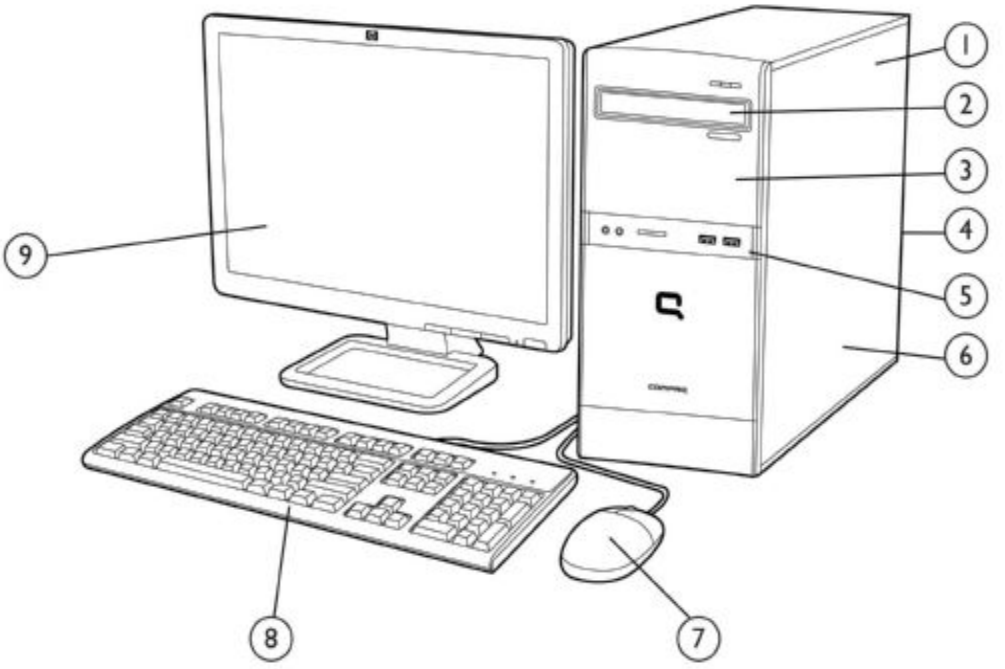
Overview

Windows®. Life without Walls™.
HP recommends Windows 7.

Microtower



1. 300-watt power supply
2. (1) external 5.25-inch bay for optional optical drive
3. (1) internal 3.5-inch bay for hard disk drive
4. Rear I/O includes (4) USB 2.0 ports, RJ-45 network port, VGA video port, audio in/out jacks, microphone jack
5. Front I/O includes (2) USB 2.0 ports, audio in/out jacks, Media Card Reader (select countries/models only)
6. Full height expansion slots include (1) PCI 2.3 slot, (2) PCIe x1 slots, (1) PCIe x16 graphics slot
7. Compaq USB Optical Scroll Mouse
8. Compaq USB Standard Keyboard
9. Monitor (sold separately)

Overview

At A Glance

- Intel® Core™ 2 Quad and Core™ 2 Duo processors, Intel Pentium® processors, or Intel Celeron® processors
- Choice of operating systems:
  - Genuine Windows 7 Professional Edition 32
  - Windows XP Professional (available through downgrade rights from Genuine Windows 7 Professional)
  - Genuine Windows 7 Home Premium Edition 32
  - Genuine Windows 7 Home Basic Edition 32
  - Genuine Windows 7 Starter
  - Genuine Windows Vista Home Basic
  - Novell SUSE Linux Enterprise Desktop 11
  - FreeDOS
- Intel G41 Express Chipset
- Intel I/O Controller Hub 7 (ICH7)
- DDR3 SDRAM PC3-10600 (1066/1333 MHz) non-ECC system memory
- Intel Graphics Media Accelerator 4500
- PCI and PCI Express I/O buses
- Serial ATA controller
- USB 2.0 support
- Realtek RTL8103EL 10/100 Fast Ethernet controller
- Choice of hard drives and optical drives
- Protected by HP Services. Terms and conditions vary by country. Certain restrictions and exclusions apply.

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

Processor and Speed One of the following	**Intel Celeron Processors**	
	Intel Celeron 440 Processor (2.00 GHz, 512-KB L2 cache, 800 MHz FSB)	
	Intel Celeron 450 Processor (2.2 GHz, 512K L2 cache, 800 MHz FSB)	
	Intel Celeron Dual-Core Processors	
	Intel Celeron E1500 Processor (2.2 GHz, 512K L2 cache, 800 MHz FSB)	
	Intel Celeron E1600 Processor (2.4 GHz, 512K L2 cache, 800 MHz FSB)	
	Intel Celeron E3200 Processor (2.4 GHz, 1MB L2 cache, 800 MHz FSB)	
	Intel Celeron E3300 Processor (2.5 GHz, 1MB L2 cache, 800 MHz FSB)	
	Intel Pentium Dual-Core Processors	
	Intel Pentium E5300 Processor (2.6 GHz, 2MB L2 cache, 800 MHz FSB)	
	Intel Pentium E5400 Processor (2.70 GHz, 2MB L2 cache, 800 MHz FSB)	
	Intel Pentium E6300 Processor (2.80 GHz, 2MB L2 cache, 1066 MHz FSB)	
	Intel Pentium E6500 Processor (2.93 GHz, 2MB L2 cache, 1066 MHz FSB)	
	Intel Core 2 Duo Processors	
	Intel Core 2 Duo E7500 Processor (2.93 GHz, 3 MB L2 cache, 1066 MHz FSB)	
	Intel Core 2 Quad Processors	
	Intel Core 2 Quad Q8300 processor (2.50 GHz, 4 MB L2 cache, 1333 MHz FSB)	
	NOTE: Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families.	

