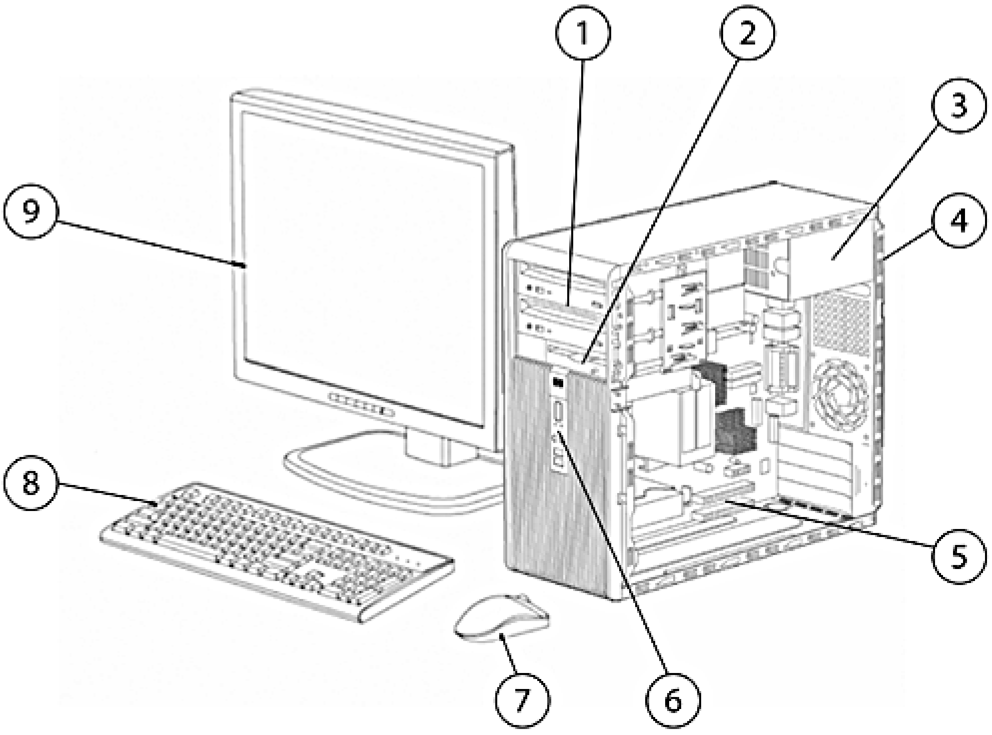
Overview

HP recommends
Windows Vista™ Business

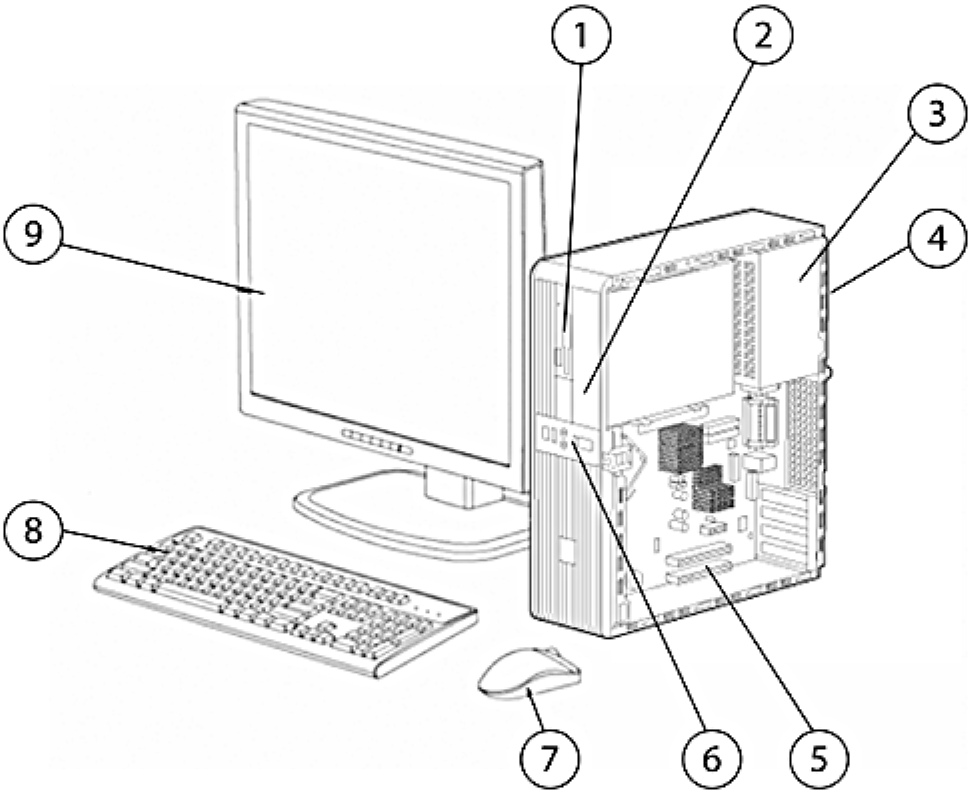
Microtower



1. (2) 5.25" external bays and (2) 3.5" internal bays
2. (1) 3.5" external bay for optional HP 16-in-1 Media Card Reader, diskette drive, or other 3.5" device
3. 300-watt power supply
4. Rear I/O: (6) USB 2.0, (1) standard serial port, (1) optional serial port, (1) parallel port, (2) PS/2, (1) RJ-45, (1) VGA, audio in/out
5. (2) full-height PCI slots, (1) full-height PCIe x1 slot, (1) full-height PCIe x16 slot
6. Front I/O: (2) USB 2.0, headphone and microphone
7. 2-Button Scroll Mouse (PS/2) or Optical Scroll Mouse (PS/2 or USB)
8. HP Standard Keyboard (PS/2 or USB) or HP USB Smartcard Keyboard
9. Monitor (sold separately)

Overview

Small Form Factor



1. (1) 3.5" external bay for optional HP 16-in-1 Media Card Reader, diskette drive, or other 3.5" device;
   (1) 3.5" internal bay
2. (1) 5.25" external bay for optional optical drive, or other 5.25" device (bay tilts up for device removal and insertion)
3. 240-watt power supply
4. Rear I/O: (6) USB 2.0, (1) standard serial port, (1) optional serial port, (1) parallel port, (2) PS/2, (1) RJ-45, (1) VGA, (1) DVI-D, audio in/out
5. (2) low profile PCI slots, (1) low profile PCIe x1 slot,
   (1) low profile PCIe x16 slot
6. Front I/O: (2) USB 2.0, headphone and microphone
7. 2-Button Scroll Mouse (PS/2) or Optical Scroll Mouse (PS/2 or USB)
8. HP Standard Keyboard (PS/2 or USB) or HP USB Smartcard Keyboard
9. Monitor (sold separately)

At A Glance

- Designed to meet the needs of customers, across all market segments, looking for a stable solution to cover mainstream business needs.
- Created using industry leading Design for Environment standards. Upgradeable, recyclable and energy efficient.
- AMD Athlon™ 64 X2 Dual-Core, Athlon 64, and Sempron™ processors with HyperTransport™ technology
- Choice of Genuine Windows XP Pro, Genuine Windows XP Home; Vista capable
- Support for AMD Enhanced Virus Protection™ and AMD Cool 'n Quiet™ technologies
- ATI Radeon Express 1150 Chipset with integrated X300 graphics
- Dual monitor support standard
- RAID 0/1 support
- Embedded TPM1.2 compliant security module* (Vista Bit-Locker ready)
- Support for SMART III 3.0Gb/s Serial ATA hard drives
- Value-added software available pre-installed:
  - HP ProtectTools Security Software Suite (purchased separately), including Credential Manager, Smart Card Manager, and BIOS Configuration
  - HP OpenView and Altiris manageability software agents
  - Symantec Antivirus 10.0 with 60 day Live Update Subscription
  - HP Backup and Recovery Manager
- Fully compatible software OS image across all models (Microtower, Small Form Factor)
- HP BIOS for security, manageability and software image stability
- Standard 3-years parts, 3-years labor and 3-years on-site warranty services (terms and conditions vary by country; certain restrictions and exclusions apply)
- HP Insight Diagnostics software
- Selected configurations with global availability easily set up and ordered through HP.com Business to Business portals (http://h10019.www1.hp.com/business-site/index.html)
- Tailored HP Factory Express deployment and lifecycle services available (http://h71028.www7.hp.com/enterprise/cache/97688-0-0-225-121.aspx)

