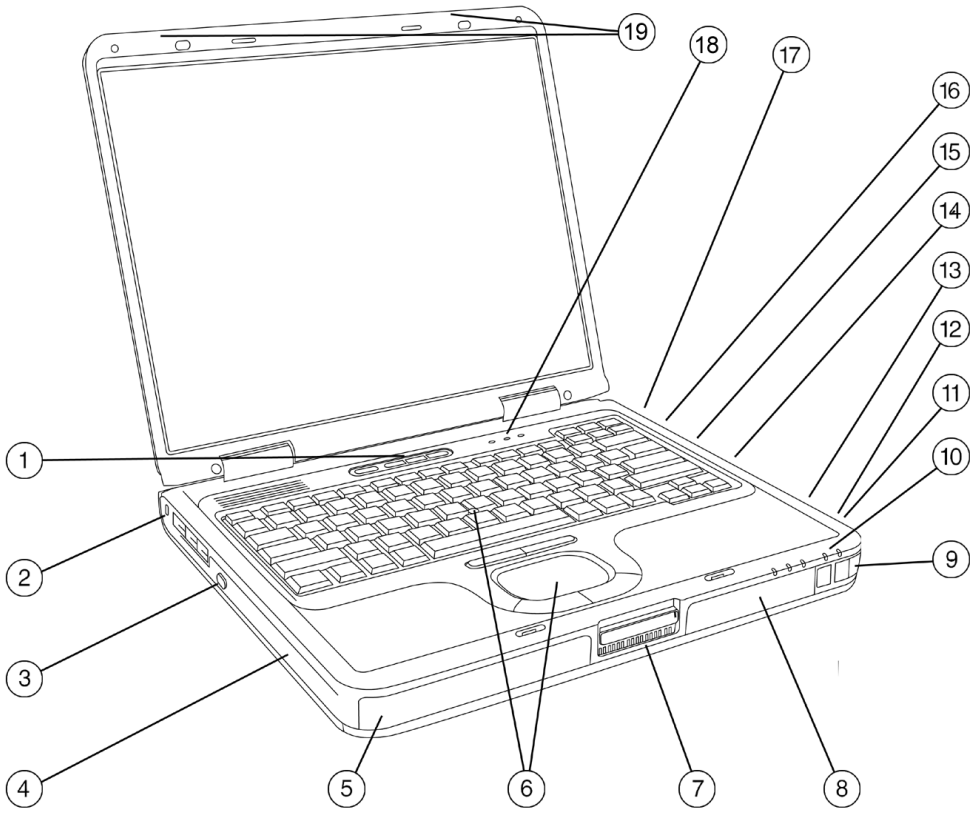
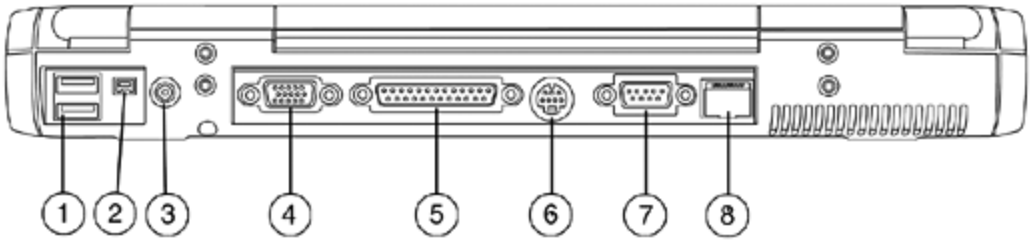
Overview



1. Power Button and 3 quick launch buttons
2. Lock Slot
3. Fixed Optical
4. Primary Battery
5. Speaker
6. Dual Pointing Devices
7. Display Latch
8. Speaker
9. Volume Down/Up/Mute
10. Wireless on/off, Power, Charge, HDD activity, MultiBay Activity LEDs
11. Modem
12. Bluetooth Access Door
13. IR
14. MultiBay
15. SD Slot
16. PC Card Slots (2)
17. Line In/Out
18. Num Lock, Caps Lock,Scroll Lock LEDs
19. Wireless LAN Antennas



1. USB Ports (2)
2. 1394 Port (4 pin)
3. DC In
4. VGA
5. Parallel
6. S-Video
7. Serial
8. LAN

Overview

At A Glance

- Intel® Pentium® M Processors at 1.4, 1.5, 1.6 or 1.7-GHz
- Microsoft® Windows® XP Professional, Microsoft Windows 2000 and limited localizations of Windows XP Home Edition preinstalled
- 512-MB 333-MHz DDR SDRAM upgradeable to 2048 MB
- Up to 60-GB 5400rpm, user-removable hard drives.
- Dual pointing devices
- Magnesium alloy display enclosure
- Protected by a Three-year, Worldwide Limited Warranty - certain restrictions and exclusions apply. Consult the HP Customer Support Center for details.