Operating Systems and Application Software (availability varies by region)	**Preinstalled**	Genuine Windows 7 Professional Edition 32* Windows XP Professional (available through downgrade rights from Genuine Windows 7 Professional)*+ Genuine Windows 7 Home Premium Edition 32* Genuine Windows 7 Home Basic Edition 32* Genuine Windows 7 Starter* Genuine Windows Vista Home Basic** Novell SUSE Linux Enterprise Desktop 11 FreeDOS
	Supported	Genuine Windows Vista Business 32**
	Certified	Novell SUSE Linux Enterprise Desktop 11

* 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.

** 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.

+ Windows 7 Professional disk may also be included for future upgrade if desired. To qualify for this downgrade an end user must be a business (including governmental or educational institutions) and is expected to order annually at least 25 customer systems with the same custon image.

Microsoft Office 2007 Basic

Microsoft Office 2007 Small Business

Microsoft Office 2007 Professional

HP Power Manager 2.0

Roxio Creator Business 10 HD++

	Corel WinDVD Player++ McAfee Total Protection Anti-Virus with 60 day trial Subscription PDF Complete HP Total Care Advisor ++ Supporting software available with certain optical drive configurations
Hard Drives	160-GB Serial ATA 3.0-Gb/s NCQ, Smart IV (7200 rpm) 250-GB Serial ATA 3.0-Gb/s NCQ, Smart IV (7200 rpm) 320-GB Serial ATA 3.0-Gb/s NCQ, Smart IV (7200 rpm) 500-GB Serial ATA 3.0-Gb/s NCQ, Smart IV (7200 rpm)
System Memory	1-GB DDR3 Synch DRAM PC3-10600 (1066/1333-MHz) Non-ECC (1 x 1GB) 2-GB DDR3 Synch DRAM PC3-10600 (1066/1333-MHz) Non-ECC (2 x 1GB) 2-GB DDR3 Synch DRAM PC3-10600 (1066/1333-MHz) Non-ECC (1 x 2GB) 3-GB DDR3 Synch DRAM PC3-10600 (1066/1333-MHz) Non-ECC (1 x 2GB, 1x1GB) 4-GB DDR3 Synch DRAM PC3-10600 (1066/1333-MHz) Non-ECC (2 x 2GB) **NOTE:** Memory runs at maximum system supported speed of 1066 MHz.
Storage – One or more of the following (see Storage section below)	**Media Reader** (select countries/models only) HP 6-in-1 Media Card Reader (part of front I/O assembly) **Optical Drives (Serial ATA)** SATA DVD-ROM Drive SATA SuperMulti LightScribe DVD Writer Drive
Input Devices	**Keyboard** Compaq USB Standard Keyboard HP Mini USB Keyboard (optional) **Mouse** Compaq USB Optical Scroll Mouse
Audio	Realtek ALC662 High Definition audio codec 3D audio compliant and HD Audio compatible HP USB Thin Powered Speakers
Communication	Integrated Realtek RTL8103EL 10/100 Ethernet Controller Intel Gigabit CT Desktop NIC (optional) LSI PCIe x1 Hi-Speed 56K International SoftModem (optional) HP PCIe Wireless 802.11b/g/n
Graphics	Integrated Intel Graphics Media Accelerator 4500 NVIDIA GeForce G210 HDMI PCIe x16 Graphics Card ATI Radeon HD 4350 HDMI PCIe x16 Graphics Card

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

Miscellaneous	HP FireWire / IEEE 1394 PCI Card (full height)
	HP Serial/Parallel PCI Card (full height)

System Details

Base Unit

- Micro ATX microtower chassis, including power supply and front bezel
- Two (2) drive bays and four expansion slots
- Microsoft operating system CD – optional
- Active type heatsink
- 92 x 92 x 25 mm chassis fan
- System board with Intel G41 Express chipset, Intel I/O Controller Hub 7 (ICH7), Realtek RTL8103EL 10/100 Ethernet controller, Intel GMA graphics, and Realtek audio, (1) full-height PCI 2.3 slot, (2) PCI Express x1 slots, (1) PCI Express x16 slot, (2) DDR3 DIMM memory slots, (4) Serial ATA data connectors
- Product documentation on CD
- HP system restore CD – optional
- Power cord

Slots	**PCI**	One (1) full-height PCI 2.3 slot Two (2) full-height PCI Express x1 slots One (1) full-height PCI Express x16 slot (for graphic cards)
	Memory Expansion	Two (2) DDR3 SDRAM DIMM slots (4 GB maximum memory support)

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.

Bays	**Internal**	One (1) 3.5”
	External	One (1) 5.25”

USB Support

EHCI high-speed USB 2.0 controller

Two (2) front ports; Four (4) rear ports, Two (2) internal ports on system board

Interfaces (Legacy)

One (1) analog VGA video port

One (1) line in; one (1) line out; one (1) mic in

One (1) RJ45 network port

Weight & Dimensions	**Chassis Dimensions** (H x W x D)	15.11 x 6.54 x 16.87 in 384 x 166 x 428 mm
	Packaged Dimensions (L x W x H)	23.03 x 19.61 x 9.65 in 585 x 498 x 245 mm
	System Weight	22.4 lb (10.2 kg)
	Shipping Weight	30.8 lb (14.0 kg)

Technology and Features	**Memory Type**	PC3-10600 DDR3 SDRAM (1066/1333MHz) non-ECC Up to 4-GB maximum system memory supported

NOTE: Memory runs at maximum system supported speed of 1066 MHz. 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.

