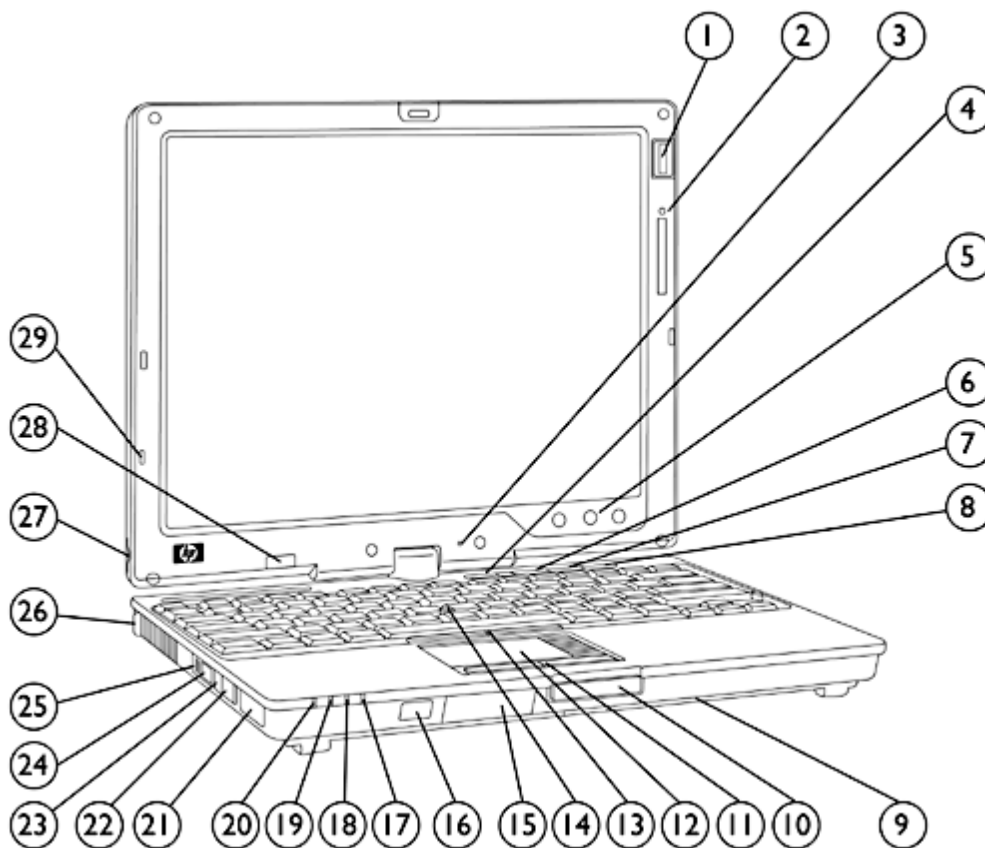


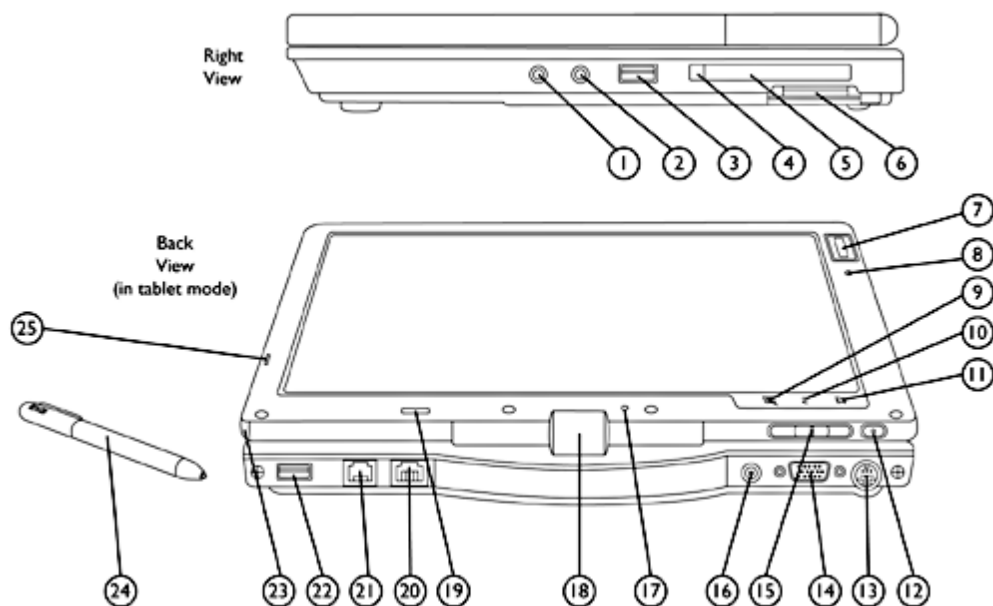
HP recommends Windows Vista™
Business



1. HP Fingerprint Sensor
2. Ambient Light Sensor
3. Microphone
4. Presentation Mode Button
5. Pen Activated Programmable Buttons (see Back View)
6. Volume Mute Button with LED
7. Volume Down Button
8. Volume Up Button
9. Battery Fuel Gauge LEDs (battery compartment not shown)
10. Display Release Button
11. Left/Right Touchpad Buttons
12. Touchpad with Scroll Zone
13. Left/Right Pointstick Buttons
14. Pointstick
15. Bluetooth® Module (optional)

16. Fast Infrared Port
17. Hard Drive Activity LED
18. Battery Charging LED
19. Power/Standby LED
20. Wireless On/Off LED
21. Speaker
22. Power Switch with LED
23. HP Info Center Button
24. USB 2.0 Port
25. Wireless On/Off Button
26. Kensington Lock Slot
27. Pen Slot
28. Pen Eject Button
29. Pen Tether Mount

Overview



1. Headphone Jack
2. Microphone Jack
3. Powered USB 2.0 Port (supports HP External MultiBay II)
4. PC Card Eject Button
5. PC Card Slot
6. Integrated Secure Digital Slot
7. HP Fingerprint Sensor
8. Ambient Light Sensor

Pen Activated Buttons

9. Tablet PC Input Launch
10. Rotate
11. Q Menu

12. Windows Security Button (Ctrl-Alt-Del)
13. S-Video TV Out
14. VGA/External Monitor Connector
15. Jog Dial (scroll up/down, Enter)
16. DC Power Connector
17. Microphone
18. Rotate Hinge
19. Pen Ejector Button
20. RJ-45 Port (NIC)
21. RJ-11 Port (Modem)
22. USB 2.0 Port
23. Pen Slot
24. Digital Eraser Pen
25. Pen Tether Mount

At A Glance

Overview

- Genuine Windows XP Tablet PC Edition 2005
- Intel® Core™ 2 Duo processors or Intel® Core Duo processors
- Professional-grade tablet convertible design starting at 4.6 lb/2.08 kg
- 12.1-inch XGA Wide Viewing Angle Display with Digitizer and protective sparkle-free glass
- Enhanced Outdoor-viewable Display (select models) for 67% more contrast in bright sunlight with no loss of battery life
- Pressure sensitive digital eraser pen with tether and clip (application must support pressure sensitivity)
- Mobile Intel 945GM Express Chipset
- 512-MB DDR2 SDRAM, upgradeable to 4096-MB maximum, dual channel memory support
- Up to 100-GB 5400 rpm, user-removable hard drive
- Intel Graphics Media Accelerator 950
- Optional integrated 802.11 a/b/g or 802.11 b/g wireless LAN modules
- Support for optional Intel Centrino™ mobile technology
- Optional integrated Bluetooth
- Integrated Secure Digital (SD) slot
- Security features include integrated HP Fingerprint Sensor, Trusted Platform Module (TPM) Embedded Security Chip*, and optional integrated Smart Card Reader
- Broadcom NetXtreme Gigabit PCI Express Ethernet Controller
- Enhanced dual pointing devices (touchpad and pointstick) with scroll zone
- Protected by a three-year standard parts and labor warranty – certain restrictions and exclusions apply.

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

Standard Features

Processors

Intel Core Duo Processor T2300E (1.66-GHz, 667-MHz FSB, 2-MB L2 cache)*
Intel Core Duo Processor T2400 (1.83-GHz, 667-MHz FSB, 2-MB-L2 cache)*
Intel Core Duo Processor T2500 (2.0-GHz, 667-MHz FSB, 2-MB-L2 cache)*
Intel Core Duo Processor T2600 (2.16-GHz, 667-MHz FSB, 2-MB-L2 cache)*
Intel Core 2 Duo Processor T5600 (1.83-GHz, 667-MHz FSB, 2-MB L2 cache)*
Intel Core 2 Duo Processor T7200 (2.0-GHz, 667-MHz FSB, 4-MB L2 cache)*
Intel Core 2 Duo Processor T7400 (2.16-GHz, 667-MHz FSB, 4-MB L2 cache)*

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

NOTE: Processor speed denotes maximum performance mode; processors will run at approximately 1 GHz in battery optimization mode.