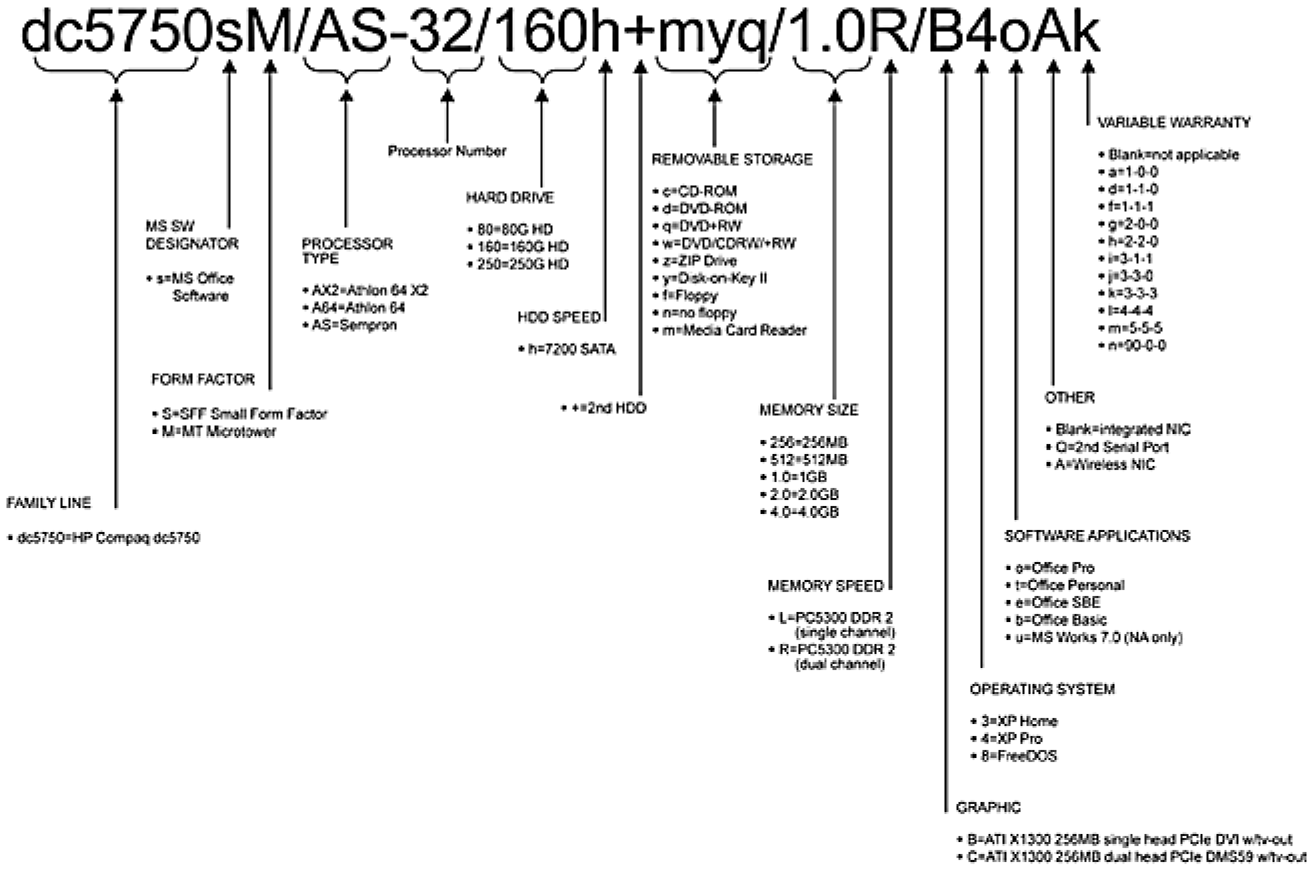
* TPM module disabled where use is restricted by law; for example, Russia.

NOTE: All models and features may not be available in all countries.

Configurable Components - Select Models (localized by Regions)

Model Key and Example

NOTE: This diagram is an example that illustrates how to read the model number. It is not intended to give every available configuration choice specified in the body of this document and may include references to modules that are out of date and no longer available.



Operating System – One of the following

Preinstalled

Genuine Windows XP Professional SP2
Genuine Windows XP Home SP2
FreeDOS

Supported

Genuine Windows Vista Business 32*
Genuine Windows 2000

* Certain Windows Vista product features require advanced or additional hardware. See http://www.microsoft.com/windowsvista/getready/hardwarereqs.mspx and http://www.microsoft.com/windowsvista/getready/capable.mspx for details. Windows Vista Upgrade Advisor can help you determine which features of Windows Vista will run on your computer. To download the tool, visit http://www.windowsvista.com/upgradeadvisor.

NOTE: Drivers for Windows Vista are continually being made available for download from http://www.hp.com. Windows Vista support for all hardware and software features of this product is planned by April 1, 2007.

Value-added Software (not included with FreeDOS)

- HP Client Management Solutions (visit http://www.hp.com/go/easydeploy)
- HP Backup and Recovery Manager
- HP Insight Diagnostics
- Computer Setup Utility
- Symantec AntiVirus with 60 day Live Update Subscription
- Intervideo WinDVD (supplied with DVD-ROM drive)
- Microsoft Office 2003 Basic*
- Microsoft Office 2003 Personal*
- Microsoft Office 2003 Professional*
- Microsoft Office 2003 Small Business*
- Microsoft Works*
- Microsoft Internet Explorer
- PDF Complete*
- HP Open View Radia Management Agent
- Altiris Deployment Solution Agent

NOTE:* optional purchase

Value-added Services and Features

- HP Stable Platform Program with Product Change Notification
- Business-to-Business Portals
- HP Global Series Services
- Factory Express Deployment and Lifecycle Services
- TPM 1.2* Vista Bit-Locker Ready
- Tool-less Serviceability

* TPM module disabled where use is restricted by law; for example, Russia.

Service and Support

On-site Warranty and Service [Note 1]: This three-year (3-3-3), limited warranty and service offering delivers three years of parts, labor and on-site repair. Response time is next business-day [Note 2] and includes free telephone support [Note 3] 24 x 7. Global coverage [Note 2] ensures that any product purchased in one country and transferred to another non-restricted country will remain fully covered under the original warranty and service offering. Some countries/regions do not offer one year onsite and labor.

NOTE 1: Terms and conditions may vary by country. Certain restrictions and exclusions apply.

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, HP and HP-qualified, third-party hardware and software. Toll-free calling and 24 x 7 support may not be available in some countries.

	Microtower	Small Form Factor
Chassis Dimensions (H x W x D)	14.85 x 6.95 x 16.85 in (377 x 177 x 428 mm)	4.5 x 15.5 x 13.5 in (114 x 394 x 343 mm)
System weight*	23.44 lb (10.63 kg)	17.86 lb (8.10 kg)
System volume	1739 cu in (28,497.1 cu cm)	941.63 cu in (15,430.6 cu cm)
Shipping weight*	32.12 lb (14.57 kg)	26.70 lb (12.11 kg)
Shipping box dimensions (H x W x D)	12.0 x 19.76 x 23.62 in (305 x 502 x 600 mm)	9.72 x 19.68 x 22.67 in (247 x 500 x 576 mm)

* Configured with 1 hard drive, 1 optical drive, no diskette drive, and no PCI card.

	Microtower	Small Form Factor
Power Supply	300W power supply – passive PFC	240W power supply – passive PFC
80Plus Power Supply	300W 80Plus* power supply – active PFC	240W 80Plus* power supply – active PFC

* This alternate 80% efficient power supply is a requirement for US Energy Star 4.0 compliance in conjunction with a select range of processors and modules.

Ports	Microtower	Small Form Factor
USB 2.0	8 (2 front, 6 rear)	8 (2 front, 6 rear)
Serial	1 standard with 2nd optional	1 standard with 2nd optional
Parallel	1	1
PS/2	1 keyboard, 1 mouse	1 keyboard, 1 mouse
Video	analog for integrated graphics	analog for integrated graphics
DVI-D output	Integrated DVI-D output	Integrated DVI-D output
Support for Multi-Monitor	yes	yes
Audio	Front – mic and headphone Rear* – line in, line out	Front – mic and headphone Rear* – line in, line out
NIC (RJ-45)	Integrated Broadcom 5755 Gigabit Ethernet	Integrated Broadcom 5755 Gigabit Ethernet

NOTE:* Rear audio ports are re-taskable as Line-in, Line-out, or Microphone-in.

		MT	SFF
Chipset	ATI Express 1150 Chipset	X	X

		MT	SFF
Processor and Speed One of the following	**AMD Sempron Processors with HyperTransport Technology:**		
	AMD Sempron 3400+ Processor (1.8-GHz, 256K L2 cache, 1600-MHz FSB)	X	X
	AMD Sempron 3600+ Processor (2.0-GHz, 256K L2 cache, 1600-MHz FSB)	X	X
	AMD Athlon 64 Processors with HyperTransport Technology:		
	Athlon 64 3500+ Processor (2.2-GHz, 512K L2 cache, 2000-MHz FSB)	X	X
	Athlon 64 3800+ Processor (2.4-GHz, 512K L2 cache, 2000-MHz FSB)	X	X
	AMD Athlon 64 X2 Dual-Core Processors with HyperTransport Technology:		
	Athlon 64 X2 Dual-Core 3800+ Processor (2.0-GHz, 2x512K L2 cache, 2000-MHz FSB)	X	X
	Athlon 64 X2 Dual-Core 4200+ Processor (2.2-GHz, 2x512K L2 cache, 2000-MHz FSB)	X	X
	Athlon 64 X2 Dual-Core 4600+ Processor (2.4-GHz, 2x512K L2 cache, 2000-MHz FSB)	X	X
	Athlon 64 X2 Dual-Core 5000+ Processor (2.6-GHz, 2x512K L2 cache, 2000-MHz FSB)	X	X
	Athlon 64 X2 Dual-Core 5200+ Processor (2.6-GHz, 2x1MB L2 cache, 2000-MHz FSB)	X	X

Memory

DDR2 SYNCH DRAM NON-ECC MEMORY
Memory upgrades are accomplished by adding single or multiple DIMMs of the same or varied sizes. This chart does not represent all possible memory configurations. Memory DIMMS must be populated beginning with DIMM slot 4 (Channel B) or DIMM slot 3 (Channel A). Slot 4 must be populated before slot 2, and slot 3 must be populated before slot 1.

HP recommends dual-channel configurations for maximum performance.
For best performance, place matching DIMMs in black memory slots 4 and 3 (and in white memory slots 2 and 1 if used). Matching DIMMs have the same size, speed, and number of memory chips. If the slot pairs are not matched, all the memory is still used, but the system will operate in single-channel mode. If speeds are mixed, speed will default to the slowest DIMM.