Hard Drive Interfaces Supported	Serial ATA

System Details

Chassis	**Front Panel**	Power button Power On LED HDD Activity LED
	Cooling Solutions Supported	Power Supply Fan (variable speed) Active heatsink (variable speed) Chassis fan
	Slots Supported	Four (4) full-height expansion slots
	Front I/O	Two (2) USB 2.0 ports
	Rear I/O	Standard Micro ATX I/O connectors, including four (4) USB 2.0 ports
	Drive Bays	One (1) 5-1/4” external One (1) 3-1/2” internal
	Internal Speaker	N/A
	Security	Padlock loop Kensington Lock Support Support for chassis padlocks and cable lock devices
	Power Supply	300-watt ATX Power Supply – PFC/non-PFC with a 115v/230v line switch (varies by country/region)

Unit Environment and Operating Conditions

General Unit Operating Guidelines

- Keep the computer away from excessive moisture, direct moisture and the extremes of heat and cold, to ensure that unit is operated within the specified operating range.
- Leave a 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 (9000 m)

NOTE: Operating temperature is de-rated 1.0 deg C per 1000 ft (300 m) to 10,000 ft (3000 m) 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.

System Details

System Board	**Processor**	Socket T; LGA775 industry standard Micro ATX form factor Supports Intel Core 2 Quad and Core 2 Duo processors, Intel Pentium processors, Intel Celeron processors
	PWM	ISL6312 – 3 Phase
	Chipset	Intel G41 Express Intel I/O Controller Hub 7 (ICH7)
	Super I/O	Fintek F71882FG
	Front Side Bus Frequency	800/1066/1333 MHz
	Memory	DDR3 SDRAM 2 x DIMM slots
	Clock Generator	SLG505YC26481
	Integrated Graphics	Intel Graphics Media Accelerator (GMA)
	Audio	Realtek ALC662 HD Audio compatible codec with two channel audio 3D audio
	LOM	Realtek RTL8103EL 10/100 Fast Ethernet controller
	Storage	Four Serial ATA interfaces (hard drive and optical drive)
	Expansion Slots	1 x PCI 2.3 slot 2 x PCI Express x1 slots 1 x PCI Express x16 slot
	BIOS	SPI EEPROM
	Industrial Standard	PCI 2.3 compliant USB 2.0
	Rear Side I/O Ports	4 x USB 2.0 ports 1 x RJ-45 10/100 port 1 x D-sub 15 pin analog VGA port 3 x audio ports
	On Board I/O Interfaces	1 x ATX power connector 1 x +12V power connector 1 x Front panel connector, Switch, LED (ON/Flash/OFF) 2 x Fan headers for CPU, chassis, with voltage/fan speed control 1 x header to support 2 USB 2.0 ports at front side 1 x header to support 2 front (Headphone/Mic) audio ports 1 x header to support USB media reader
	Board Size	Micro-ATX, PCB Size: 9.6 x 9.6 in (24.38 x 24.38 cm) 4-layer PCB with green color
	Additional Features	• Bootable without keyboard, mouse or monitor • Keyboard/mouse/USB wake up • Support S3, S4 and S5 • ACPI status • Hardware monitor capability • CPU fan speed control

System Details

Network Interface	**Integrated Realtek RTL8103EL 10/100 Fast Ethernet Controller**	**Hardware Highlights**	PCIe x1 interface
		Features	10-Mbps and 100-Mbps operation Crossover detection and auto-correction Wake-on-Lan and remote Wake-up (Wake-on-LAN supported from S3, S4 only. Not supported from S5)
	Intel Gigabit CT Desktop NIC	**Hardware Highlights**	PCI Express interface
		Features	10-Mbps, 100-Mbps and 1000-Mbps operation (Wake-on-LAN supported from S3, S4 only. Not supported from S5)

Wireless

Wireless 802.11b/g/n PCIe Card (full height bracket)

Power Supply

- ATX Power Supply – Passive PFC/non-PFC with a 115v/230v line switch
- Passive Power Factor Correction (PFC) – with line switch set to 230V – No PFC in 115V line switch position
- 90 to 140VAC, or 180 to 264VAC operating voltage range
- 100 to 127VAC, or 200 to 240VAC rated voltage range
- 50-60 Hz rated line frequency
- 47-63 Hz operating line frequency range
- 300 watt maximum rated power
- 80-mm power supply fan – variable speed for optimum acoustics

Power Conservation 'Energy Saver'

- APM 1.2 support
- Screen blanking
- Hard drive 'Idle' mode
- System Idle mode
- ~2 watt power consumption in ES mode – suspend to RAM (S3) (instantly available PC)
- Processor/Cache memory power-down (S3)
- Eup Lot 6 – less than 1W with BIOS setup option (Max power savings)

System Environmental Specs

- Values are subject to change without notification and are for reference only.
- Performance of system, options, and ancillary equipment will vary depending on the system configuration.
- Levels presented do not account for non-HP/Compaq installed hardware.