Operating System

Preinstalled

Genuine Windows XP Tablet PC Edition 2005
FreeDOS

Supported

Genuine Windows 2000 (drivers downloadable from <http://www.hp.com>)

Certified

SUSE Linux Enterprise Desktop 10 for x86
Novell Linux Desktop 9 SP3 for x86

Windows Vista Capable

Not all Windows Vista features are available for use on all Windows Vista Capable PCs. All Windows Vista Capable PCs will run the core experiences of Windows Vista, such as innovations in organizing and finding information, security, and reliability. Some features available in premium editions of Windows Vista -- like the new Windows Aero™ user interface -- require advanced or additional hardware.
Check <http://www.windowsvista.com/getready> for details.

Chipset

Mobile Intel 945GM Express Chipset

Graphics

Intel Graphics Media Accelerator 950, with up to 224 MB of shared system* memory
Microsoft DirectX 9 capable

*Requires 1024-MB minimum standard memory configuration

Standard Features

Display	Internal	12.1-inch XGA Display with Digitizer (1024 x 768 resolution) 12.1-inch XGA Wide Viewing Angle Display with Digitizer (1024 x 768 resolution) Enhanced Outdoor-viewable Display* (select models) Ambient light sensor
	External	Up to 32-bit per pixel color depth VGA port supports resolutions up to 2048 x 1536 at 75 Hz, and lower resolutions at up to 100 Hz DVI port in optional HP Docking Station (sold separately) supports resolutions up to 1600 x 1200 at both full and reduced blanking, and 1920 x 1200 at reduced blanking NOTE: Resolutions are dependent upon monitor capability, and resolution and color depth settings.

* The Enhanced Outdoor-viewable Display is a 12.1-inch XGA Wide Viewing Angle Display with Digitizer that provides enhanced viewable improvements like:

- 12% increase in front of screen display brightness with no loss of battery life
- Up to 235% increase in contrast, resulting in better viewability, at wide viewing angles
- 25% less specular reflections in bright light
- 91% less diffuse reflections in bright light
- 67% more contrast in bright sunlight

NOTE: This data is based on typical measurements by the display manufacturer. Actual measurements may vary from panel to panel.

Memory	Standard	512-MB, 1024-MB or 2048-MB 533-MHz or 667-MHz DDR2 SDRAM; two SODIMM slots supporting dual channel memory
	Maximum	Upgradeable to 4096-MB maximum (2048-MB SODIMM in slots 1 and 2)
	Dual-channel	Maximized dual-channel performance requires SODIMMs of the same size and speed in both memory slots.

NOTE: Due to the non-industry standard nature of some third-party memory modules, we recommend HP branded memory to ensure compatibility. If you mix memory speeds, the system will perform at the lower memory speed. Above 3-GB, all memory may not be available due to system resource requirements.

Communications	Broadcom NetXtreme Gigabit PCI Express Ethernet Controller (10/100/1000 NIC)* with HP Smart Power NIC technology 56K modem** with digital line guard * The term "10/100/1000" or "Gigabit" Ethernet indicates compliance with IEEE standard 802.3ab for Gigabit Ethernet, and does not connote actual operating speed of 1 Gb/s. For high-speed transmission, connection to a Gigabit Ethernet server and network infrastructure is required. ** Designed for downloads from 56K modem compliant sources. Maximum achievable download transmission rates currently do not reach 56 KB/s, and will vary with line conditions. Modem availability is subject to country regulatory approval.
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Standard Features

Wireless Devices

Support for a broad range of secure, integrated wireless LAN options featuring support for the latest industry standards. Integrated Bluetooth is also an option (factory configurable only) and can be combined with any one of the supported wireless LAN options.

All integrated wireless LAN options	Wi-Fi certified Cisco Compatible Extensions support (Version 4.0) Wired Equivalent Privacy (WEP) support up to 128-bit keys Wi-Fi Protected Access (WPA) and WPA2 support 802.1x authentication support, including EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, and LEAP Advanced Encryption Standard (AES) support WiFi Certified for WPA2, WMM Dual antennas integrated in the display enclosure
Broadcom 4311BG WiFi Adapter	Integrated support for 802.11 b and g Up to 54-mbps data rate
Broadcom 4311ABG WiFi Adapter	Integrated support for 802.11a, b and g Up to 54-mbps data rate
Intel PRO/Wireless 3945ABG Network Connection	Intel Centrino mobile technology Integrated support for 802.11a, b and g Up to 54-mbps data rate
HP Integrated Module with Bluetooth 2.0 Wireless Technology	Bluetooth Specification v2.0 compliant Works with a wide range of Bluetooth devices

Keyboard

The 101/102-key compatible keyboard features an industry standard, full-pitch key layout with desktop keyboard features, such as the isolated inverted-T cursor control keys, editing keys, both left and right control and alt keys, and 12 function keys. US and International key layouts are available. Other features include an integrated numeric keypad, hotkeys for instant access to power conservation, brightness, and other features, 19-mm x 19-mm key pitch (center-to-center spacing), 2.5-mm stroke, comfort-dished keycaps, and bright key legends for improved visibility in low light conditions.

One-Touch Productivity Buttons

Provide one-touch access to the following features: HP Info Center, Wireless On/Off, Presentation Mode, Volume Up, Volume Down, and Volume Mute.

Command Control Buttons

3 pen activated programmable buttons:

- Q Menu
- Rotate
- Tablet PC Input Launch

2 additional specific function buttons:

- Jog Dial (scroll up/down, Enter)
- Windows Security Button (Ctrl-Alt-Del)

Pointing Devices

Dual Pointing devices – Touchpad with scroll zone and Pointstick
Both devices have two soft-touch buttons.
Digital Eraser Pen with tether and clip (one-year warranty)

Standard Features

Expansion Card Slots	One Type I/II PC Card slot	Supports 32-bit CardBus and 16-bit PC Cards
Media Slots	One integrated Secure Digital slot	Supports SD (Secure Digital) and MMC (MultiMedia Card) media
Storage	Hard Drives	60-, 80-, 100-, 120-GB 5400 rpm SMART SATA
	NOTE: These hard drives are customer removable and will withstand multiple insertion/removal cycles. Up to 8 GB is reserved for the system recovery software.	
	HP Mobile Data Protection System 3D	Hard drive is mounted directly to the notebook frame, reducing the transmission of shock to the hard drive. Uses three-axis digital motion detection with intelligent sensitivity to help protect the hard drive during normal use from shock and vibration.
	Optical Drives	Via optional HP External MultiBay II (9.5-mm) or HP Advanced Docking Station Drive options include: DVD-ROM MultiBay II Drive DVD/CD-RW Combo MultiBay II Drive DVD+/-RW SuperMulti with Double Layer MultiBay II Drive
Second Hard Drive	Via optional HP External MultiBay II (9.5-mm) or HP Advanced Docking Station Drive options include: 80-GB 5400 rpm MultiBay II Hard Drive	
Interfaces	PC Card Slot	One – Type I/II
	Smart Card Reader	Optional (replaces PC card slot)
	External Monitor	One – VGA
	External Microphone	One
	Headphone/Line out	One
	Power Connector	One
	RJ-11 (Modem)	One
	RJ-45 (NIC)	One
	Ambient Light Sensor	One
	Fast Infrared Port	One (4-Mb/s support) IrDA 4-MB compliant; IR performance will vary depending on performance of IR peripherals and application used.
	S-Video TV Out	One (support for NTSC/PAL)
	USB 2.0	Three (including one powered USB 2.0 port to support HP External MultiBay II)
	Docking Connector	One
	Accessory Battery Connector	One
LED Status Indicators	Ten	

Standard Features

Audio	ADI High Definition CODEC Integrated 16-bit Sound Blaster Pro compatible audio Integrated speaker Integrated directional microphone External volume up, volume down, and mute buttons Stereo headphone/line out Stereo microphone in
Software	<p>Preinstalled Software for Microsoft Windows XP Tablet PC Edition</p> <ul style="list-style-type: none">Adobe Acrobat ReaderHP Backup and Recovery ManagerHP Help and SupportHP Mobile Print DriverHP ProtectTools Security Manager:<ul style="list-style-type: none">BIOS Configuration for HP ProtectToolsEmbedded Security for HP ProtectToolsCredential Manager for HP ProtectToolsHP Quick Launch ButtonsHP Qmenu SoftwareMicrosoft Reader eBooksTablet PC TourHP Wireless AssistantHP OpenView Radia Management SolutionsSonic Digital Media Plus:<ul style="list-style-type: none">RecordNow! (for optional DVD+/-RW and DVD/CDRW drives)MyDVD (DVD Authoring for optional DVD+/-RW drives)Synaptics Touchpad DriverSymantec Norton Internet Security with complimentary 60-day live updateIntervideo WinDVD – DVD Player (for optional DVD+/-RW, DVD/CDRW and DVD drives)Microsoft Office 2003*Microsoft OneNote* <p><i>* Available on select models only.</i></p> <p>Additional software available from the Web</p> <ul style="list-style-type: none">HP Client Manager SoftwareSmart Card Security for HP ProtectToolsDevice Access Manager for HP ProtectTools
HP OpenView Radia Management Solutions	HP OpenView Radia Management Solutions automate the management of software such as operating systems, software, software updates, content, and configuration settings to ensure that each computer is maintained in the correct configuration.
Client Management Interface	HP Client Management Interface is based on industry standards that include Microsoft Windows® Management Interface (MS WMI), Web Based Enterprise Management (WBEM), System Management BIOS (SMBIOS), and Advanced Configuration and Power Interface (ACPI). HP CMI is a foundation technology utilized in HP Client Management Solutions.