What's New

- Intel Pentium M Processors
- Intel 855PM chipset with 400MHz processor side bus
- ATI MOBILITY RADEON 9600 Pro graphics controller with 64 or 128MB of Video RAM
- Gigabit Ethernet NIC
- Optional integrated 802.11b, 802.11 b/g and 802.11 a/b/g wireless LAN modules
- Optional integrated Bluetooth
- Support for a fixed optical drive as well as a MultiBay device
- Integrated Secure Digital (SD) flash media slot
- USB 2.0 and IEEE 1394

What's Special

- Support for a fixed optical drive as well as a MultiBay device
- Support for Common Port Replicator and Advanced Port Replicator docking solutions with Gigabit NIC pass-through.
- HP Mobile Printing driver makes on-the-go printing quick and easy

Standard Features

Processors	1.7-GHz Intel Pentium-M Processor with 400-MHz Processor Side Bus and 1024-KB L2 cache 1.6-GHz Intel Pentium-M Processor with 400-MHz Processor Side Bus and 1024-KB L2 cache 1.5-GHz Intel Pentium-M Processor with 400-MHz Processor Side Bus and 1024-KB L2 cache 1.4-GHz Intel Pentium-M Processor with 400-MHz Processor Side Bus and 1024-KB L2 cache	
Operating System One of the following	Microsoft Windows XP Professional Microsoft Windows 2000 Microsoft Windows XP Home (limited localizations)	
Chipset	Intel 855PM Chipset with 400MHz processor side bus and enhanced SpeedStep Technology NOTE: Intel Pentium-M Processors support enhanced Intel SpeedStep™ technology. Processor speed denotes maximum performance mode; processors will run at approximately 600MHz in battery optimization mode.	
Display	Internal	15-inch TFT XGA with (1024x768) resolution (16M colors) 15-inch TFT SXGA+ with (1400x1050) resolution and Wide-Viewing Angle (16M colors) 15-inch TFT UXGA with (1600x1200) resolution and Wide-Viewing Angle (16M colors)
	External	Up to 32-bit per pixel color depth Supports 640 x 480, 800 x 600, 1024 x 768, 1280 x 768, 1280 x 1024, or 1600 x 1200 resolutions up to 100-Hz refresh rate, dependent upon monitor capability, and resolution and color depth settings
Memory	Standard	512-MB 333-MHz SDRAM DDR SDRAM (512-MB SODIMM in slot 1)
	Maximum	2048-MB 333-MHz SDRAM DDR SDRAM (1024-MB SODIMMs in slots 1 and 2)
	NOTE: Due to the non-industry standard nature of some third-party memory modules, we recommend HP branded memory to ensure compatibility	
Communications	10/100/1000 NIC 56K (V.92) modem with digital line guard NOTE: Designed only to allow faster downloads from V.90/V.92 compliant sources. Maximum achievable download transmission rates currently do not reach 56 KB/s, and will vary with line conditions. NOTE: Modem availability is subject to country regulatory approval.	
Keyboard	The 101/102-key compatible keyboard features an industry standard, full-width layout with desktop keyboard features, such as the isolated inverted-T cursor control keys, 3x2 editing keys, both left and right control and alt keys, and 11 function keys. The US layout has 84 keys and the International layout 85 keys. Other features include an integrated numeric keypad, hotkeys for instant access to power conservation, volume, brightness, and other features, 19.05 mm x 19.05 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.	
Quick Launch Buttons	The HP Compaq Business Notebook nc8000 has three Quick Launch buttons designed to provide one-touch access to commonly used features including QuickLock, Wireless on/off, and presentation mode.	
Pointing Device	Dual pointing devices (both Point stick and Touchpad)	