Ambient Air Temperature	**Operating**	50° to 95°F (10° to 35°C) at sea level with an altitude de-rating of 1.0°C per every 1000 ft (300 m) above sea level to a maximum of 8000 ft (2500 m), no direct sustained sunlight. Maximum rate of change is 77°F/Hr (25°C/Hr). The upper limit may be limited by the type and number of options installed.
	Storage	–22° to 140°F (–30° to 60°C) – Maximum rate of change: 410°F/Hr (210°C/Hr).
Humidity	**Operating**	10% to 90% relative humidity (Rh), 86°F (30°C) maximum wet bulb temperature, non-condensing
	Storage	10% to 95% relative humidity (Rh), 101.66°F (38.7°C) maximum wet bulb temperature, non-condensing
Altitude	**Operating**	0 to 10,000 feet (0 to 3048 meters) – This

		value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 1,000 ft/min (304.8 m/min).
	Non-Operating	0 to 30,000 feet (0 to 9,144 meters) – Maximum allowable altitude change rate is 1200 ft/min (365.76 m/min).
Shock	Listed are the levels of shock the product can withstand with NO damage being incurred. The values represent peak input acceleration during a 2 to 3 ms half-sine shock pulse, 11 ms trapezoidal shock pulse	
	Non-Operating	35G's (Half-sine Shock) 35G's (Trapezoidal Shock)
Vibration	Listed are the levels of vibration the product can withstand with NO damage being incurred. The values represent a flat random vibration input acceleration profile across the given frequency range.	
	Operating	Random vibration at 5Hz@0.00025G²/Hz, 10Hz@0.01G²/Hz, 100Hz@0.01G²/Hz, 300Hz@0.00001G²/Hz 5Hz to 300Hz, (0.25G's nominal).
	Non-Operating	Random vibration at 0.008G²/Hz, 10Hz to 500Hz, (2 Grms nominal).

Service and Support

On-site Warranty[Note 1]: One-year (1-1-1) limited warranty delivers one year of on-site, next business-day[Note 2] service for parts and labor 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. One-year onsite and labor are not available in all countries.

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

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

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

After-Market Options (availability may vary by country)

Communications	**NICs**	
	Intel Gigabit CT Desktop NIC	FH969AA
	Wireless LAN	
	HP Wireless 802.11 b/g/n PCIe Card	FH971AA
	Modems	
	LSI PCIe x1 Hi-Speed 56K International SoftModem	FH970AA
	HP RJ11 Modem Adapter Kit	DC131C
Hard Disk Drives	HP 500-GB SATA 3.0-Gb/s Hard Drive	KW347AA
	HP 320-GB SATA 3.0-Gb/s Hard Drive	FH963AA
	HP 250-GB SATA 3.0-Gb/s Hard Drive	PY278AA
	HP 160-GB SATA 3.0-Gb/s Hard Drive	PY277AA
Input Devices	Compaq Standard USB Keyboard	TBD
	HP Mini USB Keyboard	AS601AA
	Compaq Optical Scroll USB Mouse	TBD
Memory	HP 2-GB PC3-10600 (DDR3-1333 MHz) DIMM	AT024AA
	HP 1-GB PC3-10600 (DDR3-1333 MHz) DIMM	AT023AA
Audio	HP USB Thin Powered Speakers	KK912AA
Graphics	NVIDIA GeForce G210 HDMI PCIe x16 Card	TBD
	ATI Radeon HD 4350 HDMI PCIe x16 Graphics Card	TBD
Optical Drives	HP SATA DVD-ROM Drive	AH047AA
	HP SATA SuperMulti LightScribe DVD Writer Drive	GF343AA
Security	HP Business PC Security Lock Kit	PV606AA
	HP Security Cable with Kensington Lock	PC766A
Miscellaneous Accessories	HP FireWire / IEEE 1394 PCI Card	PA997A
	Belkin USB To Serial Adapter	EM449AA
	HP Serial/Parallel PCI Card	KD062AA
Monitors*	Compaq CQ1859s 18.5-inch LCD Monitor	TBD
	HP LE1851w 18.5-inch Widescreen LCD Monitor	TBD

*This is only representative, not an exhaustive list. All HP monitors are supported that accept a graphics output provided by this PC.

DDR SYNCH DRAM NON-ECC MEMORY

The Intel G41 Express chipset supports non-ECC DDR3 memory up to PC3-10600 (1333 MHz). However, the chipset runs this memory at a maximum clock rate of 1066 MHz. Memory upgrades are accomplished by adding single or dual DIMMs of the same or varied sizes. This chart does not represent all possible memory configurations.

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.

HP recommends dual-channel symmetric configurations for maximum performance.

For best performance, add the same amount of total memory to each channel and do not mix speeds. For dual-channel symmetric performance, the total amount of memory in each channel must be equal. If speeds are mixed, speed will default to the slowest DIMM.

STANDARD MEMORY

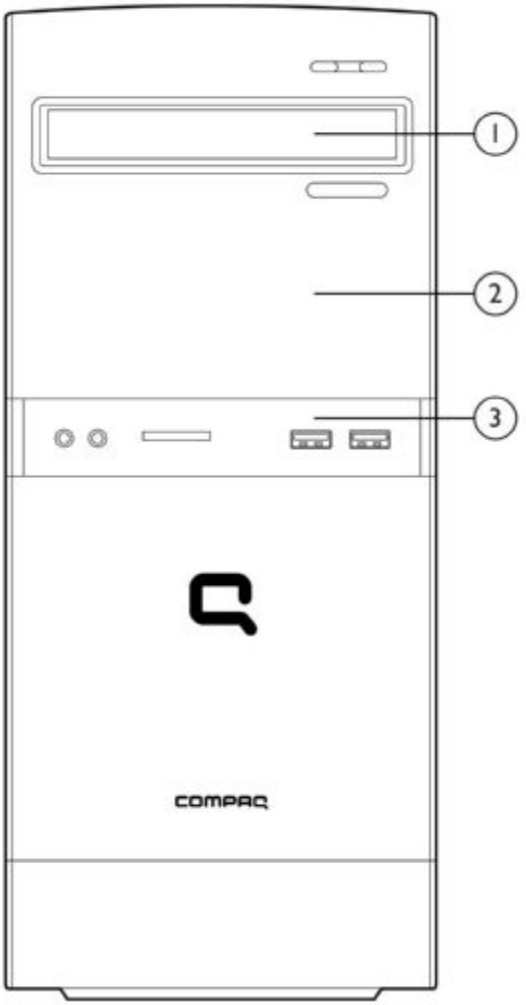
1-GB, 2-GB, 3-GB or 4-GB DDR3 SYNCH DRAM