Standard Features

HP Backup and Recovery Manager Each unit is shipped with HP Backup and Recovery Manager. HP Backup and Recovery Manager can provide data and system file protection for HP business PCs to enable fast recovery if the system becomes corrupted or if important information is accidentally deleted. HP Backup and Recovery Manager can perform scheduled or manual backups of the entire drive or individual files and folders. Up to 8 GB of the hard drive is reserved for the system recovery software. HP Backup and Recovery Manager can also create software recovery CDs or DVDs (requires optional hardware).

SMBIOS Version 2.4 System Management BIOS, previously known as DMI BIOS, is used to store system management information.

HP ProtectTools Security Manager HP ProtectTools Security Manager is the security platform for business notebooks and desktops. The HP ProtectTools Security Manager is an extensible client security console that delivers enhanced security capabilities through add-on software modules. Modules currently available or planned are:

- Smart Card Security for HP ProtectTools
- BIOS Configuration for HP ProtectTools
- Embedded Security for HP ProtectTools
- Credential Manager for HP ProtectTools
- Device Access Manager for HP ProtectTools

Security	Standard Features	<p>HP Protect Tools Security Manager Configuration Control Hardware Memory Change Alert HP Fingerprint Sensor Ownership Tag Setup Password Power-On Password DriveLock TPM Enhanced DriveLock* HP Disk Sanitizer Enabled for PC Smart Card Kensington Lock Slot Support for Computrace / LoJack for Laptops (must be purchased separately)</p> <p>TPM 1.2 Embedded Security Chip*</p>	<p>Designed to the Trusted Computing Group (TCG) standard Microsoft Crypto API and PKCS#11 software interface support RSA Secured Partner program certification *NOTE: Full functionality of the TPM Embedded Security Chip is available only with Windows XP. TPM module disabled where use is restricted by law; for example, Russia.</p>
	Optional Features	<p>Smart Card Reader (replaces PC card slot)</p>	<p>Compatible with ISO 7816 compliant Smart Cards PC/SC interface support</p>
<p>For more information on HP security solutions refer to http://www.hp.com/go/security.</p>			

Standard Features

Power Supply External 65-watt HP Smart AC adapter, 6-foot (1.8-meter) power cord included.
Total length including External AC adapter is 12 feet (3.66 meter).
HP Fast Charge technology*

*Fast Charge Technology recharges your battery up to 90% within 90 minutes when the system is off. Fast Charge Technology does not apply to 12-cell Ultra Capacity batteries.

Battery	Primary Battery	6-cell high capacity Lithium-Ion (55Wh) – one-year warranty
	Optional 8-Cell HP Extended Life Battery	8-cell high capacity Lithium-Ion (52Wh)
	Optional HP 12-Cell Ultra-Capacity Battery	12-cell Ultra Capacity Lithium-Ion (95Wh)

Battery Life	Primary Battery	Up to 5 hours and 30 minutes
	Primary Battery and optional 8-cell HP Extended Life Battery	Up to 12 hours and 30 minutes
	Primary Battery and optional 12-cell Ultra-Capacity Battery	Up to 16 hours

NOTE: Battery life will vary depending on the product configuration, product model, applications loaded on the product, power management settings of the product, and the product features used by the customer. As with all batteries, the maximum capacity of this battery will decrease with time and usage.

System Standby Time Up to 1 week

Power Conservation Supports enhanced Intel SpeedStep technology with Intel Core Duo processors (allows Battery Optimized Mode, Maximum Performance Mode, or Automatic mode)
Intel Display Power Saving technology
HP power down NIC technology
Hibernation
Standby
ACPI compliance

MultiBay II Devices MultiBay II devices used in the optional HP External MultiBay II or the optional HP Advanced Docking Station may be swapped with the system powered on (hot) under Microsoft Windows XP Tablet PC Edition 2005 (except MultiBay II secondary hard drive).

Standard Features

Docking

HP Docking Station
HP Advanced Docking Station

HP's shared docking solutions provide simple and convenient port replication and cable management. Features include Gigabit NIC pass through, modem pass through, legacy parallel and serial ports, DVI, S-video TV out, USB 2.0 ports, integrated security mechanism*, integrated MultiBay II and ExpressCard** slots. These docking solutions are compatible across multiple Business Notebook platforms enabling a lower total cost of ownership.

* HP/Kensington Cable Lock required (purchased separately)

** HP Advanced Docking Station only

Service and Support

HP Services includes a three-year standard parts and labor warranty (Digital Eraser Pen, Primary Battery – one-year warranty), pick-up or carry-in, and toll-free 7 x 24 hardware technical phone support. On-site service and warranty upgrades are also available.

NOTE: Certain restrictions and exclusions apply. Consult the HP Customer Support Center for details.
<http://h20000.www2.hp.com/bizsupport/TechSupport/ProductRoot.jsp>.

Select Model(s)

tc4400
RA296AW#ABA

Processor	Intel Core Duo Processor T2500 (2.0-GHz, 667 FSB, 2MB-L2 cache)*
Operating System	Genuine Windows XP Tablet Edition
System Memory	512 MB 667-MHz DDR2 (1 DIMM)
Hard Drive	60-GB 5400 rpm SATA
Display	12.1-inch TFT XGA wide-viewing angle display with Digitizer (1024 x 768 resolution)
Graphics	Intel Graphics Media Accelerator 950, up to 224-MB shared system memory
Audio	ADI High Definition CODEC line out/headphone and microphone jacks integrated microphone
Communications	56K V.92 modem NetXtreme Gigabit Ethernet Controller (10/100/1000 NIC)
Integrated Wireless	Intel PRO/Wireless 3945ABG Network Connection Bluetooth
Integrated Security	TPM 1.2 Embedded Security Chip** HP Biometric Fingerprint Sensor
Pointing Device	Dual pointing devices (both Pointstick and Touchpad) Digital pen with eraser, tether, and clip
Battery	6-cell (55 WHr) Lithium-Ion
Power	External 65W Smart adapter
Warranty	3/3/0

Standard Features

tc4400 RC451AA#ABA	Processor	Intel Core Duo Processor T2500 (2.0-GHz, 667 FSB, 2MB-L2 cache)*
	Operating System	Genuine Windows XP Tablet Edition with Microsoft OneNote
	System Memory	1024 MB 667-MHz DDR2 (2 DIMM)
	Hard Drive	80-GB 5400 rpm SATA
	Display	Enhanced outdoor-viewable 12.1-inch color TFT XGA wide viewing angle display with digitizer (1024 x 768 resolution)
	Graphics	Intel Graphics Media Accelerator 950, up to 224-MB shared system memory
	Audio	ADI High Definition CODEC line out/headphone and microphone jacks integrated microphone
	Communications	56K V.92 modem NetXtreme Gigabit Ethernet Controller (10/100/1000 NIC)
	Integrated Wireless	Intel PRO/Wireless 3945ABG Network Connection Bluetooth
	Integrated Security	TPM 1.2 Embedded Security Chip** HP Fingerprint Sensor
	Pointing Device	Dual pointing devices (both Pointstick and Touchpad) Digital pen with eraser, tether, and clip
	Battery	6-cell (55 WHr) Lithium-Ion
	Power	External 65W Smart adapter
	Warranty	3/3/0

tc4400 RA301AT#ABA	Processor	Intel Core Duo Processor T2400 (1.83-GHz, 667 FSB, 2MB-L2 cache)*
	Operating System	Genuine Windows XP Tablet Edition with Microsoft OneNote
	System Memory	512 MB 667-MHz DDR2 (1 DIMM)
	Hard Drive	60-GB 5400 rpm SATA
	Display	12.1-inch TFT XGA wide-viewing angle display with Digitizer (1024 x 768 resolution)
	Graphics	Intel Graphics Media Accelerator 950, up to 224-MB shared system memory
	Audio	ADI High Definition CODEC line out/headphone and microphone jacks integrated microphone
	Communications	56K V.92 modem NetXtreme Gigabit Ethernet Controller (10/100/1000 NIC)
	Integrated Wireless	Intel PRO/Wireless 3945ABG Network Connection
	Integrated Security	TPM 1.2 Embedded Security Chip** HP Fingerprint Sensor
	Pointing Device	Dual pointing devices (both Pointstick and Touchpad) Digital pen with eraser, tether, and clip
	Battery	6-cell (55 WHr) Lithium-Ion
	Power	External 65W Smart adapter
	Warranty	3/3/0

