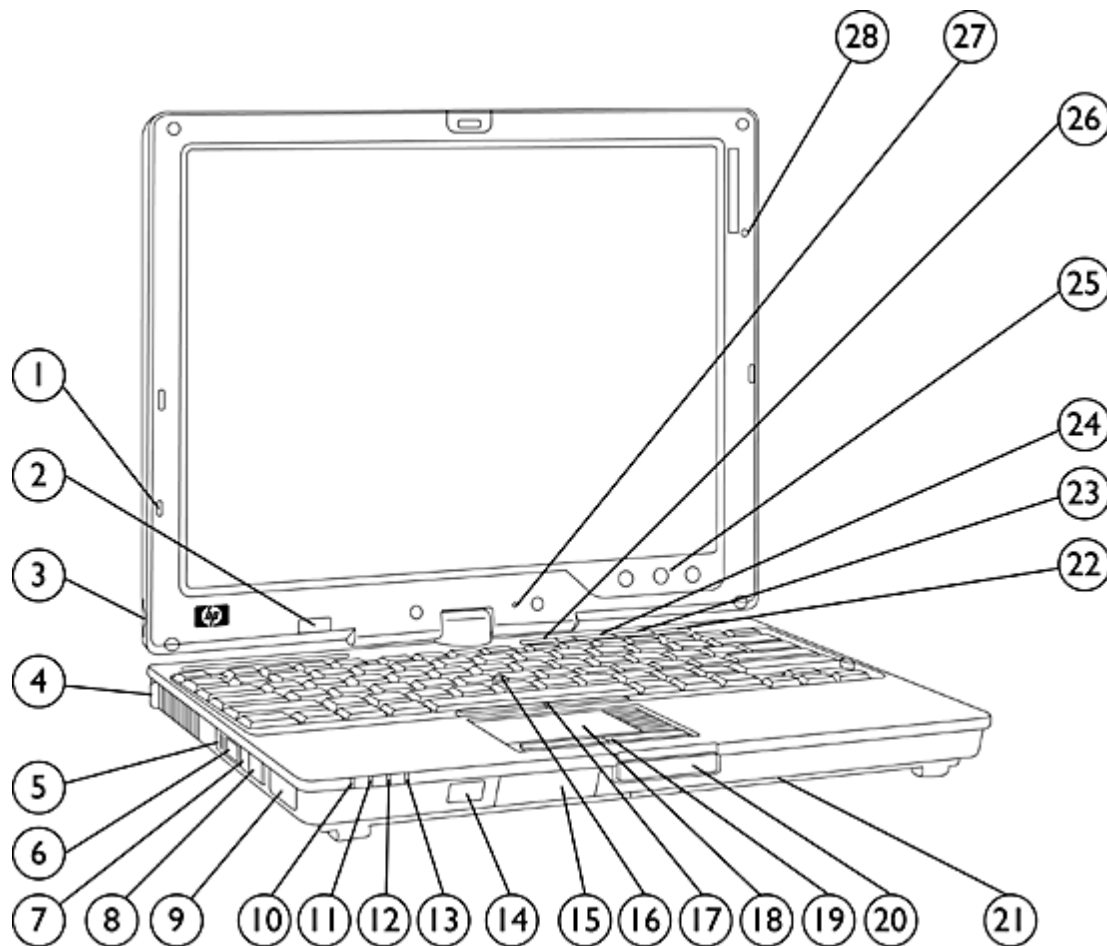
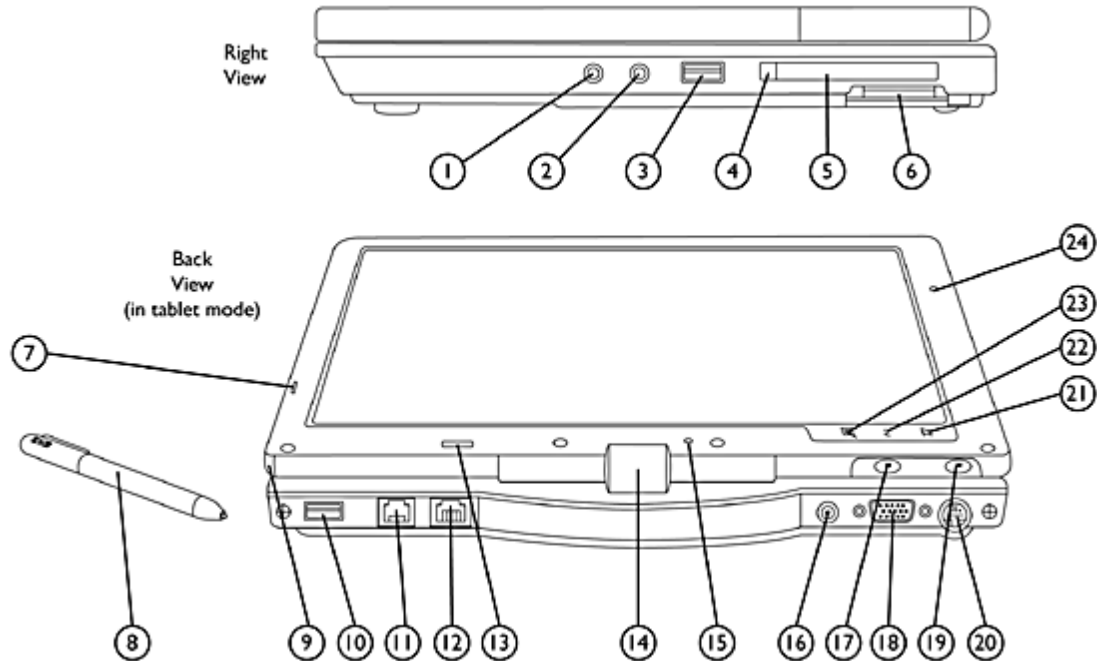