OPTIONAL MEMORY UPGRADES

Supports up to 4 GB of DDR3 SYNCH DRAM. Not all memory configurations possible are represented below.

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

DIMM Size	Slot 1	Slot 2
1-GB	1-GB	
2-GB (dual-channel symmetric)	1-GB	1-GB
3-GB	1-GB	2-GB
3-GB	2-GB	1-GB
4-GB (dual-channel symmetric)	2-GB	2-GB



Compaq 500B Microtower PC

	Maximum Quantity Supported	Position Supported	Controller
Optical Drive	1	1	SATA
3.5” Serial ATA Hard Drive	1	2	SATA
Media Reader (select countries/models only)	1	3	Internal USB 2.0 port

Technical Specifications - Audio

Integrated Realtek ALC662 Audio	**Type**	Integrated
	HD Audio compatible codec	Yes 5:1 channel
	Sampling	Supports 48/96 KHz
	Audio Jacks	Mic-In
		Line-In
		Line-Out / Headphone Out
	Power Support	Digital: 3.3V
		Analog: 5V
	Other	Meets performance requirements for audio on PC99/2001 systems High-performance DACs with 97dB SNR(A-Weighting) ADCs with 90dB NR(A-Weighting)

Integrated Realtek RTL8103EL 10/100 Fast Ethernet Controller	**Controller**	8101E
	Memory	N/A
	Data rates supported	2.5GHz data rate with X1 link width
	Compliance	IEEE802.3, IEEE 802.3u, IEEE 802.3ab
	Bus architecture	PCIexpress 1.1
	Data transfer mode	Half/Full Duplex Operation
	Hardware certifications	MS NDIS5, IPv4, Ipv6, TCP, UDP
	Power requirement	100mbps (heavy traffic) max. TBD mW
		10mbps (heavy traffic) max. TBD mW
		S3 with Link TBD mW
		Link Down @S0 TBD mW
		Link Down @S3/S5 TBD mW
	Boot ROM support	EEPROM, 1Kb, 2Kb
	Network transfer rate	10/100Mbps over CAT.5
		10Mbps over CAT.3
	Dimensions	9mm x 9mm
	Management capabilities	ACPI rev 2.0, PM rev 1.1, ASPM v1.0a

Intel Gigabit CT Desktop NIC	**Connector**	RJ-45
	Controller	Intel WG82574L Gigabit Ethernet Controller
	Memory	Integrated Dual 48K configurable transmit receive FIFO Buffers
	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 1.0a
	Data path width	X1, 250 MB/s, Bi-directional interface
	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	Aux 3.3V, 3.0 Watts in 1000base-T and 2.0 Watts in 100Base-T
	Boot ROM support	Yes
	Network transfer rate	10BASE-T (half-duplex) 10 Mbps
		10BASE-T (full-duplex) 20 Mbps
		100BASE-TX (half-duplex) 100 Mbps
		100BASE-TX (full-duplex) 200 Mbps
		1000BASE-T (full-duplex) 2000 Mbps (actual rate limited by PCI Bus)
	Environmental	**Operating temperature** 32° to 131°F (0° to 55° C)
		Operating humidity 85% at 131° F (55° C)
	Dimensions	4.75 x 2.25 x 0.8 in (12.1 x 5.7 x 2.0 cm)
	Management capabilities	WOL, PXE, DMI, WFM 2.0

HP Wireless	**Dimensions** (L x H)	3.3 x 4.7 inches (8.5 x 12 cm)

Technical Specifications - Communications

802.11b/g/n PCIe

Weight	0.08 pounds (40 g)		
Controller	Ralink RT2790		
System interface	PCIExpress x1		
Network standard	802.11 b/g/n		
Frequency band	2.400 – 2.497 GHz		
Operating temperature	14° to 149°F, operating (–10° to 65°C, operating)		
Storage temperature	–40° to 176°F, non-operating (–40° to 80°C, non-operating)		
Humidity	10–90% operating 5–95% non-operating		
Operating voltage	3.3V +/- 9% 12V +/- 8%		
Power consumption	Platform/WLAN Mode	Power Consumption	
	Maximum Power Consumption	10 Watts	
	Transmit Only	4 Watts maximum averaged power over 1 second	
	Transmit Packet or Active Scanning	1000 mA peak current for 100 microseconds or longer	
	Receive Only Mode or Idle without IEEE PSP mode enabled	3 Watts maximum averaged over 1 second	
	Idle, with IEEE PSP mode enabled	1.0 Watts maximum averaged over 1 second	
	Transmit Disabled (turned off in software)	50 mW maximum, averaged over 1 second	
	Platform in S3 or S4 (power removed from Low Profile PCI Express Card)	5 mW maximum, averaged over 1 second	
Output power (approximately)	**802.11b modes**	**802.11g modes**	**EWC modes**
	+19 dBm +/- 1.0 dB maximum	+17 dBm +/- 1.0 dB maximum	+17 dBm +/- 1.0 dB maximum (total power in all transmit chains)
Receive sensitivity	**Mode**	**Data rate**	**Sensitivity**
	802.11b	1 Mbps	-94 dBm
	802.11b	11 Mbps	-85 dBm
	802.11g	6 Mbps	-91 dBm
	802.11g	18 Mbps	-85 dBm
	802.11g	48 Mbps	-75 dBm
	802.11g	54 Mbps	-72 dBm
	EWC (2.4 GHz)	6.5 Mbps	-87 dBm
	EWC (2.4 GHz)	54 Mbps	-82 dBm
	EWC (2.4 GHz)	81 Mbps	-78 dBm
	EWC (2.4 GHz)	162 Mbps	-74 dBm
	EWC (2.4 GHz)	270 Mbps	-68 dBm
	EWC (2.4 GHz)	300 Mbps	-64 dBm
Data transfer rate	**Data Rate (MCS)**	**Minimum Throughput**	
	1 Mbps (802.11 b)	700 kbps	
	2 Mbps (802.11 b)	1.4 Mbps	