Microtower and Small Form Factor

Maximum Memory

Supports up to 4 GB of DDR2 Synch DRAM. *Not all memory configurations possible are represented below.*

DIMM Size	**Slot**			
	WHITE		**BLACK**	
	1 (Channel A)	**2** (Channel B)	**3** (Channel A)	**4** (Channel B)
256-MB				256-MB
512-MB				512-MB
512-MB (dual-channel)			256-MB	256-MB
1-GB				1-GB
1-GB (dual-channel)			512-MB	512-MB
2-GB (dual-channel)	512-MB	512-MB	512-MB	512-MB
3-GB (dual-channel)	512-MB	512-MB	1-GB	1-GB
4-GB maximum (dual-channel)	1-GB	1-GB	1-GB	1-GB

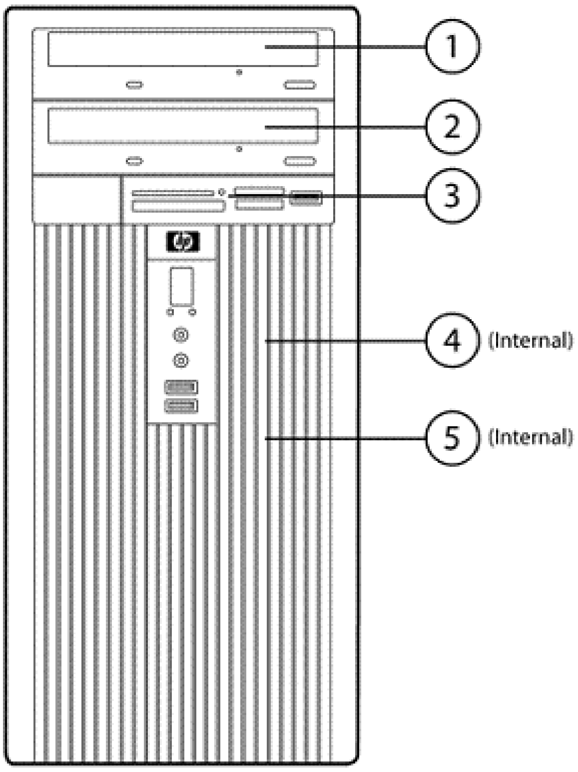
Standard Features and Configurable Components

		MT	SFF
Memory Configurations One of the following	512-MB DDR2 Synch Dram PC2-6400 (800-MHz) Non ECC (1 x 512)	X	X
	1-GB DDR2 Synch Dram PC2-6400 (800-MHz) Non ECC (1 x 1GB)	X	X
	1-GB DDR2 Synch Dram PC2-6400 (800-MHz) Non ECC (2 x 512)	X	X
	2-GB DDR2 Synch Dram PC2-6400 (800-MHz) Non ECC (2 x 1GB)	X	X
	256-MB DDR2 Synch Dram PC2-5300 (667-MHz) Non ECC (1 x 256)	X	X
	512-MB DDR2 Synch Dram PC2-5300 (667-MHz) Non ECC (1 x 512)	X	X
	512-MB DDR2 Synch Dram PC2-5300 (667-MHz) Non ECC (2 x 256)	X	X
	1-GB DDR2 Synch Dram PC2-5300 (667-MHz) Non ECC (2 x 512)	X	X
	1-GB DDR2 Synch Dram PC2-5300 (667-MHz) Non ECC (1 x 1GB)	X	X
	2-GB DDR2 Synch Dram PC2-5300 (667-MHz) Non ECC (4 x 512)	X	X
	2-GB DDR2 Synch Dram PC2-5300 (667-MHz) Non ECC (2 x 1GB)	X	X
	3-GB DDR2 Synch Dram PC2-5300 (667-MHz) Non ECC (2 x 512, 2 x 1GB)	X	X
	4-GB DDR2 Synch Dram PC2-5300 (667-MHz) Non ECC (4 x 1GB)	X	X

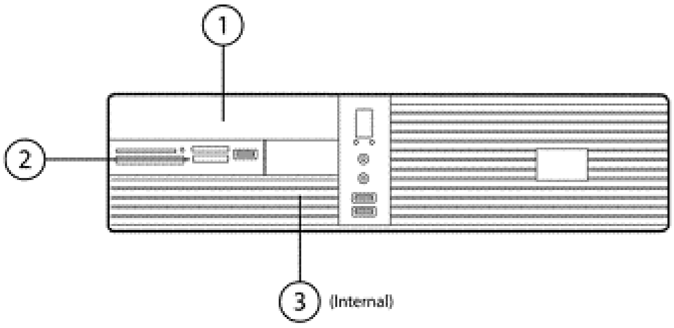
Expandability	**Microtower**	**Small Form Factor**
PCI slots	2 Full Length 5V 32 bit PCI slots	2 LP 5V 32 bit PCI slots
Max power per slot	25W	25W
PCIe x1 slot	1	1
Max power per slot	10W	10W
PCIe X16 slot	1 Full Height card	1 LP profile card
Max power per slot	75W	25W
External Bays		
3.5"	1	1
5.25"	2	1
IDE		
Internal 3.5" HDD Bays	2	1
Hard Drive Controller (SATA) **Supported**	SATA	SATA
Hard Drive Interfaces Supported	SATA 3.0Gb/s	SATA 3.0Gb/s

Standard Features and Configurable Components

Microtower



Small Form Factor



Drive Support						
	Microtower			**Small Form Factor**		
	Media Card Reader or Diskette Drive (optional)	**5.25" Serial ATA Devices**	**3.5" Serial ATA Devices**	**Media Card Reader or Diskette Drive** (optional)	**5.25" Serial ATA Devices**	**3.5" Serial ATA Devices**
Quantity Supported	1	2	2	1	1	2
Position Supported	③	①,②	③,④,⑤	②	①	②,③
Controller	USB/Diskette	SATA	SATA	USB/Diskette	SATA	SATA

		MT	SFF
Hard Drive One or two of the following	80-GB SATA 3.0-Gb/s Hard Drive (7200 rpm)	X	X
	160-GB SATA 3.0-Gb/s Hard Drive (7200 rpm)	X	X
	250-GB SATA 3.0-Gb/s Hard Drive (7200 rpm)	X	X
	Removable 3.5" 80GB SATA 3.0 Gb/s (7200 rpm)	X	X
	Removable 3.5" 160GB SATA 3.0 Gb/s (7200 rpm)	X	X
	Removable 3.5" 250GB SATA 3.0 Gb/s (7200 rpm)	X	X
	RAID 80-GB SATA 3.0-Gb/s Hard Drive (7200 rpm)	X	X
	RAID 160-GB SATA 3.0-Gb/s Hard Drive (7200 rpm)	X	X
	RAID 250-GB SATA 3.0-Gb/s Hard Drive (7200 rpm)	X	X
	2nd hard drive, 80-GB SATA 3.0-Gb/s Hard Drive (7200 rpm)	X	X
	2nd hard drive, 160-GB SATA 3.0-Gb/s Hard Drive (7200 rpm)	X	X
	2nd hard drive, 250-GB SATA 3.0-Gb/s Hard Drive (7200 rpm)	X	X

Removable Storage – One or more of the following depending on form factor (see Storage – Drive Support section above)	**Diskette Drives**		
	1.44-MB Diskette Drive	X	X
	Media Reader		
	HP 16-in-1 Media Reader (USB connection on the system board)	X	X
	Optical Drives		
	SATA DVD-ROM Drive	X	X
	SATA CD-RW/DVD-ROM Combo Drive	X	X
	SATA DVD+/-RW (DL/DF) LightScribe Drive	X	X
Security	1.2 TPM Embedded Security Chip* integrated with Broadcom NIC	X	X
	HP ProtectTools Security Software Suite with BIOS Configuration (Serial, Parallel, USB Enable/Disable), Credential Manager, Smart Card Manager	X	X
	HP Desktop Security lock kit (lock and cable)	X	X
	Security cable with Kensington lock	X	X
	* TPM module disabled where use is restricted by law; for example, Russia.		
NIC	Broadcom 5755 Gigabit Ethernet integrated on system board	X	X
Wireless	Wireless A+G PCI Card (full height bracket)	X	
	Wireless A+G PCI Card (low profile bracket)		X
Modem	2006 Agere PCI 56K International SoftModem (full height)	X	
	2006 Agere PCI 56K International SoftModem (low profile)		X
Graphics	Integrated ATI Radeon X300 graphics with VGA and DVI-D	X	X
	ATI Radeon X1300 Pro (256MB SH) PCIe Graphics Card	X	X
	ATI Radeon X1300 Pro (256MB DH) PCIe Graphics Card	X	X
	ATI Radeon X1600XT (256MB DH FH) PCIe Graphics Card	X	
Audio	Integrated High Definition audio with Realtek 2 channel ALC260 codec (all ports are stereo)	X	X
	Microphone and Headphone front ports	X	X
	Line-out and Line-In rear ports*	X	X
	Aux Input connection on system board	X	X
	Internal Speaker	X	X
	***NOTE:** Rear audio ports are re-taskable as Line-in, Line-out, or Microphone-in. External speakers must be powered externally.*		

Input Devices	**Keyboard** – One of the following		
	HP PS/2 Standard Keyboard	X	X
	HP USB BG1650 Keyboard	X	X
	HP USB Standard Keyboard	X	X
	HP USB Smartcard Keyboard	X	X
	Mouse – One of the following		
	HP PS/2 2-Button Scroll Mouse	X	X
	HP PS/2 2-Button Optical Scroll Mouse	X	X
	HP USB 2-Button Optical Scroll Mouse	X	X

Miscellaneous	HP FireWire / IEEE 1394 PCI Card (full height)	X	
	HP FireWire / IEEE 1394 PCI Card (low profile)		X
	2nd serial port adapter	X	
	2nd serial port adapter (low profile)		X
	Tower stand		X

After-Market Options (availability may vary by region)

		MT	SFF	Part Number
Communications	**Wireless LAN**			
	HP Wireless A+G PCI Card (North America only)	X	X	EA118AA
	HP Wireless A+G PCI Card (WW except North America)	X	X	PZ928AA
	HP BT450 USB Bluetooth Wireless Printer and PC Adapter	X	X	IPQ639A
	NICs			
	Broadcom NetXtreme Gigabit Ethernet PCIe NIC Card	X	X	EA833AA
	Modem			
	Agere 2006 PCI 56K International Modem	X	X	EK694AA
Graphics	**Single head solutions**			
	ATI Radeon X1300 Pro (256MB SH) PCIe Graphics Card	X	X	AG392AA
	Multi head solutions			
	ATI Radeon X1300 Pro (256MB DH) PCIe Graphics Card	X	X	AH050AA
Hard Drives	HP 80-GB SATA 3.0-Gb/s Hard Drive	X	X	PY276AA
	HP 160-GB SATA 3.0-Gb/s Hard Drive	X	X	PY277AA
	HP 250-GB SATA 3.0-Gb/s Hard Drive	X	X	PY278AA
Input/Output Devices	HP PS/2 Standard Keyboard	X	X	DT527A
	HP USB Standard Keyboard	X	X	DT528A
	HP USB BG1650 Standard Keyboard	X	X	DT529A
	HP USB Smartcard Keyboard	X	X	ED707AA
	HP PS/2 2-Button Scroll Mouse	X	X	DD440B
	HP USB 2-Button Scroll Mouse (Carbonite)	X	X	DD441B
	HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver)	X	X	DC172
Memory (DIMMs)	**PC2-5300 (DDR2, 667 MHz) DIMMs Non-ECC**			
	HP 1 GB PC2-5300 (DDR2-667) DIMM	X	X	PX976AA
	HP 512 MB PC2-5300 (DDR2-667) DIMM	X	X	PX975AA
	HP 256 MB PC2-5300 (DDR2-667) DIMM	X	X	PX974AA

