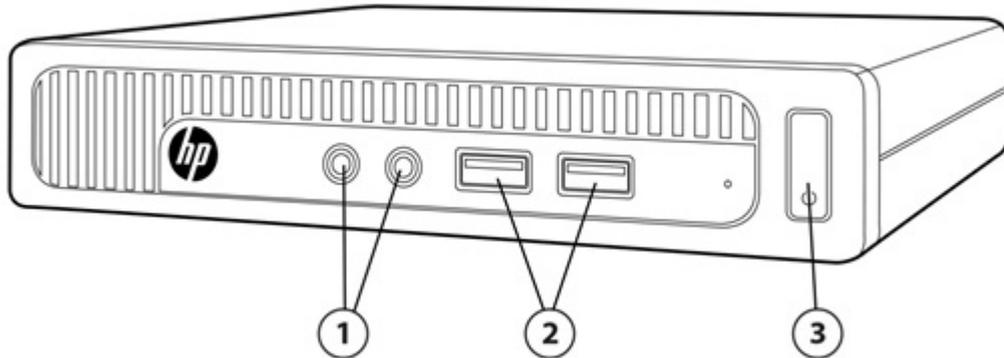


Overview

HP EliteDesk 800 G1 Desktop Mini Business PC



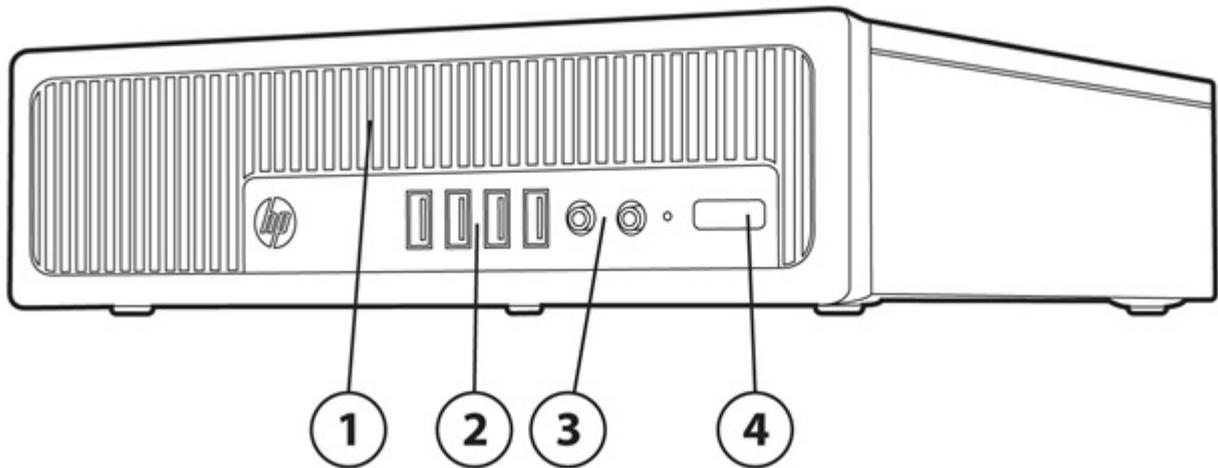
1. 3.5mm headphone output and microphone jacks
2. (2) Front USB 3.0 ports (1 USB Fast charging port)
3. Power button and PC status LED

Not Shown

| | |
|----------|---|
| Slots | (1) internal M.2 connector for optional wireless NIC (1) internal M.2 connector for optional SSD drive (Available Jun '14) |
| Bays | (1) 2.5" internal storage drive bay |
| Rear I/O | (4) USB 3.0 ports (1) VGA video port; (2) DisplayPort with multi-stream video ports (1) RJ-45 network connector 3.5mm audio out jack |
| VESA | Support for VESA 100 mounting system on bottom of PC chassis |

Overview

HP EliteDesk 800 G1 Ultra-slim Desktop Business PC



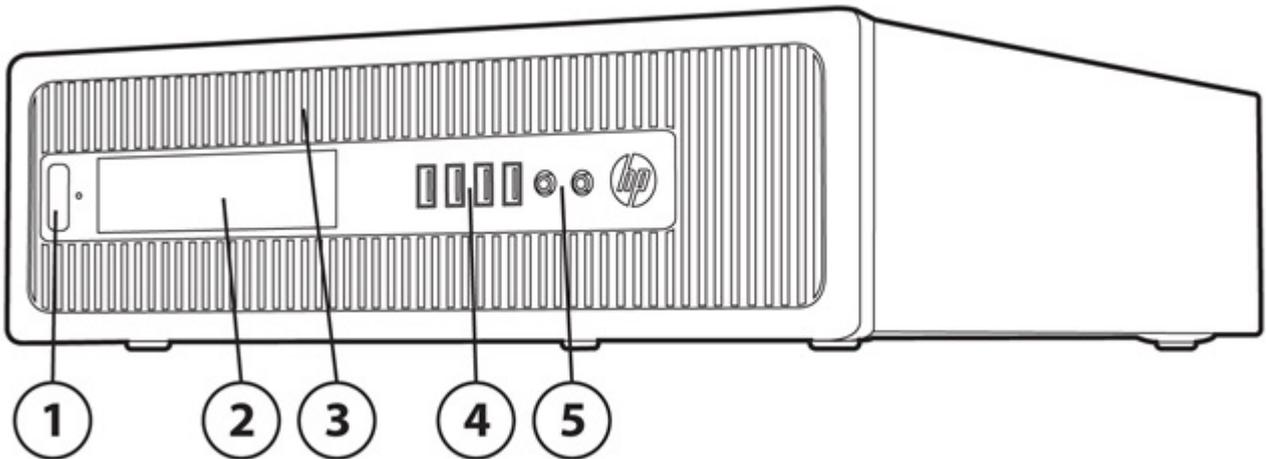
1. Slim drive bay supporting an optical disk drive (located behind removable bezel)
2. (2) USB 3.0 ports, (2) USB 2.0 ports
3. 3.5mm headphone output and microphone jacks
4. Power button and PC status LED

Not Shown

| | |
|----------|---|
| Slots | (1) internal mSATA connector (1) internal PCI Express mini-card connector (1) MXM graphics connector |
| Bays | (1) 2.5" internal storage drive bay |
| Rear I/O | (2) USB 3.0 ports; (4) USB 2.0 ports (1) VGA video port; (2) DisplayPort with multi-stream video ports (1) RJ-45 network connector 3.5mm audio in/out jacks PS/2 keyboard and mouse ports |
| VESA | Support for VESA 100 mounting system on top and bottom of PC chassis |

Overview

HP EliteDesk 800 G1 Small Form Factor Business PC



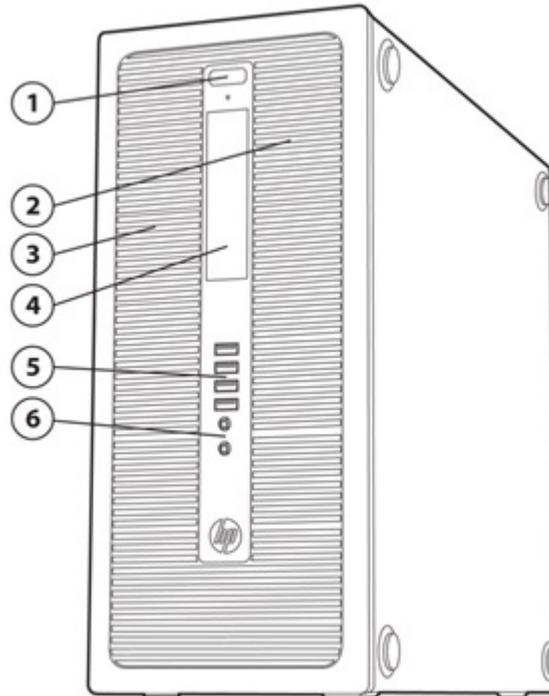
1. Power button and PC status LED
2. 3.5" external drive bay; used for installing a Media Card Reader or 2nd data storage drive
3. Slim drive bay supporting an optical disk drive (located behind removable bezel)
4. (2) USB 3.0 ports, (2) USB 2.0 ports
5. 3.5mm headphone output and microphone jack

Not Shown

| | |
|----------|---|
| Slots | (2) PCI Express x16 graphics connectors; one wired as a x4 (2) PCI Express x1 accessory connectors |
| Bays | (1) 2.5" internal storage drive bay (1) 3.5" internal storage drive bay |
| Rear I/O | (2) USB 3.0 ports; (4) USB 2.0 ports (1) VGA video port; (2) DisplayPort with multi-stream video ports (1) RJ-45 network connector (1) RS-232 serial port 3.5mm audio in/out jacks PS/2 keyboard and mouse ports |

Overview

HP EliteDesk 800 G1 Tower Business PC



1. Power button and PC status LED
2. Slim drive bay supporting an optical disk drive (located behind removable bezel)
3. 5.25" half height external drive bay (located behind removable bezel)
4. 3.5" external drive bay; used for installing a Media Card Reader
5. (2) USB 3.0 ports, (2) USB 2.0 ports
6. 3.5mm headphone output and microphone jack

Not Shown

- | | |
|----------|---|
| Slots | (2) PCI Express x16 graphics connectors; one wired as a x4 (2) PCI Express x1 accessory connectors (1) PCI accessory connector (optional) |
| Bays | (1) 2.5" internal storage drive bay (2) 3.5" internal storage drive bays |
| Rear I/O | (2) USB 3.0 ports; (4) USB 2.0 ports (1) VGA video port; (2) DisplayPort with multi-stream video ports (1) RJ-45 network connector (1) RS-232 serial port 3.5mm audio in/out jacks PS/2 keyboard and mouse ports |

Overview

At A Glance

- Choice of four chassis form factors: Desktop Mini, Ultra-slim Desktop, Small Form Factor and Tower
- PC chassis and all internal components and modules are manufactured with low halogen content
- HP developed and engineered UEFI BIOS supporting security, manageability and software image stability
- Intel® Q87 chipset supporting Intel 4th generation Core processors, featuring integrated Intel HD Graphics and Intel® vPro™ Technology (available with select processors)
- Intel® Ethernet Connection I217L GbE LOM integrated network connection
- DDR3 Synchronous Dynamic Random Access Memory (SDRAM)
- Multi-independent monitor support via VGA and dual digital DisplayPort video interfaces with multi-stream
- DTS Studio Sound audio management software
- Standard and high efficiency energy saving power supply options
- SFF and TWR models can be configured with multiple data drives in a RAID array
- Optional Intel Smart Response Technology disk cache modules
- ENERGY STAR® qualified and certified EPEAT® Gold models
- Guaranteed lengthy purchase lifecycles and image stability

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

OPERATING SYSTEMS

Preinstalled

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

FreeDOS 2.0
 Novell SUSE Linux Enterprise Desktop 11

*Not all features are available in all editions of Windows 8.1. Systems may require upgraded and/or separately purchased hardware, drivers and/or software to take full advantage of Windows 8.1 functionality. See <http://www.microsoft.com>.

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

***This system is preinstalled with Windows 7 Pro software and also comes with a license and media for Windows 8 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.

CHIPSET

| | <u>DM</u> | <u>USDT</u> | <u>SFF/TWR</u> |
|--------------------|-----------|-------------|----------------|
| Intel® Q87 Express | X | X | X |

PROCESSOR

| | <u>DM</u> | <u>USDT</u> | <u>SFF/TWR</u> |
|--|-----------|-------------|----------------|
| Intel® 4th Generation Core™ i7 Processors | | | |
| Intel® Core™ i7-4765T Processor Up to 3.0 GHz Max. Turbo Frequency (2.0 GHz base frequency) 8 MB cache, 4 cores, 8 threads Intel HD Graphics 4600 Supports DDR3 memory up to 1600 MT/s data rate Supports Intel® vPro™ Technology and Intel® Stable Image Platform Program (SIPP) | X | | |
| <u>Intel® Core™ i7-4770 Processor</u> Up to 3.9 GHz Max. Turbo Frequency (3.4 GHz base frequency) 8 MB cache, 4 cores, 8 threads Intel HD Graphics 4600 Supports DDR3 memory up to 1600 MT/s data rate Supports Intel® vPro™ Technology and Intel® Stable Image Platform Program (SIPP) | | | X |

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

| | |
|--|-----------------|
| <p><u>Intel® Core™ i7-4770S Processor</u> Up to 3.9 GHz Max. Turbo Frequency (3.1 GHz base frequency) 8 MB cache, 4 cores, 8 threads Intel HD Graphics 4600 Supports DDR3 memory up to 1600 MT/s data rate Supports Intel® vPro™ Technology and Intel® Stable Image Platform Program (SIPP)</p> | <p>X</p> |
| <p><u>Intel Core i7-4771 Processor</u> Up to 3.9 GHz Max. Turbo Frequency (3.5 GHz base frequency) 8 MB cache, 4 cores, 8 threads Intel HD Graphics 4600 Supports DDR3 memory up to 1600 MT/s data rate Supports Intel® vPro™ Technology and Intel® Stable Image Platform Program (SIPP)</p> | <p>X</p> |
| <p>Intel® 4th Generation Core™ i5 Processors</p> | |
| <p><u>Intel® Core™ i5-4570 Processor</u> Up to 3.6 GHz Max. Turbo Frequency (3.2 GHz base frequency) 6 MB cache, 4 cores, 4 threads Intel HD Graphics 4600 Supports DDR3 memory up to 1600 MT/s data rate Supports Intel® vPro™ Technology and Intel® Stable Image Platform Program (SIPP)</p> | <p>X</p> |
| <p><u>Intel® Core™ i5-4570S Processor</u> Up to 3.6 GHz Max. Turbo Frequency (2.9 GHz base frequency) 6 MB cache, 4 cores, 4 threads Intel HD Graphics 4600 Supports DDR3 memory up to 1600 MT/s data rate Supports Intel® vPro™ Technology and Intel® Stable Image Platform Program (SIPP)</p> | <p>X</p> |
| <p><u>Intel® Core™ i5-4570T Processor</u> Up to 3.6 GHz Max. Turbo Frequency (2.9 GHz base frequency) 4 MB cache, 2 cores, 4 threads Intel HD Graphics 4600 Supports DDR3 memory up to 1600 MT/s data rate Supports Intel® vPro™ Technology and Intel® Stable Image Platform Program (SIPP)</p> | <p>X</p> |
| <p><u>Intel® Core™ i5-4670 Processor</u> Up to 3.8 GHz Max. Turbo Frequency (3.4 GHz base frequency) 6 MB cache, 4 cores, 4 threads Intel HD Graphics 4600 Supports DDR3 memory up to 1600 MT/s data rate Supports Intel® vPro™ Technology and Intel® Stable Image Platform Program (SIPP)</p> | <p>X</p> |
| <p><u>Intel® Core™ i5-4670S Processor</u> Up to 3.8 GHz Max. Turbo Frequency (3.1 GHz base frequency) 6 MB cache, 4 cores, 4 threads Intel HD Graphics 4600 Supports DDR3 memory up to 1600 MT/s data rate Supports Intel® vPro™ Technology and Intel® Stable Image Platform Program (SIPP)</p> | <p>X</p> |