	5.5 Mbps (802.11 b)	3.5 Mbps
	11 Mbps (802.11 b)	5.9 Mbps
	12 Mbps (802.11 g)	6 Mbps
	18 Mbps (802.11 g)	9 Mbps
	24 Mbps (802.11 g)	12 Mbps
	36 Mbps (802.11 g)	18 Mbps
	48 Mbps (802.11 g)	21 Mbps
	54 Mbps (802.11 g)	22.5 Mbps
	6.5 Mbps (20 MHz EWC)	4.5 Mbps
	13 Mbps (20 MHz EWC)	9 Mbps
	19.5 Mbps (20 MHz EWC)	13.5 Mbps
	26 Mbps (20 MHz EWC)	18 Mbps
	39 Mbps (20 MHz EWC)	27 Mbps
	52 Mbps (20 MHz EWC)	36 Mbps
	58.5 Mbps (20 MHz EWC)	40 Mbps
	65 Mbps (20 MHz EWC)	45 Mbps
	78 Mbps (20 MHz EWC)	54 Mbps
	104 Mbps (20 MHz EWC)	72 Mbps
	117 Mbps (20 MHz EWC)	81 Mbps
	130 Mbps (20 MHz EWC)	91 Mbps
	13.5 Mbps (40 MHz EWC)	8 Mbps
	27 Mbps (40 MHz EWC)	16 Mbps
	40.5 Mbps (40 MHz EWC)	24 Mbps
	54 Mbps (40 MHz EWC)	32 Mbps
	81 Mbps (40 MHz EWC)	48 Mbps
	108 Mbps (40 MHz EWC)	64 Mbps
	121.5 Mbps (40 MHz EWC)	72 Mbps
	135 Mbps (40 MHz EWC)	81 Mbps

Security	• IEEE and WiFi compliant 64 / 128 bit WEP encryption • AES: CCM • 802.1x authentication • WPA: 802.1x. WPA-PSK and TKIP • WPA2 certification • IEEE 802.11i • Cisco Certified Extensions, all versions through V5
Antenna	HP part number 497792-001
Certifications	Wi-Fi certified
Certifications for use by country	United States, Canada, Peru, Taiwan

Technical Specifications - Communications

LSI PCIe x1 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	PCI Bus Power Management Interface Specification (PCI-PM) Revision 1.2, Appendix A. D0, D3hot, and D3cold. Wake on Ring state when in D3cold. If the power management event (PME) feature is enabled in D3cold, a modem can wake the system via WAKE# (WAKEN) or beacon. Meets PCI Express 1.1 standard.
	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
	Power	Requires a 3.3-V auxiliary power rail on PCI express bus Uses only one PCI express load (i.e., one grant/request pair), one shared IRQ, one electrical load
	Chipset	LSI SV92EX - Integrated PCI interface with 3.3-V tolerant buffers and CardBus support
	Dimensions (L X H)	Complies with PCI express 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.
	Other	The SV92EX device is packaged in a 32-pin micro leadless chip carrier (MLCC). The SV92EX is fully compliant with the PCI Express revision 1.1 specification. WHQL approved; ASPM compliant.

Integrated Intel Graphics Media Accelerator (GMA) 4500

3D/2D Controller	Microsoft DirectX® 10 based with support for Pixel Shader 2.0
VGA Controller	Integrated
Bus Type	PCI Express™ x16 (If an external graphics card is installed in a PCI slot, the internal graphics can be enabled or disabled using the system's BIOS setup utility. If an external graphics card is installed in the PCI Express™ slot, the internal graphics cannot be enabled).
RAMDAC	Integrated, 350 MHz
Memory	Graphics memory is shared with system memory. Graphics memory usage varies depending on the amount of system memory installed and system load. 8 MB is pre-allocated for graphics use at system boot time 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. **System memory equal or greater than 512 MB** 8 MB pre-allocated + 248 MB DVMT = max frame buffer of 256 MB
Controller Clock Speed	250 MHz
Overlay Planes	Single overlay support with 5x3 filtering
Maximum Color Depth	32 bits/pixel
Maximum Vertical Refresh Rate	75 Hz at up to 2048 x 1536 analog, 60 Hz at up to 1920 x 1200 for flat panel, 85 Hz at up to 1400 x 1050 for digital CRT/HDTV. Varies with mode and configuration. See table below.
Multi-display Support	Support for one CRT via the motherboard's VGA connector. Support for an additional DVI-D display via the optional DVI ADD2 card. Dual independent displays and dual synchronous (Twin or Clone mode) displays are supported.
Graphics/Video API Support	Microsoft DirectX® 10, DirectXVA®, VMR9, GDI/GDI+; OpenGL® 1.4.

