPEAT® Gold registered in the United States. See http://www.epeat.net for registration status in your country. | | |
| | **System Configuration** | The configuration used for the Energy Consumption and Declared Noise Emissions data for the Desktop model is based on a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system. | | |
| | **Energy Consumption (in accordance with US ENERGY STAR® test method)** | **115VAC, 60Hz** | **230VAC, 50Hz** | **100VAC, 60Hz** |
| | Normal Operation (Short idle) | 16.23 W | 16.57 W | 16.42 W |
| | Normal Operation (Long idle) | 15.67 W | 15.75 W | 15.57 W |
| | Sleep | 0.96 W | 0.99 W | 0.96 W |
| | Off | 0.68 W | 0.71 W | 0.68 W |
| | | Note:<br>Energy efficiency data listed is for an ENERGY STAR® compliant product if offered within the model family . HP computers marked with the ENERGY STAR® Logo are compliant with the applicable U.S. Environmental Protection Agency (EPA) ENERGY STAR® specifications for computers. If a model family does not offer ENERGY STAR® compliant configurations, then energy efficiency data listed is for a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system. | | |
| | **Heat Dissipation*** | **115VAC, 60Hz** | **230VAC, 50Hz** | **100VAC, 60Hz** |
| | Normal Operation (Short idle) | 56 BTU/hr | 57 BTU/hr | 56 BTU/hr |
| | Normal Operation (Long idle) | 54 BTU/hr | 54 BTU/hr | 53 BTU/hr |
| | Sleep | 3 BTU/hr | 3 BTU/hr | 3 BTU/hr |
| | Off | 2 BTU/hr | 2 BTU/hr | 2 BTU/hr |
| | | *NOTE: Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour. | | |
| | **Declared Noise Emissions** | Sound Power ($L_{WAd}$, bels) | Sound Pressure ($L_{pAm}$, decibels) | |

## Technical Specifications – Environmental

| | | | | |
|---|---|---|---|---|
| | **(in accordance with ISO 7779 and ISO 9296)** | | | |
| | Typically Configured – Idle | 2.9 | | 19 |
| | Fixed Disk – Random writes | 2.9 | | 19 |
| | **Longevity and Upgrading** | This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the product may include: | | |
| | | • 6 USB ports<br>• 1 USB Type-C™<br>• 2 memory slots<br>• 2 M.2 PCIe slots<br>• 1 internal 2.5" bay supporting a 2.5" hard drives (HDD/SSD/SED/SSHD)<br><br>spare parts are available throughout the warranty period and or for up to “5” years after the end of production. | | |
| | **Batteries** | This battery(s) in this product comply with EU Directive 2006/66/EC<br><br>Batteries used in the product do not contain:<br>Mercury greater the1ppm by weight<br>Cadmium greater than 20ppm by weight<br><br>Battery size: CR2032 (coin cell)<br>Battery type: Lithium | | |
| | **Additional Information** | • This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC.<br>• This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive – 2002/96/EC.<br>• This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986).<br>• This product is in compliance with the IEEE 1680 (EPEAT) standard at the Gold level, see www.epeat.net<br>• Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043.<br>• This product contains 0% post-consumer recycled plastic (by wt.)<br>• This product is 94.6% recycle-able when properly disposed of at end of life. | | |
| | **Packaging Materials** | **External:** | PAPER/Corrugated | 530 g |
| | | **Internal:** | PLASTIC/EPE-Expanded Polyethylene | 41 g |
| | | | PLASTIC/Polyethylene low density | 7 g |
| | | The Plastic packaging material is made from 0% recycled content. | | |
| | | The corrugated paper packaging materials contains at least 0% recycled content. | | |

## Technical Specifications – Environmental

| | | |
|---|---|---|
| | **Material Usage** | This product does not contain any of the following substances in excess of regulatory limits (refer to the HP General Specification for the Environment at http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/gse.pdf):<br>• Asbestos<br>• Certain Azo Colorants<br>• Certain Brominated Flame Retardants – may not be used as flame retardants in plastics<br>• Cadmium<br>• Chlorinated Hydrocarbons<br>• Chlorinated Paraffins<br>• Formaldehyde<br>• Halogenated Diphenyl Methanes<br>• Lead carbonates and sulfates<br>• Lead and Lead compounds<br>• Mercuric Oxide Batteries<br>• Nickel – finishes must not be used on the external surface designed to be frequently handled or carried by the user.<br>• Ozone Depleting Substances<br>• Polybrominated Biphenyls (PBBs)<br>• Polybrominated Biphenyl Ethers (PBBEs)<br>• Polybrominated Biphenyl Oxides (PBBOs)<br>• Polychlorinated Biphenyl (PCB)<br>• Polychlorinated Terphenyls (PCT)<br>• Polyvinyl Chloride (PVC) – except for wires and cables, and certain retail packaging has been voluntarily removed from most applications.<br>• Radioactive Substances<br>• Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO) |
| | **Packaging Usage** | HP follows these guidelines to decrease the environmental impact of product packaging:<br>• Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials.<br>• Eliminate the use of ozone-depleting substances (ODS) in packaging materials.<br>• Design packaging materials for ease of disassembly.<br>• Maximize the use of post-consumer recycled content materials in packaging materials.<br>• Use readily recyclable packaging materials such as paper and corrugated materials.<br>• Reduce size and weight of packages to improve transportation fuel efficiency.<br>• Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards. |

## Technical Specifications – Environmental

| | | |
|---|---|---|
| | **End-of-life Management and Recycling** | Hewlett-Packard offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: http://www.hp.com/go/reuse-recycle or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.<br><br>The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/recyclers. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment. |
| | **Hewlett-Packard Corporate Environmental Information** | For more information about HP's commitment to the environment:<br><br>Global Citizenship Report<br>http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html<br>Eco-label certifications<br>http://www8.hp.com/us/en/hp-information/environment/ecolabels.html<br>ISO 14001 certificates:<br>http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC_GBU_Product_Design_ISO_14K_Certificate.pdf<br>and<br>http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf |

| **HP EliteDesk 800 G2 DM 35W Business PC** | | | | |
|---|---|---|---|---|
| **Environmental Data** | **Eco-Label Certifications & declarations** | This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks:<br>• IT ECO declaration<br>• US ENERGY STAR®<br>• EPEAT® Gold registered in the United States. See http://www.epeat.net for registration status in your country. | | |
| | **System Configuration** | The configuration used for the Energy Consumption and Declared Noise Emissions data for the Desktop model is based on a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system. | | |
| | **Energy Consumption (in accordance with US ENERGY STAR® test method)** | **115VAC, 60Hz** | **230VAC, 50Hz** | **100VAC, 60Hz** |
| | Normal Operation (Short idle) | 11.91 W | 11.87 W | 11.69 W |
| | Normal Operation (Long idle) | 11.12 W | 11.26 W | 11.26 W |
| | Sleep | 0.86 W | 0.91 W | 0.86 W |