After-Market Options (availability may vary by region)

Monitors	**TFTs**			
	HP L1506 15 TFT Flat Panel Monitor – Analog only	X	X	PX848AA#xxx
	HP L1706 17 TFT Flat Panel Monitor – Analog only	X	X	PX849AA#xxx
	HP L1740 17 TFT Flat Panel Display – Analog/Digital	X	X	PL766AA#xxx
	HP L1755 17 TFT Flat Panel Display – Analog/Digital	X	X	PL777AA#xxx
	HP L1906 19 TFT Flat Panel Display – Analog only	X	X	PX850AA#xxx
	HP L1940T 19 TFT Flat Panel Display – Analog/Digital	X	X	EM869AA#xxx
	HP L1955 19 TFT Flat Panel Display – Analog/Digital	X	X	PD974AA#xxx
	HP L2065 20 TFT Flat Panel Display – Analog/Digital	X	X	EF227A4#xxx
	HP LP2465 24 TFT Widescreen Flat Panel Display – Analog/Digital			EF224A4#xxx
	15-inch Touch Screen Flat Panel Display	X	X	RB146AA#xxx
	CRTs			
	HP s7540 17 (16.0 vis) CRT Monitor	X	X	PF997AA#xxx
	HP v7650 17 (16.0 vis) Flat-face CRT Monitor	X	X	PF996AA#xxx
Multimedia	HP Satellite Speakers – Silver	X	X	ZD929AA
Optical Drives	**DVD-ROM Drive**			
	HP SATA DVD-ROM Drive	X	X	AH047AA
	Combo Drive			
	HP SATA CD-RW/DVD-ROM Combo Drive	X	X	AH046AA
	DVD+/-RW Drive			
	HP SATA DVD+/-RW (DL/DF) LightScribe Drive	X	X	AH048AA
Removable Storage	**Drive Key Options**			
	HP 512MB USB 2.0 Drive Key	X	X	ED516AA
	HP 1GB USB 2.0 Drive Key	X	X	AG382AA
	Diskette and Digital Drives			
	HP 1.44-MB External USB Diskette Drive	X	X	DC141B
	HP 1.44-MB Internal Diskette Drive	X	X	AH053AA
	Multimedia			
	HP 16-in-1 Media Card Reader	X	X	EM718AA
Security	Kensington Lock	X	X	PC766A
	HP Business PC Security Lock	X	X	EV265AA
	HP USB Smartcard Keyboard	X	X	ED707AA

After-Market Options (availability may vary by region)

Manageability	HP OpenView Client Configuration Manager	X	X	T3488AA (use T3489AA for 1000 licenses)
	HP Client Foundation Suite Includes: HP Client Manager HP Systems Insight Manager Connector Altiris Local Recovery Pro Altiris Inventory Solution Altiris Deployment Solution	X	X	EF117AA (use EF118AA for 1000+ licenses)
	HP Client Premium Suite Includes: HP Client Manager HP Systems Insight Manager Connector HP OpenView Connector Altiris Connector Solution Altiris Local Recovery Pro Altiris Audit Express Altiris Client Management Suite Level 1	X	X	EF119AA (use EF120AA for 1000+ licenses)
Miscellaneous Accessories	HP 2nd Serial Port adapter	X	X	PA716A
	Belken USB to Serial Adapter	X	X	EM449AA
	HP FireWire / IEEE 1394 PCI Card	X	X	PA997A

Unit Environment and Operating Conditions	**Microtower**	**Small Form Factor**
General Unit Operating Guidelines (Need this updated for dc5750) • Keep the computer away from excessive moisture, direct moisture and the extremes of heat and cold, to ensure that unit is operated within the specified operating range. • Leave a 4 in (10.2 cm) clearance on all vented sides of the computer to permit the required airflow. • Never restrict airflow into the computer by blocking any vents or air intakes. • Do not stack computers on top of each other or place computers so near each other that they are subject to each other's re-circulated or preheated air. • Occasionally clean the air vents on the front, back, and any other vented side of the computer. Lint, dust and other foreign matter can block the vents and limit the airflow. • If the computer is to be operated within a separate enclosure, intake and exhaust ventilation must be provided on the enclosure, and the same operating guidelines listed above will still apply.		
Temperature Range	Operating: 50° to 95° F (10° to 35° C)* Non-operating: -22° to 140° F(-30° to 60° C)	
Relative Humidity	Operating: 10% to 90% (non-condensing at ambient) Non-operating: 5% to 95% (non-condensing at ambient)	
Maximum Altitude (unpressurized)	Operating: 10,000 ft (3048 m) Non-operating: 30,000 ft (9144 m)	
***NOTE:** Operating temperature is de-rated 1.0 deg C per 300 m (1000 ft) to 3000 m (10,000 ft) above sea level, no direct sustained sunlight. Maximum rate of change is 10 deg C/Hr. The upper limit may be limited by the type and number of options installed.		

	Microtower		**Small Form Factor**	
Power Supply	300-watt BTX power supply – Passive PFC 115v/230v line switch	300-watt 80Plus* BTX power supply – Active PFC	240-watt BTX power supply – Passive PFC 115v/230v line switch	240-watt 80Plus* BTX power supply – Active PFC
Operating Voltage Range	90 to 132VAC, or 180 to 264VAC	90 to 264VAC	90 to 132VAC, or 180 to 264VAC	90 to 264VAC
Rated Voltage Range	100 to 127VAC, or 200 to 240VAC	100 to 240VAC	100 to 127VAC, or 200 to 240VAC	100 to 240VAC
Rated Line Frequency	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
Operating Line Frequency Range	47–63 Hz	47–63 Hz	47–63 Hz	47–63 Hz
Rated Input Current	8A/4A	5A/2.5A	6A/3A	3.5A/1.75
Heat Dissipation	Typical 315 btu/hr (79 kg-cal/hr) Maximum 1575 btu/hr (397 kg-cal/hr)	Typical 270 btu/hr (68 kg-cal/hr) Maximum 1280 btu/hr (322 kg-cal/hr)	Typical 315 btu/hr (79 kg-cal/hr) Maximum 1260 btu/hr (317 kg-cal/hr)	Typical 270 btu/hr (68 kg-cal/hr) Maximum 1025 btu/hr (258 kg-cal/hr)
Power Supply Fan	Variable speed fan	Variable speed fan	Variable speed fan	Variable speed fan
Energy Star 3.0 Compliant	X	X	X	X
Energy Star 4.0 Compliant		X		X
FEMP Standby Power Compliant (<2W in S5 – Power Off)**	X	X	X	X
Power Consumption in ES Mode – Suspend to RAM (S3) (Instantly Available PC)	<4W	<3W	<4W	<3W

Environmental and Mechanical Engineering Support Center (EMESC) – Intranet Web Site only	http://env-webserver.ccm.cpqcorp.net/EMESC/default.htm

NOTES:
* This 80% efficient power supply is a requirement for US Energy Star 4.0 compliance in conjunction with a select range of processors and modules.
** Power consumption in the Off/Apparent Off mode is measured and reported with the network interface controller "Wake on LAN" feature disabled in F10 Setup (default is "enabled").

ROM BIOS Information

Key features of the HP BIOS in the dc5750 include:

- Deployment and manageability – HP BIOS provides several technologies that help integrate the HP Business desktop computer into the enterprise, such as PXE, remote configuration, remote control, and F10 Setup support for 12 languages.
- Stability – HP BIOS supports the HP stable product roadmap by releasing only critical BIOS changes to the factory and advanced change notification.
- Security – HP BIOS offers a robust and flexible set of security features to help the system administrator secure their systems from removal of sensitive data, and help prevent access by unauthorized users, subversion of OS security policies, removal of hardware, flash of rogue BIOS images, and attacks on BIOS settings.
- Thermal and power management – The HP BIOS provides and enables thermal and power management technologies to assist in operating the HP Business Desktop computer in any enterprise environment.
- 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 (Flashlite), BIOS updates from within Windows (HPQFlash, SSM), 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.

Additional HP BIOS Features

- 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 Compaq dc5750 models use ACPI to provide power conservation features under Windows XP.

Other Features	Description
ACPI-Ready Hardware	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.
SMBIOS Ver. 2.4	System Management BIOS, previously known as DMI BIOS, for system management information
AMD Cool 'n Quiet	A setting in F10 Setup allows the system to automatically adjust the CPU speed, voltage and power combination to match the instantaneous user performance need. The AMD driver for this feature requires Windows XP SP2.
Dual-State Power Button	Power button acts as both an on/off button and suspend-to-sleep button

Technical Specifications

Serviceability Features of System		
Dual Color Power LED on Front of Computer (Indicates Normal Operations and Fault Conditions)		
Diagnostic LED Explanation Table	Number of 1-second red LED blinks followed by 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 recover mode	
• System/Emergency ROM	• Flash ROM	• CMOS Battery Holder for easy Replacement
• Flash Recovery with Video	• 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
• Restore CD	• Clear CMOS Button	• NIC LEDs (integrated) (Green & Amber)

Serviceability Features of Chassis		
• 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

Feature	**Description**
ASF 2.0 support (Alert Standard Format)	Industry-standard specification for network alerting and remote control in operating system-absent environments
Towerable	Product can be oriented as a tower (in addition to desktop orientation)
Drive Self Tests (DPS)	• 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.
DPS Access through F10 Setup during Boot	
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 • 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 II – Off-Line Data Collection	
SMART III – Off-Line Read Scanning with Defect Reallocation	
* **NOTE**: This feature is inoperable when a RAID (Redundant Array of Independent Disks) configuration is enabled.	