Resolutions Supported[1]

Resolution	**Maximum Refresh Rate** (Hz)		
	Analog Monitor	**Digital Monitor**	
		Flat Panel	**CRT / HDTV**
640 x 480	75	60	85
800 x 600	75	60	85
1024 x 768	75	60	85
1280 x 1024	75	60	85
1400 x 1050	75	60	85
1600 x 1200	75	60	N/A
1920 x 1080	75	60	N/A
1920 x 1200	75	60	N/A
1920 x 1440	75	N/A	N/A
2048 x 1536	75	N/A	N/A

[1] Modes listed are supported with a single active display. The supported mode list for multiple active displays is a subset of this list. Not all modes will support video playback and some supported modes may use software MC (motion compensation) rather than hardware MC. Not all modes will support 3D acceleration depending on the system configuration (e.g., resolution selected, size of frame buffer, number of installed memory modules, etc.).
NOTE: Other resolutions and refresh rates may be selectable but are not recommended.

ATI Radeon HD 4350 HDMI PCIe x16 Graphics Card

Input/Output connectors	DVI VGA and HDMI
Board display options	Supports two displays through any combination of two of the three output ports.

Technical Specifications - Graphics

Board configuration	Specification	Description
	Graphics Chip	RV710D2
	Core clock	600 MHz
	Memory clock	800 MHz
	Frame buffer	256 MB DDR2, 64 bit wide
Bus type	PCI Express (x16 lanes)	
Maximum vertical refresh rate	85 Hz	
Display support	Integrated 400 MHz RAMDAC	
Display max resolution	1920 x 1080 digital, 2048 x 1536 analog	

ATI Radeon HD 4350 DH PCIe x16 Graphics Card display resolutions and refresh rates

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

Resolution	Maximum Refresh Rate (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	N/A
2048x1536	75	N/A
2560x1600	N/A	N/A

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

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
Maximum power	21 W
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 g) Korean (KCC) EMC Immunity: CISPR 24:1997/EN 55024:1998 – Information Technology Equipment – Immunity Characteristics – Limits and Methods of Measurement.

Compaq USB Standard Keyboard	**Physical characteristics**	**Keys**	104, 105, 106, 107, 109 layout (depending upon country)
		Dimensions (L x W x H)	18.14 x 1.07 x 6.02 in (46.1 x 2.74 x15.3 cm)
		Weight	1.3lb(0.6 kg) minimum
	Electrical	**Operating voltage**	+ 5VDC ± 5%
		Power consumption	50-mA maximum (with three LEDs ON)
		ESD	CE level 4, 12.5-kV air discharge
		EMI – RFI	Conforms to FCC rules for a Class B computing device
		Microsoft PC 99 – 2001	Functionally compliant
	Mechanical	**Languages**	40 available
		Keycaps	Silm design
		Switch actuation	60-g nominal peak force with tactile feedback
		Switch life	10 million keystrokes (using Hasco modified tester)
		Switch type	Contamination-resistant switch membrane
		Key-leveling mechanisms	N/A
		Cable length	1.5 m
		Microsoft PC 99 – 2001	Mechanically compliant
		Acoustics	50-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	40g,six surfaces
		Non-operating shock	80g,six surfaces
		Operating vibration	2-g peak acceleration
		Non-operating vibration	4-g peak acceleration
		Drop (out of box)	30 in (76 cm) on carpet, 5-drop sequence
		Drop (in box)	30 in (76 cm) on rigid surface, 10-drop sequence
	Approvals	ULcUL, FCC, CE, TUV/Bauart, VCCI, BSMI, C-Tick, KCC	
	Ergonomic compliance	N/A	

Technical Specifications - Input Devices

HP USB Mini-Keyboard	**Physical characteristics**	**Keys**	87, 88, 89, 91 layout (depending upon country)
		Dimensions (L x W x H)	14.76 x 6.73 x 0.96 in (374.90 x 170.94 x 24.38 mm)
		Weight	2 lb (0.9 kg) minimum
	Electrical	**Operating voltage**	+ 5VDC ±5%
		Power consumption	100-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**	Currently 7 available
		Keycaps	Stepped -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
	Approvals	UL, CSA, FCC, CE Mark, TUV, TUV GS, VCCI, BSMI, C-Tick, MIC, USB-IF	
	Ergonomic compliance	ANSI HFS 100, ISO 9241-4, and TUVGS	

Technical Specifications - Input Devices

Compaq USB 2-Button Optical Scroll Mouse	**Scroll Wheel**	24	
	Maximum Rotation Speed	48 rats/sec	
	Switch Type	wheel	
	Switch Life	Button – 1,000,000 Wheel – 200,000 times	
	Environmental	**Operating Temperature**	32° to 104° F (0° to 40° C)
		Non-operating Temperature	–4° to 140° F (–20° to 60° C)
		Operating Humidity	10% to 90% (non-condensing at ambient)
		Non-operating Humidity	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
	Electrical	**Operating Voltage**	4.35V-5.25V DC
		Power Consumption	<100mA
		MTBF	> 150,000 hrs
		ESD	IEC-61000-4-2 criteria B, Contact discharge: +/- 4kV, Air discharge: +/- 8kV
		EMI-RFI	FCC Class B
		PC98	PC 99 Compliant
	Mechanical	**Resolution**	500±10% DPI
		Tracking Speed	25 cm/sec
		Acceleration	0.5mm
		Switch Actuation	0.6N (60gf)
		Switch Life	Button – 1,000,000 Wheel – 200,000 times
		Cable Length	1.8m
		PC98-99	PC99 compliant
	Regulatory Approvals	ULcUL, FCC, CE, TUV/GS, VCCI, BSMI, C-Tick, MIC	