Standard Features

tc4400 RA302AT#ABA	Processor	Intel Core Duo Processor T2400 (1.83-GHz, 667 FSB, 2MB-L2 cache)*
	Operating System	Genuine Windows XP Tablet Edition with Microsoft OneNote
	System Memory	1024 MB 667-MHz DDR2 (2 DIMM)
	Hard Drive	60-GB 5400 rpm SATA
	Display	Enhanced outdoor-viewable 12.1-inch color TFT XGA wide viewing angle display with digitizer (1024 x 768 resolution)
	Graphics	Intel Graphics Media Accelerator 950, up to 224-MB shared system memory
	Audio	ADI High Definition CODEC line out/headphone and microphone jacks integrated microphone
	Communications	56K V.92 modem NetXtreme Gigabit Ethernet Controller (10/100/1000 NIC)
	Integrated Wireless	Intel PRO/Wireless 3945ABG Network Connection
	Integrated Security	TPM 1.2 Embedded Security Chip** HP Fingerprint Sensor
	Pointing Device	Dual pointing devices (both Pointstick and Touchpad) Digital pen with eraser, tether, and clip
	Battery	6-cell (55 WHr) Lithium-Ion
	Power	External 65W Smart adapter
	Warranty	3/3/0

tc4400 RL875AW#ABA	Processor	Intel Core 2 Duo Processor T7200 (2.0-GHz, 667-MHz FSB, 4-MB L2 cache)*
	Operating System	Genuine Windows XP Tablet Edition
	System Memory	1024 MB 667-MHz DDR2 (1 DIMM)
	Hard Drive	80-GB 5400 rpm SATA
	Display	12.1-inch TFT XGA wide-viewing angle display with Digitizer (1024 x 768 resolution)
	Graphics	Intel Graphics Media Accelerator 950, up to 224-MB shared system memory
	Audio	ADI High Definition CODEC line out/headphone and microphone jacks integrated microphone
	Communications	56K V.92 modem NetXtreme Gigabit Ethernet Controller (10/100/1000 NIC)
	Integrated Wireless	Intel PRO/Wireless 3945ABG Network Connection** Bluetooth
	Integrated Security	TPM 1.2 Embedded Security Chip HP Fingerprint Sensor
	Pointing Device	Dual pointing devices (both Pointstick and Touchpad) Digital pen with eraser, tether, and clip
	Battery	6-cell (55 WHr) Lithium-Ion
	Power	External 65W Smart adapter
	Warranty	3/3/0

Standard Features

tc4400 EN358UA#ABA	Processor	Intel Core 2 Duo Processor T7200 (2.0-GHz, 667-MHz FSB, 4-MB L2 cache)*
	Operating System	Genuine Windows XP Tablet Edition with Microsoft OneNote
	System Memory	1024 MB 667-MHz DDR2 (1 DIMM)
	Hard Drive	80-GB 5400 rpm SATA
	Display	Enhanced outdoor-viewable 12.1-inch color TFT XGA wide viewing angle display with digitizer (1024 x 768 resolution)
	Graphics	Intel Graphics Media Accelerator 950, up to 224-MB shared system memory
	Audio	ADI High Definition CODEC line out/headphone and microphone jacks integrated microphone
	Communications	56K V.92 modem NetXtreme Gigabit Ethernet Controller (10/100/1000 NIC)
	Integrated Wireless	Intel PRO/Wireless 3945ABG Network Connection Bluetooth
	Integrated Security	TPM 1.2 Embedded Security Chip** HP Fingerprint Sensor
	Pointing Device	Dual pointing devices (both Pointstick and Touchpad) Digital pen with eraser, tether, and clip
	Battery	6-cell (55 WHr) Lithium-Ion
	Power	External 65W Smart adapter
	Warranty	3/3/0

tc4400 EN356UT#ABA	Processor	Intel Core 2 Duo Processor T5600 (1.83-GHz, 667-MHz FSB, 2-MB L2 cache)*
	Operating System	Genuine Windows XP Tablet Edition with Microsoft OneNote
	System Memory	512 MB 667-MHz DDR2 (1 DIMM)
	Hard Drive	80-GB 5400 rpm SATA
	Display	12.1-inch TFT XGA wide-viewing angle display with Digitizer (1024 x 768 resolution)
	Graphics	Intel Graphics Media Accelerator 950, up to 224-MB shared system memory
	Audio	ADI High Definition CODEC line out/headphone and microphone jacks integrated microphone
	Communications	56K V.92 modem NetXtreme Gigabit Ethernet Controller (10/100/1000 NIC)
	Integrated Wireless	Intel PRO/Wireless 3945ABG Network Connection
	Integrated Security	TPM 1.2 Embedded Security Chip** HP Fingerprint Sensor
	Pointing Device	Dual pointing devices (both Pointstick and Touchpad) Digital pen with eraser, tether, and clip
	Battery	6-cell (55 WHr) Lithium-Ion
	Power	External 65W Smart adapter
	Warranty	3/3/0

Standard Features

tc4400 EN357UT#ABA	Processor	Intel Core 2 Duo Processor T5600 (1.83-GHz, 667-MHz FSB, 2-MB L2 cache)*
	Operating System	Genuine Windows XP Tablet Edition with Microsoft OneNote
	System Memory	1024 MB 667-MHz DDR2 (2 DIMM)
	Hard Drive	80-GB 5400 rpm SATA
	Display	Enhanced outdoor-viewable 12.1-inch color TFT XGA wide viewing angle display with digitizer (1024 x 768 resolution)
	Graphics	Intel Graphics Media Accelerator 950, up to 224-MB shared system memory
	Audio	ADI High Definition CODEC line out/headphone and microphone jacks integrated microphone
	Communications	56K V.92 modem NetXtreme Gigabit Ethernet Controller (10/100/1000 NIC)
	Integrated Wireless	Intel PRO/Wireless 3945ABG Network Connection
	Integrated Security	TPM 1.2 Embedded Security Chip** HP Fingerprint Sensor
	Pointing Device	Dual pointing devices (both Pointstick and Touchpad) Digital pen with eraser, tether, and clip
	Battery	6-cell (55 WHr) Lithium-Ion
	Power	External 65W Smart adapter
	Warranty	3/3/0

tc4400 RM164UT#ABA	Processor	Intel Core 2 Duo Processor T7200 (2.0-GHz, 667-MHz FSB, 4-MB L2 cache)*
	Operating System	Genuine Windows XP Tablet Edition with Microsoft OneNote
	System Memory	2048 MB 667-MHz DDR2 (2 DIMM)
	Hard Drive	120-GB 5400 rpm SATA
	Display	12.1-inch TFT XGA display with Digitizer (1024 x 768 resolution)
	Graphics	Intel Graphics Media Accelerator 950, up to 224-MB shared system memory
	Audio	ADI High Definition CODEC line out/headphone and microphone jacks integrated microphone
	Communications	56K V.92 modem NetXtreme Gigabit Ethernet Controller (10/100/1000 NIC)
	Integrated Wireless	Intel PRO/Wireless 3945ABG Network Connection Bluetooth
	Integrated Security	TPM 1.2 Embedded Security Chip** HP Fingerprint Sensor
	Pointing Device	Dual pointing devices (both Pointstick and Touchpad) Digital pen with eraser, tether, and clip
	Battery	6-cell (55 WHr) Lithium-Ion
	Power	External 65W Smart adapter
	Warranty	3/3/0

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

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

Options

Memory	256-MB 533-MHz DDR2 SDRAM	PE830A
	512-MB 533-MHz DDR2 SDRAM	PE831A
	1024-MB 533-MHz DDR2 SDRAM	PE832A
	512-MB 667-MHz DDR2 SDRAM	EM993AA
	1024-MB 667-MHz DDR2 SDRAM	EM994AA
	2048-MB 667-MHz DDR2 SDRAM	EM995AA

MultiBay II Storage (9.5-mm) NOTE: Requires HP Advanced Docking Station or HP External MultiBay II	DVD-ROM MultiBay II Drive	PA849A
	Combo DVD/CD-RW MultiBay II Drive	PA850A
	DVD+/-RW SuperMulti with Double Layer MultiBay II Drive	PA851A
	80-GB 5400 rpm MultiBay II Hard Drive	PH357A

Other Storage	80-GB 5400 rpm Primary SATA Hard Drive	ET354AA
	120-GB 5400 rpm Primary SATA Hard Drive	RT080AA
	HP USB Digital Drive + 256-MB Secure Digital Card	DL702AA
	HP USB Diskette Drive	DC361B

Communications	Intel PRO/Wireless 3945ABG 802.11 a/b/g WLAN option kit	EX150AA#ABA
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Expansion Solutions	HP Docking Station	EN488AA#ABA
	HP Advanced Docking Station	EN489AA#ABA
	HP 3-in-1 NAS Docking Station	EM537AA#ABA
	HP Monitor Stand	PA507A
	HP Adjustable Notebook Stand	PA508A
	HP External MultiBay II (9.5-mm)	PA509A#ABA
	HP 4-port USB 2.0 Hub	DG954A