## Technical Specifications – Environmental

| | | | | |
|---|---|---|---|---|
| | Off | 0.62 W | 0.66 W | 0.62 W |
| | | Note:<br>Energy efficiency data listed is for an ENERGY STAR® compliant product if offered within the model family . HP computers marked with the ENERGY STAR® Logo are compliant with the applicable U.S. Environmental Protection Agency (EPA) ENERGY STAR® specifications for computers. If a model family does not offer ENERGY STAR® compliant configurations, then energy efficiency data listed is for a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system. | | |
| | **Heat Dissipation*** | **115VAC, 60Hz** | **230VAC, 50Hz** | **100VAC, 60Hz** |
| | Normal Operation (Short idle) | 41 BTU/hr | 41 BTU/hr | 40 BTU/hr |
| | Normal Operation (Long idle) | 38 BTU/hr | 39 BTU/hr | 39 BTU/hr |
| | Sleep | 3 BTU/hr | 3 BTU/hr | 3 BTU/hr |
| | Off | 2 BTU/hr | 2 BTU/hr | 2 BTU/hr |
| | | *NOTE: Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour. | | |
| | **Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)** | Sound Power ($L_{WAd}$, bels) | Sound Pressure ($L_{pAm}$, decibels) | |
| | Typically Configured – Idle | 2.9 | 18 | |
| | Fixed Disk – Random writes | 2.9 | 19 | |
| | **Longevity and Upgrading** | This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the product may include: | | |
| | | • 6 USB ports<br>• 2 memory slots<br>• 2 M.2 PCIe slots<br>• 1 internal 2.5" bay supporting a 2.5" hard drives (HDD/SSD/SED/SSHD)<br><br>Spare parts are available throughout the warranty period and or for up to “5” years after the end of production. | | |
| | **Batteries** | This battery(s) in this product comply with EU Directive 2006/66/EC<br><br>Batteries used in the product do not contain:<br>Mercury greater the1ppm by weight<br>Cadmium greater than 20ppm by weight | | |

## Technical Specifications – Environmental

| | | | | |
|---|---|---|---|---|
| | | Battery size: CR2032 (coin cell)<br>Battery type: Lithium | | |
| | **Additional Information** | • This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC.<br>• This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive – 2002/96/EC.<br>• This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986).<br>• This product is in compliance with the IEEE 1680 (EPEAT) standard at the Gold level, see www.epeat.net<br>• Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043.<br>• This product contains 0% post-consumer recycled plastic (by wt.)<br>• This product is 95.1% recycle-able when properly disposed of at end of life. | | |
| | **Packaging Materials** | **External:** | PAPER/Corrugated | 530 g |
| | | **Internal:** | PLASTIC/EPE (Expanded Polyethylene) | 41 g |
| | | | PLASTIC/Polyethylene low density | 7 g |
| | | The EPE foam packaging material is made from 0% recycled content. | | |
| | | The corrugated paper packaging materials contains at least 0% recycled content. | | |
| | **Material Usage** | This product does not contain any of the following substances in excess of regulatory limits (refer to the HP General Specification for the Environment at http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/gse.pdf):<br>• Asbestos<br>• Certain Azo Colorants<br>• Certain Brominated Flame Retardants – may not be used as flame retardants in plastics<br>• Cadmium<br>• Chlorinated Hydrocarbons<br>• Chlorinated Paraffins<br>• Formaldehyde<br>• Halogenated Diphenyl Methanes<br>• Lead carbonates and sulfates<br>• Lead and Lead compounds<br>• Mercuric Oxide Batteries<br>• Nickel – finishes must not be used on the external surface designed to be frequently handled or carried by the user.<br>• Ozone Depleting Substances<br>• Polybrominated Biphenyls (PBBs)<br>• Polybrominated Biphenyl Ethers (PBBEs)<br>• Polybrominated Biphenyl Oxides (PBBOs)<br>• Polychlorinated Biphenyl (PCB)<br>• Polychlorinated Terphenyls (PCT) | | |

Technical Specifications – Environmental

| | | |
|---|---|---|
| | | • Polyvinyl Chloride (PVC) – except for wires and cables, and certain retail packaging has been voluntarily removed from most applications.<br>• Radioactive Substances<br>• Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO) |
| | **Packaging Usage** | HP follows these guidelines to decrease the environmental impact of product packaging:<br>• Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials.<br>• Eliminate the use of ozone-depleting substances (ODS) in packaging materials.<br>• Design packaging materials for ease of disassembly.<br>• Maximize the use of post-consumer recycled content materials in packaging materials.<br>• Use readily recyclable packaging materials such as paper and corrugated materials.<br>• Reduce size and weight of packages to improve transportation fuel efficiency.<br>• Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards. |
| | **End-of-life Management and Recycling** | Hewlett-Packard offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: http://www.hp.com/go/reuse-recycle or contact you're nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.<br><br>The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/recyclers. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment. |
| | **Hewlett-Packard Corporate Environmental Information** | For more information about HP's commitment to the environment:<br><br>Global Citizenship Report<br>http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html<br>Eco-label certifications<br>http://www8.hp.com/us/en/hp-information/environment/ecolabels.html<br>ISO 14001 certificates:<br>http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC_GBU_Product_Design_ISO_14K_Certificate.pdf<br>and<br>http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf |

**HP EliteDesk 800 G2 SFF Business PC**

## Technical Specifications – Environmental

| | | | | |
|---|---|---|---|---|
| **Environmental Data** | **Eco-Label Certifications & declarations** | This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks:<br>• IT ECO declaration<br>• US ENERGY STAR®<br>• EPEAT® Gold registered in the United States. See http://www.epeat.net for registration status in your country. | | |
| | **System Configuration** | The configuration used for the Energy Consumption and Declared Noise Emissions data for the Desktop model is based on a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system. | | |
| | **Energy Consumption (in accordance with US ENERGY STAR® test method)** | **115VAC, 60Hz** | **230VAC, 50Hz** | **100VAC, 60Hz** |
| | Normal Operation (Short idle) | 16.64 W | 16.57 W | 16.72 W |
| | Normal Operation (Long idle) | 15.98 W | 15.83 W | 15.82 W |
| | Sleep | 2.16 W | 2.37 W | 2.14 W |
| | Off | 0.90 W | 1.08 W | 0.88 W |
| | | Note:<br>Energy efficiency data listed is for an ENERGY STAR® compliant product if offered within the model family . HP computers marked with the ENERGY STAR® Logo are compliant with the applicable U.S. Environmental Protection Agency (EPA) ENERGY STAR® specifications for computers. If a model family does not offer ENERGY STAR® compliant configurations, then energy efficiency data listed is for a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system. | | |
| | **Heat Dissipation*** | **115VAC, 60Hz** | **230VAC, 50Hz** | **100VAC, 60Hz** |
| | Normal Operation (Short idle) | 57 BTU/hr | 57 BTU/hr | 57 BTU/hr |
| | Normal Operation (Long idle) | 55 BTU/hr | 54 BTU/hr | 54 BTU/hr |
| | Sleep | 7 BTU/hr | 8 BTU/hr | 7 BTU/hr |
| | Off | 3 BTU/hr | 4 BTU/hr | 3 BTU/hr |
| | | *NOTE: Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour. | | |
| | **Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)** | Sound Power ($L_{WAd}$, bels) | Sound Pressure ($L_{pAm}$, decibels) | |

## Technical Specifications – Environmental

| | | | | |
|---|---|---|---|---|
| | Typically Configured – Idle | 3.2 | 24 | |
| | Fixed Disk – Random writes | 3.5 | 25 | |
| | **Longevity and Upgrading** | This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the product may include: | | |
| | | • 6 USB ports<br>• 2 memory slots<br>• 1 Mini PCIe half-length slot<br>• 1 MXM 3.0 Type A - 35W slot<br>• 1 mSATA slot<br>• 1 2.5" internal bay supporting up to Two 2.5" hard drives (HDD/SSD/SED/SSHD)<br>• 1 5.25" external supporting optical drive<br><br>Spare parts are available throughout the warranty period and or for up to “5” years after the end of production. | | |
| | **Batteries** | This battery(s) in this product comply with EU Directive 2006/66/EC<br><br>Batteries used in the product do not contain:<br>Mercury greater the1ppm by weight<br>Cadmium greater than 20ppm by weight<br><br>Battery size: CR2032 (coin cell)<br>Battery type: Lithium | | |
| | **Additional Information** | • This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC.<br>• This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive – 2002/96/EC.<br>• This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986).<br>• This product is in compliance with the IEEE 1680 (EPEAT) standard at the <gold> level, see www.epeat.net<br>• Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043.<br>• This product contains 16.5% post-consumer recycled plastic (by wt.)<br>• This product is 92.2% recycle-able when properly disposed of at end of life. | | |
| | **Packaging Materials** | **External:** | PAPER/Corrugated | 1007 g |
| | | **Internal:** | PLASTIC/Plast. other | 198 g |
| | | | PLASTIC/Polyethylene low density | 57 g |
| | | | PLASTIC/Polypropylene | 13 g |
| | | The Plastic packaging material is made from 9.3% recycled content. | | |

## Technical Specifications – Environmental

| | | |
|---|---|---|
| | | The paper packaging materials contains at least 45.3% recycled content. |
| | **Material Usage** | This product does not contain any of the following substances in excess of regulatory limits (refer to the HP General Specification for the Environment at http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/gse.pdf):<br>• Asbestos<br>• Certain Azo Colorants<br>• Certain Brominated Flame Retardants – may not be used as flame retardants in plastics<br>• Cadmium<br>• Chlorinated Hydrocarbons<br>• Chlorinated Paraffins<br>• Formaldehyde<br>• Halogenated Diphenyl Methanes<br>• Lead carbonates and sulfates<br>• Lead and Lead compounds<br>• Mercuric Oxide Batteries<br>• Nickel – finishes must not be used on the external surface designed to be frequently handled or carried by the user.<br>• Ozone Depleting Substances<br>• Polybrominated Biphenyls (PBBs)<br>• Polybrominated Biphenyl Ethers (PBBEs)<br>• Polybrominated Biphenyl Oxides (PBBOs)<br>• Polychlorinated Biphenyl (PCB)<br>• Polychlorinated Terphenyls (PCT)<br>• Polyvinyl Chloride (PVC) – except for wires and cables, and certain retail packaging has been voluntarily removed from most applications.<br>• Radioactive Substances<br>• Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO) |
| | **Packaging Usage** | HP follows these guidelines to decrease the environmental impact of product packaging:<br>• Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials.<br>• Eliminate the use of ozone-depleting substances (ODS) in packaging materials.<br>• Design packaging materials for ease of disassembly.<br>• Maximize the use of post-consumer recycled content materials in packaging materials.<br>• Use readily recyclable packaging materials such as paper and corrugated materials.<br>• Reduce size and weight of packages to improve transportation fuel efficiency.<br>• Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards. |

## Technical Specifications – Environmental

| | | |
|---|---|---|
| | **End-of-life Management and Recycling** | Hewlett-Packard offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: http://www.hp.com/go/reuse-recycle or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.<br><br>The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/recyclers. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment. |
| | **Hewlett-Packard Corporate Environmental Information** | For more information about HP's commitment to the environment:<br><br>Global Citizenship Report<br>http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html<br>Eco-label certifications<br>http://www8.hp.com/us/en/hp-information/environment/ecolabels.html<br>ISO 14001 certificates:<br>http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC_GBU_Product_Design_ISO_14K_Certificate.pdf<br>and<br>http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf |

| **HP EliteDesk 800 G2 Tower Business PC** | | | | |
|---|---|---|---|---|
| **Environmental Data** | **Eco-Label Certifications & declarations** | This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks:<br>• IT ECO declaration<br>• US ENERGY STAR®<br>• EPEAT® Gold registered in the United States. See http://www.epeat.net for registration status in your country. | | |
| | **System Configuration** | The configuration used for the Energy Consumption and Declared Noise Emissions data for the Desktop model is based on a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system. | | |
| | **Energy Consumption (in accordance with US ENERGY STAR® test method)** | **115VAC, 60Hz** | **230VAC, 50Hz** | **100VAC, 60Hz** |
| | Normal Operation (Short idle) | 15.15 W | 16.49 W | 15.36 W |
| | Normal Operation (Long idle) | 14.11 W | 15.23 W | 14.25 W |