Standard Features

PC Card Slots	Two Type II/One Type III PC Card Slot which support both 32-bit CardBus and 16-bit PC Cards		
Flash Media Slots	One integrated Secure Digital (SD) slot		
Storage	Diskette Drives	Optional MultiBay Diskette Drive	
	Primary Hard Drives	60-GB 5400 rpm SMART 40-GB 5400 rpm SMART	
	MultiBay Hard Drives	60-GB 5400 rpm SMART 40-GB 5400 rpm SMART 30-GB 4200 rpm SMART	
	NOTE: The HP nc8000 hard drives are customer removable and will withstand multiple insertion/removal cycles.		
	Optical Drives	Integrated Drive Bay	DVD+RW 24x/10x/24x/8x DVD/CD-RW 24x CD-RW 8x DVD 24X CD
		MultiBay	DVD+RW 24x/10x/24x/8x DVD/CD-RW 24x CD-RW 8x DVD 24X CD
	Flash Media Storage	One integrated Secure Digital (SD) slot	
Multimedia	HP Premier Sound audio Integrated 16-bit Sound Blaster Pro-compatible audio Two integrated stereo speakers and microphone External volume and mute controls Stereo Headphone-out Microphone in Software MPEG1 support DVD-ROM Drive DVD+RW Drive 24X DVD/CD-RW Combo Drive 8X DVD-ROM Drive 24X CD-ROM Drive		

Standard Features

Interfaces	PC Card Slot	Two Type II or 1 Type III
	External Monitor	1
	Microphone in	1
	DC Power	1
	RJ-11 (modem)	1
	RJ-45 (NIC)	1
	Infrared Port	1 (4 Mb/s support) (IrDA 4-MB compliant. IR performance will vary depending on performance of IR peripherals and application used.)
	Enhanced Parallel EPP/ECP	1
	Serial Port	1
	S-video out connector	1 (Support for NTSC/PAL)
	USB version 2.0 Port	2
	4 Pin IEEE 1394 Port	1
	Docking Connector	1
	LED Status Indicators	9

Graphics

ATI MOBILITY RADEON 9600 Pro graphics controller with 64 or 128-MB DDR SDRAM
4X AGP
Hardware support for DirectX 9.0
ATI Powerplay Technology

Audio

HP Premier Sound 16-bit sound
2 Stereo Speakers
Headphone out and microphone jacks

Software	Preloaded Software	Adobe Acrobat Reader* HP Quick Launch Button Software HP Mobile Printing Driver HP Help and Support (XP Only) Synaptics Touchpad Driver InterVideo WinDVD Player* (for optional DVD, DVD/CDRW and DVD+RW drives)
	Software on CD	InterVideo WinDVD Creator DVD Authoring (for optional DVD+RW drives) Roxio Easy CD Creator Basic (for optional DVD, DVD/CDRW and DVD+RW drives)
	Additional software available from the Web	HP Client Manager Software HP ProtectTools Embedded Security Manager HP ProtectTools Smart Card Security Manager

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

System Recovery

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

Standard Features

Intelligent Manageability

Intelligent Manageability, a key component of HP PC Lifecycle Solutions, is the broad set of manageability features found on HP client and server products. The manageability features on PC clients comply with industry standards, such as DMI/, SMBIOS, PXE, and WBEM, while pioneering new ground in client manageability. HP introduced the industry's first line of manageable clients in 1995. With HP's lifecycle management philosophy, enterprises have all of the pieces for end-to-end management and proven tools for hassle-free management of PCs. The combination of these tools significantly lowers the Total Cost of Ownership of managing the computing environment. Intelligent Manageability offers solutions in the areas of Initial Configuration and Deployment, Asset Tracking and Security, Software Updating and Management, and Fault Notification and Recovery. For more information, visit these Web sites: http://www.hp.com/im; http://www.hp.com/easydeploy; http://www.hp.com/solutions/pcsolutions

Security

The HP nc8000 supports a range of standard as well as optional security features including the optional HP ProtectTools Embedded Security chip and optional integrated Smart Card reader.

Standard Security Features

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

Optional Security Features

HP ProtectTools Embedded Security	Designed to the Trusted Computing Group (TCG) standard Microsoft Crypto API and PKCS#11 software interface support RSA Secured Partner program certification
Integrated Smart Card reader	Compatible with ISO 7816 compliant Smart Cards EMV level 1 certification PC/SC interface support

For more information on HP security solutions refer to www.hp.com/go/security

Power Supply

External 65 watt AC adapter, 6-foot (1.8-meter) power cord included.
Total length including External AC adapter is 12 feet (3.66 meters).

Battery

The HP Compaq Business Notebook nc8000 8-cell internal main Lithium-Ion battery provides up to 5h 26m of battery life.