Overview



- | | |
|-----------------------------|---|
| 1. Pen Tether Mount | 15. Bluetooth® Module (optional) |
| 2. Pen Eject Button | 16. Pointstick |
| 3. Pen Slot | 17. Left/Right Pointstick Buttons |
| 4. Kensington Lock Slot | 18. Touchpad with Scroll Zone |
| 5. Wireless On/Off Button | 19. Left/Right Touchpad Buttons |
| 6. USB 2.0 Port | 20. Display Release Button |
| 7. HP Info Center Button | 21. Battery Fuel Gauge LEDs (battery compartment not shown) |
| 8. Power Switch with LED | 22. Volume Up Button |
| 9. Speaker | 23. Volume Down Button |
| 10. Wireless On/Off LED | 24. Volume Mute Button with LED |
| 11. Power/Standby LED | 25. Pen Activated Programmable Buttons (see Back View) |
| 12. Battery Charging LED | 26. Presentation Mode Button |
| 13. Hard Drive Activity LED | 27. Microphone |
| 14. Fast Infrared Port | 28. Ambient Light Sensor |

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. Pen Tether Mount
8. Digital Eraser Pen
9. Pen Slot
10. USB 2.0 Port
11. RJ-11 Port (Modem)
12. RJ-45 Port (NIC)
13. Pen Ejector Button
14. Rotate Hinge

15. Microphone
16. DC Power Connector
17. Jog Dial (scroll up/down, Enter)
18. VGA/External Monitor Connector
19. Windows Security Button (Ctrl-Alt-Del)
20. S-Video TV Out

Pen Activated Buttons:

21. Q Menu
22. Rotate
23. Tablet PC Input Launch
24. Ambient Light Sensor

At A Glance

Overview

- Genuine Windows XP Tablet PC Edition 2005
- Certified for Novell Linux Desktop 9
- Intel® Pentium® M processors 730 to 770* or Intel Celeron® M processor 370*
- Professional-grade design starting at 4.6 lb/2.08 kg
- 12.1-inch XGA Wide Viewing Angle Display with Digitizer and protective sparkle-free glass
- Optional Outdoor Viewable Display for 67% more contrast in bright sunlight with no loss of battery life
- Mobile Intel 915GM Express Chipset
- 256-MB DDR2 SDRAM, upgradeable to 2048-MB maximum
- Up to 80-GB 5400 rpm, user-removable hard drive
- Intel Graphics Media Accelerator 900
- 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 optional integrated Smart Card Reader and optional Trusted Platform Module (TPM) Embedded Security Chip
- NetXtreme Gigabit PCI Express Ethernet Controller
- Dual pointing devices (Touchpad with Scroll Zone and Pointstick)
- Pressure sensitive digital eraser pen with tether and clip (application must support pressure sensitivity)
- Protected by a three-year standard parts and labor warranty - certain restrictions and exclusions apply.