Power	HP 2-bay Battery Charging Station	DT533A#ABA
	HP 10-bay Battery Charging Station	DT534A#ABA
	Battery Adapter kit #1	PK402A
	65W Smart AC Adapter	ED494AA#ABA
	90W Smart AC Adapter	ED495AA#ABA
	90W Smart Auto Adapter	ED493AA
	65W Air/Auto/AC Combo Adapter	ED993AA#ABA
	Primary 6-cell Battery Pack	PB991A
	HP 8-cell Extended Life Battery	PB993A
	HP 12-cell Ultra-Capacity Battery	EJ092AA

Options

Carrying Cases	HP Entry Value Case	DL617A
	HP Top Load Nylon	DC915A
	HP Executive Leather Case	PA847A
	HP Sport Backpack	DG102A
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Security	HP PCMCIA Smart Card Reader	DC350B
	HP/Kensington Cable Lock	PC766A
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Input/Output Devices	Digital Eraser Pen	PL800A
	USB/PS2 Keyboard	DC852A#ABA
	USB/PS2 Optical Mouse	DC369A
	HP USB Optical Travel Mouse	F2100A

Memory

Up to 4096-MB* of 533-MHz or 667-MHz DDR2 SDRAM
 Two DIMM slots
 DIMM sizes supported: 256-MB, 512-MB, 1024-MB or 2048-MB

- Standard Memory**
- 512-MB (512-MB x 1 or 256-MB x 2)
 - 1024-MB (1024-MB x 1 or 512-MB x 2)
 - 2048-MB (2048-MB x 1 or 1024-MB x 2)
 - 4096-MB* (2048-MB x 2)

Optional Memory Upgrades Support for up to 4096-MB of memory is available (with the installation of optional DDR2 SDRAM memory kits). Both memory slots are user accessible. Please refer to the Hardware and Software Guide for installation procedures.

Up to	Slot 1	Slot 2
768-MB	512-MB	256-MB
1024-MB	1024-MB	Empty
1024-MB	512-MB	512-MB
1280-MB	1024-MB	256-MB
1536-MB	1024-MB	512-MB
2048-MB	1024-MB	1024-MB
4096-MB*	2048-MB	2048-MB

* Above 3-GB, all memory may not be available due to system resource requirements.

NOTE: This chart does not represent all possible memory configurations. Due to the non-industry standard nature of some third-party memory modules, we strongly recommend using only HP branded memory modules to ensure compatibility. If you mix memory speeds, the system will perform at the lower memory speed.

Memory Upgrades	256-MB 533-MHz DDR2 SDRAM	PE830A
	512-MB 533-MHz DDR2 SDRAM	PE831A
	1024-MB 533-MHz DDR2 SDRAM	PE832A
	512-MB 667-MHz DDR2 SDRAM	EM993AA
	1024-MB 667-MHz DDR2 SDRAM	EM994AA
	2048-MB 667-MHz DDR2 SDRAM	EM995AA

Storage

Removable Media Drive Support

	Quantity Supported	Drive Bay
DVD+/-RW SuperMulti with Double Layer MultiBay II Drive	One	Optional HP External MultiBay II or HP Advanced Docking Station
DVD/CD-RW Combo MultiBay II Drive	One	Optional HP External MultiBay II or HP Advanced Docking Station
DVD-ROM MultiBay II Drive	One	Optional HP External MultiBay II or HP Advanced Docking Station

Hard Drive Support

	Quantity Supported	Drive Bay
120-GB 5400 rpm SMART Hard Drive	One	Dedicated hard drive bay
100-GB 5400 rpm SMART Hard Drive	One	Dedicated hard drive bay
80-GB 5400 rpm SMART Hard Drive	Up to two	Dedicated hard drive bay and/or optional HP External MultiBay II or HP Advanced Docking Station
60-GB 5400 rpm SMART Hard Drive	One	Dedicated hard drive bay

Technical Specifications

System Unit	Dimensions (HxWxD)	1.35 (at front) x 11.22 x 9.25 in (34.3 (at front) x 285 x 235 mm)
	Weight	4.6 lb (2.08 kg)
	NOTE: Height varies depending upon where on the notebook the measurement is made. Weight includes 6-cell battery, 60-GB hard drive, 256-MB memory, 12.1-inch XGA wide viewing angle display with digitizer, no WLAN module, and no pen. Weight varies by configuration and components.	
	Stand-Alone Power Requirements	Nominal Operating Voltage (Lithium-Ion) 18.5 V Average Operating Power 21 W Max Operating Power < 65 W
	Temperature	Operating 32° to 95° F (0° to 35° C) (not writing optical) 41° to 95° F (5° to 35° C) (writing optical) Non-operating -4° to 140° F (-20° to 60° C)
	Relative Humidity	Operating 10% to 90%, non-condensing Non-operating 5% to 95%, 101.6° F (38.7° C) maximum wet bulb temperature
	Shock	Operating 125 G, 2 ms, half-sine Non-operating 200 G, 2 ms, half-sine
	Random Vibration	Operating 0.75 grms Non-operating 1.50 grms
	Altitude (unpressurized)	Operating -50 to 10,000 ft (-15.24 to 3,048 m) Non-operating -50 to 40,000 ft (-15.24 to 12,192 m)
	Industry Standard Certifications	Blue Angel No Energy Star Compliant Yes UL Yes UL GS Yes CSA Yes ICES Yes Australia/NZ Compliance Yes CCC Yes Japan Compliance Yes MIC Yes BSMI Yes CE Marking Compliance Yes KONCAR Yes GOST Yes SASO Yes SABS Yes UKRSERTCOMPUTER Yes

Technical Specifications

HP 65W Smart AC Adapter	Dimensions	4.17 x 1.85 x 1.1 in (10.6 x 4.7 x 2.8 cm)	
	Weight	0.62 lb (280 g)	
	Input	100 to 240 VAC	
		Input Efficiency	83% min at 115 VAC
		Input frequency range	47 to 63 Hz
	Output	Input AC current	1.7 A at 90 VAC, 0.85 A at 180 VAC
		Output power 65W	65W
		DC output	18.5V
		Hold-up time	5 msec at 115 VAC input
		Output current limit	<11A, Over voltage protection- 29V max automatic shutdown
	Connector	3 pin/grounded, mates with interchangeable cords	
	Environmental Design	Operating temperature	32° to 104° F (0° to 40° C)
		Non-operating (storage) temperature	-4° to 149° F (-20° to 65° C)
		Altitude	0 to 10,000 ft (0 to 3,048 m)
		Humidity	20% to 80%
EMI and Safety Certifications	Storage Humidity	10% to 90%	
	CE Mark – full compliance with LVD and EMC directives; Worldwide safety standards – IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals – C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE; MTBF – over 200,000 hours at 25°C ambient condition.		
	Option Kit Contents 65W AC Adapter, power cable, warranty booklet		
<hr/>			
Optional HP 12-Cell Ultra-Capacity Battery	Dimensions (H x W x L)	1.3 x 6.0 x 10.6 in (3.33 x 15.25 x 26.88 cm)	
	Weight	1.77 lb (0.803 kg)	
	Cells/Type	12-cell Lithium-Ion	
	Energy	Voltage	14.8V
		Watt-hour Capacity	95Wh
		Amp-hour Capacity	6.45Ah
	Temperature	Operating (Charging)	32° to 113° F (0° to 45° C)
		Operating (Discharging)	14° to 140° F (-10° to 60° C)
		Non-operating	-4° to 140° F (-20° to 60° C)
	Battery Re-Charge Time	Smart Adapter	3 to 4 hours
		System ON	4 to 5 hours (depending on system power consumption)
	Fuel Gauge	When pressed, LEDs light indicating level of charge remaining on battery	
<hr/>			

Technical Specifications

Optional HP 8-Cell Extended Life Battery	Dimensions (H x W x L)	1.0 x 3.9 x 8.7 in (2.5 x 10.0 x 22.0 cm)		
	Weight	1.00 lb (0.455 kg)		
	Cells/Type	8-cell Lithium-Ion		
	Energy	Voltage	14.4V	
		Watt-hour Capacity	52Wh	
		Amp-hour Capacity	3.6Ah	
	Temperature	Operating (Charging)	32° to 113° F (0° to 45° C)	
		Operating (Discharging)	14° to 140° F (-10° to 60° C)	
		Non-operating	-4° to 140° F (-20° to 60° C)	
	Battery Re-Charge Time	System in OFF mode or Standby	3 hours	
		System ON	3 to 5 hours (depending on system power consumption)	
		HP Fast Charge Technology	Charges the battery up to 90% within 90 minutes when system is OFF	
	Fuel Gauge	When pressed, LEDs light indicating level of charge remaining on battery		