## Technical Specifications – Environmental

| | | | | |
|---|---|---|---|---|
| | Sleep | 2.03 W | 2.27 W | 2.02 W |
| | Off | 0.97 W | 1.15 W | 0.95 W |
| | | Note:<br>Energy efficiency data listed is for an ENERGY STAR® compliant product if offered within the model family . HP computers marked with the ENERGY STAR® Logo are compliant with the applicable U.S. Environmental Protection Agency (EPA) ENERGY STAR® specifications for computers. If a model family does not offer ENERGY STAR® compliant configurations, then energy efficiency data listed is for a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system. | | |
| | **Heat Dissipation*** | **115VAC, 60Hz** | **230VAC, 50Hz** | **100VAC, 60Hz** |
| | Normal Operation (Short idle) | 52 BTU/hr | 56 BTU/hr | 53 BTU/hr |
| | Normal Operation (Long idle) | 48 BTU/hr | 52 BTU/hr | 49 BTU/hr |
| | Sleep | 7 BTU/hr | 8 BTU/hr | 7 BTU/hr |
| | Off | 3 BTU/hr | 4 BTU/hr | 3 BTU/hr |
| | | *NOTE: Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour. | | |
| | **Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)** | Sound Power ($L_{WAd}$, bels) | Sound Pressure ($L_{pAm}$, decibels) | |
| | Typically Configured – Idle | 3.4 | 23 | |
| | Fixed Disk – Random writes | 3.6 | 25 | |
| | **Longevity and Upgrading** | This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the product may include: | | |
| | | • 10 USB ports<br>• 4 memory slots<br>• 1 PCIe x16 slot<br>• 1 PCIe x16 slot, wired as x4<br>• 2 PCIe x1 slot<br>• 2 internal 3.5" bay supporting up to Two 2.5" hard drives (HDD/SSD/SED/SSHD)<br>• 1 internal 2.5" bay supporting a 2.5" hard drive (HDD/SSD/SED/SSHD)<br>• 1 external 5.25" supporting optical drive<br>• 1 Slim external supporting optical drive<br>• 1 external SD 4.0 Reader | | |

## Technical Specifications – Environmental

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|---|---|---|---|---|
| | | Spare parts are available throughout the warranty period and or for up to "5" years after the end of production. | | |
| | **Batteries** | This battery(s) in this product comply with EU Directive 2006/66/EC<br><br>Batteries used in the product do not contain:<br>Mercury greater the1ppm by weight<br>Cadmium greater than 20ppm by weight<br><br>Battery size: CR2032 (coin cell)<br>Battery type: Lithium | | |
| | **Additional Information** | • This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC.<br>• This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive – 2002/96/EC.<br>• This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986).<br>• This product is in compliance with the IEEE 1680 (EPEAT) standard at the Gold level, see www.epeat.net<br>• Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043.<br>• This product contains 20.4% post-consumer recycled plastic (by wt.)<br>• This product is 95.3% recycle-able when properly disposed of at end of life. | | |
| | **Packaging Materials** | **External:** | PAPER/Corrugated | 1563 g |
| | | **Internal:** | PLASTIC/Polyethylene low density | 37 g |
| | | | PLASTIC/Polypropylene | 16 g |
| | | | PLASTIC/Other plastics unknown | 194 g |
| | | The EPE foam packaging material is made from 9.3% recycled content. | | |
| | | The corrugated paper packaging materials contains at least 45.3% recycled content. | | |
| | **Material Usage** | This product does not contain any of the following substances in excess of regulatory limits (refer to the HP General Specification for the Environment at http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/gse.pdf):<br><br>• Asbestos<br>• Certain Azo Colorants<br>• Certain Brominated Flame Retardants – may not be used as flame retardants in plastics<br>• Cadmium<br>• Chlorinated Hydrocarbons<br>• Chlorinated Paraffins<br>• Formaldehyde<br>• Halogenated Diphenyl Methanes<br>• Lead carbonates and sulfates<br>• Lead and Lead compounds | | |

| | | |
|---|---|---|
| | | • Mercuric Oxide Batteries<br>• Nickel – finishes must not be used on the external surface designed to be frequently handled or carried by the user.<br>• Ozone Depleting Substances<br>• Polybrominated Biphenyls (PBBs)<br>• Polybrominated Biphenyl Ethers (PBBEs)<br>• Polybrominated Biphenyl Oxides (PBBOs)<br>• Polychlorinated Biphenyl (PCB)<br>• Polychlorinated Terphenyls (PCT)<br>• Polyvinyl Chloride (PVC) – except for wires and cables, and certain retail packaging has been voluntarily removed from most applications.<br>• Radioactive Substances<br>• Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO) |
| | **Packaging Usage** | HP follows these guidelines to decrease the environmental impact of product packaging:<br>• Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials.<br>• Eliminate the use of ozone-depleting substances (ODS) in packaging materials.<br>• Design packaging materials for ease of disassembly.<br>• Maximize the use of post-consumer recycled content materials in packaging materials.<br>• Use readily recyclable packaging materials such as paper and corrugated materials.<br>• Reduce size and weight of packages to improve transportation fuel efficiency.<br>• Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards. |
| | **End-of-life Management and Recycling** | Hewlett-Packard offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: http://www.hp.com/go/reuse-recycle or contact you're nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.<br><br>The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/recyclers. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment. |