Intel® 4th Generation Core™ i3 Processors

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

| | | |
|--|---|---|
| <p><u>Intel® Core™ i3-4130 Processor</u> Up to 3.4 GHz base frequency 3 MB cache, 2 cores, 4 threads Intel HD Graphics 4400 Supports DDR3 memory up to 1600 MT/s data rate</p> | X | X |
| <p><u>Intel® Core™ i3-4330 Processor</u> Up to 3.5 GHz base frequency 4 MB cache, 2 cores, 4 threads Intel HD Graphics 4600 Supports DDR3 memory up to 1600 MT/s data rate</p> | X | X |
| <p><u>Intel® Core™ i3-4340 Processor</u> Up to 3.6 GHz base frequency 4 MB cache, 2 cores, 4 threads Intel HD Graphics 4600 Supports DDR3 memory up to 1600 MT/s data rate</p> | X | X |
| <p><u>Intel® Core™ i3-4130T Processor</u> Up to 2.9 GHz base frequency 3 MB cache, 2 cores, 4 threads Intel HD Graphics 4400 Supports DDR3 ,memory up to 1600 MT/s Data Rate</p> | X | X |
| <p><u>Intel® Core™ i3-4330T Processor</u> Up to 3.0 GHz base frequency 4 MB cache, 2 cores, 4 threads Intel HD Graphics 4600 Supports DDR3 memory up to 1600 MT/s data rate</p> | X | X |
| <p>Intel® 4th Generation Pentium™ Processors</p> | | |
| <p><u>Intel Pentium G3220T</u> Up to 2.6 GHz base frequency 3 MB cache, 2 cores, 2 threads Intel HD Graphics Supports DDR3 memory up to 1333 MT/s data rate</p> | X | |
| <p><u>Intel® Pentium G3220 Processor</u> Up to 3.0 GHz base frequency 3 MB cache, 2 cores, 2 threads Intel HD Graphics Supports DDR3 memory up to 1333 MT/s data rate</p> | X | X |
| <p><u>Intel® Pentium G3420 Processor</u> Up to 3.2 GHz base frequency 3 MB cache, 2 cores, 2 threads Intel HD Graphics Supports DDR3 memory up to 1600 MT/s data rate</p> | X | X |

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

| | | | |
|--|----------|----------|----------|
| <u>Intel® Pentium™ G3420T Processor</u> 2.7 GHz base frequency 3 MB cache, 2 cores, 2 threads Intel HD Graphics Supports DDR3 memory up to 1600 MT/s data rate | X | | |
| <u>Intel® Pentium G3430 Processor</u> Up to 3.3 GHz base frequency 3 MB cache, 2 cores, 2 threads Intel HD Graphics Supports DDR3 memory up to 1600 MT/s data rate | | X | X |
| Intel® 4th Generation Celeron™ Processors | | | |
| <u>Intel Celeron G1820T Processor</u> Up to 2.4 GHz base frequency 2 MB cache, 2 cores, 2 threads Intel HD Graphics Supports DDR3 memory up to 1333 MT/s data rate | X | | |

GRAPHICS

| | <u>DM</u> | <u>USDT</u> | <u>SFF/TWR</u> |
|---|-----------|-------------|-----------------|
| Intel HD Graphics on all models (integrated on processor) | X | X | X |
| Optional Discrete Graphics Solutions | | | |
| AMD Radeon HD 7650A (MXM) | | X | |
| NOTE: When this MXM graphics card is installed in the USDT all three monitor ports are active. The discrete ATI graphics will operate the top DisplayPort while the Intel integrated graphics will operate the bottom Multi-Stream DisplayPort and the VGA output. | | | |
| AMD Radeon HD 8350 (1GB) PCIe x16 | | | X |
| AMD Radeon HD 8490 (1GB) PCIe x 16 | | | X |
| NVIDIA NVS 310 (512 MB) PCIe x16 | | | X |
| NVIDIA NVS 315 (1GB) PCIe x 16 | | | X |
| NVIDIA GeForce GT630 (2 GB) FH PCIe x16 | | | TWR only |
| Adapters and Cables | <u>DM</u> | <u>USDT</u> | <u>SFF/TWR</u> |
| HP DMS-59 to Dual DisplayPort Cable | | | X |
| HP DMS-59 to Dual DVI Cable | | | X |
| HP DMS-59 to Dual VGA Cable | | | X |
| HP DisplayPort to DisplayPort Cable | X | X | X |
| HP DisplayPort to DVI-D Adapter | X | X | X |
| HP DisplayPort to HDMI Adapter | X | X | X |
| HP DisplayPort to VGA Adapter | X | X | X |
| HP Serial Port Adapter | | | X |
| HP Parallel Port Adapter | | | X |

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

STORAGE

| | <u>DM</u> | <u>USDT</u> | <u>SFF/TWR</u> |
|--|-----------|-------------|----------------|
| Hard Disk Drives (HDD) | | X | |
| 320 GB 7200 rpm HDD | X | X | X |
| 500 GB 7200 rpm HDD | X | X | X |
| 500 GB 7200 rpm SED HDD | | | X |
| 500 GB 10K rpm HDD | | | X |
| 1 TB 7200 rpm HDD | | | X |
| 1 TB 10K rpm HDD | | | X |
| 2 TB 7200 rpm HDD | | | X |
| Solid State Hybrid Drives (SSHD) | <u>DM</u> | <u>USDT</u> | <u>SFF/TWR</u> |
| 500 GB SSHD (8 GB cache) | X | X | X |
| 1 TB SSHD (8 GB cache) | X | X | X |
| Solid State Drives (SSD) & Self-encrypting Solid State Drives (SED) | <u>DM</u> | <u>USDT</u> | <u>SFF/TWR</u> |
| 120 GB Opal SED | X | X | X |
| 128 GB SSD | | X | X |
| 128 GB Opal SED | X | X | X |
| 160 GB SSD | | X | X |
| 180 GB Opal SED | X | X | X |
| 256 GB SED | | X | X |
| 128 GB M.2 PCIe SSD (available June '14) | X | | |
| 256 GB Opal SED | X | X | X |
| Optical Disc Drive | <u>DM</u> | <u>USDT</u> | <u>SFF/TWR</u> |
| Slim DVD-ROM | | X | X |
| Slim BDXL Blu-ray Writer | | X | X |
| Slim SuperMulti DVD Writer | | X | X |
| HH Supermulti ODD | | | TWR only |
| Removable | | | |
| HP Slim Removable SATA HDD Frame/Carrier | | X | X |

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

MEMORY

| Form Factor | Type | Maximum | # of Slots |
|--------------------|---------------------------------|---------|------------|
| Desktop Mini | DDR3 non-ECC Up to 1600 MT/s | 16 GB | 2 SODIMM |
| Ultra Slim Desktop | DDR3 non-ECC Up to 1600 MT/s | 16 GB | 2 SODIMM |
| Small Form Factor | DDR3 non-ECC Up to 1600 MT/s | 32 GB | 4 DIMM |
| Tower | DDR3 non-ECC Up to 1600 MT/s | 32 GB | 4 DIMM |

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 1600 MT/s; actual data rate is determined by the system's configured processor. See processor specifications for supported memory data rate.

PERFORMANCE

| Intel® Smart Response Technology Disk Cache Modules | DM | USDT | SFF/TWR |
|---|----|------|---------|
| 2.5" Solid State Disk Cache | | | X |
| mSATA Solid State Disk Cache | | X | |

NETWORKING/COMMUNICATIONS

| Ethernet (RJ-45) | DM | USDT | SFF/TWR |
|---|----|------|---------|
| Intel I217LM Gigabit Network Connection (standard) | X | X | X |
| Intel Ethernet I210-T1 PCIe x1 Gb Network Interface Card (optional) | | | X |
| Wireless | | | |
| Intel Centrino Advanced-N 6205 802.11 a/b/g/n PCI Express x1 Wireless Network Connection (optional) | | | X |
| Intel Centrino Advanced-N 6205 802.11 a/b/g/n PCI Express Mini Card Wireless Network Connection (optional) | | X | |
| Intel Wireless-N 7260 802.11 M.2 a/b/g/n NIC Card Wireless Network Connection | X | | |
| Intel Wireless-N 7260 802.11 a/b/g/n Mini PCIe NIC Card (USDT Only) Wireless Network Connection (optional) | | X | |
| Intel Wireless-N 7260 802.11 a/b/g/n PCIe- Clink Card (SFF/TWR Only) Wireless Network Connection (optional) | | | X |

NOTE: Either the integrated network connection or the Intel Centrino wireless NIC is required to support Intel vPro Technology features.

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

AUDIO/MULTIMEDIA

| | <u>DM</u> | <u>USDT</u> | <u>SFF/TWR</u> |
|---|----------------------|-------------|----------------|
| HD audio with Realtek ALC221 codec (all ports are stereo) | X | X | 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) | Line out only | X | X |
| Multi-streaming capable* | X | X | X |
| Internal speaker (standard) | X | X | X |

* The front microphone port is re-taskable as a Line-in, Microphone-in or Headphone-out port. Rear audio input ports are re-taskable as a Line-in or Microphone-in port. External speakers must be powered externally. 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. This allows for different audio applications to use separate audio ports on the system. For example, the front jacks could be used with a headset for a communications application while the rear jacks are being used with external speakers and a multimedia application.

KEYBOARDS AND POINTING DEVICES

| Keyboard | <u>DM</u> | <u>USDT</u> | <u>SFF/TWR</u> |
|---------------------------------------|-----------|-------------|----------------|
| HP PS/2 Keyboard | X | X | X |
| HP USB Keyboard | X | X | X |
| USB Smart Card (CCID) Keyboard | X | X | X |
| HP USB and PS/2 Washable Keyboard | X | X | X |
| HP Wireless Keyboard and Mouse Combo* | X | X | X |

*Keyboard contains 25% post-consumer recycled plastic material

| Mice | <u>DM</u> | <u>USDT</u> | <u>SFF/TWR</u> |
|--------------------------------|-----------|-------------|----------------|
| HP PS/2 Mouse | X | X | X |
| HP USB Mouse | X | X | X |
| HP USB 1000dpi Laser Mouse | X | X | X |
| HP USB and PS/2 Washable Mouse | X | X | X |

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

HP BIOS

Key features of the HP BIOS include:

- Deployment and manageability – HP BIOS provides several technologies that help integrate the HP EliteDesk 800 G1 Business PC into the enterprise, such as PXE, remote configuration, remote control, and F10 Setup support for 12 languages.
- Select models feature either Intel Standard Manageability or Intel Core vPro Processor Technology.
- Stability - HP BIOS supports the HP stable product roadmap by releasing only critical BIOS changes to the factory and advanced change notification.
- UEFI specification 2.1
- Absolute Persistence agent - For tracking and tracing services, available in select countries, separate software and purchase of a subscription is required.
- Thermal and power management – The HP BIOS provides and enables thermal and power management technologies so component temperatures are managed for high reliability and to assist in operating the HP Business Desktop computer in any enterprise environment.
- Acoustic performance – Industry leading acoustic emissions across the range of operating conditions.
- Serviceability – HP BIOS provides diagnostic and detailed service information.
- Upgrades and recovery – HP BIOS provides numerous ways to upgrade HP Business Desktop computers, including BIOS updates from within DOS (DOSFlash), BIOS updates from within Windows (HPQFlash), HP Client Manager, and fail-safe recovery. In addition, the HP Business Desktop BIOS Utilities tool enables replicated BIOS setup throughout the Enterprise; it is available from within the BIOS software and from the support website.
- HP BIOS uses PKI signing of the BIOS for trusted BIOS upgrades and recovery.

Additional HP BIOS Features

- Power-On password – Helps prevent an unauthorized user from powering on the system.
- Administrator password – Also known as the setup password, this helps prevent unauthorized changes to the system configuration. If the administrator password is not known, the BIOS version cannot be changed and changes cannot be made to BIOS settings using F10 setup or under the OS.
- Advanced Configuration and Power Interface (ACPI) - Represents a significant innovation in power and configuration management, allowing operating systems and applications to manage power based on activity and usage. HP Elite models use ACPI to provide power conservation features.
- S5 Max Power Savings setting supports EU Lot6 requirement and allows the computer to power down below 1W in S5 (when turned off). When S5 Max Power Savings feature is enabled power to slots is turned off along with WOL functionality.