Battery Re-Charge Time

System in OFF mode or Standby	3 hours
System ON (depending on system power consumption)	3-5 hours

NOTE: Actual results may vary with product model, configuration, and individual usage. Hewlett-Packard testing of a HP Compaq nc8000 with an Intel Pentium M 1.7 GHz CPU, Windows XP Pro, 15.0-inch SXGA+ LCD, 512-MB RAM, 40-GB HDD, Lithium-Ion battery, and NIC/modem, achieved an overall Business Winstone 2002 BatteryMark score of **5h 26m** Business Winstone 2002 BatteryMark™ Version 1.0 units. Winstone® is a registered trademark and BatteryMark™ is a trademark of Ziff Davis Publishing Holdings Inc. in the U.S. and other countries. Copyright 2002 Ziff Davis Media Inc. All Rights Reserved. System parameters followed test recommendations: panel brightness 50%, power management scheme - Laptop/Portable, hard drive, standby and video timers set to never.

Power Conservation

Supports enhanced Intel SpeedStep Technology (which allows Battery Optimized Mode, Maximum Performance Mode, or Automatic mode)
Hibernation
ATI PowerPlay technology
Instant-on via standby
ACPI compliance

Standard Features

MultiBay Devices

MultiBay devices may be swapped with the system powered on (hot) under Microsoft Windows XP Professional or Windows 2000 (except MultiBay Zip drive or MultiBay secondary hard drive).

Wireless Devices

The HP nc8000 notebook supports a broad range of secure, integrated wireless LAN options featuring support for the latest industry standards. Integrated Bluetooth is also an option 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 Wired Equivalent Privacy (WEP) support up to 128-bit keys Wi-Fi Protected Access (WPA) support 802.1x standards support including EAP-TLS, Protected EAP (PEAP) and Cisco-EAP (LEAP) Dual antennas integrated in the display enclosure
HP W500 802.11a/b/g	Integrated support for 802.11a, b and g Up to 54mbps throughput performance Advanced Encryption Standard (AES) support
HP W400 802.11b/g	Integrated support for 802.11b and g Up to 54mbps throughput performance Advanced Encryption Standard (AES) support
Intel Pro 2100/Wireless 802.11b wireless LAN	Intel® Centrino™ mobile technology Integrated support for 802.11b Up to 11mbps throughput performance
Integrated Bluetooth	Designed to the Bluetooth v1.1 specification

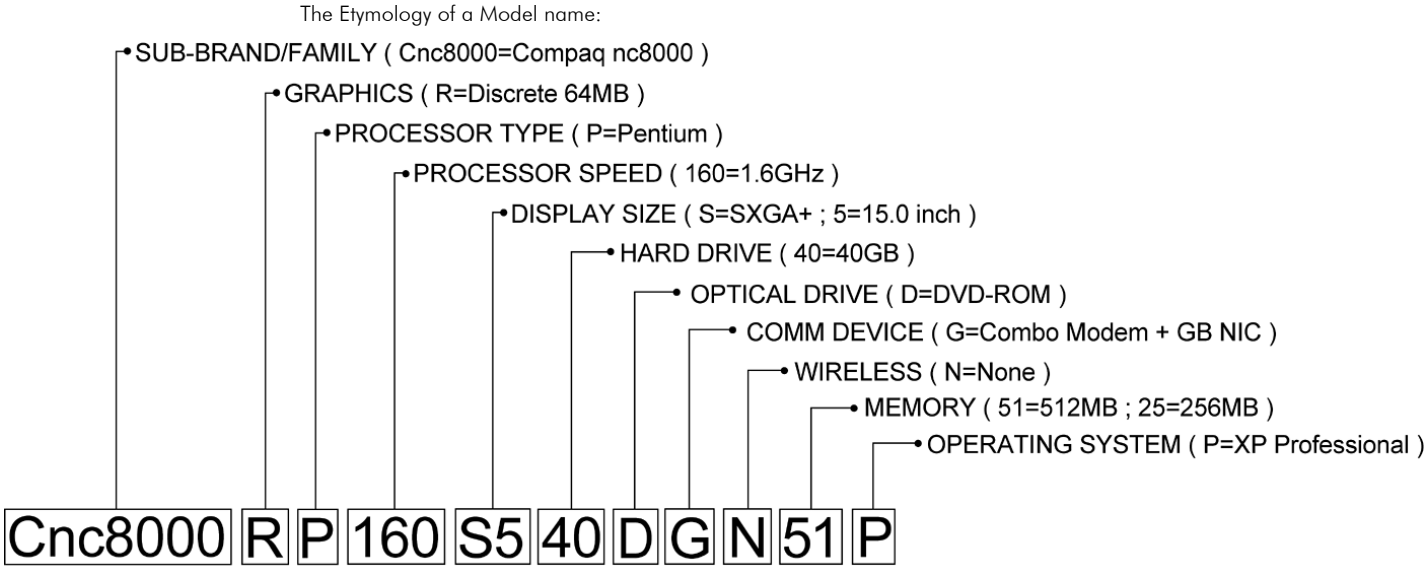
Docking

Port Replicator and Advanced Port Replicator. HP's common port replicator and advanced port replicator provide simple and convenient port management. Features include Gigabit NIC pass through, DVI, USB, and 1394 ports. These docking solutions are Compatible across multiple Business Notebook platforms enabling a lower total cost of ownership.