55Wh Primary 6-Cell Battery	Dimensions (H x W x L)	0.8 x 2.75 x 4.75 in (2.0 x 7.0 x 12.0 cm)		
	Weight	0.72 lb (0.327 kg)		
	Cells/Type	6-cell Lithium-Ion		
	Energy	Voltage	10.8V	
		Watt-hour Capacity	55Wh	
		Amp-hour Capacity	5.1Ah	
	Temperature	Operating (Charging)	32° to 113° F (0° to 45° C)	
		Operating (Discharging)	14° to 140° F (-10° to 60° C)	
		Non-operating	-4° to 140° F (-20° to 60° C)	
	Battery Re-Charge Time	System in OFF mode or Standby	2.5 hours	
		System ON	3 to 5 hours (depending on system power consumption)	
		HP Fast Charge Technology	Charges the battery up to 90% within 1.5 hours when system is OFF	
	Fuel Gauge	When pressed, LEDs light indicating level of charge remaining on battery		

Technical Specifications

12.1-inch Color TFT XGA	Active Area (W x H)	9.7 x 7.3 in (24.5 x 18.4 cm)
Wide Viewing Angle	Diagonal Size	12.1 in (30.7 cm)
Display with Digitizer	Surface Treatment	Anti-glare
	Contrast Ratio	300:1 (typical)
	Refresh Rate	60 Hz
	Brightness	180 nit (typical)
	Pixel Resolution	Pitch 0.240 mm
		Format 1024 x 768
		Configuration RGB Stripe
	Backlight	CCFL
	PPI	106
	Viewing Angle	±80° Horizontal, ±80° Vertical (typical)

12.1-inch Color TFT XGA	Active Area (W x H)	9.7 x 7.3 in (24.5 x 18.4 cm)
Display with Digitizer	Diagonal Size	12.1 in (30.7 cm)
	Surface Treatment	Anti-glare
	Contrast Ratio	250:1 (typical)
	Refresh Rate	60 Hz
	Brightness	190 nit (typical)
	Pixel Resolution	Pitch 0.240 mm
		Format 1024 x 768
		Configuration RGB Stripe
	Backlight	CCFL
	PPI	106
	Viewing Angle	±50° Horizontal, +40/-50° Vertical (typical)

Digital Eraser Pen	Dimensions (length)	4.63 in (117.5 mm)
	Weight	0.0273 lb (12.4 g)

Hard Drives

Technical Specifications

120-GB 5400 rpm SATA	Drive Weight	0.22 lb (101 g)	
	Capacity	120 GB	
	Height	0.37 in (9.5 mm)	
	Width	2.75 in (70 mm)	
	Interface	ATA-7 / SATA 1.0a	
	Transfer Rate	Synchronous (maximum)	100 MB/s (Drive Capability)
	Seek Time (typical reads, including settling)	Single Track	3 ms
		Average	13ms
		Maximum	24 ms
	Rotational Speed	5400 rpm	
	Logical Blocks	234,441,648	
	Operating Temperature	41° to 140° F (5° to 60° C) [case temp]	
	Features	ATA Security	

100-GB 5400 rpm SATA	Drive Weight	0.22 lb (101 g)	
	Capacity	100 GB	
	Height	0.37 in (9.5 mm)	
	Width	2.75 in (70 mm)	
	Interface	ATA-7 / SATA 1.0a	
	Transfer Rate	Synchronous (maximum)	100 MB/s (Drive Capability)
	Seek Time (typical reads, including settling)	Single Track	3 ms
		Average	13 ms
		Maximum	24 ms
	Rotational Speed	5400 rpm	
	Logical Blocks	195,371,568	
	Operating Temperature	41° to 140° F (5° to 60° C) [case temp]	
	Features	ATA Security	

80-GB 5400 rpm SATA	Drive Weight	0.22 lb (101 g)	
	Capacity	80 GB	
	Height	0.37 in (9.5 mm)	
	Width	2.75 in (70 mm)	
	Interface	ATA-7 / SATA 1.0a	
	Transfer Rate	Synchronous (maximum)	100 MB/s (Drive Capability)
	Seek Time (typical reads, including settling)	Single Track	3 ms
		Average	13 ms
		Maximum	24 ms
	Rotational Speed	5400 rpm	
	Logical Blocks	156,301,488	
	Operating Temperature	41° to 140° F (5° to 60° C) [case temp]	
	Features	ATA Security	

Technical Specifications

60-GB 5400 rpm SATA	Drive Weight	0.22 lb (101 g)	
	Capacity	60 GB	
	Height	0.37 in (9.5 mm)	
	Width	2.75 in (70 mm)	
	Interface	ATA-7 / SATA 1.0a	
	Transfer Rate	Synchronous (maximum)	100 MB/s (Drive Capability)
	Seek Time (typical reads, including settling)	Single Track	3 ms
		Average	13 ms
		Maximum	24 ms
	Rotational Speed	5400 rpm	
	Logical Blocks	117,231,408	
	Operating Temperature	41° to 140° F (5° to 60° C) [case temp]	
	Features	ATA Security	

Removable Storage Drives – MultiBay II (supported in optional HP External MultiBay II or HP Advanced Docking Station)

DVD-ROM MultiBay II Drive	Dimensions	0.37 x 5.51 x 5.04 in (0.95 x 14.0 x 12.8 cm)	
	Weight	0.34 lb (155 g)	
	Access Times	Random	<120 ms CD
			<200 ms DVD
	Max Data Transfer Rate	24X-CD-ROM	3,600 KB/s
		8X-DVD	10,800 KB/s
	Transfer Mode	Multiword DMA Mode 2	
	Interface	EIDE	
	Supported Media (read)	CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW	
	Supported Media (write)	None	
	Max Media Capacity (read)	8.5 GB	
	Transport	Tray Loading	

Technical Specifications

DVD/CD-RW Combo MultiBay II Drive	Dimensions	0.37 x 5.51 x 5.04 in (0.95 x 14.0 x 12.8 cm)		
	Weight	0.45 lb (205 g)		
	Access Times	Random	<120 ms CD	
			<155 ms DVD	
	Max Data Transfer Rate	24X CD-ROM	3,600 KB/s	
		8X DVD	10,800 KB/s	
		24X CD-R	3,600 KB/s	
		24X CD-RW	3,600 KB/s	
	Transfer Mode	Multiword DMA Mode 2		
	Interface	EIDE		
	Supported Media (read)	CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW		
	Supported Media (write)	CD-R, CD-RW		
	Max Media Capacity (read)	8.5 GB		
	Max Media Capacity (write)	700 MB		
	Transport	Tray loading		

DVD+/-RW SuperMulti with Double Layer MultiBay II Drive	Dimensions	0.37 x 5.51 x 5.04 in (0.95 x 14.0 x 12.8 cm)		
	Weight	0.45 lb (205 g)		
	Access Times	Random	<150 ms CD	
			<125 ms DVD	
	Max Data Transfer Rate	24X CD-ROM	3,600 KB/s	
		8X DVD	10,800 KB/s	
		24X CD-R	3,600 KB/s	
		10X CD-RW	1,500 KB/s	
		4X DVD+R	5,400 KB/s	
		2.4X DVD+RW	3,240 KB/s	
		4X DVD-R	5,400 KB/s	
		2X DVD-RW	2,700 KB/s	
		2X DVD-RAM	2,700 KB/s	
	Transfer Mode	Multiword DMA Mode 2		
	Interface	EIDE		
Supported Media (read)	CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW			
Supported Media (write)	CD-R, CD-RW, DVD+R, DVD+RW, DVD-R, DVD-RW			
Max Media Capacity (read)	8.5 GB			

Technical Specifications

Max Media Capacity (write)	4.7 GB
Transport	Tray Loading

80-GB 5400 rpm MultiBay II Hard Drive	MultiBay II Drive Adapter	Dimensions (H x W x D)	0.37 x 5.51 x 5.04 in (0.95 x 14.0 x 12.8 cm)	
		Weight	0.16 lb (72 g)	
		Drive Weight	0.22 lb (101 g)	
		Capacity	80 GB	
		Height	0.37 in (9.5 mm)	
		Width	2.75 in (70 mm)	
		Interface	ATA-6	
		Transfer Rate	Synchronous (maximum)	100 MB/s (Drive Capability)
		Seek Time (typical reads, including settling)	Single Track	3 ms
			Average	13 ms
			Maximum	24 ms
		Rotational Speed	5400 rpm	
		Logical Blocks	156,301,488	
	Operating Temperature	41° to 131° F (5° to 55° C)		
	Features	ATA Security		

Audio

Hardware	Implementation	ADI1981HD High Definition CODEC
	Volume Controls	Up, down, and mute buttons
	Full Duplex	Yes
	Sound Blaster Pro compatible	Yes
	Microphone Jack	Stereo or mono
	Headphone/Line Out Jack	Stereo

Audio Output Quality	Frequency Response	20 Hz – 20 kHz
	Signal to Noise Ratio	>85 dB
	Total Harmonic Distortion	0.01%
	Noise Floor	-110 dB
	Play/Record Sampling Rate(s)	8 kHz– 48 kHz
	DAC	16, 20 or 24-bit
	ADC	16 or 20-bit