SECURITY

| | <u>USDT/DM</u> | <u>SFF/TWR</u> |
|---|------------------|-----------------|
| Trusted Platform Module (TPM) 1.2 | X | X |
| SATA port disablement (via BIOS) | X | X |
| Drive lock | X | X |
| RAID configurations | | X |
| Intel Identify Protection Technology (IPT) ¹ | X | X |
| Serial, parallel, USB enable/disable (via BIOS) | X | X |
| Optional USB Port Disable at factory (user configurable via BIOS) | X | X |
| Removable media write/boot control | X | X |
| Power-On password (via BIOS) | X | X |
| Setup password (via BIOS) | X | X |
| HP Chassis (1 bay) Security Kit | | TWR only |
| Solenoid Hood Lock / Sensor | USDT only | X |
| Support for chassis padlocks and cable lock devices | X | X |

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

¹Models 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® qualified models available

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

Low halogen (chassis, all internal components and modules)

TAA compliant

PORTS

I/O Ports – Standard

| | <u>DM</u> | <u>USDT</u> | <u>SFF/TWR</u> |
|-----------------|--|--|--|
| USB 2.0 | N/A | 2 (front); 4 (rear) | 2 (front); 4 (rear) |
| USB 3.0 | 2 (front); 4 (rear) | 2 (front); 2 (rear) | 2 (front); 2 (rear) |
| Serial (RS-232) | N/A | N/A | 1 |
| PS/2 | | 1 keyboard (purple) 1 mouse (green) | 1 keyboard (purple) 1 mouse (green) |
| Video | 1 ea. VGA 2 ea. DisplayPort with multi-stream | 1 VGA 2 DisplayPort with multi-stream | 1 VGA 2 DisplayPort with multi-stream |

NOTE: When configured with an Intel Celeron, Pentium or 4th generation Intel Core i3 CPU only two of the available video output ports are active

| | | | |
|-------------------|---|---|---|
| Audio | Front: headphone/mic Rear: line in/out 3.5mm diameter | Front: headphone/mic Rear: line in/out 3.5mm diameter | Front: headphone/mic Rear: line in/out 3.5mm diameter |
| Network Interface | RJ-45 | RJ-45 | RJ-45 |

I/O Ports – Optional

| | <u>DM</u> | <u>USDT</u> | <u>SFF/TWR</u> |
|---------------------|-----------|-------------|----------------|
| 2nd Serial (RS-232) | N/A | N/A | 1 |
| Parallel | N/A | N/A | 1 |

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

SLOTS

| | <u>DM</u> | <u>USDT</u> | <u>SFF</u> | <u>TWR</u> |
|---|---|-------------|--|--|
| PCI Express Mini Card | N/A | 1 | N/A | N/A |
| MXM Graphics | N/A | 1 | N/A | N/A |
| mSATA | N/A | 1 | N/A | N/A |
| M.2 | 1 ea. M.2-2230 (for WLAN) 1 ea. M.2-2280 (for storage) | N/A | N/A | N/A |
| PCI Express x1 (v2.0) | N/A | N/A | 2 ea. 2.5" low profile 6.6" length 10W max. power | 2 ea. 4.2" full height 6.6" length 10W max. power |
| PCI Express x16 (v2.0) (wired as a x4) | N/A | N/A | 1 ea. 2.5" low profile 6.6" length 35W max. power | 1 ea. 4.2" full height 6.6" length 35W max. power |
| PCI Express x16 (v3.0) | N/A | N/A | 1 ea. 2.5" low profile 6.6" length 35W max. power | 1 ea. 4.2" full height 6.6" length 75W max. power |
| Optional PCI (v2.3) | N/A | N/A | N/A | 1 ea. 4.2" full height 6.6" length |

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

| | <u>DM</u> | <u>USDT</u> | <u>SFF</u> | <u>TWR</u> |
|-----------------------------|-----------|-------------|------------|------------|
| 3.5" Media Card Reader | N/A | N/A | 1 ea. | 1 ea. |
| 5.25" Half Height ODD | N/A | N/A | N/A | 1 ea. |
| Slim ODD | N/A | 1 ea. | 1 ea. | 1 ea. |
| Secure Digital (SD) Reader | N/A | 1 ea. | N/A | N/A |
| 2.5" internal storage drive | 1 ea. | 1 ea. | 1 ea. | 1 |
| 3.5" internal storage drive | N/A | N/A | 1 ea. | 2 ea. |

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

SERVICE AND SUPPORT

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

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

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

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

OPERATING SYSTEMS

Preinstalled

Windows 8.1 Pro (64-bit)*
Windows 8 .1 (64-bit)*
Windows 7 Ultimate (32-bit)**
Windows 7 Ultimate (64-bit)**
Windows 7 Professional (32-bit)**
Windows 7 Professional (64-bit)**
Windows 7 Professional (32-bit) (available through downgrade rights from Windows 8.1 Pro)***
Windows 7 Professional (64-bit) (available through downgrade rights from Windows 8.1 Pro)***
Windows 7 Home Premium (32-bit)**
Windows 7 Home Premium (64-bit)**
FreeDOS 2.0
Novell SUSE Linux Enterprise Desktop 11

For all Preinstalled operating systems HP provides Microsoft WHQL certified (where applicable) drivers on www.hp.com at the time of product announcement.

Web Support

Windows 7 Enterprise (32-bit or 64-bit)
Windows 8 (64-bit)
Windows 8 Pro (64-bit)*
Windows 8 Enterprise (64-bit)**

For all Supported operating systems HP performs testing of the OS, and makes available all HP value add software (OS dependent). Certified drivers are made available on www.hp.com within 30 days of product announcement.

Certified

Novell SUSE Linux Enterprise Desktop 11¹

For all Certified operating systems HP will submit hardware to the operating system vendor for testing and certification. All drivers would be obtained from the operating system vendor, not supplied by HP. Certification will be posted by the operating system vendor.

Test & Document

Windows® Vista Enterprise (32-bit or 64-bit)
Windows® Vista Professional (32-bit or 64-bit)

For all Test & Document operating systems HP will perform functional testing of the operating system on the HP business PC platform. Any issues found will be documented in an Engineering Advisory and/or Service Advisory and posted to www.hp.com. HP will not develop or qualify any drivers or perform any integration testing.

*Not all features are available in all editions of Windows 8.1. Systems may require upgraded and/or separately purchased hardware, drivers and/or software to take full advantage of Windows 8.1 functionality. See <http://www.microsoft.com>.

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

***This system is preinstalled with Windows® 7 Pro software and also comes with a license and media for Windows 8 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.

¹The following features are not supported by Novell SUSE Linux Enterprise Desktop:

- Intel Gigabit CT Desktop NIC
- Broadcom NetXtreme Gigabit Ethernet Plus
- HP Media Card Reader
- HP Client Security
- HP Blu-ray Writer playback of commercial movies
- DisplayPort video interface
- HP 2nd serial port adapter

Technical Specifications – Operating Systems, Software and eDocumentation

- Power Management features

Systems configured with Linux do not qualify for ENERGY STAR®

The following features are not supported by Red Hat Enterprise Linux 64:

- TPM v1.2 embedded Security Chip
- Intel Gigabit CT Desktop NIC
- HP Wireless 802.11b/g/n NIC
- HP Media Card Reader
- HP Blu-ray Writer
- HP 2nd serial port Adapter
- HP USB Smart Card (CCID) Keyboard
- Power Management features

Systems configured with Linux do not qualify for ENERGY STAR®

SOFTWARE

| Included | Windows 7 | Windows 8.1 |
|---------------------------|---|---|
| Security | Absolute Persistence (status tracing) ¹ Device Access Manager Drive Encryption ⁴ File Sanitizer (Activated via Wizard) Disk Sanitizer (external version) ² Secure Erase HP Client Security | Computrace (status tracing) ¹ Device Access Manager Drive Encryption ⁴ File Sanitizer (Activated via Wizard) Disk Sanitizer (external version) ² Microsoft Defender Secure Erase HP Client Security |
| MultiMedia | Cyberlink Power DVD, BD Cyberlink Power2Go (Secure Burn) | Cyberlink Power DVD, BD Cyberlink Power2Go (Secure Burn) |
| Communication | | HP Wireless Hotspot |
| HP Value Add | HP ePrint Driver ³ HP PageLift HP Support Assistant HP Recovery Disk Creator | HP ePrint Driver ³ HP PageLift HP Recovery Manager HP Support Assistant HP QuickStart |
| 3rd Party | Adobe Flash Player Bing Search for Internet Explorer 10 Box PDF Complete, Corporate Edition Skype | Bing Search PDF Complete, Corporate Edition Skype |
| Microsoft Products | Buy Office | Buy Office |

¹ Computrace agent is shipped turned off, and must be activated by customers when they purchase a subscription. Subscriptions can be purchased for terms ranging from one to five years. Service is limited, check with Absolute for availability outside the U.S.

² Available via download

³ Requires an Internet connection to HP web-enabled printer and HP ePrint account registration (for a list of eligible printers, supported documents and image types and other HP ePrint details, see www.hp.com/go/eprintcenter). Requires optional broadband module. Broadband use requires separately purchased service contract. Check with service provider for coverage and availability in your area. Separately purchased data plans or usage fees may apply. Print times and connection speeds may vary

Technical Specifications – Operating Systems, Software and eDocumentation

4 Drive Encryption is planned to be available in October 2013. Requires Windows. Data is protected prior to Drive Encryption login. Turning the PC off or into hibernate logs out of Drive Encryption and prevents data access.

Technical Specifications – Core vPro Processors

INTEL 4th GENERATION CORE vPRO PROCESSORS

All HP EliteDesk 800 G1 Business PC models featuring this technology include processors that are part of the Intel 2013 Stable Image Platform Program (SIPP) designed to ensure the stability promise inherent in the value proposition of the HP EliteDesk 800 G1 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

Intel HD Graphics

| | |
|-----------------------|---|
| VGA Controller | Integrated |
| DisplayPort | Multimode capable; supports HDCP, Display Port Audio (2 streams), HBR2 link rates and Multi-Stream Technology for a maximum of 3 displays (including the integrated panel) |
| Bus Type | N/A |
| RAMDAC | N/A |
| Memory | Intel graphics do not have dedicated memory but utilizes some of the computer's system memory. The amount of memory used for graphics depends on the amount of system memory installed, BIOS settings, operating system, and system load. 32 MB is pre-allocated for graphics use at system boot time. Additional memory can be allocated at boot time by the BIOS for PAVP (Protected Audio Video Playback) support for playback of protected video content. |

Additional memory is allocated for graphics as needed using Intel's Dynamic Video Memory Technology (DVMT), to provide an optimal balance between graphics and system memory use.

| | | |
|--------------------------------|---------------------|-------------|
| Maximum Graphics Memory | Microsoft Windows 7 | Windows 8 |
| | Up to 1.7GB | Up to 1.8GB |

Note: the actual amount of maximum graphics memory can be less than the amounts listed above depending upon your computer's configuration.

Maximum Color Depth 32 bits/pixel

Graphics/Video API Support 4th Generation Core processors:

- The Processor Graphics contains a refresh of the seventh generation graphics core enabling substantial gains in performance and lower power consumption. Up to 16 EU support.
- Next Generation Intel Clear Video Technology HD Support is a collection of video playback and enhancement features that improve the end user's viewing experience
 - Encode/transcode HD content
 - Playback of high definition content including Blu-ray Disc
 - Superior image quality with sharper, more colorful images
- DirectX Video Acceleration (DXVA) support for accelerating video processing
 - Full AVC/VC1/MPEG2 HW Decode
- Advanced Scheduler 2.0, 1.0
- Windows 7, Windows 8, Linux OS Support
- DirectX 11.1
- OpenGL 4.0
- Open CL 1.2

Supported Display Resolutions and Refresh Rates

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

Technical Specifications - Graphics

| Resolution | Refresh Rates |
|------------|---------------|
| 800x600 | 60 Hz |
| 1024x768 | 60 Hz |
| 1152x864 | 60 Hz |
| 1280x600 | 60 Hz |
| 1280x720 | 60 Hz |
| 1280x800 | 60 Hz |
| 1280x960 | 60 Hz |
| 1280x1024 | 60 Hz |
| 1360x768 | 60 Hz |
| 1366x768 | 60 Hz |
| 1400x1050 | 60 Hz |
| 1440x900 | 60 Hz |
| 1600x900 | 60 Hz |
| 1600x1200* | 60 Hz |
| 1680x1050 | 60 Hz |
| 1920x1080 | 60 Hz |
| 1920x1200* | 60 Hz |
| 1920x1440* | 60 Hz |
| 2560x1440* | 60 Hz |
| 2560x1600* | 60 Hz |
| 3840x2160* | 60 Hz |

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

AMD Radeon HD 7650A Graphics Card

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

Technical Specifications - Graphics

Supported Display resolutions and refresh rates

NOTE: Other resolutions may be available but are not recommended as they may not have been tested and qualified by HP.

| Resolution | Refresh Rates |
|------------|---------------|
| 800x600 | 60 Hz |
| 1024x768 | 60 Hz |
| 1280x720 | 60 Hz |
| 1280x1024 | 60 Hz |
| 1360 x 768 | 60 Hz |
| 1440x900 | 60 Hz |
| 1600 x 900 | 60 Hz |
| 1680x1050 | 60 Hz |
| 1920x1080 | 60 Hz |

NVIDIA NVS 310 Graphics Card

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.

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.

Performance and Features

The NVIDIA® NVS 310 Graphics Card offers 512 MB of ultrafast DDR3 memory and is capable of supporting up to 2 displays.

DisplayPort connector supports multimode technology to support connection to DVI-D, VGA and HDMI monitors with optional adapters in kits NR078AA, FH973AT, BP937AA, AS615AA.

For a DisplayPort to DisplayPort connections use the optional DisplayPort Cable Kit VN567AA.

Form Factor (H x L)

Low Profile: 2.713 × 6.15 in

Graphics Controller

NVIDIA® NVS 310

Memory Clock

875MHz

Memory Size

512 MB 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
- 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
- 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

Technical Specifications - Graphics

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

Max. Power 19.5 W

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 | 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 |
| 2560 x 1600 | | | | 60 |

Note: 60-R denotes reduced blanking timings are used on single link DVI connections and may be used with other digital connections.

NVIDIA GeForce GT630 Graphics Card

Introduction

The NVIDIA GeForce GT630 DP (2GB) PCIe x16 Card Graphics Card provides a full height, PCI Express x16 graphics add-in card solution based on the NVIDIA Kepler Architecture GPU. The card is designed to support three display connections through its DVI, and two DisplayPort connectors.