## Technical Specifications – Environmental

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| | **Hewlett-Packard Corporate Environmental Information** | For more information about HP's commitment to the environment:<br><br>Global Citizenship Report<br>http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html<br>Eco-label certifications<br>http://www8.hp.com/us/en/hp-information/environment/ecolabels.html<br>ISO 14001 certificates:<br>http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC_GBU_Product_Design_ISO_14K_Certificate.pdf<br>and<br>http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf |

| **HP EliteOne 800 G2 23-in Touch GPU All-in-One PC** | | | | |
|---|---|---|---|---|
| **Environmental Data** | **Eco-Label Certifications & declarations** | This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks:<br>• IT ECO declaration<br>• US ENERGY STAR®<br>• EPEAT® Gold registered in the United States. See http://www.epeat.net for registration status in your country. | | |
| | **System Configuration** | The configuration used for the Energy Consumption and Declared Noise Emissions data for the All-in-One PC model is based on a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system. | | |
| | **Energy Consumption (in accordance with US ENERGY STAR® test method)** | **115VAC, 60Hz** | **230VAC, 50Hz** | **100VAC, 60Hz** |
| | Normal Operation (Short idle) | 33.31 W | 33.80 W | 33.60 W |
| | Normal Operation (Long idle) | 12.63 W | 12.76 W | 12.58 W |
| | Sleep | 1.34 W | 1.38 W | 1.37 W |
| | Off | 0.59 W | 0.60 W | 0.59 W |
| | | Note: Energy efficiency data listed is for an ENERGY STAR® compliant product if offered within the model family. HP computers marked with the ENERGY STAR® Logo are compliant with the applicable U.S. Environmental Protection Agency (EPA) ENERGY STAR® specifications for computers. If a model family does not offer ENERGY STAR® compliant configurations, then energy efficiency data listed is for a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system. | | |
| | **Heat Dissipation*** | **115VAC, 60Hz** | **230VAC, 50Hz** | **100VAC, 60Hz** |
| | Normal Operation (Short idle) | 114 BTU/hr | 116 BTU/hr | 115 BTU/hr |

## Technical Specifications – Environmental

| | | | | |
|---|---|---|---|---|
| | Normal Operation (Long idle) | 43 BTU/hr | 44 BTU/hr | 43 BTU/hr |
| | Sleep | 5 BTU/hr | 5 BTU/hr | 5 BTU/hr |
| | Off | 2 BTU/hr | 2 BTU/hr | 2 BTU/hr |
| | | *NOTE: Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour. | | |
| | **Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)** | Sound Power ($L_{WAd}$, bels) | Sound Pressure ($L_{pAm}$, decibels) | |
| | Typically Configured – Idle | 3.1 | 19 | |
| | Fixed Disk – Random writes | 3.1 | 19 | |
| | **Longevity and Upgrading** | This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the product may include: | | |
| | | • 6 USB ports<br>• 2 memory slots<br>• 1 Mini PCIe half-length slot<br>• 1 MXM 3.0 Type A - 35W slot<br>• 1 mSATA slot<br>• 1 2.5" internal bay supporting up to Two 2.5" hard drives (HDD/SSD/SED/SSHD)<br>• 1 5.25" external supporting optical drive<br><br>Spare parts are available throughout the warranty period and or for up to “5” years after the end of production. | | |
| | **Batteries** | This battery(s) in this product comply with EU Directive 2006/66/EC<br><br>Batteries used in the product do not contain:<br>Mercury greater the1ppm by weight<br>Cadmium greater than 20ppm by weight<br><br>Battery size: CR2032 (coin cell)<br>Battery type: Lithium | | |

## Technical Specifications – Environmental

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|---|---|---|---|---|
| | **Additional Information** | • This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC.<br>• This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive – 2002/96/EC.<br>• This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986).<br>• This product is in compliance with the IEEE 1680 (EPEAT) standard at the Gold level, see www.epeat.net<br>• Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043.<br>• This product contains 38.9% post-consumer recycled plastic (by wt.)<br>• This product is 96.8% recycle-able when properly disposed of at end of life. | | |
| | **Packaging Materials** | **External:** | PAPER/Corrugated | 1296 g |
| | | **Internal:** | PLASTIC/EPE-Expanded Polyethylene | 544 g |
| | | The plastic packaging material contains at least 0% recycled content. | | |
| | | The corrugated paper packaging materials contains at least 80% recycled content. | | |
| | **Material Usage** | This product does not contain any of the following substances in excess of regulatory limits (refer to the HP General Specification for the Environment at http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/gse.pdf):<br>• Asbestos<br>• Certain Azo Colorants<br>• Certain Brominated Flame Retardants – may not be used as flame retardants in plastics<br>• Cadmium<br>• Chlorinated Hydrocarbons<br>• Chlorinated Paraffins<br>• Formaldehyde<br>• Halogenated Diphenyl Methanes<br>• Lead carbonates and sulfates<br>• Lead and Lead compounds<br>• Mercuric Oxide Batteries<br>• Nickel – finishes must not be used on the external surface designed to be frequently handled or carried by the user.<br>• Ozone Depleting Substances<br>• Polybrominated Biphenyls (PBBs)<br>• Polybrominated Biphenyl Ethers (PBBEs)<br>• Polybrominated Biphenyl Oxides (PBBOs)<br>• Polychlorinated Biphenyl (PCB)<br>• Polychlorinated Terphenyls (PCT)<br>• Polyvinyl Chloride (PVC) – except for wires and cables, and certain retail packaging has been voluntarily removed from most applications.<br>• Radioactive Substances<br>• Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO) | | |

Technical Specifications – Environmental

| | | |
|---|---|---|
| | **Packaging Usage** | HP follows these guidelines to decrease the environmental impact of product packaging:<br>• Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials.<br>• Eliminate the use of ozone-depleting substances (ODS) in packaging materials.<br>• Design packaging materials for ease of disassembly.<br>• Maximize the use of post-consumer recycled content materials in packaging materials.<br>• Use readily recyclable packaging materials such as paper and corrugated materials.<br>• Reduce size and weight of packages to improve transportation fuel efficiency.<br>• Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards. |
| | **End-of-life Management and Recycling** | Hewlett-Packard offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: http://www.hp.com/go/reuse-recycle or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.<br><br>The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/recyclers. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment. |
| | **Hewlett-Packard Corporate Environmental Information** | For more information about HP's commitment to the environment:<br><br>Global Citizenship Report<br>http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html<br>Eco-label certifications<br>http://www8.hp.com/us/en/hp-information/environment/ecolabels.html<br>ISO 14001 certificates:<br>http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC_GBU_Product_Design_ISO_14K_Certificate.pdf<br>and<br>http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf |