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

What's Special

- Versatile design with great performance!
- Latest PCI Express technology and DDR2 400-MHz & 533-MHz memory support
- Enhanced security features:
 - HP ProtectTools
 - Optional Integrated Smart Card Reader
 - Optional Embedded Security features
- Ease of use features:
 - Optional Outdoor Viewable Display
 - Ambient light sensor
 - HP Fast Charge technology
 - HP Wireless Assistant
 - HP power down NIC technology
 - Up to 5.5 hours of system battery life
 - Battery fuel gauge LEDs
 - Self-powered optional HP External MultiBay II
 - Full-sized keyboard
 - HP Mobile Print Driver for on-the-go printing
- Integrated reliability features:
 - HP Mobile Data Protection System
 - HP Panel Protection System
 - Scratch-resistant keyboard deck using In-mold Lamination
 - Full magnesium-alloy enclosure
 - HP spill-resistant keyboard with Mylar film
- Support for new HP docking solutions and HP Travel Battery

Standard Features

Processors

Intel Pentium M processor 770* (2.13-GHz, 533-MHz FSB, 2-MB L2 cache)
Intel Pentium M processor 760* (2.00-GHz, 533-MHz FSB, 2-MB L2 cache)
Intel Pentium M processor 750* (1.86-GHz, 533-MHz FSB, 2-MB L2 cache)
Intel Pentium M processor 740* (1.73-GHz, 533-MHz FSB, 2-MB L2 cache)
Intel Pentium M processor 730* (1.60-GHz, 533-MHz FSB, 2-MB L2 cache)
Intel Celeron M processor 370* (1.5-GHz, 400-MHz FSB, 1-MB L2 cache)

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

NOTE: Intel Pentium M processors support enhanced Intel SpeedStep™ technology. Processor speed denotes maximum performance mode; processors will run at approximately 800 MHz 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

Novell Linux Desktop 9

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 915GM Express Chipset

Graphics

Intel Graphics Media Accelerator 900, with up to 128 MB of shared system memory

Display

Internal

12.1-inch XGA Wide Viewing Angle Display with Digitizer (1024 x 768 resolution)

Optional Outdoor Viewable Display*

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.

Standard Features

* The optional Outdoor Viewable Display is a standard 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	256-MB, 512-MB, or 1024-MB 400-MHz or 533-MHz DDR2 SDRAM; two SODIMM slots
	Maximum	Upgradeable to 2048-MB maximum (1024-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.

Communications	NetXtreme Gigabit PCI Express Ethernet Controller (10/100/1000 NIC)* with HP power down 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.		

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 3.0) 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 802.11b/g WLAN	Integrated support for 802.11 b and g Up to 54-mbps data rate
	Broadcom 802.11a/b/g WLAN	Integrated support for 802.11 a, b and g Up to 54-mbps data rate

Standard Features

Intel PRO/Wireless 2200BG 802.11 b/g WLAN	Intel Centrino mobile technology Integrated support for 802.11 b and g Up to 54-mbps data rate
Intel PRO/Wireless 2915ABG 802.11 a/b/g WLAN	Intel Centrino mobile technology Integrated support for 802.11 a, b and g Up to 54-mbps data rate
Integrated Bluetooth	Bluetooth Specification v1.2 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

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

Standard Features

Storage	Hard Drives	40-, 60-, 80-GB 5400 rpm SMART
	NOTE: These hard drives are customer removable and will withstand multiple insertion/removal cycles.	
	Optical Drives	Optional HP External DVD-ROM MultiBay II Drive MultiBay II (9.5-mm) or HP DVD/CD-RW Combo MultiBay II Drive Advanced Docking Station DVD+/-RW MultiBay II Drive
	Second Hard Drive	Optional HP External 80-GB 5400 rpm MultiBay II Hard Drive MultiBay II (9.5-mm) or HP Advanced Docking Station