Technical Specifications - Audio

High Definition Audio	**Type**	Integrated
	High Definition Stereo Codec	Yes – Realtek ALC260
	Audio Jacks	Microphone-In (64-K ohm Input Impedance) Line-In (64-K ohm Input Impedance) Line-Out * (200 ohms Output Impedance, expects at least a 10-K ohm load) Headphone-Out (1 Ohm Output Impedance, expects at least a 32 ohm load)
	NOTE: *Internal Speaker Amplifier is for Internal Speaker only. External Speakers need to be powered externally. Rear audio ports are re-taskable as Line-in, Line-out, or Microphone-in.	
	Sampling	8 kHz – 192 kHz
	Wavetable Syntheses (software)	Yes – Uses OS soft wavetable
	Analog Audio	Yes
	Number of Channels on Line-Out (mono/stereo)	Stereo (Left & Right channels)
	Internal Audio Speaker Power Rating	1.5 W
	Internal Speaker	Yes; ability to mute internal speaker through F10 Setup
	External Speaker Jack (Line-Out)	Yes

Technical Specifications - Communications

Integrated Broadcom 5755 Gigabit Ethernet	**Connector**	RJ-45
	Controller	Broadcom 5755 PCI-Express LAN Controller
	Memory	Integrated 96Kb on chip buffer memory
	Data rates supported	10/100/1000 Mbps
	Compliance	IEEE 802.1P, 802.1Q, 802.2, 802.3, 802.3AB and 802.3u compliant, 802.3x flow control
	Bus architecture	PCI-E
	Data path width	Single channel, PCI-E
	Data transfer mode	Bus-master DMA
	Hardware certifications	FCC, B, CE, TUV- cTUVus Mark Canada and United States, TUV- GS Mark for European Union
	Power requirement	1.33 watts @ +3.3V AUX supply with 5V tolerance
	Boot ROM support	Yes
	Network transfer mode	Full-duplex Half-duplex (not available for the 1000BASE-T transceiver)
	Network transfer rate	10BASE-T (half-duplex) 10 Mbps 10BASE-T (full-duplex) 20 Mbps 100BASE-TX (half-duplex) 100 Mbps 100BASE-TX (full-duplex) 200 Mbps 1000BASE-T (full-duplex) 2000 Mbps
	Environmental	**Operating temperature** 32° to 131°F (0° to 55° C) **Operating humidity** 85% at 131° F (55° C)
	Operating system driver support	Microsoft Windows 2000 (Service Pack 4 or greater), Windows XP Home, Windows XP Professional
	Management capabilities	ASF 2.0, ACPI, WOL and DMI 2.0, PXE 2.0, WfM 2.0, Broadcom mgmt utility
	Alerting	ASF 2.0

HP Wireless A+G PCI	**Dimensions**	4.99 x 2.54 x 0.71 in (126.8 x 64.4 x 18.0 mm)
	Weight	0.268 lb (65 g)
	Controller	Atheros AR5414X chipset
	system interface	PCI Spec 2.2
	Network standard	IEEE 802.11a/b/g
	Frequency band	5.1500 to 5.8500 GHz 2.4000 to 2.4835 GHz 2.4465 to 2.4835 GHz (Europe, Middle East, Asia and Asia Pacific - excluding Japan) 2.4000 to 2.4697 GHz (Japan)
	Operating temperature	32° to 140° F (0° to 60° C), operating
	Storage temperature	-4° to 176° F (-20° to 80° C), non-operating
	Humidity	10% to 85% non-condensing
	Operating voltage	5V ± 5%
	Power consumption	Tx/Rx peak 560/250mA @ 3.3V (max.)
	Output power (approximately)	15 dBM ±2dB
	Receive sensitivity	-90dBm at 11 Mbps (typical)

Data transfer rate	Standard rates of 1, 2, 5.5, 11, 6, 9, 12, 18, 24, 48, 54 and Super AG Mode108-Mbps	
Spreading	DSSS (Direct Sequence Spread Spectrum)	
Security	64(40h) bit, 128(104h) bit, WPA, IEEE802.1X, AES-OCB, AES-CCM, Microsoft PEAP,TKIP, WEP.	
Antenna	External 5dBi antenna	
Throughput	108 Mbps (only with Belkin 54G or above router that supports 108 Mbps speed)	200 ft (60.96 m) – Indoor
	54 Mbps	200 ft (60.96 m) – Indoor
	11 Mbps	200 ft (60.96 m) – Indoor
Certifications	Wi-Fi certified	
Certifications for use by country	North America: United States, Canada Europe: Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Liechtenstein, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom Australia New Zealand	
OS support	Microsoft Windows 2000 (Service Pack 4 or greater), Windows XP Home, Windows XP Professional	

2006 Agere PCI 56K International SoftModem	**Data Transmission**	Technology speeds: 56,000 Kbps maximum downstream data, controllerless
	NOTE: 56 Kbps technology refers to download speeds only and requires compatible modems at server sites. Other conditions may limit modem speed. FCC limitations allow a maximum of 53 Kbps during download transmissions.	
	Data Speeds	(Upload only) 33,600/31,200/28,800/26,400/21,600/19,200/16,800/14,400/12,000/ 9,600/7,200/4,800/2,400/1,200/300
	Data Standards	ITU-T V.90, ITU-T, ITU-T V.34, V.44, V.42, V.42bis21, V.32bis, Bell 212A, and Bell 103
	Fax Speeds	14,400/12,000/9,600/7,200/4,800/2,400/1,200/300 b/s
	Fax Mode Capabilities	ITU-T T.31 class 1 FAX, V. 17, V.29, V.27ter, and V.21 Channel 2
	Error Correction and Data Compression	V.44, 42bis, V.42 and MNP2-5
	Power Management	ACPI; PPMI 1.1 and wake support with PME and Vaux; meets PCI 2.3 requirements and PC 2001 requirements
	Upgradeability	Driver upgradeable for future enhancements
	Video	ITU-T V.80 video ready interface
	Other	TIA/EIA 602 standard AT command set Integrated DTE interface with speeds of up to 115.2 Kbps, parallel 16550a UART-compatible interface Optional ring wakeup signal
	Operating Temperature	32° to 158° F (0° to 70° C)
	Operating Humidity	20% to 90%, non-condensing
	Operating System Support	Microsoft Windows 2000 (Service Pack 4 or greater), Windows XP Home, Windows XP Professional
	OS Driver Support	Microsoft Windows 2000 (Service Pack 4 or greater), Windows XP Home, Windows XP Professional
	Power	Requires a 3.3-V auxiliary power rail on PCI bus

	Uses only one PCI load (i.e., one grant/request pair), one shared IRQ, one electrical load
Chipset	Agere Systems SV92PL – Integrated PCI interface with 5-V tolerant buffers and CardBus support
Dimensions (L X H)	Complies with PCI low profile specifications–6.7 x 2.3 in (17.0 x 5.8 cm) and supports high- and low-profile brackets
Connection	Single RJ-11 connector
Other Features	Digital line protection, call progress monitoring via on-board piezo device, support for high profile and low profile brackets, PnP ID support
Safety	UL recognized to UL 1950, 3rd edition (U.S. and Canada); IEC 950 (TUV, NEMKO, DEMKO, SEMKO); CE Mark, EC 950 (TUV, NEMKO, DEMKO, SEMKO, CE mark
EMC	FCC Part 15, IC ES003, EN 55022, 3rd edition, EN 55024, annex A, EN 61000-4-6, EN 61000-4-8
Telecom	FCC Part 68, IC-CS-03 (Canada); Worldwide PTT approvals Not available in Korea or the Republic of South Africa.
Health	Bare PCB material compliant to 94V-0 or better (marked as such)
Other	PC 2001 compliant, PCI version 2.3, WHQL approved; ACPI compliant

Technical Specifications - Graphics

Integrated ATI Radeon X300 graphics	**3D/2D Controller**	Full Microsoft DirectX® 9 based with Shader 2.0 support, full precision floating point pixel pipeline, 2x, 4x, or 6x Anti-Aliasing, hidden surface removal using 16, 24, or 32-bit Z-Buffering, and support for 12-bit per pixel formats. Support for Microsoft's DirectDraw, Double Buffering, Virtual Sprites, Transparent Blit, and Masked Blit.
	VGA/DVI Controller	Integrated
	Bus Type	PCI Express™ x16 for optional graphics upgrade.
	RAMDAC	Integrated
	Memory	HYPERMEMORY™ technology offers optional dedicated Local Frame Buffer configuration for a 32-bit or 64-bit interface and up to 128MB of memory. UMA mode operation uses from 32MB up to 256MB of shared system memory.
	Controller Clock Speed	400 MHz
	Overlay Planes	Back end overlay supporting Motion Adaptive De-Interlacing
	Maximum Color Depth	32 bits/pixel
	Maximum Vertical Refresh Rate	Supports resolutions up to 2045x1536 @ 32bpp.
	Multi-display Support	SURROUNDVIEW™ support for up to four monitors with an ATI discrete graphics card. Up to 2 displays can be supported via the motherboard's VGA and DVI-D connectors. An additional 2 displays can be supported via the ATI discrete graphics card. Dual independent display modes are supported.
	Operating Systems	Microsoft Windows XP and Windows 2000
	Graphics/Video API Support	Microsoft DirectX 9, DirectXVA®, VMR7, VMR9, GDI/GDI+; OpenGL® 1.4.

Integrated DVI-D support	**DVI-D Connector**	Compliant with DDWG (Digital Display Working Group) and VESA specifications for a single-link digital DVI (DVI-D) connector.
	Dual Head Support	Yes, when used with the integrated VGA connector
	Display Devices Supported	HP L1530 HP L1740 HP L1755 HP L1940 HP L1955 HP L2035 HP L2335
	Color Depth	All modes support 8-bpp, 16-bpp, and 24-bpp color depths (up to 16.7 million colors)
	Host Interface Connector	Mechanically compliant with PCI-E standard
	Dot Clock	165 MHz maximum
	Display Modes	Supports display modes that require up to 165-MHz bandwidth on the link, as shown in the following table.