**HP EliteOne 800 G2 23-in Non-Touch GPU All-in-One**

## Technical Specifications – Environmental

| | | | | |
|---|---|---|---|---|
| **Environmental Data** | **Eco-Label Certifications & declarations** | This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks:<br>• IT ECO declaration<br>• US ENERGY STAR®<br>• EPEAT® Gold registered in the United States. See http://www.epeat.net for registration status in your country. | | |
| | **System Configuration** | The configuration used for the Energy Consumption and Declared Noise Emissions data for the Ultra-slim Desktop model is based on a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system. | | |
| | **Energy Consumption (in accordance with US ENERGY STAR® test method)** | **115VAC, 60Hz** | **230VAC, 50Hz** | **100VAC, 60Hz** |
| | Normal Operation (Short idle) | 33.31 W | 33.80 W | 33.60 W |
| | Normal Operation (Long idle) | 12.63 W | 12.76 W | 12.58 W |
| | Sleep | 1.34 W | 1.38 W | 1.37 W |
| | Off | 0.59 W | 0.60 W | 0.59 W |
| | | Note:<br>Energy efficiency data listed is for an ENERGY STAR® compliant product if offered within the model family . HP computers marked with the ENERGY STAR® Logo are compliant with the applicable U.S. Environmental Protection Agency (EPA) ENERGY STAR® specifications for computers. If a model family does not offer ENERGY STAR® compliant configurations, then energy efficiency data listed is for a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system. | | |
| | **Heat Dissipation*** | **115VAC, 60Hz** | **230VAC, 50Hz** | **100VAC, 60Hz** |
| | Normal Operation (Short idle) | 114 BTU/hr | 116 BTU/hr | 115 BTU/hr |
| | Normal Operation (Long idle) | 43 BTU/hr | 44 BTU/hr | 43 BTU/hr |
| | Sleep | 5. BTU/hr | 5 BTU/hr | 5 BTU/hr |
| | Off | 2 BTU/hr | 2 BTU/hr | 2 BTU/hr |
| | | *NOTE: Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour. | | |
| | **Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)** | Sound Power ($L_{WAd}$, bels) | Sound Pressure ($L_{pAm}$, decibels) | |

## Technical Specifications – Environmental

| | | | |
|---|---|---|---|
| | Typically Configured – Idle | 3.2 | 23 |
| | Fixed Disk – Random writes | 3.2 | 22 |
| | **Longevity and Upgrading** | This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the product may include: | |
| | | • 6 USB ports<br>• 2 memory slots<br>• 1 Mini PCIe half-length slot<br>• 1 MXM 3.0 Type A - 35W slot<br>• 1 mSATA slot<br>• 1 2.5" internal bay supporting up to Two 2.5" hard drives (HDD/SSD/SED/SSHD)<br>• 1 5.25" external supporting optical drive<br><br>Spare parts are available throughout the warranty period and or for up to “5” years after the end of production. | |
| | **Batteries** | This battery(s) in this product comply with EU Directive 2006/66/EC<br><br>Batteries used in the product do not contain:<br>Mercury greater the1ppm by weight<br>Cadmium greater than 20ppm by weight<br><br>Battery size: CR2032 (coin cell)<br>Battery type: Lithium | |
| | **Additional Information** | • This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC.<br>• This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive – 2002/96/EC.<br>• This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986).<br>• This product is in compliance with the IEEE 1680 (EPEAT) standard at the Gold level, see www.epeat.net<br>• Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043.<br>• This product contains 40.1% post-consumer recycled plastic (by wt.)<br>• This product is 96.6% recycle-able when properly disposed of at end of life. | |
| | **Packaging Materials** | **External:** | PAPER/Corrugated 1296 g |
| | | **Internal:** | PLASTIC/EPE-Expanded Polyethylene 544 g |
| | | The Plastic packaging material is made from 0% recycled content. | |
| | | The corrugated paper packaging materials contains at least 80% recycled content. | |
| | | | |

## Technical Specifications – Environmental

| | | |
|---|---|---|
| | **Material Usage** | This product does not contain any of the following substances in excess of regulatory limits (refer to the HP General Specification for the Environment at http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/gse.pdf):<br><br>• Asbestos<br>• Certain Azo Colorants<br>• Certain Brominated Flame Retardants – may not be used as flame retardants in plastics<br>• Cadmium<br>• Chlorinated Hydrocarbons<br>• Chlorinated Paraffins<br>• Formaldehyde<br>• Halogenated Diphenyl Methanes<br>• Lead carbonates and sulfates<br>• Lead and Lead compounds<br>• Mercuric Oxide Batteries<br>• Nickel – finishes must not be used on the external surface designed to be frequently handled or carried by the user.<br>• Ozone Depleting Substances<br>• Polybrominated Biphenyls (PBBs)<br>• Polybrominated Biphenyl Ethers (PBBEs)<br>• Polybrominated Biphenyl Oxides (PBBOs)<br>• Polychlorinated Biphenyl (PCB)<br>• Polychlorinated Terphenyls (PCT)<br>• Polyvinyl Chloride (PVC) – except for wires and cables, and certain retail packaging has been voluntarily removed from most applications.<br>• Radioactive Substances<br>• Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO) |
| | **Packaging Usage** | HP follows these guidelines to decrease the environmental impact of product packaging:<br>• Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials.<br>• Eliminate the use of ozone-depleting substances (ODS) in packaging materials.<br>• Design packaging materials for ease of disassembly.<br>• Maximize the use of post-consumer recycled content materials in packaging materials.<br>• Use readily recyclable packaging materials such as paper and corrugated materials.<br>• Reduce size and weight of packages to improve transportation fuel efficiency.<br>• Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards. |

## Technical Specifications – Environmental

| | | |
|---|---|---|
| | **End-of-life Management and Recycling** | Hewlett-Packard offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: http://www.hp.com/go/reuse-recycle or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.<br><br>The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/recyclers. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment. |
| | **Hewlett-Packard Corporate Environmental Information** | For more information about HP's commitment to the environment:<br><br>Global Citizenship Report<br>http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html<br>Eco-label certifications<br>http://www8.hp.com/us/en/hp-information/environment/ecolabels.html<br>ISO 14001 certificates:<br>http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC_GBU_Product_Design_ISO_14K_Certificate.pdf<br>and<br>http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf |

After-Market Options (availability may vary by region)

## Business Monitors

| | DM | SFF | TWR | AiO | Part Number |
|---|---|---|---|---|---|
| HP ProDisplay P17A 17-inch 5:4 LED Backlit Monitor | X | X | X | X | F4M97AA |
| HP ProDisplay P202 20-inch Monitor | X | X | X | X | K7X27AA |
| HP ProDisplay P222va 21.5-inch Monitor | X | X | X | X | K7X30AA |
| HP ProDisplay P232 23-inch Monitor | X | X | X | X | K7X31AA |
| HP EliteDisplay E190i 18.9-inch LED Backlit Monitor | X | X | X | X | E4U30AA |
| HP EliteDisplay E221c 21.5-inch Webcam LED Backlit Monitor | X | X | X | X | D9E49AA |
| HP EliteDisplay E222 21.5-inch Monitor | X | X | X | X | M1N96AA |
| HP EliteDisplay E232 23-inch Monitor | X | X | X | X | M1N98AA |
| HP EliteDisplay E240c 23.8-inch Video Conferencing Monitor | X | X | X | X | M1P00AA |
| HP EliteDisplay E242 24-inch Monitor | X | X | X | X | M1P02AA |
| HP EliteDisplay S140u 14-inch USB Portable Monitor | X | X | X | X | G8R65AA |
| HP EliteDisplay S230tm 23-inch Touch Monitor | X | X | X | X | E4S03AA |
| HP EliteDisplay S231d 23-in IPS LED BLU Notebook Docking Monitor | X | X | X | X | F3J72AA |

## Communication Devices

| | DM | SFF | TWR | AiO | Part Number |
|---|---|---|---|---|---|
| Intel® Ethernet I210 – T1 Gbe NIC | X | X | X | | E0X95AA |
| Intel® 7265 802.11ac PCIe x1 Card | X | X | X | | N4G85AA |
| Broadcom BCM943228Z 802.11n PCIe x1 Card | X | X | X | | N4M64AA |

## Graphics Solutions

| | DM | SFF | TWR | AiO | Part Number |
|---|---|---|---|---|---|
| NVIDIA GeForce GT 730 2GB PCIe x8 Graphics Card | | X | X | | N3R90AA |
| NVIDIA GeForce GT 720 2GB PCIe x16 Graphics Card (China only) | | | X | | T4E57AA |
| NVIDIA Quadro NVS 310 1GB PCIe x16 Graphics Card | | X | X | | M6V51AA |
| AMD Radeon™ R9 350 2GB PCIe x16 Graphics Card | | | X | | N3R91AA |
| AMD Radeon R5 320 1GB PCIe x16 Graphics Card Card (China only) | | | X | | T9F48AA |
| HP UHD USB Graphics Adapter | X | X | X | X | N2U81AA |
| HP DisplayPort Cable Kit | X | X | X | | VN567AA |
| HP DisplayPort To DVI-D Adapter | X | X | X | | FH973AA |
| HP DisplayPort to VGA Adapter | X | X | X | | AS615AA |
| HP DisplayPort to HDMI 4K Adapter | X | X | X | | K2K92AA |
| HP (Bulk) 700mm DisplayPort Cable Kit | X | | | | V8Y77A6 |

## Data Storage Drives

| | DM | SFF | TWR | AiO | Part Number |
|---|---|---|---|---|---|
| HP 500GB SATA 6Gbps Hard Drive | | X | X | | QK554AA |

## After-Market Options (availability may vary by region)

| | | | | | |
|---|---|---|---|---|---|
| HP 1TB SATA 6Gbps Hard Drive | | X | X | | QK555AA |
| HP 128-GB SATA Solid State Drive | X | X | X | X | QV063AA |
| HP 500-GB SATA Solid State Hybrid Drive | X | X | X | X | E1C62AA |
| HP 128-GB SED Opal 2 Solid State Drive | X | | | X | G2K24AA |
| HP Turbo Drive 128GB PCIe Solid State Drive | | X | X | | J5V07AA |
| Intel® Pro 2500 180GB SATA SED Opal2 Solid State Drive | X | X | X | X | P3X90AA |
| HP 256GB SATA 3D Non-SED Solid State Drive | X | X | X | X | N1M49AA |
| HP Turbo Drive 256GB PCIe Solid State Drive | | X | X | | N3S12AA |
| HP 256 GB Turbo Drive G2 SSD M.2 card | | | | X | TBD |

## Input Devices

| | DM | SFF | TWR | AiO | Part Number |
|---|---|---|---|---|---|
| HP USB Business Slim Keyboard | X | X | X | X | N3R87AA |
| HP USB Keyboard | X | X | X | X | QY776AA |
| HP USB Grey Keyboard (EMEA only) | X | X | X | X | B6B64AA |
| HP USB Smart Card (CCID) Keyboard | X | X | X | X | BV813AA |
| HP USB Grey Smart Card (CCID) Keyboard (EMEA only) | X | X | X | X | J7H70AA |
| HP USB and PS/2 Washable Keyboard and Mouse Kit | X | X | X | X | BU207AA |
| HP USB Grey Mouse (EMEA only) | X | X | X | X | K7W54AA |
| HP PS/2 Business Slim Keyboard | | X | X | X | N3R86AA |
| HP PS/2 Mouse | | X | X | X | QY775AA |
| HP USB Mouse | X | X | X | X | QY777AA |
| HP USB 1000dpi Laser Mouse | X | X | X | X | QY778AA |
| HP Wireless Business Slim Keyboard and Mouse* | X | X | X | X | N3R88AA |
| HP Wireless Keyboard and Mouse* | X | X | X | X | QY449AA |
| HP USB Antimicrobial Keyboard and Mouse (China Only) | X | X | X | X | K7X25AA |
| HP Executive Capacitive Stylus | | | | | E7U19AA |