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
	Travel Battery Connector	One
LED Status Indicators	Ten	

Audio	ADI AC '97 CODEC
	Integrated 16-bit Sound Blaster Pro compatible audio
	Integrated speaker
	External volume up, volume down, and mute buttons
	Stereo headphone/line out
	Stereo microphone in

Standard Features

Software	Preloaded Software for Microsoft Windows XP	Adobe Acrobat Reader HP One-Touch Button Software HP Local Recovery provided by Altiris* HP Mobile Print Driver Synaptics Touchpad Driver HP Help and Support HP ProtectTools Security Manager: BIOS Configuration for HP ProtectTools Credential Manager for HP ProtectTools HP Qmenu Software HP Tablet PC Tour HP Wireless Assistant Microsoft Reader for Tablet PC Sonic RecordNow! (for optional DVD+/-RW and DVD/CDRW drives)* Symantec Norton Antivirus with complimentary 60-day live update Intervideo WinDVD - DVD Player (for optional DVD+/-RW, DVD/CDRW and DVD drives)*
	Recommended Software and Services**	Alias Sketchbook Pro (15-day trial period) Corel Grafigo (promotional free download) FranklinCovey TabletPlanner (30-day trial period) MindJet MindManager 2002 for Tablet PC (21 day trial CD) MS Reader eBooks ScanSoft Omnicom Filler 5.1 and Dragon Naturally Speaking Standard Edition 7.1 (available as a special configuration) Zinio (see Digital Magazine icon on Tablet PC desktop for more information)
	Software on CD	Intervideo WinDVD Creator – DVD Authoring (for optional DVD+/-RW drives)
	Additional software available from the Web	HP Client Manager Software HP ProtectTools Security Manager: Embedded Security for HP ProtectTools Smart Card Security for HP ProtectTools

* Software is loaded on the hard drive and must be installed by running the Software Setup utility.

** Availability of recommended software applications or services may vary by region and may require additional purchase and/or subscription.

System Recovery for Microsoft Windows XP systems only

Each unit is shipped with a recovery kit containing Operating System Recovery and Driver/Application Recovery discs. These discs allow users to either recover or repair the notebook operating system and select drivers without losing personal data. The Operating System disc also provides the option of reinstalling the operating system software provided with the notebook.

Client Management Software

HP Client Manager Software (CMS) provides asset tracking, alerting, diagnostics, and SoftPaq distribution for HP business desktops, notebooks, and workstations. HP CMS is the foundation for HP Client Management Solutions. For more information and to download HP Client Manager Software, please refer to the HP website at <http://www.hp.com/go/easydeploy>.

SMBIOS Version 2.3.4

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

Standard Features

HP Local Recovery Provided by Altiris

Provides data and system file protection for HP business PCs to enable fast recovery of information that is accidentally deleted or if the system becomes corrupted. Designed for disconnected or seldom-connected users, Local Recovery protects your HP computer's data and system state by taking scheduled snapshots, which are then stored in a protected area on the local hard disk. System backup and disaster recovery is now simple and fast for all users, regardless of connectivity. For more information and to download, please refer to the HP website at <http://www.hp.com/go/easydeploy>.

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

Security

Standard Features

Configuration Control Hardware
 Memory Change Alert
 Ownership Tag
 Setup Password
 Power-On Password
 DriveLock
 Enabled for PC Smart Card options
 Kensington Lock Slot

Optional Features

Smart Card Reader (replaces PC card slot)	Compatible with ISO 7816 compliant Smart Cards PC/SC interface support
TPM Embedded Security Chip	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.

For more information on HP security solutions refer to <http://www.hp.com/go/security>.