Technical Specifications - Graphics

Resolution		60-Hz LCD	60-Hz	75-Hz	85-Hz
Blanking		5% reduced	GTF	GTF	GTF
640 x 480	VGA	Yes	Yes	Yes	Yes
800 x 600	SVGA	Yes	Yes	Yes	Yes
1024 x 768	XGA	Yes	Yes	Yes	Yes
1280 x 1024	SXGA	Yes	Yes	No	No
1600 x 1200	UXGA	Yes	Yes	No	No

ATI RADEON X1300 PCIe Graphics Card (256 MB)

Bus Type	PCI Express (x16 lanes)	
Maximum Vertical Refresh Rate	85 Hz	
Display Support	Integrated 400 MHz RAMDAC	
Display Max Resolution	2048 x 1536	
Board Display Options	DVI-I + TV DVI-I supports analog CRT or flat panel or digital flat panel (using DVI-A, DVI-D or DVI-I connector) DVI-I supports analog CRT or flat panel (with VGA connector and DVI-I to VGA dongle) TV connector is a 4-pin mini-DIN S-video connector	
Board Configuration 128 MB Frame Buffer	**Specification**	**Description**
	Graphics Chip	RV515
	Core clock	450 MHz
	Memory clock	250 MHz
	Frame buffer	256 MB DDR2
Languages supported	24 languages: English, Arabic, Chinese Simplified, Chinese Traditional, Czechoslovakian, Danish, Dutch, Finnish, French, German, Greek, Hebrew, Hungarian, Italian, Japanese, Korean, Norwegian, Polish, Portuguese, Russian, Spanish, Swedish, Thai, Turkish	
Operating Systems Support	Windows 2000, Windows XP	
Core Power	25 W (Max board power)	
Option kit contents	● ATI RADEON X1300 PCIe graphics card with full height bracket attached ● Low profile bracket ● DVI-to-VGA Adapter ● Software CD with graphics drivers ● Warranty documentation	
Compliance standards	**EMC Emissions:** a) FCC Part 15, Subpart B – Unintentional Radiators, Class B Computing Devices for Home & Office Use b) CISPR22: 1997/EN 55022:1998 – Class B – Limits and methods of measurement of radio disturbance characteristics of Information Technology Equipment c) Canadian Standard ICES-003 is equivalent to CISPR22 d) Taiwanese Standard BSMI e) Japanese VCCI f) Australian C-Tick **EMC Immunity:** CISPR 24:1997/EN 55024:1998 – Information Technology Equipment - Immunity Characteristics – Limits and Methods of Measurement.	

Safety:
UL 60950 (USA) & EN 60950 (EU): Safety of Information Technology Equipment, Including Electrical Business Equipment. All boards meet UL PCB flammability requirements.

ATI RADEON X1600XT (256 MB DH) FH PCIe Graphics Card	**Bus Type**	PCI Express (x16 lanes)	
	Maximum Vertical Refresh Rate	85 Hz	
	Display Support	Integrated 400 MHz RAMDAC	
	Display Max Resolution	2560 x 1600 digital, 2048 x 1536 analog	
	Board Display Options	2 DVI-I ports (one port supports dual link DVI). DVI-I supports an analog CRT or flat panel with a VGA connector via the provided DVI-I to VGA adapter	
		4-pin mini-DIN S-video connector for TV output	
	Board Configuration	**Specification**	**Description**
		Graphics chip	RV530
		Core clock	590 MHz
		Memory clock	690 MHz
		Frame buffer	256 MB GDDR3, 128 bit wide
	Operating Systems Support	Windows 2000, Windows XP	
	Core Power	56 W (Max board power)	

Technical Specifications - Hard Drives

7200 rpm Serial ATA Hard Drives	**250-GB**	**Capacity**	250,059,350,016 bytes	
		Height	1 in (2.54 cm)	
		Width	Media diameter: 3.5 in (8.89 cm) Physical size: 4 in (10.2 cm)	
		Interface	Serial ATA (3.0 Gb/s)	
		Synchronous Transfer Rate (Maximum)	Up to 3 Gb/s	
		Buffer	8 MB	
		Seek Time (typical reads, includes controller overhead, including settling)	**Single Track**	1.0 ms
			Average	8.5 ms
			Full-Stroke	18 ms
		Rotational Speed	7,200 rpm	
		Logical Blocks	488,397,168	
		Operating Temperature	41° to 131° F (5° to 55° C)	
	160-GB	**Capacity**	163,928,604,672 bytes	
		Height	1 in (2.54 cm)	
		Width	Media diameter: 3.5 in (8.89 cm) Physical size: 4 in (10.2 cm)	
		Interface	Serial ATA (3.0 Gb/s)	
		Synchronous Transfer Rate (Maximum)	Up to 3 Gb/s	
		Buffer	8 MB	
		Seek Time (typical reads, includes controller overhead, including settling)	**Single Track**	0.9 ms
			Average	9.3 ms
			Full-Stroke	18 ms
		Rotational Speed	7,200 rpm	
		Logical Blocks	320,173,056	
		Operating Temperature	41° to 131° F (5° to 55° C)	
	80-GB	**Capacity**	80,026,361,856 bytes	
		Height	1 in (2.54 cm)	
		Width	Media diameter: 3.5 in (8.89 cm) Physical size: 4 in (10.2 cm)	
		Interface	Serial ATA (3.0 Gb/s)	
		Synchronous Transfer Rate (Maximum)	Up to 3 Gb/s	
		Buffer	8 MB	
		Seek Time (typical reads, includes controller overhead, including settling)	**Single Track**	2.0 ms
			Average	9.3 ms
			Full-Stroke	21 ms
		Rotational Speed	7,200 rpm	
		Logical Blocks	156,301,488	
		Operating Temperature	41° to 131° F (5° to 55° C)	

USB Standard Keyboard	**Physical characteristics**	**Keys**	104, 105, 106, 107, 109 layout (depending upon country)
		Dimensions (L x W x H)	18.0 x 6.4 x 0.98 in (45.8 x 16.3 x 2.5 cm)
		Weight	2 lb (0.9 kg) minimum
	Electrical	**Operating voltage**	+ 5VDC ± 5%
		Power consumption	50-mA maximum (with three LEDs ON)
		System interface	USB Type A plug connector
		ESD	CE level 4, 15-kV air discharge
		EMI – RFI	Conforms to FCC rules for a Class B computing device
		Microsoft PC 99 – 2001	Functionally compliant
	Mechanical	**Languages**	38 available
		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
	Environmental	**Operating temperature**	50° to 122° F (10° to 50° C)
		Non-operating temperature	-22° to 140° F (-30° to 60° C)
		Operating humidity	10% to 90% (non-condensing at ambient)
		Non-operating humidity	20% to 80% (non-condensing at ambient)
		Operating shock	40 g, six surfaces
		Non-operating shock	80 g, six surfaces
		Operating vibration	2-g peak acceleration
		Non-operating vibration	4-g peak acceleration
		Drop (out of box)	26 in (66 cm) on carpet, six-drop sequence
		Drop (in box)	42 in (107 cm) on concrete, 16-drop sequence
	Operating system support	Microsoft Windows 2000 (Service Pack 4 or greater), Windows XP Home, Windows XP Professional	
	Approvals	UL, CSA, FCC, CE Mark, TUV, TUV GS, VCCI, BSMI, C-Tick, MIC	
	Ergonomic compliance	ANSI HFS 100, ISO 9241-4, and TUVGS	
	Kit contents	Keyboard, installation guide, warranty card, safety and comfort guide	

Technical Specifications - Input/Output Devices

PS/2 Standard Keyboard	**Physical characteristics**	**Keys**	104, 105, 106, 107, 109 layout (depending upon country)
		Dimensions (L x W x H)	18.0 x 6.4 x 0.98 in (45.8 x 16.3 x 2.5 cm)
		Weight	2 lb (0.9 kg) minimum
	Electrical	**Operating voltage**	+ 5VDC ± 5%
		Power consumption	50-mA maximum (with three LEDs ON)
		System interface	PS/2 6-pin mini din connector
		ESD	CE level 4, 15-kV air discharge
		EMI – RFI	Conforms to FCC rules for a Class B computing device
		Microsoft PC 99 – 2001	Functionally compliant
	Mechanical	**Languages**	38 available
		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
	Environmental	**Operating temperature**	50° to 122° F (10° to 50° C)
		Non-operating temperature	-22° to 140° F (-30° to 60° C)
		Operating humidity	10% to 90% (non-condensing at ambient)
		Non-operating humidity	20% to 80% (non-condensing at ambient)
		Operating shock	40 g, six surfaces
		Non-operating shock	80 g, six surfaces
		Operating vibration	2-g peak acceleration
		Non-operating vibration	4-g peak acceleration
		Drop (out of box)	26 in (66 cm) on carpet, six-drop sequence
		Drop (in box)	42 in (107 cm) on concrete, 16-drop sequence
	Operating system support	Microsoft Windows 2000 (Service Pack 4 or greater), Windows XP Home, Windows XP Professional	
	Approvals	UL, CSA, FCC, CE Mark, TUV, TUV GS, VCCI, BSMI, C-Tick, MIC	
	Ergonomic compliance	ANSI HFS 100, ISO 9241-4, and TUVGS	
	Kit contents	Keyboard, keyboard software media, installation guide, warranty card, safety and comfort guide	

HP USB Smartcard Keyboard	**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

Technical Specifications - Input/Output Devices

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	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 membrane
	Key-leveling mechanisms	For all double-wide and greater-length keys
	Cable length	6 ft (1.8 m)
	Microsoft PC 99 - 2001	Mechanically compliant
	Acoustics	43-dBA maximum sound pressure level
Environmental	**Operating temperature**	50° to 122° F (10° to 50° C)
	Non-operating temperature	-22° to 140° F (-30° to 60° C)
	Operating humidity	10% to 90% (non-condensing at ambient)
	Non-operating humidity	20% to 80% (non-condensing at ambient)
	Operating shock	40 g, six surfaces
	Non-operating shock	80 g, six surfaces
	Operating vibration	2-g peak acceleration
	Non-operating vibration	4-g peak acceleration
	Drop (out of box)	26 in (66 cm) on carpet, six-drop sequence
	Drop (in box)	42 in (107 cm) on concrete, 16-drop sequence
SMARTCARD function	**Support**	All ISO 7816 smart cards
	Interface	Reads from and writes to all ISO7816-1, 2, 3, 4 memory and microprocessor smart cards (T=0, T=1)
	Chipset	SCM STCII
	Standard APIs supported	PC/SC, EMV2000, SET
	Power	USB Port Short circuit detection (protects smart card and reader) Power supply compliant with ISO7816 and EMV (5V, 60 mA) Supports 3-V and 5-V cards
	Power consumption	250-mA maximum draw (50 mA for the keyboard with three LEDs ON and 200-mA maximum startup current using a high-current, 60-mA smart card)