An ideal solution for desktop PC customers seeking enhanced 2D and advanced 3D graphics performance, the NVIDIA GeForce GT630 DP (2GB) PCIe x16 Cards are an excellent choice for business users who want run multiple displays from a single graphics board. Engage in Web conferencing or video or photo editing, while improving your everyday business PC experience with better graphics and excellent visual display quality.

Performance and Features

The NVIDIA GeForce GT630 DP (2GB) PCIe x16 Cards deliver superior PCI Express (PCIe) Gen 3 features including:

- Unprecedented flexibility for new applications and enhanced performance
- Support for NVIDIA surround technology
- Run multiple displays from a single graphics card
- Full 16 lane PCIe Generation 3 bus support with peak bandwidth support
- Wireless Display ready for future support

Form Factor

PCIe x16 Card

Graphics Controller

NVIDIA Kepler Architecture GPU

Core Clock

875 MHz

Memory Clock

891 MHz

Technical Specifications - Graphics

| | |
|--------------------------------|---|
| Memory Size | 2 GB DDR3 128 bit |
| Memory Bandwidth | 28.5 GB/s |
| Display Max. Resolution | 2560 x 1600 digital, 2048 x 1536 analog |
| Display Support | Integrated 400 MHz RAMDAC |

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 | Maximum Refresh Rates (Hz) | |
|------------|----------------------------|--------------------|
| | Analog Connection | Digital Connection |
| 640x480 | 85 | 60 |
| 800x600 | 85 | 60 |
| 1024x768 | 85 | 60 |
| 1280x720 | 85 | 60 |
| 1280x1024 | 85 | 60 |
| 1440x900 | 75 | 60 |
| 1600x1200 | 85 | 60 |
| 1680x1050 | 75 | 60 |
| 1920x1080 | 85 | 60-R |
| 1920x1200 | 85 | 60-R |
| 1920x1440 | 85 | 60 |
| 2048x1536 | 75 | 60 |
| 2560x1600 | N/A | 60 |

NVIDIA NVS 315 1GB PCIe x 16 Graphics Card

Introduction

Get efficient dual-display graphics performance in a PCI Express low-profile graphics card with the NVIDIA NVS 315 PCIe x16 1 GB Graphics Card, an ideal desktop graphics solution for professional business and commercial applications.

Performance and Features

The NVIDIA® NVS 315 Graphics Card offers 1 GB of ultrafast DDR3 memory and is capable of supporting up to 2 displays.

DisplayPort connector supports multimode technology to support connection to DVI-D, VGA and HDMI monitors with optional adapters in kits NR078AA, FH973AT, BP937AA, AS615AA.

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 315

Memory Clock

875MHz

Memory Size

512 MB DDR3

Memory Bandwidth

14 GB/s

Connectors

DMS-59 , with support for dual VGA, dual DVI or dual Display Port with the appropriate adapter cable

Display Max. Resolution

Up to 2048 x 1536 VGA; 1920 x 1200 DVI; 2560 x 1600 DisplayPort

Display Output

Up to 2 displays in the following configurations

- Dual DVI :
 - Drives two DVI displays using optional HP DMS59 DVI Dual-head Connector Cable DL139A
- Dual DisplayPort :
 - Drives two DisplayPort using optional HP DMS-59 to Dual DisplayPort kit XP688AA
- Dual VGA :
 - Drives two analog using the included HP DMS-59 to Dual VGA Cable

Technical Specifications - Graphics

Supported Display Resolutions and Refresh Rates

NOTE: Other resolutions may be available but are not recommended as they may not have been tested and qualified by HP.

| Resolution | Maximum Refresh Rates (Hz) by Connection | |
|------------|--|--------------------|
| | Analog Connection | Digital Connection |
| 640x480 | 85 | 60 |
| 720x480 | 85 | 60 |
| 720x576 | 85 | 60 |
| 800x600 | 85 | 60 |
| 1024x768 | 85 | 60 |
| 1280x720 | 85 | 60 |
| 1280x768 | 85 | 60 |
| 1280x1024 | 85 | 60 |
| 1440x900 | 75 | 60 |
| 1600x1024 | 85 | 60 |
| 1600x1200 | 85 | 60 |
| 1680x1050 | 75 | 60 |
| 1920x1080 | 85 | 60-R |
| 1920x1200 | 85 | 60-R |
| 1920x1440 | 85 | N/A |
| 2048x1536 | 75 | N/A |
| 2560x1440 | N/A | 60* |
| 2560x1600 | N/A | 60* |

* Display Port Only

AMD Radeon HD 8350 1GB PCIe x16 DH Graphics Card

| | |
|--------------------------------|--|
| Introduction | Get stable 2D and advanced 3D graphics performance from the AMD Radeon HD 8350 1 GB PCIe x16 DH Graphics Card, a low profile, PCI Express x16 graphics add-in card based on the AMD Radeon HD 8350 GPU, great for Web conferencing or video and photo editing. |
| Form Factor | PCIe x16 |
| Graphics Controller | AMD Radeon HD 8350 |
| Core Clock | GPU engine operates at 523 MHz |
| Memory | 1GB, DDR3, SDRAM |
| Memory Clock | 875 MHz |
| HDCP Support | Yes |
| Display Max. Resolution | Digital 1920 x 1200 Analog 2048 x 1536 |

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 | Maximum Refresh Rates (Hz) by Connection | |
|------------|--|--------------------|
| | Analog Connection | Digital Connection |
| 640x480 | 85 | 60 |
| 720x480 | 85 | 60 |
| 720x576 | 85 | 60 |
| 800x600 | 85 | 60 |
| 1024x768 | 85 | 60 |
| 1280x720 | 85 | 60 |
| 1280x768 | 85 | 60 |
| 1280x1024 | 85 | 60 |

Technical Specifications - Graphics

| | | |
|-----------|-----|------|
| 1440x900 | 75 | 75 |
| 1600x1024 | 85 | 60 |
| 1600x1200 | 85 | 60 |
| 1680x1050 | 75 | 75-R |
| 1920x1080 | 85 | 60-R |
| 1920x1200 | 85 | 60-R |
| 1920x1440 | 85 | N/A |
| 2048x1536 | 75 | N/A |
| 2560x1440 | N/A | N/A |
| 2560x1600 | N/A | N/A |

AMD Radeon HD 8490 1GB PCIe x16 Graphics Card

| | |
|--------------------------------|---|
| Introduction | Get impressive graphics and high resolution dual-display performance in a low profile, PCI Express x16 graphics add-in card based on the AMD Radeon HD 8490 Graphics Processor. Improve your everyday PC, Web conferencing, and video or photo editing. |
| Form Factor | PCIe x16 |
| Graphics Controller | AMD Radeon HD 8490 |
| Core Clock | GPU engine operates at 875 MHz |
| Memory | 1GB, DDR3, SDRAM |
| Memory Clock | 900 MHz |
| HDCP Support | Yes |
| Display Max. Resolution | Digital 2560 x 1600 Analog 2048 x 1536 |

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.

| | Analog Connection | Digital Connection |
|------------|-------------------|--------------------|
| 300 x 200 | 85 | 60 |
| 320 x 240 | 85 | 60 |
| 400 x 300 | 85 | 60 |
| 640x480 | 85 | 60 |
| 720x480 | 85 | 60 |
| 720x576 | 85 | 60 |
| 800x600 | 85 | 60 |
| 1024x768 | 85 | 60 |
| 1280x720 | 85 | 60 |
| 1280x768 | 85 | 60 |
| 1280x1024 | 85 | 60 |
| 1440x900 | 75 | 75 |
| 1600 x 900 | 85 | 60 |
| 1600x1024 | 85 | 60 |
| 1600x1200 | 85 | 60 |
| 1680x1050 | 75 | 75-R |
| 1920x1080 | 85 | 60-R |
| 1920x1200 | 85 | 60-R |
| 1920x1440 | 85 | N/A |
| 2048x1536 | 75 | N/A |
| 2560x1440 | N/A | 60 |

Technical Specifications - Graphics

2560x1600

N/A

60

Technical Specifications – Hard Disk and Solid State Storage

Introduction:

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

SATA provides faster data transfer speeds, better system cooling airflow, more bandwidth, more headroom for speed increases in future generations and better data integrity. A next-generation technology, the SATA interface connects hard drives to the PC platform enabling easy aggregation of multiple hard drives into a single PC. This offers you the additional benefits of dedicated bandwidth, the ability to more easily identify device failures and scalability. The HP EliteDesk 800 G1 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 and TWR form factors. The USDT and DM form factors do not support RAID as they do 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.

HP 1TB 10K rpm SATA 6.0Gb/s 3.5" Hard Disk Drive

| | |
|--|--|
| Capacity | 1 TB |
| Rotational Speed | 10,000 rpm |
| Interface | Serial ATA (6.0 Gb/s) |
| Synchronous Transfer Rate (Maximum) | Up to 600 MB/s |
| Buffer Size | 64 MB |
| Cache | Adaptive |
| Seek Time (typical reads, includes controller overhead, including settling) | Single Track: 1.2 ms Average: 3.6 ms Full-Stroke: 9.0 ms |
| Height (nominal) | 0.6 in/1.53 mm |
| Width (nominal) | Media diameter: 2.5 in/63.6 mm Physical size: 2.75 in/69.9 mm |
| Operating Temperature | 41° to 131° F (5° to 55° C) |

Technical Specifications – Hard Disk and Solid State Storage

HP 500 GB 10K rpm SATA 6.0Gb/s 3.5" Hard Disk Drive

| | |
|--|--|
| Capacity | 500 GB |
| Rotational Speed | 10,000 rpm |
| Interface | Serial ATA (6.0 Gb/s) |
| Synchronous Transfer Rate (Maximum) | Up to 600 MB/s |
| Buffer Size | 64 MB |
| Cache | Adaptive |
| Seek Time (typical reads, includes controller overhead, including settling) | Single Track: 1.2 ms Average: 3.6 ms Full-Stroke: 9.0 ms |
| Height (nominal) | 0.6 in/1.53 mm |
| Width (nominal) | Media diameter: 2.5 in/63.6 mm Physical size: 2.75 in/69.9 mm |
| Operating Temperature | 41° to 131° F (5° to 55° C) |

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

| | |
|--|--|
| Capacity | 320,072,933,376 bytes |
| Rotational Speed | 7,200 rpm |
| Interface | Serial ATA 2.0 (6.0 Gb/s) |
| Buffer Size | 16 MB |
| Logical Blocks | 488,397,168 |
| Seek Time (typical reads, includes controller overhead, including settling) | Single Track: 2.0 ms Average: 11 ms Full-Stroke: 22 ms |
| Height (nominal) | 0.374 in/9.5 mm |
| Width (nominal) | Media diameter: 2.5 in/63.5 mm Physical size: 2.75 in/70 mm |
| Operating Temperature | 41° to 131° F (5° to 55° C) |

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

| | |
|--|---|
| Capacity | 500,107,862,016 bytes |
| Rotational Speed | 7,200 rpm |
| Drive Type | Self-Encrypting Drive (SED) with SATA interface |
| Interface | SATA Interface conforming to Serial ATA International Organization: Serial ATA Revision 2.6 |
| Segmented Buffer with write cache | 32768 KB - A portion of buffer capacity used for firmware |
| Number of Sectors | 976,773,168 |
| Seek Time (typical reads, includes controller overhead, including settling) | Single Track: 1.0 ms Average: 13 ms Full-Stroke: 25 ms |
| Media Diameter | 2.5 in/63.5 mm |
| Height | 0.267 in/6.8 mm, ±0.2mm |
| Width | 2.75 in/69.85 mm, ±0.25mm |
| Length | 3.945 in/100.2 mm, ±0.25mm |

Technical Specifications – Hard Disk and Solid State Storage

| | |
|------------------------------|-----------------------------|
| Weight | 3.35 oz/95 g (max) |
| Operating Temperature | 41° to 131° F (5° to 55° C) |

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

| | |
|--|--|
| Capacity | 500,107,862,016 bytes |
| Rotational Speed | 7,200 rpm |
| Interface | Serial ATA 2.0 (6.0 Gb/s) |
| Buffer Size | 16 MB |
| Logical Blocks | 976,773,168 |
| Seek Time (typical reads, includes controller overhead, including settling) | Single Track: 2.0 ms Average: 11 ms Full-Stroke: 25 ms |
| Height (nominal) | 0.374 in/9.5 mm |
| Width (nominal) | Media diameter: 2.5 in/63.5 mm Physical size: 2.75 in/70 mm |
| Operating Temperature | 41° to 131° F (5° to 55° C) |

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

| | |
|--|--|
| Formatted Capacity | 1 TB |
| Spindle Speed | 5,400 rpm +/- 0.2% |
| Drive Type | Solid State Hybrid Drive (SSHD) technology with NAND Flash |
| Interface | Serial ATA (SATA) |
| Cache Buffer | 64 MB |
| NAND Flash | 8 GB |
| Commercial Multilevel Cell (cMLC) | |
| Number of Sectors | 976,773,168 |
| Seek Time (typical reads) | Single Track: 2.0 ms Average: 12 ms |
| Height | 0.374 +/- .008 in (9.5 +/- 0.2 mm) |
| Width | 2.750 +/- 0.010 in (69.85 +/- 0.25 mm) |
| Length | 3.951 +0.008 / -0.010 in (100.35 +0.20 / -0.25 mm) |
| Weight | 0.254 lb/115 g (max) |
| Operating Temperature | 32° to 140° F (0° to 60° C) |

Technical Specifications – Hard Disk and Solid State Storage

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 | Serial ATA (SATA) |
| Cache Buffer | 64 MB |
| NAND Flash | 8 GB |
| Commercial Multilevel Cell (cMLC) | |
| Number of Sectors | 976,773,168 |
| Seek Time (typical reads) | Single Track: 2.0 ms Average: 12 ms |
| Height | 0.268 +/- .008 in (6.8 +/- 0.2 mm) |
| Width | 2.750 +/- 0.010 in (69.85 +/- 0.25 mm) |
| Length | 3.951 +0.008 / -0.010 in (100.35 +0.20 / -0.25 mm) |
| Weight | 0.209 lb/95 g (max) |
| Operating Temperature | 32° to 140° F (0° to 60° C) |