Serial ATA Hard Drives (7200 rpm)	**160 GB**	**Capacity**	160,041,885,696 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)	3.0 Gb/s	
		Buffer	8 MB	
		Seek Time (typical reads, includes controller overhead, including settling)	**Single Track**	2.0 ms
			Average	11 ms
			Full-Stroke	21 ms
		Rotational Speed	7,200 rpm	
		Logical Blocks	312,581,808	
		Operating Temperature	32° to 140° F (0° to 60° C)	
	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)	3.0 Gb/s	
		Buffer	8 MB	
		Seek Time (typical reads, includes controller overhead, including settling)	**Single Track**	2.0 ms
			Average	11 ms
			Full-Stroke	21 ms
		Rotational Speed	7,200 rpm	
		Logical Blocks	488,397,168	
		Operating Temperature	41° to 131° F (5° to 55° C)	
	320 GB	**Capacity**	320,072,933,376 bytes	
		Height	1 in (2.54 cm)	
		Width	Media diameter: 3.5 in (8.9 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	11 ms
			Full-Stroke	21 ms
		Rotational Speed	7,200 rpm	
		Logical Blocks	625,142,448	
		Operating Temperature	41° to 131° F (5° to 55° C)	
	500 GB	**Capacity**	500,107,862,016 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)	3.0 Gb/s	
Buffer	8 MB	
Seek Time (typical reads, includes controller overhead, including settling)	**Single Track**	2.0 ms
	Average	11 ms
	Full-Stroke	21 ms
Rotational Speed	7,200 rpm	
Logical Blocks	976,773,168	
Operating Temperature	41° to 131° F (5° to 55° C)	

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)	

Technical Specifications - Optical Storage

HP SATA SuperMulti LightScribe DVD Writer 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-RAM**	Up to 12X
		DVD+R	Up to 16X
		DVD+RW	Up to 8X
		DVD+R DL	Up to 8X
		DVD-R DL	Up to 8X
		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 12X
		DVD+R/-R/+RW/ -RW/+R DL /-R DL	Up to 8X
		DVD-ROM 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 times (typical reads, including setting)	**Random**	DVD: < 140 ms (typical), CD: < 125 ms (typical)
		Full Stroke	DVD: < 250 ms (seek), CD: < 210 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 (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)

HP FireWire/IEEE 1394a PCI Card	**Data Transfer Rate**	Burst Data Rate up to 400 Mb/s
	Device Interface Protocol	IEEE-1394a
	Devices Supported	IEEE-1394 compliant devices
	Bus Type	PCI card with brackets for low profile and full height PCI slots.
	Certification Level	FCC Part 15B, cULus 60950, CE Mark EN55022B(1995)/EN55024-1998 STD, Taiwan BSMI CNS13438, Korea MIC
	Ports	Two IEEE 1394 6-Pin Connector (Rear)
	Internal Connectors	One 10-Pin (9 Contacts) Custom Connector
	Temperature – Operating	50° to 131° F (10° to 55° C)
	Temperature – Storage	–22° to 140° F (–30° to 60° C)
	Relative Humidity – Operating	20% to 80%

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:

- IT ECO declaration

System Configuration

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

Energy Consumption	**115 VAC**	**230 VAC**	**100 VAC**
Normal Operation	54.478W	54.023W	53.460W
Sleep (Energy Star low power mode)	1.588W	1.732W	1.524W
Off	1.015W	1.021W	0.964W
Heat Dissipation*	**115 VAC**	**230 VAC**	**100 VAC**
Normal Operation	186 BTU/hr	185 BTU/hr	183 BTU/hr
Sleep	5 BTU/hr	6 BTU/hr	5 BTU/hr
Off	3 BTU/hr	3 BTU/hr	3 BTU/hr

* 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)

System Fan Off	**Sound Power** (LWAd, bels)	**Sound Pressure** (LpAm, decibels)
Idle	3.7	25.4
Fixed Disk (random writes)	3.8	28.1

Batteries

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

Batteries used in the product do not contain:

- Mercury greater the 5ppm by weight
- Cadmium greater than 10ppm by weight

Battery size: CR2032 (coin cell)
Battery type: Li Ion

Additional Information

- This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2002/95/EC.
- This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive – 2002/96/EC.
- This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986).
- Plastics parts weighing over 25 grams used in the product are marked per ISO 11469 and ISO1043.
- This product contains 0% post consumer recycled plastic (by wt.)
- This product is 93.1% recyclable when properly disposed of at end of life.

Packaging Materials

External	
Corrugated	1680 g
Internal	
EPE-Expanded Polyethylene	115 g
Polyethylene low density foam	40 g

- The EPE-Expanded Polyethylene packaging material is made from 0% recycled content.
- The Polyethylene low density foam packaging material is made from 0% recycled content.
- The Corrugated packaging materials contains at least 0% recycled content.

Technical Specifications - Environmental Data

RoHS Compliance

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

Material Usage

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

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

Packaging

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

- 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

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

Technical Specifications - Environmental Data

Environmental Information	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