Communication	**From card**	Programmable from 9,600 baud to 115,200 baud
	From computer	Up to 38,400 baud
Landing mechanism	**Contact device**	Friction contact
	Card insertions rating	Up to 100,000 insertion cycles
Interface modes	USB communications through USB port SCM protocol Automatic card insertion/removal detection	
Reader performance interface	USB connection	
Electro-magnetic standards	**Europe**	89/336/CEE guideline
	USA	USAFCC part 15

USB Standard BG1650 Keyboard (gray)	**Physical characteristics**	**Keys**	104, 105, 106, 107, 109 layout (depending upon country)
		Dimensions (L x W x H)	18.0 x 6.4 x 0.98 in (45.8 x 16.3 x 2. 5 cm)
		Weight	2 lb (0.9 kg) minimum
	Electrical	**Operating voltage**	+ 5VDC ± 5%
		Power consumption	50-mA maximum (with three LEDs ON)
		System interface	USB Type A plug connector
		ESD	CE level 4, 15-kV air discharge
		EMI – RFI	Conforms to FCC rules for a Class B computing device
		Microsoft PC 99 – 2001	Functionally compliant
	Mechanical	**Languages**	38 available
		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
	Environmental	**Operating temperature**	50° to 122° F (10° to 50° C)
		Non-operating temperature	-22° to 140° F (-30° to 60° C)
		Operating humidity	10% to 90% (non-condensing at ambient)
		Non-operating humidity	20% to 80% (non-condensing at ambient)
		Operating shock	40 g, six surfaces
		Non-operating shock	80 g, six surfaces
		Operating vibration	2-g peak acceleration
		Non-operating vibration	4-g peak acceleration
		Drop (out of box)	26 in (66 cm) on carpet, six-drop sequence

		Drop (in box)	42 in (107 cm) on concrete, 16-drop sequence
	Operating system support	Microsoft Windows 2000 (Service Pack 4 or greater), Windows XP Home, Windows XP Professional	
	Approvals	UL, CSA, FCC, CE Mark, TUV, TUV GS, VCCI, BSMI, C-Tick, MIC, BG Prufzert Mark	
	Ergonomic compliance	ANSI HFS 100, ISO 9241-4, and TUVGS	
	Kit contents	Keyboard, installation guide, warranty card, safety and comfort guide	

HP PS/2 Scroll Mouse	**Dimensions**	3.8 x 6.3 x 11.6 cm (1.5 x 2.5 x 4.6 in)	
	Weight	4.44 oz (126 g)	
	Environmental	**Operating temperature**	50° to 122° F (10° to 50° C)
		Non-operating temperature	22° to 140° F (-30° to 60° C)
		Operating humidity	10% to 90% (non condensing at ambient)
		Non-operating humidity	20% to 80% (non condensing at ambient)
		Operating shock	40 g, 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)	26 in (66 cm) on carpet, 6-drop sequence
		Drop (out of box)	1 m on asphalt tile over concrete, 6-drop sequence
	Electrical	**Operating voltage**	5 VDC ± 10%
		Power consumption	15 mA
		System consumption	PS/2 mini-din connector
		ESD	CE level 4, 15 kV air discharge
		EMI-RFI	Conforms to FCC rules for a Class B computing device
		Microsoft PC99 – 2001	Functionally compliant
	Mechanical	**Resolution**	400 ± 20% DPI
		Tracking speed	10 in/s (25.4 cm/s) maximum
		Acceleration	100 in/s/s (2.54 m/s/s)
		Switch actuation	65 g nominal peak force
		Switch life	1,000,000 operations (using Hasco modified tester)
		Switch type	Low force micro-switches
		Tracking mechanism life	155 mi (250 km) at average speed of 10 in/s
		Cable length	6 ft (1.8 m)
		Microsoft PC99 – 2001	Mechanically compliant
	Scroll wheel	**Width**	8 mm
		Diameter	.99 in (25.2 mm)
		Maximum rotation speed	30 mm/s
		Switch type	Light force micro-switch

		Switch life	1 million operations
		Mechanical life	Minimum 200,000 revolutions
	Regulatory approvals	**Compliant**	UL, CSA, FCC, CE Mark, TUV, TUV GS, VCCI, BSMI, C-Tick, MIC
	Compatibility	**Operating system support**	Microsoft Windows 2000 (Service Pack 4 or greater), Windows XP Home, Windows XP Professional

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HP USB Scroll Mouse	**Environmental**	**Operating temperature**	50° to 122° F (10° to 50° C)
		Non-operating temperature	-22° to 140° F (-30° to 60° C)
		Operating humidity	10% to 90% (non condensing at ambient)
		Non-operating humidity	20% to 80% (non condensing at ambient)
		Operating shock	40 g, 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)	26 in (66 cm) on carpet, 6-drop sequence 1 m on asphalt tile over concrete, 6-drop sequence
	Electrical	**Operating voltage**	5 VDC ± 10%
		Power consumption	15 mA
		System consumption	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 PC99 – 2001	Functionally compliant
	Mechanical	**Resolution**	400 ± 20% DPI
		Tracking speed	10 in/s (25.4 cm/s) maximum
		Acceleration	100 in/s/s (2.54 m/s/s)
		Switch actuation	65 g nominal peak force
		Switch life	1,000,000 operations (using Hasco modified tester)
		Switch type	Low force micro-switches
		Tracking mechanism life	155 mi (250 km) at average speed of 10 in/s
		Cable length	6 ft (1.8 m)
		Microsoft PC99 – 2001	Mechanically compliant
	Scroll wheel	**Width**	8 mm
		Maximum rotation speed	30 mm/s
		Switch type	Light force micro-switch
		Switch life	1 million operations
		Mechanical life	Minimum 200,000 revolutions
	Regulatory approvals	**Compliant**	UL, CSA, FCC, CE Mark, TUV, TUV GS, VCCI, BSMI, C-Tick, MIC

	Compatibility	**Operating system support**	Microsoft Windows 2000 (Service Pack 4 or greater), Windows XP Home, Windows XP Professional

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HP USB Optical Scroll 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	0.27 lb (0.12 kg)
	Cable length	72.8 in (185 cm)
	System requirements	Microsoft Windows 2000 (Service Pack 4 or greater), Windows XP Home, Windows XP Professional Available USB port

Technical Specifications - Optical Storage

SATA DVD+/-RW LightScribe Drive	**Height**	5.25-inch, half-height, tray-load	
	Orientation	Either horizontal or vertical	
	Interface type	SATA/ATAPI	
	Disc capacity	8.5 GB DL or 4.7 GB standard	
	Dimensions (W x H x D)	5.9 x 1.7 x 8.0 in (15.0 x 4.4 x 20.3 cm)	
	Weight (max)	2.6 lb (1.2 kg)	
	Write speeds	**DVD+R**	Up to 16X
		DVD+RW	Up to 8X
		DVD+R DL	Up to 8X
		DVD-R DL	Up to 4X
		DVD-R	Up to 16X
		DVD-RW	Up to 6X
		CD-R	Up to 48X
		CD-RW	Up to 32X
	Read speeds	**DVD-RAM**	Up to 4X
		DVD+RW, DVD-RW, DVD+R DL, DVD-R DL	Up to 8X
		DVD-ROM, DVD+R, DVD-R	Up to 16X
		CD-ROM, CD-R	Up to 48X
		CD-RW	Up to 32X
	Access time (typical reads, including settling)	**Random**	DVD: < 130 ms (typical), CD: < 120 ms (typical)
		Full Stroke	DVD: < 240 ms (seek), CD: < 200 ms (seek)
	Power	**Source**	SATA DC power receptacle
		DC Power Requirement	5 VDC ± 5%-100 mV ripple p-p
			12 VDC ± 5%-200 mV ripple p-p
		DC Current	5 VDC (< 1000 mA typical, 1600 mA maximum)
			12 VDC (< 600 mA typical, 1400 mA maximum)
	Environmental conditions (operating – non-condensing)	**Temperature**	41° to 122° F (5° to 50° C)
		Relative Humidity	10% to 90%
		Maximum Wet Bulb Temperature	86° F (30° C)
	Operating systems support	Microsoft Windows 2000 (Service Pack 4 or greater), Windows XP Home, Windows XP Professional	

Technical Specifications - Optical Storage

SATA CD-RW/DVD-ROM Combo Drive	**Height**	5.25-inch, half-height, tray-load	
	Orientation	Either horizontal or vertical	
	Interface type	SATA/ATAPI	
	Disc capacity	Single layer: Up to 4.7 GB (6 times capacity of CD-ROM) Double layer: Up to 8.5 GB (12 times capacity of CD-ROM)	
	Dimensions (W x H x D)	5.9 x 1.7 x 8.0 in (15.0 x 4.4 x 20.3 cm)	
	Weight (max)	2.6 lb (1.2 kg)	
	Write speeds	**CD-R**	Up to 48X
		CD-RW	Up to 32X
	Read speeds	**DVD+R/-R/+RW/ -RW/+R DL /-R DL**	Up to 8X
		DVD-ROM	Up to 16X
		CD-ROM, CD-R	Up to 48X
		CD-RW	Up to 32X
	Access time (typical reads, including settling)	**Random**	DVD: < 140 ms (typical), CD: < 125 ms (typical)
		Full Stroke	DVD: < 250 ms (typical), CD: < 210 ms (typical)
	Power	**Source**	SATA DC power receptacle
		DC Power Requirement	5 VDC ± 5%-100 mV ripple p-p
			12 VDC ± 5%-200 mV ripple p-p
		DC Current	5 VDC (< 1000 mA typical, < 1600 mA maximum)
			12 VDC (< 600 mA typical, < 1400 mA maximum)
	Environmental (all conditions non-condensing)	**Temperature**	41° to 122° F (5° to 50° C)
		Relative Humidity	10% to 90%
		Maximum Wet Bulb Temperature	86° F (30° C)
	Operating systems support	Microsoft Windows 2000 (Service Pack 4 or greater), Windows XP Home, Windows XP Professional	

SATA DVD-ROM Drive	**Height**	5.25-inch, half-height, tray-load		
	Orientation	Either horizontal or vertical		
	Interface type	SATA/ATAPI		
	Disc capacity	Single layer: Up to 4.7 GB (6 times capacity of CD-ROM) Double layer: Up to 8.5 GB (12 times capacity of CD-ROM)		
	Dimensions (W x H x D)	5.9 x 1.7 x 8.0 in (15.0 x 4.4 x 20.3 cm)		
	Weight (max)	2.6 lb (1.2 kg)		
	Read speeds	**DVD+R/-R/+RW/ -RW/+R DL /-R DL**	Up to 8X	
		DVD-ROM	Up to 16X	
		DVD-RAM	Up to 4X	
		CD-ROM, CD-R	Up to 48X	
		CD-RW	Up to 32X	
	Removable Storage – Media Compatibility – DVD-ROM	**Media**	**Read**	**Write**
		CD-ROM	Yes	No
		CD-R	Yes	No