HP 500-GB 7.2K rpm SATA 6.0Gb/s 3.5" Hard Disk Drive

| | |
|--|---|
| Capacity | 500,107,862,016 bytes |
| Rotational Speed | 7,200 rpm |
| Interface | Serial ATA 3.0 (6.0 Gb/s) |
| Buffer Size | 16 MB |
| Logical Blocks | 976,773,168 |
| Seek Time (typical reads, includes controller overhead, including settling) | Single Track: 2.0 ms Average: 11 ms Full-Stroke: 21 ms |
| Height (nominal) | 1 in/2.54 cm |
| Width (nominal) | Media diameter: 3.5 in/8.89 cm Physical size: 4 in/10.2 cm |
| Operating Temperature | 41° to 131° F (5° to 55° C) |

Technical Specifications – Hard Disk and Solid State Storage

HP 120-GB Solid State Drive

| | | |
|--|--|-------------------------------|
| Unformatted Capacity | 120 GB | |
| Architecture | Multi Level Cell (MLC) NAND Flash with wear leveling 10 channel controller | |
| Interface | Serial ATA 2.0 (3.0 Gb/s) | |
| Dimensions (W x H x D) | 2.74 x 0.37 x 4 in/6.98 x 0.95 x 10.2 cm | |
| Weight | 0.18 lb/80 g | |
| Bandwidth Performance | Sustained Sequential Read: | Up to 250 MB/s |
| | Sustained Sequential Write: | Up to 70 MB/s |
| | Random Read: | Up to 35K IOPs |
| | Random Write: | Up to 6.6K IOPs |
| Latency | Read: | 65-ms |
| | Write: | 85-ms |
| Power | DC power requirement: | 5 VDC 5%-100 mV ripple p-p |
| | Total power consumption: | 0.15W (active); 0.075W (idle) |
| Useful Drive Life | 35TB written, up to 20GB/day for 5 years | |
| | Operating Temperature: | 32° to 158° F (0° to 70° C) |
| Environmental (all conditions, non-condensing) | Relative Humidity: | 5% to 95% |
| | Maximum Wet Bulb Temperature (operating): | 84° F (29° C) |
| | Shock: | 1,500 G/0.5-ms |

* For solid state disk drives, GB means 1 billion bytes. 128GB is the unformatted capacity of this drive before a portion of the drive is reserved for flash management features. Actual capacity will vary by content

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

HP 128 GB Solid State Drive

| | | |
|--|---|----------------------------------|
| Unformatted Capacity | 128 GB* | |
| Architecture | Multi Level Cell (MLC) NAND | |
| Interface | SATA 6 GB/sec | |
| Dimensions (W x H x D) | 2.75 x 0.276 x 3.96 in (6.985 x 0.7 x 10.05 cm) | |
| Weight | 0.16 lb (73 g) | |
| Bandwidth Performance | Sustained Sequential Read: | Up to 450 MB/s |
| | Sustained Sequential Write: | Up to 260 MB/s |
| | Random Read: | up to 46K IOPs |
| | Random Write: | up to 56K IOPs |
| Latency | Read: | 55ms (TYP) |
| | Write: | 55ms (TYP) |
| Power | DC power requirement: | Min 4.5 V; Max 5.5 V |
| | Total power consumption: | 160 mW (Active) ; <85 mW; (Idle) |
| Useful Drive Life | 1.2 million device hours** | |
| | Operating Temperature: | 32° to 158° F (0° to 70° C) |
| Environmental (all conditions, non-condensing) | Relative Humidity: | 5% to 95% |
| | Maximum Wet Bulb Temperature (operating): | 84° F (29° C) |
| | Shock: | 1,500 G/1.0 msec |

Regulations UL, CSA, EN 60950-2000, CISPR Pub 22 Class B, CNS 13438, AS/NZS CISPR 22:2002 Class B, Korea KCC, CE Mark

Technical Specifications – Hard Disk and Solid State Storage

Option kit contents HP 128 GB Solid State Drive, documentation, 3.5-inch bay adapter bracket, 3.5-inch bay adapter bracket screws, SATA cable

* For solid state disk drives, GB means 1 billion bytes. 128GB is the unformatted capacity of this drive before a portion of the drive is reserved for flash management features. Actual capacity will vary by content

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

HP 160 GB Solid State Drive

| | |
|--|---|
| Unformatted Capacity | 160 GB* |
| Architecture | Multi Level Cell (MLC) NAND |
| Interface | SATA 3 GB/sec |
| Dimensions (W x H x D) | 2.74 x 0.37 x 4 in (6.98 x 0.95 x 10.2 cm) |
| Weight | 0.18 lb (80 g) |
| Bandwidth Performance | Sustained Sequential Read: Up to 250 MB/s |
| | Sustained Sequential Write: Up to 70 MB/s |
| | Random Read (4KB): up to 35K IOPs |
| | Random Write (4KB): up to 6.6K IOPs |
| Latency | Read: 65 ms |
| | Write: 85 ms |
| Power | DC power requirement: 5 VDC 5%-100 mV ripple p-p |
| | Total power consumption: 0.15 Watt (Active); 0.075 Watt (Idle) |
| Useful Drive Life | 35TB written, up to 20GB/day for 5 years ** |
| Environmental (all conditions, non-condensing) | Operating Temperature: 32° to 158° F (0° to 70° C) |
| | Relative Humidity: 5% to 95% |
| | Shock: 1,500 G/1.0 msec |
| Regulations | UL, CSA, EN 60950-2000, CISPR Pub 22 Class B, CNS 13438, AS/NZS CISPR 22:2002 Class B, Korea KCC, CE Mark |

* For solid state disk drives, GB means 1 billion bytes. 128GB is the unformatted capacity of this drive before a portion of the drive is reserved for flash management features. Actual capacity will vary by content

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

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

| | |
|------------------------------|---|
| Unformatted Capacity | 256,186,209,271 bytes |
| Architecture | Self-Encrypting (SED) Solid State Drive with 25nm MLC NAND Flash and SATA interface |
| Interface | Serial ATA 2.0 (3.0 Gb/s) |
| NAND Flash | 25nm MLC NAND Flash |
| Height | .275 in/7mm |
| Width | 2.75 in/69.85 mm |
| Length | 3.95 in/100.5 mm |
| Weight | 0.161 lb (73 g) |
| | Sustained Sequential 128k Read: Up to 450 MB/s |
| | Sustained Sequential 128k Write: Up to 260 MB/s |
| | Random 4k Read: up to 46K IOPs |
| Bandwidth Performance | Random 4k Write: up to 56K IOPs |
| | Read: 55 µs |
| Latency | Write: 55 µs |
| | Power |
| Useful Drive Life | 72TB written, up to 40GB/day for 5 years |

Technical Specifications – Hard Disk and Solid State Storage

| | | |
|--|------------------------|-----------------------------|
| Environmental (all conditions, non-condensing) | Operating Temperature: | 32° to 158° F (0° to 70° C) |
| | Relative Humidity: | 5% to 95% |
| | Shock: | 1,500 G/1.0-ms |

HP 500-GB 7.2K rpm SATA 6.0Gb/s 3.5” Hard Disk Drive

| | |
|--|--------------------------------|
| Capacity | 500,107,862,016 bytes |
| Rotational Speed | 7,200 rpm |
| Interface | Serial ATA 3.0 (6.0 Gb/s) |
| Buffer Size | 16 MB |
| Logical Blocks | 976,773,168 |
| Seek Time (typical reads, includes controller overhead, including settling) | Single Track: 2.0 ms |
| | Average: 11 ms |
| | Full-Stroke: 21 ms |
| Height (nominal) | 1 in/2.54 cm |
| Width (nominal) | Media diameter: 3.5 in/8.89 cm |
| | Physical size: 4 in/10.2 cm |
| Operating Temperature | 41° to 131° F (5° to 55° C) |

HP 1-TB 7.2K rpm SATA 6.0Gb/s 3.5” Hard Disk Drive

| | | |
|--|--------------------------------|--------|
| Capacity | 1,000,204,886,016 bytes | |
| Rotational Speed | 7,200 rpm | |
| Interface | Serial ATA 3.0 (6.0 Gb/s) | |
| Buffer Size | 32 MB | |
| Logical Blocks | 1,953,525,168 | |
| Seek Time (typical reads, includes controller overhead, including settling) | Single Track: | 2.0 ms |
| | Average: | 11 ms |
| | Full-Stroke: | 21 ms |
| Height (nominal) | 1 in/2.54 cm | |
| 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) | |

Technical Specifications – Hard Disk and Solid State Storage

HP 2-TB 7.2K rpm SATA 6.0Gb/s 3.5" Hard Disk Drive

| | | |
|-----------------------------------|-----------------------------|---------|
| Capacity | 2 TB | |
| Rotational Speed | 7,200 rpm | |
| Interface | SATA 6Gb/s NCQ | |
| Buffer Size | 64 MB | |
| Cache, Multisegmented (MB) | 1,953,525,168 | |
| Seek Time (average) | Read | <8.5 ms |
| | Write | <9.5 ms |
| Height | 1.028 in/26.11 mm | |
| Width | 4.0 in/101.6 mm | |
| Depth | 5.787 in/146.99 mm | |
| Weight | 1.38 lb/626 g | |
| Operating Temperature | 32° to 140° F (0° to 60° C) | |

Technical Specifications - Removable Storage

HP Slim SuperMulti DVD Writer Drive

| | | |
|---|---|---|
| Height | 12.7mm height | |
| Orientation | Either horizontal or vertical | |
| Interface type | SATA/ATAPI | |
| Disc recording capacity | Up to 8.5 GB DL or 4.7 GB standard | |
| Dimensions (W x H x D) | 5.04 x 0.5 x 5.0 in (128 x 12.7 x 127 mm) without bezel | |
| Weight (max) | 0.42 lb (190 g) | |
| Write speeds | DVD-RAM | Up to 5X |
| | DVD-R DL | Up to 6X |
| | DVD+R | Up to 8X |
| | DVD+RW | Up to 8X |
| | DVD+R DL | Up to 6X |
| | DVD-R | Up to 8X |
| | DVD-RW | Up to 6X |
| | CD-R | Up to 24X |
| | CD-RW | Up to 24X |
| | 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 | |
| Read speeds | Random | DVD-ROM: 170 ms (typical), CD-ROM: 170 ms (typical) |
| | Full Stroke | DVD-ROM: 320 ms (typical), CD-ROM: 320 ms (typical) |
| | Stop Time | 6 seconds (typical) |
| | Source | Slimline SATA DC power receptacle |
| Power | DC Power Requirement | 5 VDC \pm 5%-100 mV ripple p-p |
| | DC Current | 5 VDC (< 1000 mA typical, 1600 mA maximum) |
| | Temperature | 41° to 122° F (5° to 50° C) |
| Environmental conditions (operating - non-condensing) | Relative Humidity | 10% to 80% |
| | Maximum Wet Bulb Temperature | 84° F (29° C) |

HP Slim Blu-ray BDXL Drive



Technical Specifications - Removable Storage

| | | | |
|---|---|---|------------------------|
| Height | 12.7mm Slim tray-load | | |
| Orientation | Either horizontal or vertical | | |
| Interface type | SATA/ATAPI | | |
| Disc capacity | Up to 128 GB QL, 100 GB TL, 50 GB DL or 25 GB standard SL | | |
| Dimensions W x H x D (max) | 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 |
| | 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 |
| Write speeds | DVD-RW | Up to 6x | Not supported |
| | DVD+R | Up to 8x | Up to 6x |
| | DVD+RW | Up to 8x | Not supported |
| | DVD-RAM | Up to 5x | N/A |
| | CD-R | Up to 24x | N/A |
| | CD-RW | Up to 24x | N/A |
| | | Triple-layer | Quadruple-layer |
| | BD-R | Up to 4x | Up to 4x |
| | BD-RE | Up to 4x | Not supported |
| | | Single-layer | Double-layer |
| | BD-ROM | Up to 6X | Up to 6X |
| | BD-R | Up to 6x | Up to 6x |
| | BD-RE | Up to 6x | Up to 6x |
| | DVD-ROM | Up to 8x | Up to 8x |
| | DVD-R | Up to 8x | Up to 8x |
| Read speeds | DVD-RW | Up to 8x | Not supported |
| | DVD+R | Up to 8x | Up to 8X |
| | DVD+RW | Up to 8x | Not supported |
| | BDMV (AACSS 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 to 24x | |
| | CD-DA (DAE) | Up to 20x/10x (Read/Play) | |
| Access times (typical reads, including setting) | 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 | |

Technical Specifications - Removable Storage

| | | |
|--|---|-----------------------------|
| Environmental (all conditions non-condensing) | Temperature (operating) | 41° to 122° F (5° to 50° C) |
| | Relative Humidity (operating) | 10% to 80% |
| | Maximum Wet Bulb Temperature (operating) | 84° F (29° C) |

HP Slim DVD-ROM Drive

| | | |
|--|---|---|
| Height | 12.7mm | |
| Orientation | Either horizontal or vertical | |
| Interface type | SATA/ATAPI | |
| Dimensions (W x H x D) | 5.04 x 0.5 x 5.0 in (128 x 12.7 x 127 mm) without bezel | |
| Weight (max) | Up to 0.37 lb (170 g) without bezel | |
| Read speeds | DVD+R/-R/+RW/ -RW/+R DL /-R DL | Up to 8X |
| | DVD-ROM | Up to 8X |
| | CD-ROM, CD-R | Up to 24X |
| Access time (typical reads, including settling) | CD-RW | Up to 24X |
| | 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 |
| | Temperature | 41° to 122° F (5° to 50° C) |
| Environmental (all conditions non-condensing) | Relative Humidity | 10% to 80% |
| | Maximum Wet Bulb Temperature (operating) | 84° F (29° C) |

Technical Specifications – Memory

System Memory Support

The HP EliteDesk 800 G1 Business PC supports the 4th generation Intel® Core™ processor family. Based on a new PC micro-architecture, the processor is designed for a two-chip platform consisting of a processor and Platform Controller Hub (PCH). Unlike previous generations, the 4th generation Intel® Core™ processor includes an Integrated Memory Controller (IMC). The IMC supports DDR3/DDR3L protocols with two independent, 64-bit wide channels each accessing one or two DIMMs.