Power Supply

External 65-watt slim 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

Battery

Primary Battery	6-cell high capacity Lithium-Ion (52Wh) – one-year warranty
Optional Travel Battery	8-cell high capacity Lithium-Ion (52Wh)
Battery Fuel Gauge LEDs	

Standard Features

Battery Life	Primary Battery	Up to 5 hours and 45 minutes
	Primary Battery and optional HP Travel Battery	Up to 10 hours and 45 minutes

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
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Power Conservation	Supports enhanced Intel SpeedStep technology with Intel Pentium M 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
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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.
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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
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Service and Support	HP Services includes a three-year standard parts and labor 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
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Select Model(s)

Standard Features

tc4200 EK743AW	Processor	Intel Pentium M processor 760* (2.00-GHz, 533-MHz FSB, 2-MB L2 cache)
	Operating System	Genuine Windows XP Tablet PC Edition 2005
	System Memory	512-MB 533-MHz DDR2 SDRAM (512-MB SODIMM in slot 1)
	Hard Drive	60-GB 5400 rpm
	Display	12.1-inch color TFT XGA wide viewing angle with digitizer with (1024 x 768) resolution
	Graphics	Intel Graphics Media Accelerator 900 with up to 128 MB of shared system memory
	Audio	ADI AC '97 CODEC, Line out/headphone and microphone jacks
	Communications	56K Fax/Modem, Integrated NetXtreme Gigabit PCI Express Ethernet Controller (10/100/1000 NIC)
	Integrated Wireless	Intel PRO/Wireless 2200BG 802.11b/g WLAN Bluetooth
	TPM Embedded Security Chip	Yes
	Pointing Device	Dual pointing devices (both Pointstick and Touchpad) Digital Eraser Pen with tether and clip
	Battery	6-cell high capacity Lithium-Ion (52Wh)
	Power	External 65W adapter
	Warranty	3/3/0

tc4200 PV984AW	Processor	Intel Pentium M processor 750* (1.86-GHz, 533-MHz FSB, 2-MB L2 cache)
	Operating System	Genuine Windows XP Tablet PC Edition 2005
	System Memory	512-MB 400-MHz DDR2 SDRAM (512-MB SODIMM in slot 1)
	Hard Drive	60-GB 5400 rpm
	Display	12.1-inch color TFT XGA wide viewing angle with digitizer with (1024 x 768) resolution
	Graphics	Intel Graphics Media Accelerator 900 with up to 128 MB of shared system memory
	Audio	ADI AC '97 CODEC, Line out/headphone and microphone jacks
	Communications	56K Fax/Modem, Integrated NetXtreme Gigabit PCI Express Ethernet Controller (10/100/1000 NIC)
	Integrated Wireless	Intel PRO/Wireless 2200BG 802.11b/g WLAN Bluetooth
	TPM Embedded Security Chip	Yes
	Pointing Device	Dual pointing devices (both Pointstick and Touchpad) Digital Eraser Pen with tether and clip
	Battery	6-cell high capacity Lithium-Ion (52Wh)
	Power	External 65W adapter
	Warranty	3/3/0

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

Options

Memory	256-MB 533-MHz DDR2 SDRAM	PE830A
	512-MB 533-MHz DDR2 SDRAM	PE831A
	1024-MB 533-MHz DDR2 SDRAM	PE832A
MultiBay II Storage (9.5-mm)	8X DVD-ROM MultiBay II Drive	PA849A
	24X Combo DVD/CD-RW MultiBay II Drive	PA850A
	2X DVD+/-RW Dual Format MultiBay II Drive	PA851A
	80-GB 5400 rpm MultiBay II Hard Drive	PH357A
Other Storage	60-GB 5400 rpm Primary Hard Drive	PA852A
	HP 40-GB Mobile USB Hard Drive	DQ549A
	HP USB Digital Drive + 128MB Secure Digital Card	DL702A
	HP USB Diskette Drive	DC361B
Communications	Intel PRO/Wireless 2200BG 802.11 b/g WLAN option kit	PF952AA#xxx
Expansion Solutions	HP Docking Station	PA286A#xxx
	HP Advanced Docking Station	PA287A#xxx
	HP 3-in-1 NAS Docking Station	EM537AA#xxx
	HP Monitor Stand	PA507A
	HP Adjustable Notebook Stand	PA508A
	HP External MultiBay II (9.5-mm)	PA509A#xxx
	HP 4-port USB 2.0 Hub	DG954A
Power	HP 2-bay Battery Charging Station	DT533A#xxx
	HP 10-bay Battery Charging Station	DT534A#ABA
	Battery Adapter kit #1	PK402A
	65W AC Adapter	DC359A#xxx
	90W AC Adapter	DC895B#xxx
	90W Auto Adapter	DC303B
	90W Air/Auto/AC Combo Adapter	DV574A#xxx
	90W Aircraft Cables	DC899A
	Primary 6-cell Battery Pack	PB991A
HP Travel Battery	PB993A	
Carrying Cases	HP Entry Value Case	DL617A
	HP Top Load Nylon	DC915A
	HP Executive Leather Case	PA847A
	HP Sport Backpack	DG102A