Technical Specifications

Internal Speaker	Power Rating	2 Watts
	Impedance	4 Ohms
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HP Fingerprint Sensor	Mobile Voltage Operation	3.0V–3.6V Single Supply
	Operating Temperature	32° – 158°F (0° – 70°C)
	Current Consumption @ 3.3V	Less than 70 mA peak imaging and scrolling Less than 25 mA hardware finger detection Advanced Power Management
	High-Rate Image Capture	Up to 240 image frames /sec
	ESD Resistance	IEC 61000-4-2 Level 4 (±15KV)
	Detection Matrix	192 x 16 Pixels 9.7 mm x 0.81 mm 500 ppi High-Resolution Images

Communications

Integrated Broadcom NetXtreme Gigabit Ethernet PCI Express Controller (BCM5753M)	Ethernet Features	10 Mbit/s operation (10BASE-T; IEEE 802.3i; IEEE 802.3 clauses 13-14)	
		100 Mbit/s operation (100BASE-TX; IEEE 802.3u; IEEE 802.3 clauses 21-30)	
		1000 Mbit/s operation (1000BASE-T; IEEE 802.3z and 802.3ab; IEEE 802.3 clauses 34-42)	
		Auto-Negotiation (Automatic Speed Selection)	
		Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/s	
		IEEE 802.1p QoS (Quality of Service) Support	
		IEEE 802.3x Flow Control (IEEE 802.3 clauses 31-32; configurable)	
		Power Management	ACPI compliant -- multiple power modes Situation-sensitive features reduce power consumption NIC Battery Saving Mode (enabled by default)
		Performance Features	TCP/IP/UDP Checksum Offload (configurable) TCP Segmentation Offload CPU Task Offload Adaptive Interrupts
		Manageability	Wake-on-LAN from standby and hibernation (Magic Packet and Microsoft Wake-Up Frame); Wake-on-LAN from off (Magic Packet only) PXE 2.1 Remote Boot Statistics Gathering (SNMP MIB II, Ethernet-like MIB, Ethernet MIB (802.3x, clause 30)) Comprehensive diagnostic and configuration software suite Cable Analyzer
		Interface	PCI Express x1
		NIC Device Driver Name	Broadcom NetXtreme Gigabit Ethernet
Drivers Available	Microsoft Windows XP Microsoft Windows 2000		

Technical Specifications

V.92 56K Data/Fax Modem	Form Factor	MDC 1.5 Daughtercard
	Power Management Support	APM Revision 1.2, ACPI
	Approvals/Certifications	UL, CSA, NEMKO, CCIB, Industry Canada, FCC Part 68, CTR21, FCC Part 15 Class B, Canadian ICES-003 Class B, C.I.S.P.R.22, Australian ACA, CE Mark, Other Countries
	Data Mode Capabilities	V.92 data V.8bis V.80 V44, V.42bis, MNP5 (Compression) V.42 (LAPM, MNP2-4) (Error Correction) Optional symbol rates: 2800, 3429 Asymmetric Symbol rates Synchronous primary channel data signaling rates: 3600, 31200 Automatic rate re-negotiation V.34 V.32bis V.32 V.23 V.22bis V.22 V.21 Bell 212A Bell 103J
	Fax Mode Capabilities	TIA/EIA-578-B (Class 1) T.30, T.4 (Group 3) V.17 V.29 V.27ter V.21 Channel 2
	Command Set	V.250 (Partial) TIA-602 Identification: +GMI, +GMM, +GMR Port control: +IPR, +ICF, +IFC, +ILRR Modulation: +MS, +MR, +MA Error control: +ES, +ER, +EB, +ESR, +ETBM Data compression: +DS, +DR V.251

Broadcom 4311BG 802.11b/g WiFi Adapter	Wireless LAN Standards	IEEE 802.11b IEEE 802.11g
	Interoperability	Wi-Fi certified Cisco Compatible Extensions Program compliant (details at www.hp.com/go/notebooks/WLAN)
	Frequency Band	2.4 GHz
	Data Rates	802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps

Technical Specifications

Modulation	Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM	
Security¹	Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated AES, 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, LEAP, EAP-FAST, EAP-SIM. Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program Version 4).	
Sub-channels	Multinational support with frequency bands and channels compliant to local regulations.	
Media Access Protocol	CSMA/CA (Collision Avoidance) with ACK	
Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)	
Roaming	IEEE 802.11 compliant roaming between access points	
Output Power (for CCK)²	17.5 dBm	
Output Power (for OFDM; power varies by data rate)²	15 dBm	
Power Consumption	Transmit: 2.0 W (max) Receive: 1.5 W (max) Idle mode ³ : 390 mW (nominal) Sleep mode: 20 mW (max)	
Power Management	ACPI compliant power management 802.11 compliant power saving mode	
Receiver Sensitivity⁴	54 Mbps: -72 dBm, 11 Mbps: -88 dBm , 1 Mbps: -97 dBm	
Antenna type	High efficiency dual band antenna with spatial diversity, mounted in the display enclosure	
Range	802.11 b – Typical (@1 Mbps)	1200 feet – Outdoor Open Area 300 feet – Indoor, Office environment
	802.11 g – Typical (@1 Mbps)	1200 feet – Outdoor Open Area 300 feet – Indoor, Office environment
Form Factor	PCI-Express MiniCard	
Weight	0.026 lb (12 g)	
Dimensions	0.19 x 1.2 x 2.0 in (4.75 x 29.85 x 50.8 mm)	
Operating Voltage	3.3v +/- 10%	
Temperature	Operating	32° to 176° F (0° to 80° C)
	Non-operating	-40° to 176° F (-40° to 80° C)
Humidity	Operating	10% to 90% (non-condensing)
	Non-operating	5% to 95% (non-condensing)
Altitude	Operating	0 to 10,000 ft (3,048 m)
	Non-operating	0 to 50,000 ft (15,240 m)

Technical Specifications

Configuration Utility⁵	Choice of Configuration Utility: <ul style="list-style-type: none"> • Microsoft Windows XP Wireless Network Connection Manager • Broadcom Wireless Configuration Utility (required for Cisco Compatible Extensions support)
LED Activity	LED Off – Radio OFF; Solid LED On – Radio ON <ol style="list-style-type: none"> 1. Check latest software/driver release for updates on supported security features. 2. Maximum output power may vary by country according to local regulations. 3. In Power Save Polling mode. 4. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation). 5. WLAN supplier's client utility is required for Cisco Compatible Extensions support. WLAN may also be compatible with certain third-party software supplicants.

Broadcom 4311AG 802.11a/b/g WiFi Adapter	Wireless LAN Standards	IEEE 802.11a IEEE 802.11b IEEE 802.11g
	Interoperability	Wi-Fi certified Cisco Compatible Extensions Program compliant (details at www.hp.com/go/notebooks/WLAN)
	Frequency Band	2.4 GHz and 5 GHz
	Data Rates	802.11b: 1, 2, 5.5, 11 Mbps 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
	Modulation	Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM
	Security¹	Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated AES, 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, LEAP, EAP-FAST, EAP-SIM. Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program Version 4).
	Sub-channels	Multinational support with frequency bands and channels compliant to local regulations.
	Media Access Protocol	CSMA/CA (Collision Avoidance) with ACK
	Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
	Roaming	IEEE 802.11 compliant roaming between access points
	Output Power (for CCK)²	17.5 dBm
	Output Power (for OFDM; power varies by data rate)²	15 dBm
	Power Consumption	Transmit: 2.0 W (max) Receive: 1.5 W (max) Idle mode ³ : 390 mW (nominal) Sleep mode: 20 mW (max)
	Power Management	ACPI compliant power management 802.11 compliant power saving mode
Receiver Sensitivity⁴	54 Mbps: -72 dBm, 11 Mbps: -88 dBm , 1 Mbps: -97 dBm	

Technical Specifications

Antenna type	High efficiency dual band antenna with spatial diversity, mounted in the display enclosure	
Range	802.11 a – Typical (@6 Mbps)	600 feet – Outdoor Open Area 150 feet – Indoor, Office environment
	802.11 b – Typical (@1 Mbps)	1200 feet – Outdoor Open Area 300 feet – Indoor, Office environment
	802.11 g – Typical (@1 Mbps)	1200 feet – Outdoor Open Area 300 feet – Indoor, Office environment
Form Factor	PCI-Express MiniCard	
Weight	0.026 lb (12 g)	
Dimensions	0.19 x 1.2 x 2.0 in (4.75 x 29.85 x 50.8 mm)	
Operating Voltage	3.3v +/- 10%	
Temperature	Operating	32° to 176° F (0° to 80° C)
	Non-operating	-40° to 176° F (-40° to 80° C)
Humidity	Operating	10% to 90% (non-condensing)
	Non-operating	5% to 95% (non-condensing)
Altitude	Operating	0 to 10,000 ft (3,048 m)
	Non-operating	0 to 50,000 ft (15,240 m)
Configuration Utility⁵	Choice of Configuration Utility: <ul style="list-style-type: none"> • Microsoft Windows XP Wireless Network Connection Manager • Broadcom Wireless Configuration Utility (required for Cisco Compatible Extensions support) 	
LED Activity	LED Off – Radio OFF; Solid LED On – Radio ON <ol style="list-style-type: none"> 1. Check latest software/driver release for updates on supported security features. 2. Maximum output power may vary by country according to local regulations. 3. In Power Save Polling mode. 4. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation). 5. WLAN supplier's client utility is required for Cisco Compatible Extensions support. WLAN may also be compatible with certain third-party software supplicants. 	