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

Platform Memory Support

- The Small Form Factor (SFF) and Tower (TWR) platforms support up to four (4) industry-standard DDR3-SDRAM DIMMs.
- The Ultra-slim Desktop (USDT) and Desktop Mini (DM) support up to two (2) industry-standard DDR3-SDRAM SO-DIMMs

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

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

Technical Specifications - Networking and Communications

Intel® I217LM GbE Network Connection (integrated)

| | |
|------------------------------|--|
| Connector | RJ-45 |
| System Interface | Integrated on PCA |
| Controller | Intel I217LM GbE platform LAN connect networking controller |
| Memory | 24 KB FIFO packet buffer memory |
| Data rates supported | 10/100/1000 Mbps |
| IEEE Compliance | 802.1P 802.1Q 802.2 802.3 802.3ab 802.3az 802.3u |
| Bus architecture | PCI Express and SMBus |
| Data transfer mode | PCIe-based interface for active state operation (S0 state) and SMBus for host and management traffic (Sx low power state) |
| Power requirement | Requires 3.3V and 0.9V or just 3.3V with integrated regulators Power consumption 0.733 Watts |
| Boot ROM support | Yes |
| Network transfer mode | Full-duplex Half-duplex (not supported for the 1000BASE-T transceiver) |
| Network transfer rate | 10BASE-T (half-duplex) 10 Mbps 10BASE-T (full-duplex) 20 Mbps 100BASE-TX (half-duplex) 100 Mbps 100BASE-TX (full-duplex) 200 Mbps 1000BASE-T (full-duplex) 2000 Mbps |
| Environmental | Operating Temperature: 0° to 85° C Operating Humidity: 60% RH |
| Management Alerting | WOL, auto MDI crossover, PXE, Multi-port teaming, RSS, Advanced cable diagnostic ASF 2.0 support; AMT 9.0 support |

Intel® Ethernet I210-T1 Gigabit Network Adapter

| | |
|-----------------------------|--|
| Connector | RJ-45 |
| 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 802.1Q 802.2 802.3 802.3AB 802.3u 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 |

Technical Specifications - Networking and Communications

| | |
|--------------------------------|---|
| 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 |
| | 10BASE-T (half-duplex) 10 Mbps 10BASE-T (full-duplex) 20 Mbps |
| Network Transfer Rate | 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 131°F (0° to 55° C) Operating Humidity: 85% at 131° F (55° C) |
| Management | WOL, PXE, DMI, WFM 2.0 |

Intel Centrino Advance-N 6205 Wireless Network Interface Connection

| | |
|---|---|
| Wireless LAN Standards | IEEE 802.11a/b/g/n IEEE 802.11 e, 802.11i, 802.11d, 802.11d, 802.11h |
| Interoperability | Wi-Fi certified (802.11 a/b/g/n WMM, WPA, WPA2 and WPS) Tested with wireless access points from several major manufacturers OS compatible with Microsoft Windows, Win7 and XP Cisco Compatible Extensions Program compliant (802.11a/b/g only) with Microsoft Windows XP and Windows 7 |
| Frequency Band | 2.4 GHz and 5 GHz |
| Antenna Structure | 2 transmit; 2 receive (2x2) |
| Data Rates | 802.11b: 1, 2, 5.5, 11 Mbps 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: 66 possible data rates, ranging from 6 Mbps to 300 Mbps, depending on the combination of Bandwidth, Modulation Coding Scheme, and Guard Interval used, as defined in IEEE 802.11n specification |
| Modulation | Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM, BPSK, QPSK, 16-QAM, 64-QAM |
| Security | Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated AES (support for key sizes of 128bits), TKIP, 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP, MSCHAP, PEAP-MSCHAPv2, LEAP, EAP-FAST, EAP-SIM, EAP-AKA PAP, CHAP, TLS, GTC Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program Version 4) with Microsoft Windows XP only. |
| Sub-channels | Multinational support with frequency bands and channels compliant to local regulations. |
| Media Access Protocol | CSMA/CA (Collision Avoidance) with ACK |
| Network Architecture Models | Ad-hoc (Peer to Peer) Infrastructure (Access Point Required) Intel® My Wifi Technology (iPAN) |
| Roaming | Provide seamless roaming between like access points (same frequency band) |
| Output Power (for CCK) | 15 dBm |
| Output Power (for OFDM; power varies by data rate) | 15 dBm |

Technical Specifications - Networking and Communications

| | |
|------------------------------|---|
| Power Consumption | Transmit: 2.3 Watts (average, with one spatial streams) Receive: 1.9 Watts (average with two receive chains) Idle mode: 30mW – 40mW (average) Radio off: 20 mW (max) |
| Power Management | ACPI compliant power management 802.11 compliant power saving mode |
| Antenna Connections | 3 U.FL type connectors, 50 ohm nominal impedance |
| Range | 802.11 a - Typical (@6 Mbps) 600 feet - Outdoor Open Area 150 feet - Indoor, Office environment 802.11 b - Typical (@1 Mbps) 1200 feet - Outdoor Open Area 300 feet - Indoor, Office environment 802.11 g - Typical (@1 Mbps) 1200 feet - Outdoor Open Area 300 feet - Indoor, Office environment |
| Form Factors | USDT: MiniPCI-Express CMIT & SFF: PCIe |
| Weight | 0.013 lb (4.0 g) |
| Dimensions | 1.1 x 1.2 in (26.8 x 30.0 mm) |
| Operating Voltage | 3.3V +/- 9%, 1.5V +/- 5% |
| Temperature | Operating: 32° to 176° F (0° to 80° C) Non-operating: -40° to 176° F (-40° to 80° C) |
| Humidity | Operating: 10% to 90% (non-condensing) Non-operating: 5% to 90% (non-condensing) |
| Configuration Utility | Microsoft Windows XP Microsoft Windows Win 7 <ul style="list-style-type: none">• Microsoft Windows XP Wireless Network Connection Manager• Intel PROSet for Microsoft Windows XP (required for Cisco Compatible Extensions support)• Intel IHV extensions for Win7 available to support Cisco Compatible Extensions |

Technical Specifications - 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) 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 |
| Full Duplex | Yes |

Technical Specifications - Input/Output Devices

HP USB Keyboard

| | | |
|---------------------------------|---|---|
| | Keys | 104, 105, 106, 107, 109 layout (depending upon country) |
| Physical characteristics | Dimensions (L x W x H) | 18.12 x 6.47 x 0.96 in (46.03 x 16.43 x 2.44 cm) |
| | Weight | 2 lb (0.9 kg) |
| | Operating voltage | + 5VDC ± 5% |
| | Power consumption | 50-mA maximum (with three LEDs ON) |
| Electrical | System interface | USB Type A plug connector |
| | ESD | CE level 4, 15-kV air discharge |
| | EMI - RFI | Conforms to FCC rules for a Class B computing device |
| | Microsoft® PC 99 - 2001 | Functionally compliant |
| Mechanical | Keycaps | Low-profile design |
| | Switch actuation | 55-g nominal peak force with tactile feedback |
| | Switch life | 20 million keystrokes (using Hasco modified tester) |
| | Switch type | Contamination-resistant switch membrane |
| | Key-leveling mechanisms | For all double-wide and greater-length keys |
| | Cable length | 6 ft (1.8 m) |
| | Microsoft PC 99 - 2001 | Mechanically compliant |
| | Acoustics | 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) |
| Environmental | Operating humidity | 10% to 90% (non-condensing at ambient) |
| | Non-operating humidity | 20% to 80% (non-condensing at ambient) |
| | Operating shock | 40 g, six surfaces |
| | Non-operating shock | 80 g, six surfaces |
| | Operating vibration | 2-g peak acceleration |
| | Non-operating vibration | 4-g peak acceleration |
| Approvals | 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 |
| Ergonomic compliance | UL, CSA, FCC, CE Mark, TUV, TUV GS, VCCI, BSMI, C-Tick, MIC | |
| Kit contents | UL, CSA, FCC, CE Mark, TUV, TUV GS, VCCI, BSMI, C-Tick, KC | |
| | Keyboard | Installation Guide |
| | Warranty Card | Safety and Comfort Guide |

Technical Specifications - Input/Output Devices

HP PS/2 Keyboard

| | | |
|---------------------------------|---|---|
| | Keys | 104, 105, 106, 107, 109 layout (depending upon country) |
| Physical Characteristics | 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 |
| | Operating voltage | + 5VDC ± 5% |
| | Power consumption | 50-mA maximum (with three LEDs ON) |
| Electrical | System interface | PS/2 6-pin mini din connector |
| | ESD | CE level 4, 15-kV air discharge |
| | EMI - RFI | Conforms to FCC rules for a Class B computing device |
| | Microsoft PC 99 - 2001 | Functionally compliant |
| Mechanical | Keycaps | Low-profile design |
| | Switch actuation | 55-g nominal peak force with tactile feedback |
| | Switch life | 20 million keystrokes (using Hasco modified tester) |
| | Switch type | Contamination-resistant switch membrane |
| | Key-leveling mechanisms | For all double-wide and greater-length keys |
| | Cable length | 6 ft (1.8 m) |
| | Microsoft PC 99 - 2001 | Mechanically compliant |
| | Acoustics | 50-dBA maximum sound pressure level |
| | 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) |
| Environmental | 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 USB Smart Card (CCID) Keyboard

- Key Benefits:**
- Protects against unauthorized access with smart card technology

Technical Specifications - Input/Output Devices

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

| | | | |
|---------------------------------|--|--|-------------------------------------|
| Physical Characteristics | Keys | 104, 105, 106, 107, 109 layout (depending upon country) | |
| | Form factor | USB basic smart card keyboard | |
| | Colors | Carbonite/Silver | |
| | Dimensions (H x W x D) | 18.2 x 6.3 x 1.3 in (46.3 x 16.1 x 3.3 cm) | |
| | Weight | 2 lb (0.9 kg) minimum | |
| Electrical | Operating voltage | + 5VDC ± 5% | |
| | Power consumption | 100-mA maximum (with four LEDs ON) | |
| | System interface | USB Type A plug connector | |
| | ESD | CE level 4, 15-kV air discharge | |
| | EMI - RFI | Conforms to FCC rules for a Class B computing device | |
| | Microsoft PC 99 - 2001 | Functionally compliant | |
| | Mechanical | Languages | 30+ available |
| Keycaps | | Standard design | |
| Switch actuation | | 55 g nominal peak force with tactile feedback | |
| Switch life | | 20 million keystrokes (using Hasco modified tester) | |
| Switch type | | Contamination-resistant membrane | |
| Key-leveling mechanisms | | For all double-wide and greater-length keys | |
| Cable length | | 6 ft (1.8 m) | |
| Microsoft PC 99 - 2001 | | Mechanically compliant | |
| Environmental | | Acoustics | 43-dBA maximum sound pressure level |
| | | Operating temperature | 50° to 122° F (10° to 50° C) |
| | Non-operating temperature | -22° to 140° F (-30° to 60° C) | |
| | Operating humidity | 10% to 90% (non-condensing at ambient) | |
| | Non-operating humidity | 20% to 80% (non-condensing at ambient) | |
| | Operating shock | 40 g, six surfaces | |
| | Non-operating shock | 80 g, six surfaces | |
| | Operating vibration | 2-g peak acceleration | |
| | Non-operating vibration | 4-g peak acceleration | |
| | Drop (out of box) | 26 in (66 cm) on carpet, six-drop sequence | |
| Drop (in box) | 42 in (107 cm) on concrete, 16-drop sequence | | |
| SmartCard Function | Support | All ISO 7816 smart cards | |
| | Interface | Reads from and writes to all ISO7816-1, 2, 3, 4 memory and microprocessor smart cards (T=0, T=1) | |
| | Chipset | SCM STCIII | |
| | Standard APIs supported | PC/SC, EMV2000, CT-API | |

Technical Specifications - Input/Output Devices

| | | | |
|-----------------------------|---|--|--------------------------------|
| | Power | USB Port | |
| | | Short circuit detection (protects smart card and reader) | |
| | | Power supply compliant with ISO7816 and EMV (5V, 60 mA) | |
| | | Supports 3-V and 5-V cards | |
| | Power consumption | 100-mA maximum draw | |
| | Communication | From card | 9600 bps to 330,000 bps |
| | | From computer | 12 Mbps (USB transfer speed) |
| | Landing mechanism | Contact device | Friction contact |
| | | Card insertions rating | Up to 100,000 insertion cycles |
| | Interface modes | CCID protocol | |
| | Reader performance interface | USB connection | |
| | Electro-magnetic standards | Europe | 2004/108/EC |
| | | USA | USAFCC part 15 |
| Approvals | CE-Mark, UL, CSA, FCC, CE Mark, TUV, TUV GS, VCCI, BSMI, C-Tick, MIC, EMV2000, USB-IF | | |
| Ergonomic Compliance | ISO 9241-4, TUVGS | | |
| Kit Contents | Keyboard, I/O Security and Documentation CD, warranty card | | |

HP USB PS/2 Washable Keyboard

| | | |
|---------------------------------|---------------------------|---|
| | Keys | 104 (US) layout or 105 (EU) layout – depending upon country |
| Physical Characteristics | Dimensions (L x W x H) | 17.67x 6.62 x 1.38 in (449 x 168 x 35 mm) |
| | Weight | 1.7 lb (0.77 kg) minimum |
| | Operating voltage | + 5VDC ±5% |
| | Power consumption | 50-mA maximum (with three LEDs ON) |
| Electrical | System interface | USB Type A plug connector |
| | ESD | CE level 4, 15-kV air discharge |
| | EMI - RFI | Conforms to FCC rules for a Class B computing device |
| | Microsoft® PC 99 - 2001 | Functionally compliant |
| | Keycaps | Stepped -profile design |
| | Switch actuation | 55-g nominal peak force with tactile feedback |
| | Switch life | 20 million keystrokes |
| Mechanical | Switch type | Contamination-resistant switch membrane |
| | Key-leveling mechanisms | For all double-wide and greater-length keys |
| | Cable length | 7 ft (2.2 m) |
| | Microsoft PC 99 - 2001 | Mechanically compliant |
| | Acoustics | 43-dBA maximum sound pressure level |
| | Operating temperature | 50° to 122° F (10° to 50° C) |
| | Non-operating temperature | -22° to 140° F (-30° to 60° C) |