	CD-RW	Yes	No
	DVD-ROM	Yes	No
	DVD-ROM DL	Yes	No
	DVD-RAM	Yes	No
	DVD+R	Yes	No
	DVD+R DL	Yes	No
	DVD+RW	Yes	No
	DVD-R	Yes	No
	DVD-RW	Yes	No
	DVD-R DL	Yes	No
Access times (typical reads, including setting)	**Random**	DVD: < 140 ms (typical), CD: < 125 ms (typical)	
	Full Stroke	DVD: < 250 ms (seek), CD: < 210 ms (seek)	
	Cache Buffer	2 MB (minimum)	
	Data Transfer Modes	ATA PIO mode 4 (16.7 MB/s); ATA Multi-word DMA mode 2 (16.7 MB/s); ATA UltraDMA Mode 3 (44.4 MB/s -default)	
Power	**Source**	SATA DC power receptacle	
	DC Power Requirement	5 VDC ± 5%-100 mV ripple p-p 12 VDC ± 5%-200 mV ripple p-p	
	DC Current	5 VDC – <1000 mA typical, < 1600 mA maximum 12 VDC –< 600 mA typical, < 1400 mA maximum	
Environmental (all conditions non-condensing)	**Temperature**	41° to 122° F (5° to 50° C)	
	Relative Humidity	10% to 90%	
	Maximum Wet Bulb Temperature	86° F (30° C)	
Operating systems support	Microsoft Windows 2000 (Service Pack 4 or greater), Windows XP Home, Windows XP Professional		

Technical Specifications - Removable Storage

HP 16-in-1 Media Card Reader	**USB Interface**	USB 2.0 High-speed device	
	Advance protocol support	Supports hardware ECC (Error Correction Code) function ● Supports hardware CRC (Cyclic Redundancy Check) function ● Supports MS 4-bit parallel transfer mode ● Supports MS-PRO 4-bit parallel transfer mode ● Supports SD 4-bit parallel transfer mode ● Supports high-speed 50-MHz SD 4-bit card (version 1.1) ● Support high-speed 52-MHz MMC 8-bit card	
	Supported media type with card adapter	● MicroSD (T-Flash) ● Memory Stick Micro	
	Mechanical		
	Environmental	**Operational Environmental Extremes**	Test Parameters/Conditions – Power applied, unit operating on system ±5% nominal supply voltage. 10°C 10% R.H. ≥ 24 hours 10°C 90% R.H. ≥ 24 hours 20°C 90% R.H. ≥ 24 hours 30°C 90% R.H. ≥ 24 hours 40°C 90% R.H. ≥ 24 hours 50°C 90% R.H. ≥ 24 hours 50°C 10% R.H. ≥ 24 hours
		Storage Environmental Extremes	Test Parameters/Conditions 60°C @ 80% R.H. for 96 hours -30°C @ 20% R.H. for 48 hours No power applied Delta °C < 1.0°C/min Delta % R.H. < 1.5% R.H./min
	Operating system support	Microsoft Windows 2000 (Service Pack 3 or greater), Windows XP Home, Windows XP Professional	
	Approvals	USB-IF, WHQL, Compliant with USB Mass Storage Class Bulk only Transport Specification Rev. 1.0, Compliant Intel Front Panel I/O Connectivity Design Guide V. 1.2 FCC, CE, BSMI, C-Tick, VCCI, MIC, cUL, TUV-T	

Technical Specifications - Environmental Data

Eco-Label Certifications and declarations

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

- US Energy Star
- US Federal Energy Management Program (FEMP)
- Taiwan Green Mark
- China Energy Conservation Program
- IT ECO declaration
- EPEAT Rated – SILVER
- Korea Eco-label
- Japan PC Green label*

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

Small Form Factor

System Configuration

The configuration used for the Energy Consumption and Declared Noise Emissions data for the Small Form Factor Desktop model is based on a typically configured product.

Energy Consumption

	115 VAC	230 VAC	100 VAC
Normal Operation	58.3 W	57.2 W	58.5 W
Sleep (Energy Star low power mode)	2.73 W	2.70 W	2.72 W
Off	1.82 W	1.80 W	1.80 W
Heat Dissipation*	**115 VAC**	**230 VAC**	**100 VAC**
Normal Operation	198.9 BTU/hr	195.2 BTU/hr	199.6 BTU/hr
Sleep	9.3 BTU/hr	9.2 BTU/hr	9.3 BTU/hr
Off	6.2 BTU/hr	6.1 BTU/hr	6.1 BTU/hr

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

This product is in compliance with US executive order 13221, WOL (wake on LAN) disabled.

Declared Noise Emissions
(in accordance with ISO 7779 and ISO 9296)

System Fan Off	**Sound Power** (LWAd, bels)	**Sound Pressure** (LpAm, decibels)
Idle	4.0	30
Fixed Disk (random writes)	4.0	30
Optical Drive (sequential reads)	5.1	42

Technical Specifications - Environmental Data

Longevity and Upgrading

This product is designed to be upgraded, possibly extending its useful life by several years. Spare parts are available throughout the warranty period and for up to 5 years after the end of production. Upgradeability features contained in the product include:

- AMD socket AM2
- 8 USB ports
- 2 empty low profile PCI slots
- 1 empty low profile PCIe x1 slot
- 1 empty low profile PCIe x16 slot
- 3.5-inch internal drive bay
- 1 3.5-inch external drive bay
- 1 5.25-inch external drive bay
- 4 memory slots
- 1 second Serial port (optional)

Batteries

This product complies with ISO standards:

- EU Directive 91/ 157/ EEC
- EU Directive 93/ 86/ EEC
- EU Directive 98/ 101/ EEC

Batteries used in the product do not contain:

- Mercury greater the 5ppm by weight
- Cadmium greater than 10ppm by weight
- Lead greater than 4000ppm by weight.

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

Additional Information

- This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive – 2002/95/EC.
- This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986
- 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 the IEEE 1680 (EPEAT) standard at the Silver level (see http://www.epeat.net)
- Plastics parts weighing over 25 grams used in the product are marked per ISO 11469 and ISO1043.
- This product contains 0% recycled materials (by wt.)
- This product is 92% recyclable when properly disposed of at end of life.

Packaging Materials	Corrugated Paper	1400 g
	EPE Foam	240 g
	LDPE Bag	10 g

- The EPE foam packaging material is made from 30 to 60% recycled content.
- The corrugated paper packaging materials contains at least 80% recycled content.

Microtower

System Configuration

The configuration used for the Energy Consumption and Declared Noise Emissions data for the Microtower Desktop model is based on a typically configured product.

Technical Specifications - Environmental Data

Energy Consumption			
	115 VAC	**230 VAC**	**100 VAC**
Normal Operation	63.2 W	63.5 W	62.2 W
Sleep (Energy Star low power mode)	2.75 W	2.81 W	2.81 W
Off	2.46 W	2.63 W	2.10 W
Heat Dissipation*	**115 VAC**	**230 VAC**	**100 VAC**
Normal Operation	215.5 BTU/hr	216.5 BTU/hr	212.3 BTU/hr
Sleep	9.4 BTU/hr	9.6 BTU/hr	9.6 BTU/hr
Off	8.4 BTU/hr	9.0 BTU/hr	7.2 BTU/hr

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

This product is in compliance with US executive order 13221, WOL (wake on LAN) disabled.

Declared Noise Emissions
(in accordance with ISO 7779 and ISO 9296)

System Fan Off	**Sound Power** (LWAd, bels)	**Sound Pressure** (LpAm, decibels)
Idle	4.0	30
Fixed Disk (random writes)	4.1	31

Longevity and Upgrading

This product is designed to be upgraded, possibly extending its useful life by several years. Spare parts are available throughout the warranty period and for up to 5 years after the end of production. Upgradeability features contained in the product include:

- AMD socket AM2
- 8 USB ports
- 2 empty full-height PCI slots
- 1 empty full-height PCIe x1 slot
- 1 empty full-height PCIe x16 slot
- 2 internal 3.5-inch drive bays
- 1 external 3.5-inch drive bay
- 2 internal 5.25-inch drive bays
- 4 memory slots
- 1 second Serial port (optional)

Batteries

This product complies with ISO standards:

- EU Directive 91/ 157/ EEC
- EU Directive 93/ 86/ EEC
- EU Directive 98/ 101/ EEC

Batteries used in the product do not contain:

- Mercury greater the 5ppm by weight
- Cadmium greater than 10ppm by weight
- Lead greater than 4000ppm by weight.

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

Additional Information

- This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive – 2002/95/EC.
- This product is in compliance with California Proposition 65 (State of California; Safe

Drinking Water and Toxic Enforcement Act of 1986).
- 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 the IEEE 1680 (EPEAT) standard at the Silver level (see http://www.epeat.net)
- Plastics parts weighing over 25 grams used in the product are marked per ISO 11469 and ISO1043.
- This product contains 0% recycled materials (by wt.)
- This product is 97% recyclable when properly disposed of at end of life.

Packaging Materials	Corrugated Paper	19410 g
	EPE Foam	254 g
	LDPE Bag	63 g

- The EPE foam packaging material is made from 30 to 60% recycled content.
- The corrugated paper packaging materials contains at least 80% recycled content.

Microtower and Small Form Factor

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. From July 1, 2006, RoHS substances will be virtually eliminated (virtually = to levels below legal limits) for all HP electronic products subject to the RoHS Directive, except where it is widely recognized that there is no technically feasible alternative (as indicated by an exemption under the EU RoHS Directive).

Material Usage

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

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

Packaging

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

- 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/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: [link to new HP white paper now in progress] Global Citizenship Report http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html Eco-label certifications http://www.hp.com/hpinfo/globalcitizenship/environment/productdesign/ecolabels.html ISO 14001 certificates: http://www.hp.com/hpinfo/globalcitizenship/environment/operations/envmanagement.html

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