Options

Security	PC Card Smart Card Reader	DC350B
	Smart Card Bulk Pack (1-100)	DR032A
	HP/Kensington Cable Lock	PC766A
<hr/>		
Input/Output Devices	Digital Eraser Pen	PL800A
	USB/PS2 Keyboard	DC852A#xxx
	USB/PS2 Optical Mouse	DC369A
	HP USB Optical Travel Mouse	F2100A

Memory

Up to 2048 MB of 400-MHz or 533-MHz DDR2 SDRAM

Two DIMM slots

DIMM sizes supported: 256 MB, 512 MB, or 1024 MB

Maximized dual-channel performance requires SODIMMs of the same size and speed in both memory slots.

Standard Memory

- 256 MB (256 MB x 1)
- 512 MB (512 MB x 1 or 256 MB x 2)
- 1024 MB (1024 MB x 1 or 512 MB x 2)

Optional Memory

Upgrades

Support for up to 2048 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

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

1024-MB 533-MHz DDR2 SDRAM

PE832A

512-MB 533-MHz DDR2 SDRAM

PE831A

256-MB 533-MHz DDR2 SDRAM

PE830A

Storage

Removable Media Drive Support

	Quantity Supported	Drive Bay
DVD+/-RW 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
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
40-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, 40-GB hard drive, 256-MB memory, 12.1-inch XGA wide viewing angle display with digitizer, no WLAN module, no TPM Embedded Security Chip, and no pen. Weight varies by configuration and components.	
Stand-Alone Power Requirements	Nominal Operating Voltage (Lithium-Ion)	18.5 V
	Average Operating Power	16.5 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

65W External AC Adapter	Weight	0.62 lb (0.28 kg) (adapter) 0.29 lb (0.13 kg) (power cord)	
	Dimensions	4.17 x 1.85 x 1.1 in (10.6 x 4.7 x 2.8 cm)	
	Input	Operating Input Voltage	100 to 240 VAC
		Operating Input Current	1.7A at 90 VAC 0.85A at 180 VAC
		Operating Frequency Range	47 to 63 Hz AC
	Output	Efficiency	83% minimum at 115 VAC
		Output Power	65 W
		DC Output Current	18.5 V
	Environmental	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: IEC950, EN60950, UL1950, Class2, SELV Agency approvals: C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCIB, NOM-1 NYCE		
MTBF	Over 200,000 hours at 25°C ambient condition		

52Wh Primary 6-Cell Battery (for 4200/4400 Series)	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	0.705 lb (0.320 kg)	
	Cells/Type	6-cell Lithium-Ion	
	Energy	Voltage	10.8V
		Watt-hour Capacity	52Wh
		Amp-hour Capacity	4.8Ah
	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

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			

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

12.1-inch Color TFT XGA Wide Viewing Angle Display with Digitizer	Active Area (W x H)	10.5 x 7.8 in (26.8 x 19.8 cm)		
	Diagonal Size	12.1 in (30.7 cm)		
	Surface Treatment	Anti-glare		
	Contrast Ratio	125:1		
	Refresh Rate	60 Hz		
	Brightness	180 nit (typical)		
	Pixel Resolution	Pitch	0.24 mm	
		Format	1024 x 768	
		Configuration	RGB Stripe	
	Backlight	CCFL		
	PPI	106		
	Character Display	80 x 25		
	Total Power Consumption	3.7 W		
Viewing Angle	±80° Horizontal, ±80° Vertical (typical)			

Hard Drives

Technical Specifications

80-GB 5400 rpm	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	
	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	

60-GB 5400 rpm	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	
	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	117,210,240	
	Operating Temperature	41° to 131° F (5° to 55° C)	
	Features	ATA Security	