Intel PRO/Wireless 3945ABG 802.11a/b/g Network Connection	Wireless LAN Standards	IEEE 802.11a IEEE 802.11b IEEE 802.11g
	Interoperability	Wi-Fi certified Cisco Compatible Extensions Program compliant (details at www.hp.com/go/notebooks/WLAN)
	Frequency Band	2.4 GHz and 5 GHz
	Data Rates	802.11b: 1, 2, 5.5, 11 Mbps 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
	Modulation	Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM

Technical Specifications

Security¹	Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated AES, 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, LEAP, EAP-FAST, EAP-SIM.	
	Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program Version 4).	
Sub-channels	Multinational support with frequency bands and channels compliant to local regulations.	
Media Access Protocol	CSMA/CA (Collision Avoidance) with ACK	
Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)	
Roaming	IEEE 802.11 compliant roaming between access points	
Output Power (for CKK)²	15 dBm	
Output Power (for OFDM; power varies by data rate)²	15 dBm	
Power Consumption	Transmit: 1.8 Watts (max) Receive: 1.4 Watts (max) Idle mode ³ : 150 mW (nominal) Sleep mode: 30 mW (max)	
Power Management	ACPI compliant power management 802.11 compliant power saving mode	
Receiver Sensitivity⁴	54 Mbps: -72 dBm, 11 Mbps: -88 dBm , 1 Mbps: -97 dBm	
Antenna type	High efficiency dual band antenna with spatial diversity, mounted in the display enclosure	
Range	802.11 a – Typical (@6 Mbps)	600 feet – Outdoor Open Area 150 feet – Indoor, Office environment
	802.11 b – Typical (@1 Mbps)	1200 feet – Outdoor Open Area 300 feet – Indoor, Office environment
	802.11 g – Typical (@1 Mbps)	1200 feet – Outdoor Open Area 300 feet – Indoor, Office environment
Form Factor	PCI-Express MiniCard	
Weight	0.013 lb (6 g)	
Dimensions	0.19 x 1.2 x 2.0 in (4.75 x 29.85 x 50.8 mm)	
Operating Voltage	3.3v +/- 10%	
Temperature	Operating	32° to 176° F (0° to 80° C)
	Non-operating	-40° to 176° F (-40° to 80° C)
Humidity	Operating	10% to 90% (non-condensing)
	Non-operating	5% to 95% (non-condensing)
Altitude	Operating	0 to 10,000 ft (3,048 m)
	Non-operating	0 to 50,000 ft (15,240 m)

Technical Specifications

Configuration Utility⁵	Choice of Configuration Utility: <ul style="list-style-type: none"> • Microsoft Windows XP Wireless Network Connection Manager • Intel PROSet (required for Cisco Compatible Extensions support)
LED Activity	LED Off – Radio OFF; Solid LED On – Radio ON <ol style="list-style-type: none"> 1. Check latest software/driver release for updates on supported security features. 2. Maximum output power may vary by country according to local regulations. 3. In Power Save Polling mode. 4. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation). 5. WLAN supplier's client utility is required for Cisco Compatible Extensions support. WLAN may also be compatible with certain third-party software supplicants.

HP Integrated Module with Bluetooth Wireless Technology	Bluetooth Specification	2.0 Compliant
	Dimensions	1.02 x 0.55 x 0.22 in (26 x 14 x 5.7 mm)
	Frequency Band	2402 to 2480 MHz
	Number of Available Channels	79 (1 MHz) available channels
	Data Rates and Throughput	3 Mbps data rate; throughput up to 2.17 Mbps Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric or 1306.9 kbps symmetric
	Transmit Power	-6 dBm to 4 dBm (Bluetooth Class II)
	Receiver Sensitivity	Better than -80 dBm at 0.1 % raw bit error rate
	Power Consumption	Peak (Tx) 264 mW Peak (Rx) 231 mW Sleep <1 mW
	Antenna	Internally integrated within module
	Range	Up 33 ft (10 m)
	Electrical Interface	USB 2.0 compliant Microsoft Windows Plug and Play compliant
	OS Support	Microsoft Windows XP Professional and Home Microsoft Windows 2000
	Bluetooth Software Supported	Broadcom Bluetooth for Windows Microsoft Windows XP Bluetooth Software
	Link Topology	Point to Point, Multipoint Pico Nets up to 7 slaves
	Security	Full support of Bluetooth Security Provisions
	Power Management	Microsoft Windows ACPI, and USB Bus Support Self configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff
Certifications	All necessary regulatory approvals for supported countries, including: FCC (47 CFR) Part 15C, Section 15.247 & 15.249 ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark	

Technical Specifications

Temperature	Operating	-4° to 158° F (-20° to 70° C)
	Non-operating	-40° to 176° F (-40° to 80° C)
Humidity	Operating	10% to 90%
	Non-operating	5% to 95%
Altitude	Operating	15,000 ft (4,572 m)
	Non-operating	40,000 ft (12,192 m)
Bluetooth Profiles Supported	(with Bluetooth for Windows 4.0 software)	
	Serial Port Profile (SPP)*	
	Dial-Up Networking (DUN)*	
	Generic Object Exchange Profile (GOEP)	
	Object Push Profile (OPP)*	
	File Transfer Profile (FTP)	
	Synchronization Profile (SYNC)	
	Hard Copy Cable Replacement (HCRP)*	
	Personal Area Networking Profile (PAN)*	
	Human Interface Device Profile (HID)*	
	FAX Profile (FAX)	
	Basic Imaging Profile (BIP)	
	Headset Profile (HSP)	
Hands Free Profile (HFP)		
Advanced Audio Distribution Profile (A2DP)		

* indicates the profile is also supported by Microsoft Windows XP SP2

Environmental Data	Eco-Label Certifications	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: <ul style="list-style-type: none">• US Energy Star• US Federal Energy Management Program (FEMP)• Taiwan Green Mark• China Energy Conservation Program• IT ECO declaration
	System Configuration	The configuration used for the Energy Consumption and Declared Noise Emissions data is based on a "Typically Configured Notebook."

Technical Specifications

	115 VAC	230 VAC	100 VAC
Energy Consumption			
Normal Operation	21.5 W	21.5 W	20.7 W
Sleep (Energy Star low power mode)	1.9 W	2.1 W	1.9 W
Off	1.8 W	2.0 W	1.8 W
Heat Dissipation*	115 VAC	230 VAC	100 VAC
Normal Operation	72.3 BTU/hr	73.4 BTU/hr	70.6 BTU/hr
Sleep	6.5 BTU/hr	7.2 BTU/hr	6.5 BTU/hr
Off	6.1 BTU/hr	6.8 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)	Sound Power (LWAd, bels)	Sound Pressure (LpAm, decibels)
Idle	3.2	25
Fixed Disk (random writes)	3.8	31

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 than 5ppm by weight
 Cadmium greater than 10ppm by weight
 Lead greater than 4000 ppm by weight.

Battery type and chemistry used in the product:

Primary battery
 6-cell high capacity Lithium-Ion battery

Real Time Clock battery
 CR2025 (coin cell), Lithium

Technical Specifications

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.

Keyboard complies with ISO standard: ISO 9995, EN 29241-4, and ISO/IEC 15412

Input devices of this product comply with ISO 9241, part 9.

Plastics parts weighing over 0.055 pounds (25 grams) used in the product are marked per ISO 11469 and ISO1043.

This product contains 0% recycled materials (by wt.)

This product is greater than 85% recycle-able when properly disposed of at end of life.

Packaging

Packaging Materials

- External:
 - Corrugated Paper – 1.21 lb (550 g)
- Internal:
 - PET Bag – 0.02 lb (10 g)
 - Corrugated/Paper – 0.55 lb (250 g)
- The plastic packaging material is made from 20% recycled content.
- The corrugated paper packaging materials contains at least 80% recycled content.

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.

Technical Specifications

Material Usage

This product does not contain any of the following substances in excess of regulatory limits (for reference of these limits please refer to the HP General Specification of the Environment

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)

End-of-life Management and Recycling

HP offers our customers several other options for handling their aging computers while also minimizing the impact on the environment-including product trade-in and leasing services-in addition to recycling services. 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.

Hewlett-Packard Corporate Environmental Information

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

Global Citizenship Report

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

Environment website

<http://www.hp.com/environment>

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>

Technical Specifications

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