Technical Specifications - Input/Output Devices

| | | |
|---------------------------------|--|--|
| | Operating humidity | 10% to 95% (non-condensing at ambient) |
| | Non-operating humidity | 0% to 95% (non-condensing at ambient) |
| Environmental | Operating shock | 40 g, six surfaces |
| | Non-operating shock | 80 g, six surfaces |
| | Operating vibration | 2-g peak acceleration |
| | Non-operating vibration | 4-g peak acceleration |
| | Drop (out of box) | 26 in (66 cm) on carpet, six-drop sequence |
| | Drop (in box) | 42 in (107 cm) on concrete, 16-drop sequence |
| Operating system support | Windows® 7, Windows Vista, Windows XP Professional | |
| Approvals | UL, cUL, FCC, CE, TUV GS, VCCI, BSMI, C-Tick, KCC, USB-IF, WHQL, EN/IEC 60601-1, IP66/NEMA4X | |
| Ergonomic compliance | ANSI HFS 100, ISO 9241-4, and TUVGS | |

HP Wireless Keyboard and Mouse

| | | |
|----------------------------|---|--|
| Keyboard | Dimensions (H x L x W) | 1.09 x 18.1 x 6.47 in (27.87 x 460.3 x 164.3 mm) |
| | Weight – Without Two AA Alkaline Batteries | 1.94 lb (880 g) |
| Mouse | Dimensions (H x L x W) | 1.46 x 4.53 x 2.47 in (37 x 115 x 62.9 mm) |
| | Weight – Without Two AA Alkaline Batteries | 0.15 lb (67 g) |
| Receiver | Dimensions (H x L x W) | 0.33 x 1.79 x 0.72 in (8.4 x 45.5 x 18.4 mm) |
| | Weight | 0.21 oz (5.9 g) |
| | Cable Length – Minimum | 6 ft (1.8 m) |
| | Range | 32.8 ft (10 m) |
| System Requirements | Windows 7 Home Basic*, Windows 7 Home Premium*, Windows 7 Professional Edition 32*, Windows 7 Professional Edition 64*, Windows 7 Ultimate Edition 32*, Windows 7 Ultimate Edition 64* Windows Vista or Windows XP Available USB port for the receiver CD-ROM Drive | |

*This system may require upgraded and/or separately purchased hardware and/or a DVD drive to install the Windows 7 software and take full advantage of Windows 7 functionality. See <http://www.microsoft.com/windows/windows-7/> for details.

| | |
|---------------------------|---|
| Product Safety | UL; CSA /TUV (Europe only); CE Mark; CB Report |
| Ergonomics | ANSI; ISO (Europe only); GS Mark (Germany only) |
| EMC | FCC; CE; ACA (-tick); BSMI; KC ; VCCI |
| CE Mark | EN 55022:2010; EN 55024; EN 301489-1; EN 61000 |
| Design Guidelines for PCs | PC 99 - connector overmold colors; PC 2001 - full functionality |

Technical Specifications - Input/Output Devices

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

HP PS/2 Mouse

Dimensions (H x L x W) 1.46 x 2.48 x 4.53 in (3.70 x 6.29 x 11.50 cm)

Weight 3.53 oz (100g; +10g/- 5 g)

Operating temperature -32° to 104°F (0° to 40° C)

Non-operating temperature -4° to 140°F (-20° to 60° C)

Operating humidity 10% to 90%
(non condensing at ambient)

Non-operating humidity 10% to 90%
(non condensing at ambient)

Environmental

Operating shock 40 g, 6 surfaces

Non-operating shock 80 g, 6 surfaces

Operating vibration 2 g peak acceleration

Non-operating vibration 4 g peak acceleration

Drop (out of box) 80 cm height onto asphalt tile over concrete or equivalent, 5-drop in 5 direction except the cable face

Operating voltage 5 VDC ± 10%

Power consumption 100mA

Electrical

System consumption PS/2 mini-din connector

ESD CE level 4, 15 kV air discharge

EMI-RFI Conforms to FCC rules for a Class B computing device

Microsoft PC99 - 2001 Functionally compliant

Resolution 800 DPI

Tracking speed 10 in/s (25.4 cm/s) maximum

Acceleration ±15%

Technical Specifications - Input/Output Devices

| | | |
|-----------------------------|---|--|
| Mechanical | Switch actuation | 65±20 gf |
| | Switch life | 3,000,000 operations (using Hasco modified tester) |
| | Switch type | Low force micro-switches |
| | Tracking mechanism life | 80 km |
| | Cable length | 6 ft (1.8 m) |
| | Microsoft PC99 - 2001 | Mechanically compliant |
| | Width | 6 mm |
| Scroll wheel | Diameter | 22.5 ± 0.2 mm |
| | Maximum rotation force | 50 gf-cm |
| | Switch type | Light force micro-switch |
| | Switch life | 1 million operations |
| Regulatory Approvals | Mechanical life | Minimum 200,000 revolutions |
| | UL/cUL, FCC, CE Mark, TUV/GS, VCCI, KCC, BSMI, C-Tick | |

HP USB Mouse

| | |
|----------------------------------|--|
| Dimensions (H x L x W) | 1.5 x 4.5 x 2.5 in (3.8 x 11.6 x 6.3 cm) |
| Weight | 0.22 lb (0.10 kg) |
| Cable length | 70.9 in (180 cm) |
| System requirements | Available USB port |

HP USB 1000dpi Laser Mouse

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

Technical Specifications - Input/Output Devices

HP USB PS/2 Washable Mouse

Dimensions (H x L x W) 1.56 x 2.44 x 4.61 in (3.95 x 6.21 x 11.7 cm)

Weight

4.44 oz (126 g)

Operating temperature -32° to 104°F (0° to 40° C)

Non-operating temperature -4° to 140°F (-20° to 60° C)

Operating humidity 10% to 90% (non-condensing at ambient)

Non-operating humidity 10% to 90% non-condensing

Environmental

Operating shock 40 g, 6 surfaces

Non-operating shock 80 g, 6 surfaces

Operating vibration 2 g peak acceleration

Non-operating vibration 4 g peak acceleration

Drop (out of box) 80 cm height onto asphalt tile over concrete or equivalent, 5-drop in 5 direction except the cable face

Operating voltage 5 VDC ± 10%

Power consumption 100mA

Electrical

System consumption PS/2 mini-din connector or USB

ESD CE level 2 8 kV air discharge

EMI-RFI Conforms to FCC rules for a Class B computing device

Microsoft® PC99 – 2001 Functionally compliant

Resolution 1000 ± 20% DPI

Tracking speed 14 in/s (35.56 cm/s) maximum

Acceleration 2 g

Mechanical

Switch actuation 70 g nominal peak force

Switch life 3,000,000 operations (using Hasco modified tester)

Switch type Low force micro-switches

Cable length 8.8 ft total 70 cm+ 2m extension

Microsoft PC99 – 2001 Mechanically compliant

Width 6 mm

Diameter 1 in (25.4 mm)

Scroll wheel

Maximum rotation speed 48 rats/sec

Switch type Light force micro-switch

Switch life 3 million operations

Mechanical life Minimum 200,000 revolutions

Regulatory approvals

Compliant FCC, CE Mark, ICES-003-B, IP66/NEMA4X

Technical Specifications – Power

| | | | | |
|---|--|--|-------------------------|---------------------|
| 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 | N/A | 4A | 5.5A |
| Rated Input Current with Energy Efficient* Power Supply | | 135W: 2.4A 180W: 2.9A | 4A | 5.5A |
| DC Output | +19.5V | N/A | N/A | N/A |
| Current Leakage (NFPA 99) | < 250 μ A | < 250 μ A | < 275 μ A | <450=>275uA |
| Power Supply Fan | N/A | N/A | 92=>70mm variable speed | 92mm variable speed |
| Power cord length | N/A | N/A | 6.0 ft. (1.83 m) | 6.0 ft. (1.83 m) |
| External Power Adapter | | | | |
| Dimensions | 2.2 x 1.2 x 4.5 in 55 x 30 x 113.5 mm | 2.8 x 1.7 x 6.6 in 70 x 42 x 167.5 mm | N/A | N/A |
| Total Cord Length | 12 ft 8 in | 12 ft 8 in | N/A | N/A |

*High efficiency power supply is a requirement for ENERGY STAR® qualification in conjunction with a select range of processors and modules

Technical Specifications – Weights & Dimensions

Weights & Dimensions

(configured with 1 HDD & 1 ODD)

| | <u>DM</u> | <u>USDT</u> | <u>SFF</u> | <u>TWR</u> |
|---|---|---|---|--|
| Chassis (W x H x D) | 6.9 x 1.3 x 7.0 in 175 x 34 x 177 mm | 9.9 x 2.6 x 10 in 251 x 66 x 254 mm | 13.3 x 3.95 x 14.9 in 338 x 100 x 379 mm | 6.7 x 15.7 x 17.4 in 170 x 399 x 442 mm |
| System Volume | 62.79 cu in 1.05 L | 257.5 cu in 4.2 L | 782.7 cu in 12.8 L | 1828 cu in 30 L |
| System Weight* | 2.9 lb 1.3 kg | 6.8 lb 3.1 kg | 16.7 lb 7.6 kg | 20.5 lb 9.3 kg |
| Max Supported Weight (desktop orientation) | N/A | 77.0 lb 35.0 kg | 77.0 lb 35.0 kg | N/A |
| Stand Dimensions | .77x 4.6 x 6.3 in 19.5 x 117 x 160 mm Weight: 47g/ .1 lbs. | 1.1 x 4.9 x 6.7 in 27 x 125 x 170 mm | 1.1 x 7.0 x 7.9 in 29 x 178 x 200 mm | N/A |
| Packaging (H x W x D) | 7.8 x 11.4 x 19.7 in 198 x 290 x 500 mm | 8.6 x 15.7 x 19.7 in 218 x 398 x 500 mm | 9.0 x 19.7 x 23.4 in 229 x 500 x 594 mm | 11.6 x 19.7 x 23.2 in 295 x 500 x 590 mm |
| Shipping Weight | 9.0 lb. 4.1 kg | 14.4 lb 6.5 kg | 17.9 lb 8.1 kg | 28.8 lb 13.1 kg |
| Palletization Profile | 8-units per layer 10/12 layer max 80/96 per pallet (Dependent on 40-Ft Std. Sea Container or 40-Ft High-cube Sea Container is used) | 6-units per layer 10-layer max. 60-units per pallet | 4-units per layer 10-layer max. 40-units per pallet | 4-units per layer 8-layer max. 32-units per pallet |

Technical Specifications – 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, bootblock 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

Technical Specifications – Miscellaneous Features

Additional Features

| | Description |
|--|---|
| Towerable Orientation | Product can be oriented as either a desktop or a tower |
| 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. DPS Access through F10 Setup during Boot |
| Drive Protection System | 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 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 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 |
| SMART Technology (Self-Monitoring, Analysis and Reporting Technology) | 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 |
| SMART IV - End-to-End CRC for hard drives | Detects errors in Read/Write buffers on HDD cache RAM Interface in F10 setup provides confirmation of SMART IV support. |

Technical Specifications – Environmental Data

Environmental Data

Eco-Label Certifications & Declarations

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

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

***NOTE:** This product conforms to the examination standards (2003 version) under JEITA's 'PC Green Label System'.

System Configuration

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

| Model | Energy Consumption (typically configured) | 115 VAC | 230VAC | 100VAC |
|-------|---|---------|---------|---------|
| DM | Normal Operation | 7.61 W | 7.70 W | 7.60 W |
| | Sleep (ENERGY STAR® low power mode) | 1.42 W | 1.44 W | 1.42 W |
| | Off | 0.93 W | 0.96 W | 0.93 W |
| USDT | Normal Operation | 15.16 W | 15.72 W | 15.08 W |
| | Sleep (ENERGY STAR® low power mode) | 0.98 W | 1.01 W | 0.97 W |
| | Off | 0.80 W | 0.83 W | 0.80 W |
| SFF | Normal Operation | 22.90 W | 22.78 W | 23.08 W |
| | Sleep (ENERGY STAR® low power mode) | 1.64 W | 1.73 W | 1.64 W |
| | Off | 0.70 W | 0.77 W | 0.70 W |
| TOWER | Normal Operation | 25.74 W | 28.27 W | 26.01 W |
| | Sleep (ENERGY STAR® low power mode) | 1.66 W | 1.76 W | 1.65 W |
| | Off | 0.68 W | 0.78 W | 0.67 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.

| Model | Heat Dissipation* | 115 VAC | 230VAC | 100VAC |
|-------|-------------------|-----------|-----------|-----------|
| DM | Normal Operation | 26 BTU/hr | 26 BTU/hr | 26 BTU/hr |
| | Sleep | 5 BTU/hr | 5 BTU/hr | 5 BTU/hr |
| | Off | 3 BTU/hr | 3 BTU/hr | 3 BTU/hr |

Technical Specifications – Environmental Data

| Model | Operating Mode | Power (W) | Power (BTU/hr) | Power (BTU/hr) | Power (BTU/hr) |
|-------|------------------|-----------|----------------|----------------|----------------|
| USDT | Normal Operation | 52 | 52 | 54 | 64 |
| | Sleep | 3 | 3 | 3 | 3 |
| | Off | 3 | 3 | 3 | 3 |
| SFF | Normal Operation | 78 | 78 | 78 | 79 |
| | Sleep | 6 | 6 | 6 | 6 |
| | Off | 2 | 2 | 3 | 2 |
| TOWER | Normal Operation | 88 | 88 | 97 | 89 |
| | Sleep | 6 | 6 | 6 | 6 |
| | Off | 2 | 2 | 3 | 2 |

>***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)

| Model | Operating Mode | Sound Power (LWAd, bels) | Sound Pressure (LpAm, decibels) |
|-------|----------------------------|-----------------------------|------------------------------------|
| DM | Idle | 3.6 | 25 |
| | Fixed Disk (random writes) | 3.6 | 25 |
| USDT | Idle | 3.6 | 27 |
| | Fixed Disk (random writes) | 3.6 | 27 |
| SFF | Idle | 3.6 | 26 |
| | Fixed Disk (random writes) | 3.6 | 26 |
| Tower | Idle | 3.6 | 25 |
| | Fixed Disk (random writes) | 3.6 | 26 |

Longevity and Upgrading This product can be upgraded, possibly extending its useful life by several years.