40-GB 5400 rpm	Drive Weight	0.22 lb (101 g)	
	Capacity	40 GB	
	Height	0.37 in (9.5 mm)	
	Width	2.75 in (70 mm)	
	Interface	ATA-7	
	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	78,140,160	
	Operating Temperature	41° to 131° F (5° to 55° C)	
	Features	ATA Security	

Technical Specifications

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	

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		

Technical Specifications

DVD+/-RW 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	
		2.4X DVD+R	3,240 KB/s	
		2.4X DVD+RW	3,240 KB/s	
		2X DVD-R	2,700 KB/s	
		2X DVD-RW	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)	4.7 GB			
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		

Technical Specifications

Audio

Hardware	Implementation	ADI AC '97 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)	7 kHz - 48 kHz
	AD/DA Resolution	16 bit

Internal Speaker	Power Rating	2 Watts
	Impedance	4 Ohms

Communications

Integrated Broadcom NetXtreme Gigabit PCI Express Ethernet Controller (10/100/1000 NIC)	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
	Power Management	IEEE 802.1p QoS (Quality of Service) Support
		IEEE 802.3x Flow Control (IEEE 802.3 clauses 31-32; configurable)
	Performance Features	ACPI 1.1a compliant -- multiple power modes
		Situation-sensitive features reduce power consumption
NIC Battery Saving Mode (enabled by default)		
	TCP/IP/UDP Checksum Offload (configurable)	
	Microsoft Large Send Offload (configurable)	
	TCP Segmentation Offload	
	CPU Task Offload	
	Adaptive Interrupts	

Technical Specifications

Manageability	Wake-on-LAN from all Power-Managed States (configurable; Magic Packet and Microsoft Wake-Up Frame) PXE 2.0 Remote Boot Statistics Gathering (SNMP MIB II, Ethernet-like MIB, Ethernet MIB (802.3x, clause 30)) Comprehensive diagnostic and configuration software suite Cable Analyzer
NIC Device Driver Name	Broadcom NetXtreme Gigabit Ethernet
Drivers Available	Microsoft Windows XP Microsoft Windows 2000

Agere Systems AC'97 Modem

Form Factor	MDC 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	56K modem (a-law, mu-law) V.8bis V.80 V44, V.42bis, MNP5 (Compression) V.42 (LAPM, MNP2-4) (Error Correction) V.34 (file date: 10/96) Optional symbol rates: 2800, 3429 Asymmetric Symbol rates Synchronous primary channel data signaling rates: 3600, 31200 Automatic rate re-negotiation 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

Technical Specifications

Form Factor	MiniPCI Type III B	
Weight	0.026 lb (12 g)	
Dimensions	0.20 x 1.75 x 2.34 in (4.9 x 44.6 x 59.8 mm)	
Operating Voltage	3.3v	
Temperature	Operating	32° to 122° F (0° to 50° C)
	Non-operating	-14° to 158° F (-10° to 70° C)
Humidity	Operating	10% to 90% (non-condensing)
	Non-operating	5% to 95% (non-condensing)
Altitude	Operating	0 to 15,000 ft (4,572 m)
	Non-operating	0 to 40,000 ft (12,192 m)
Configuration Utility⁴	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) 	
	<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. 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). 4. 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

Technical Specifications

Output Power (for OFDM; 15 dBm power varies by data rate) ²		
Power Consumption	Transmit: 2.0 W (max) Receive: 1.5 W (max) Idle mode: 390 mW (nominal) Sleep mode: 20 mW (max)	
Power Management	ACPI compliant power management 802.11 compliant power saving mode	
Receiver Sensitivity ³	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)	1000 feet – Outdoor Open Area 300 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	MiniPCI Type IIIA	
Weight	0.035 lb (16 g)	
Dimensions	0.19 x 2.00 x 2.35 in (4.8 x 50.95 x 59.75 mm)	
Operating Voltage	3.3v	
Temperature	Operating	32° to 122° F (0° to 50° C)
	Non-operating	-14° to 158° F (-10° to 70° C)
Humidity	Operating	10% to 90% (non-condensing)
	Non-operating	5% to 95% (non-condensing)
Altitude	Operating	0 to 15,000 ft (4,572 m)
	Non-operating	0 to 40,000 ft (12,192 m)
Configuration Utility ⁴	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) 	