*Keyboard contains 25% post-consumer recycled plastic material

## System Memory

| | DM | SFF | TWR | AiO | Part Number |
|---|---|---|---|---|---|
| HP 4GB DDR4-2133 DIMM | | X | X | | P1N51AA |
| HP 8GB DDR4-2133 DIMM | | X | X | | P1N52AA |
| HP 4GB DDR4-2133 SODIMM | X | | | X | P1N53AA |
| HP 8GB DDR4-2133 SODIMM | X | | | X | P1N54AA |
| HP 16GB DDR4-2133 SODIMM | X | | | X | P1N55AA |

## Multimedia Devices

| | DM | SFF | TWR | AiO | Part Number |
|---|---|---|---|---|---|
| HP 9.5mm Desktop G2 Slim DVD-ROM Drive | | X | X | | N1M41AA |
| HP 9.5mm Desktop G2 Slim SuperMulti DVD Writer Drive | | X | X | | N1M42AA |

## After-Market Options (availability may vary by region)

| | | | | | |
|---|---|---|---|---|---|
| HP 9.5mm Desktop G2 Slim SATA BDXL Blu-Ray Writer | | X | X | | N1M43AA |
| HP 9.5mm EliteOne AIO 705/800 G2 Slim DVD-ROM Drive | | | | X | N3S09AA |
| HP 9.5mm EliteOne AIO 705/800 G2 Slim SuperMulti DVD Writer Drive | | | | X | N3S10AA |
| HP 9.5mm Desktop G2 Slim SATA BDXL Blu-Ray Writer | | | | X | N3S11AA |
| HP Business Headset v2 | X | X | X | X | T4E61AA |
| HP USB Business Speakers v2 | X | X | X | | D9J19AA |

| **Desktop Mini Accessories** | **DM** | **SFF** | **TWR** | **AiO** | **Part Number** |
|---|---|---|---|---|---|
| HP Desktop Mini DVD Super Multi-Writer ODD Expansion Module | X | | | | K9Q83AA |
| HP Desktop Mini 500GB HDD/ I/O Expansion Module | X | | | | K9Q82AA |
| HP Desktop Mini Rack Mount Tray Kit | X | | | | G1K21AA |
| HP Desktop Mini Security/Dual VESA Sleeve | X | | | | G1K22AA |
| HP Desktop Mini 65W Power Supply Kit | X | | | | L2X04AA |
| HP Desktop Mini 90w Power Supply Kit<br>- Supports EliteDesk 800 G2 65W Desktop Mini | X | | | | L4R65AA |
| HP Desktop Mini Vertical Chassis Stand | X | | | | G1K23AA |
| HP Desktop Mini LockBox | X | | | | P1N78AA |
| HP Desktop Mini Port Cover Kit | X | | | | P3R65AA |
| HP Desktop Mini I/O Expansion Module | X | | | | K9Q84AA |
| HP Integrated Work Center Desktop Mini/Thin Clients | X | | | | G1V61AA |
| HP Single Monitor Arm | X | | | | BT861AA |
| HP Quick Release | X | | | X | EM870AA |
| HP Desktop Mini Port Cover Kit | X | | | | P3R65AA |

| **Security Devices** | **DM** | **SFF** | **TWR** | **AiO** | **Part Number** |
|---|---|---|---|---|---|
| HP Solenoid Lock and Hood Sensor (DM/SFF) | X | X | X | | E0X97AA |
| HP Solenoid Lock and Hood Sensor (TWR) | | | X | | E0X96AA |
| HP SFF Wall Mount/Security Sleeve | | X | | | VN570AA |
| HP UltraSlim Cable Lock | X | X | X | | H4D73AA |
| HP Chassis (1bay) Security Kit | | X | X | | AR639AA |
| HP Business PC Security Lock V2 Kit | | | X | | N3R93AA |

| **Stands and Accessories** | **DM** | **SFF** | **TWR** | **AiO** | **Part Number** |
|---|---|---|---|---|---|
| HP Integrated Work Center Stand v3 (SFF) | | X | | | F2P06AA |
| HP SFF Tower Stand | | X | | | VN569AA |
| HP (10 Sets) EliteDesk 800 G2 Tower Bezel Support Kit | | | X | | P1N74AA |
| HP (10 Sets) 600/705/800 G2 SFF Bezel Support Kit | | X | | | N7H10AA |

## After-Market Options (availability may vary by region)

| | | | | | |
|---|---|---|---|---|---|
| HP Serial Port Adapter (RS-232 compatible) | | X | X | | PA716A |
| HP PCIe x1 Parallel Port Card | | X | X | | N1M40AA |
| HP SuperSpeed USB 3.1 Gen 2 PCIe x1 Card | | X | X | | P1N75AA |
| HP Type-C™ to USB3 Adapter | X | X | X | X | N2Z63AA |
| HP PCI Expansion Kit | | | X | | E1V16AA |
| HP USB to Serial Adapter | X | | | | J7B60AA |
| HP Single Monitor Arm | X | | | | BT861AA |

## LANDesk Software (E-Delivery)*

Contact your HP representative for available options.

*Optional and sold separately.

## Change Log

| Date of change: | Version History: | Action | Description of change: |
|---|---|---|---|
| Oct. 2, 2015 | From v1 to v2 | Added | Processor edit |
| Nov. 20, 2015 | From v2 to v3 | Added | Multiple edits |
| Dec 09 2015 | From v3 to v4 | Added | Multiple edits |
| Jan 13, 2016 | From v4 to v5 | Added | VESA Support note and Marked AiO in After Market Options |
| Jan 28, 2016 | From v5 to v6 | Added | Internal SATA Ports |
| Feb 01, 2016 | From v6 to v7 | Removed | AMD Radeon™ R9 350 2GB PCIe x16 Graphics Card Compatibility w/ SFF |
| Feb 03, 2016 | From v7 to v8 | Removed | Intel® 7265 802.11ac m.2 Card (AIO)<br>HP USB Graphics Adapter<br>HP Dual Output USB Graphics Adapter |
| March 08, 2016 | From v8 to v9 | Added | E7U19AA HP Executive Capacitive Stylus |
| March 17, 2016 | From v9 to v10 | Added | HP Executive Capacitive Stylus to Input Device |
| March 28, 2016 | From v10 to v11 | Added | HP 700mm DisplayPort Cable |
| March 31, 2016 | From v11 to v12 | Added | Standard Efficiency voltage and Stand Accessory |