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

Batteries used in the product do not contain:

- Mercury greater than 1ppm by weight
- Cadmium greater than 20ppm by weight

Battery Size CR2032 (coin cell)

Battery Type Lithium

| Model | Additional Information |
|-------|---|
| DM | <ul style="list-style-type: none"> • This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2002/95/EC. • This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive - 2002/96/EC. • This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986). • This product is in compliance with the IEEE 1680 (EPEAT) standard at the Gold where HP registers commercial desktop products. See http://www.epeat.net for registration |

Technical Specifications – Environmental Data

status in your country.

- Plastics parts weighing over 25 grams used in the product are marked per ISO 11469 and ISO1043.
- This product contains 16% post consumer recycled plastic (by wt.)
- This product is 91.3% recyclable when properly disposed of at end of life.
- ALL Form Factors are UL Certified
- This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC.
- This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive - 2002/96/EC.
- This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986).
- This product is in compliance with the IEEE 1680 (EPEAT) standard at the Gold level, see www.epeat.net
- Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043.
- This product contains 12.2 % post-consumer recycled plastic (by wt.)
- This product is 95.4 % recycle-able when properly disposed of at end of life.

USDT

ALL Form Factors are UL Certified

Packaging Materials

- External:
 - PAPER/Corrugated 1526.2 g
 - LASTIC/Polyethylene low density 177 g
- The PAPER/Corrugated material contains at least 49.42% recycled content.
- The PLASTIC/Polyethylene low density material contains at least 60.42% recycled content.

SFF

- This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC.
- This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive - 2002/96/EC.
- This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986).
- This product is in compliance with the IEEE 1680 (EPEAT) standard at the Gold level, see www.epeat.net
- Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043.
- This product contains 14.8 % post-consumer recycled plastic (by wt.)
- This product is 94.1 % recycle-able when properly disposed of at end of life.

Packaging Materials

- External:
 - PAPER/Corrugated 2300 g
- Internal:
 - PLASTIC/Polyethylene low density 56 g
 - PLASTIC/EPE-Expanded Polyethylene 110 g
 - PLASTIC/Polypropylene 15 g
- The PAPER/Corrugated material contains at least 38.38% recycled content.
- The PLASTIC/Polyethylene low density material contains at least 60.42% recycled content.
- The PLASTIC/EPE-Expanded Polyethylene material contains at least 60.42% recycled content.
- The PLASTIC/Polyethylene material contains at least 60.42% recycled content
- This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC.

Tower



Technical Specifications – Environmental Data

- This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive - 2002/96/EC.
- This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986).
- This product is in compliance with the IEEE 1680 (EPEAT) standard at the Gold level, see www.epeat.net
- Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043.
- This product contains 15 % post-consumer recycled plastic (by wt.)
- This product is 95.5 % recycle-able when properly disposed of at end of life.

Packaging Materials

- External:
 - PAPER/Corrugated 2280 g
- Internal:
 - PLASTIC/Polyethylene low density 40 g
 - PLASTIC/EPE-Expanded Polyethylene 144 g
 - PLASTIC/Polypropylene 15 g
- The PAPER/Corrugated packaging material contains at least 53.5 % recycled content.
- The PLASTIC/Polyethylene low density packaging material contains at least 60.42 % recycled content
- The PLASTIC/EPE-Expanded Polyethylene packaging material contains at least 60.42 % recycled content.
- The PLASTIC/Polypropylene packaging material contains at least 60.42 % recycled content.

Common to all Form Factors

RoHS Compliance

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

Material Usage

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

- Asbestos
- Certain Azo Colorants
- Certain Brominated Flame Retardants - may not be used as flame retardants in plastics
- Cadmium
- Chlorinated Hydrocarbons Chlorinated Paraffins
- Formaldehyde
- Halogenated Diphenyl Methanes
- Lead carbonates and sulfates
- Lead and Lead compounds
- Mercuric Oxide Batteries
- Nickel - finishes must not be used on the external surface designed to be frequently handled or carried by the user.
- Ozone Depleting Substances
- Polybrominated Biphenyls (PBBs)
- Polybrominated Biphenyl Ethers (PBBEs)
- Polybrominated Biphenyl Oxides (PBBOs)
- Polychlorinated Biphenyl (PCB)
- Polychlorinated Terphenyls (PCT)
-

Technical Specifications – Environmental Data

- Polyvinyl Chloride (PVC) - except for wires and cables, and certain retail packaging has been voluntarily removed from most applications.
- Radioactive Substances
- Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)

Packaging Usage

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

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

End-of-life Management and Recycling

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

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

Hewlett-Packard Corporate Environmental Information

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

Global Citizenship Report

<http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html>

Eco-label certifications

<http://www8.hp.com/us/en/hp-information/environment/ecolabels.html>

ISO 14001 certificates:

[http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/](http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC_GBU_Product_Design_ISO_14K_Certificate.pdf)

[PC_GBU_Product_Design_ISO_14K_Certificate.pdf](http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC_GBU_Product_Design_ISO_14K_Certificate.pdf)

and

<http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf>

After-Market Options (availability may vary by region)

Communication Devices

| | DM | USDT | SFF/TWR | Part Number |
|---------------------------------------|----|------|---------|-------------|
| Intel Ethernet I210 - T1 Gbe NIC | | | X | E0X95AA |
| Intel 6205 802.11 a/b/g/n PCIe x1 NIC | | | X | E0X93AA |

Graphics Solutions

| | DM | USDT | SFF/TWR | Part Number |
|---|----|------|---------|-------------|
| AMD Radeon HD 8350 Graphics (PCIe x16) | | | X | E1C63AA |
| AMD Radeon HD 8490 Graphics Card | | | X | E1C64AA |
| Nvidia NVS 310 Graphics (PCIe x16) | | | X | A7U59AA |
| Nvidia NVS 315 Graphics (PCIe x16) | | | X | E1C65AA |
| HP USB Graphic Adapter | | X | X | NL571AA |
| HP DisplayPort Cable Kit | X | X | X | VN567AA |
| HP DisplayPort To Dual Link DVI-D Adapter | X | X | X | NR078AA |
| HP DisplayPort To DVI-D Adapter | X | X | X | FH973AA |
| HP DisplayPort to HDMI Adapter | X | X | X | BP937AA |
| HP DisplayPort to VGA Adapter | X | X | X | AS615AA |
| HP DMS-59 to Dual DVI Cable | | | X | DL139A |
| HP DMS-59 to Dual DisplayPort Adapter | | | X | XP688AA |

Data Storage Drives and Accessories

| | DM | USDT | SFF/TWR | Part Number |
|---|----|------|----------|-------------|
| HP 500-GB 7.2K rpm SATA 6.0Gb/s 3.5" Hard Disk Drive | | | X | QK554AA |
| HP 1-TB 7.2K rpm SATA 6.0Gb/s 3.5" Hard Disk Drive | | | X | QK555AA |
| HP 1-TB 10K rpm SATA 6.0Gb/s 3.5" Hard Disk Drive | | | X | C2T91AA |
| HP 128-GB SATA 3.0Gb/s Solid State Drive | X | X | X | QV063AA |
| HP 160-GB SATA 3.0Gb/s Solid State Drive | X | X | X | QV064AA* |
| HP 500-GB SATA 3.0Gb/s Solid State Hybrid Drive | X | X | X | E1C62AA |
| HP 128-GB SED Opal 2 Solid State Drive | X | | | G1K24AA |
| HP Slim Removable SATA Hard Drive Enclosure (frame & carrier) | | X | X | C1N41AA |
| HP Slim Removable SATA Hard Drive Enclosure (carrier only) | | X | X | E3F39AA |
| HP Chassis (1bay) Security Kit | | | TWR only | AR639AA |

*Not available in all regions.

After-Market Options (availability may vary by region)

Input Devices

| | DM | USDT | SFF/TWR | Part Number |
|---|----|------|---------|-------------|
| HP USB Keyboard | X | X | X | QY776AA |
| HP USB Gray Keyboard | X | X | X | B6B64AA |
| HP USB Smart Card (CCID) Keyboard | X | X | X | BV813AA |
| HP USB Keyboard and Mouse Kit | X | X | X | B1T09AA |
| HP USB Washable Keyboard | X | X | X | VF097AA |
| HP USB and PS/2 Washable Mouse | X | X | X | BM866AA |
| HP USB and PS/2 Washable Keyboard and Mouse Kit | X | X | X | BU207AA |
| HP PS/2 Mouse | X | X | X | QY775AA |
| HP USB Mouse | X | X | X | QY777AA |
| HP USB 1000dpi Laser Mouse | X | X | X | QY778AA |
| HP Wireless Keyboard and Mouse Combination* | X | X | X | QY449AA |

*Keyboard contains 25% post-consumer recycled plastic material

System Memory

| | DM | USDT | SFF/TWR | Part Number |
|-------------------------------------|----|------|---------|-------------|
| HP 4GB DDR3-1600 (PC3-12800) DIMM | | | X | B4U36AA |
| HP 8GB DDR3-1600 (PC3-12800) DIMM | | | X | B4U37AA |
| HP 4GB DDR3-1600 (PC3-12800) SODIMM | X | X | | B4U39AA |
| HP 8GB DDR3-1600 (PC3-12800) SODIMM | X | X | | B4U40AA |

Multimedia Devices

| | DM | USDT | SFF/TWR | Part Number |
|-------------------------------------|----|------|---------|-------------|
| HP Slim DVD-ROM Drive | | X | X | VP033AA |
| HP Slim SuperMulti DVD Writer Drive | | X | X | QS209AA |
| HP USB HD 720P v2 Business Webcam | X | X | X | D8Z08AA |
| HP Business Headset | X | X | X | QK550AA |
| HP USB Business Speakers | X | X | X | D9J19AA |

Removable Media Storage

| | DM | USDT | SFF/TWR | Part Number |
|-----------------------------|----|------|---------|-------------|
| HP 14-n-1 Media Card Reader | | | X | TBD |

Security Devices

| | DM | USDT | SFF/TWR | Part Number |
|---|----|------|----------|-------------|
| HP USDT Rear Port Controller Cover | | X | | VN571AA |
| HP Solenoid Lock and Hood Sensor (USDT/SFF) | | X | X | E0X97AA |
| HP Solenoid Lock and Hood Sensor (TWR) | | | TWR only | E0X96AA |
| HP SFF Wall Mount/Security Sleeve | | | SFF only | VN570AA |
| HP UltraSlim Cable Lock | X | X | X | H4D73AA |

After-Market Options (availability may vary by region)

Stands and Accessories

| | DM | USDT | SFF/TWR | Part Number |
|--|----|------|----------|-------------|
| HP Integrated Work Center - Desktop Mini / Thin Client (IWCdm) | X | | | G1V61AA |
| HP Integrated Work Center Stand (SFF) | | | SFF only | QP897AA |
| HP Integrated Work Center Stand (USDT) | | X | | LH526AA |
| HP USDT Tower Stand | | X | | VN568AA |
| HP SFF Tower Stand | | | SFF only | VN569AA |
| HP DM Chassis Tower Stand | X | | | G1K23AA |
| HP 600/800 Tower Bezel Kit | | | TWR only | E1C66AA |
| HP 800/600 SFF Bezel Kit | | | SFF only | E3F27AA |
| HP 800 USDT Kit | | X | | E3F28AA |
| HP Serial Port Adapter (RS-232 compatible) | | | X | PA716A |
| HP Parallel Port Kit | | | X | KD061AA |
| HP PCI Expansion Kit | | | TWR only | E1V16AA |
| Belkin USB to Serial Adapter | X | X | | EM449AA |

LANDesk Software (E-Delivery)

| | Part Number |
|---|-------------|
| LANDesk Management Suite License - 1-499 Nodes E-Delivery | QY369AAE |
| LANDesk Management Suite License - 500-999 Nodes E-Delivery | QY370AAE |
| LANDesk Management Suite License - 1000-1999 Nodes E-Delivery | QY371AAE |
| LANDesk Management Suite License - 2000-4999 Nodes E-Delivery | QY372AAE |
| LANDesk Management Suite License - 5000-9999 Nodes E-Delivery | QY373AAE |
| LANDesk Security Suite License E-Delivery | QY379AAE |
| LANDesk Management Suite 1 Year Maintenance - 1-499 Nodes E-Delivery | HZ825AAE |
| LANDesk Management Suite 1 Year Maintenance - 500-999 Nodes E-Delivery | HZ826AAE |
| LANDesk Management Suite 1 Year Maintenance - 1000-1999 Nodes E-Delivery | HZ827AAE |
| LANDesk Management Suite 1 Year Maintenance - 2000-4999 Nodes E-Delivery | HZ828AAE |
| LANDesk Management Suite 1 Year Maintenance - 5000-9999 Nodes E-Delivery | HZ829AAE |
| LANDesk Security Suite 1 Year Subscription | HZ830AAE |
| LANDesk Patch Management 1 Year Subscription - 1-499 Nodes E-Delivery | HZ831AAE |
| LANDesk Patch Management 1 Year Subscription - 500-999 Nodes E-Delivery | HZ832AAE |
| LANDesk Patch Management 1 Year Subscription - 1000-1999 Nodes E-Delivery | HZ833AAE |
| LANDesk Patch Management 1 Year Subscription - 2000-4999 Nodes E-Delivery | HZ834AAE |
| LANDesk Patch Management 1 Year Subscription - 5000-9999 Nodes E-Delivery | HZ835AAE |

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