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. 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).
4. 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
2200BG 802.11b/g
WLAN

Wireless LAN Standards	IEEE 802.11b IEEE 802.11g
Interoperability	Wi-Fi certified Cisco Compatible Extensions Program compliant (details at http://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. Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program).	
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	16 dBm +/- 2 dB	
Output Power (for OFDM; power varies by data rate)²	15 dBm +2/-5 dB	
Power Consumption	Transmit: 1.8 Watts (max) Receive: 1.4 Watts (max) Idle mode: 75 mW (nominal) Sleep mode: 60 mW	
Power Management	ACPI compliant power management 802.11 Compliant Power Saving Mode	
Receiver Sensitivity³	54 Mbps: -72 dBm, 11 Mbps: -88 dBm , 1 Mbps: -97 dBm	
Antenna type	High efficiency dual band antenna with polarization 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	MiniPCI Type IIIB	
Weight	0.026 lb (11.75 g) (max)	
Dimensions	0.20 x 1.75 x 2.34 in (4.9 x 44.6 x 59.8 mm)	
Operating Voltage	3.3v	
Temperature	Operating	32° to 158° F (0° to 70° 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 Utility⁴

Choice of Configuration Utility:

- Intel PROSet for Microsoft Windows 2000 or XP (required for Cisco Compatible Extensions support)
- Microsoft Windows XP Wireless Network Connection Manager

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. 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).
4. WLAN supplier's client utility is required for Cisco Compatible Extensions support. WLAN may also be compatible with certain third-party software suppliers.

Intel PRO/Wireless
2915ABG 802.11a/b/g
WLAN

Wireless LAN Standards

IEEE 802.11a
IEEE 802.11b
IEEE 802.11g

Interoperability

Wi-Fi certified
Cisco Compatible Extensions Program compliant
(details at <http://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.

Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program).

Sub-channels

Multinational support with frequency bands and channels compliant to local regulations.

Media Access Protocol

CSMA/CA (Collision Avoidance) with ACK

Network Architecture

Ad-hoc (Peer to Peer)

Models

Infrastructure (Access Point Required)

Roaming

IEEE 802.11 compliant roaming between access points

Output Power (for CKK)²

16 dBm +/- 2 dB

Output Power (for OFDM; 15 dBm +/- 5 dB

power varies by data rate)²

Power Consumption

Transmit: 1.8 Watts (max)
Receive: 1.4 Watts (max)
Idle mode: 100 mW (nominal)
Sleep mode: 60 mW (max)

Power Management

ACPI compliant power management
802.11 Compliant Power Saving Mode

Receiver Sensitivity³

54 Mbps: -72 dBm, 11 Mbps: -89 dBm, 1 Mbps: -97 dBm

Antenna type

High efficiency dual band antenna with polarization diversity, mounted in the display enclosure

Technical Specifications

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	MiniPCI Type IIIB	
Weight	0.026 lb (11.75 gm) (max)	
Dimensions	0.20 x 1.75 x 2.34 in (4.9 x 44.6 x 59.8 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 Utility⁴	Choice of Configuration Utility:	
	<ul style="list-style-type: none"> • Intel PROSet for Microsoft Windows 2000 or XP (required for Cisco Compatible Extensions support) • Microsoft Windows XP Wireless Network Connection Manager 	
	<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. 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). 4. WLAN supplier's client utility is required for Cisco Compatible Extensions support. WLAN may also be compatible with certain third-party software suppliers. 	

Bluetooth by HP

Name	HP Integrated module with Bluetooth wireless technology
Bluetooth Specification	1.2 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	1 Mbps data rate; throughput up to 720 Kbps Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Asynchronous Connection Less links 723.2 kbps/57.6 kbps asymmetric or 433.9 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 1.1 compliant

Technical Specifications

OS Support	Microsoft Windows Plug and Play compliant Microsoft Windows XP Professional and Home Microsoft Windows 2000
Bluetooth Software Supported	Widcomm 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
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

Technical Specifications

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