Service and Support

HP Services includes a Three-year, Worldwide Limited Warranty, pick-up or carry-in and toll-free 7 x 24 hardware technical phone support. On-site service or a one-year warranty are also available,

NOTE: Certain restrictions and exclusions apply. Consult the HP Customer Support Center for details. http://wwss1pro.compaq.com/support/warranty_upgrades/product_specific_warranty.asp.



Models

Cnc8000RP160S540DGN51P
DN889A#XXX

Processor	1.6-GHz Intel Pentium-M processor with 400-MHz Processor Side Bus	
Operating System	Microsoft Windows XP Professional	
Cache	1024 KB L2 cache	
System Memory	Standard	512-MB 333-MHz DDR SDRAM (512-MB SODIMM in slot 1)
	Maximum	2-GB 333-MHz DDR SDRAM (1-GB SODIMM in slots 1 and 2)
Hard Drive	40GB 5400 RPM	
Display	15-inch color TFT SXGA+ with 1280x1024 resolution (up to 16.7M colors internal)	
Graphics	ATI MOBILITY RADEON 9600 Pro graphics controller Hardware support for DirectX 9.0 4X AGP	
Video Memory	64MB	
Audio	HP Premier Sound 16-bit sound, Line out/headphone and microphone jacks	
Fixed Optical Drive	DVD/CD-RW Combo	
MultiBay	Weight Saver	
Communications	56K (V.92) modem, Integrated 10/100/1000 NIC	
Pointing Device	Dual pointing devices (both Point stick and Touchpad)	
Battery	8-cell Lithium-Ion battery	
Power	External 65W adapter	
Warranty	3/3/0	

Standard Features

Cnc8000RP160S540DGN512
DN890A#XXX

Processor	1.6-GHz Intel Pentium-M processor with 400-MHz Processor Side Bus
Operating System	Microsoft Windows 2000
Cache	1024 KB L2 cache
System Memory	Standard 512-MB 333-MHz DDR SDRAM (512-MB SODIMM in slot 1) Maximum 2-GB 333-MHz DDR SDRAM (1-GB SODIMM in slots 1 and 2)
Hard Drive	40GB 5400 RPM
Display	15-inch color TFT SXGA+ with 1280x1024 resolution (up to 16.7M colors internal)
Graphics	ATI MOBILITY RADEON 9600 Pro graphics controller Hardware support for DirectX 9.0 4X AGP
Video Memory	64MB
Audio	HP Premier Sound 16-bit sound, Line out/headphone and microphone jacks
Fixed Optical Drive	DVD/CD-RW Combo
MultiBay	Weight Saver
Communications	56K (V.92) modem, Integrated 10/100/1000 NIC
Pointing Device	Dual pointing devices (both Point stick and Touchpad)
Battery	8-cell Lithium-Ion battery
Power	External 65W adapter
Warranty	3/3/0

Options

		Compaq PN	HP PN
Memory	1024-MB 333-MHz DDR Memory Upgrade	NA	DC890B
	512-MB 333-MHz DDR Memory Upgrade	NA	DC390B
	256-MB 333-MHz DDR Memory Upgrade	NA	DC389B
MultiBay Hard Drives	60-GB 5400 rpm SMART Hard Drive	278420-B25	DC894A
	40-GB 5400 rpm SMART Hard Drive	263472-B25	DC365A
	30-GB 4200 rpm SMART Hard Drive	212791-B25	DE882A
MultiBay Storage Devices	24X Combo DVD/CD-RW	269089-B25	DC364A
	24X CD-RW	NA	DC921A
	8X DVD Drive	138230-B25	DC352A
	24X Max CD-ROM	298452-B25	DC351A
	Diskette Drive	226935-B25	DC362A
Other Storage Devices	IBM 1-GB Microdrive (PC card Device)	217390-B25	DC379A
	USB Diskette Drive	230330-B25	DC361A
Expansion Bases	Port Replicator	307648-xx2	DC367B
	Advanced Port Replicator	307651-xx2	DC366B
	External MultiBay	217388-001/B31	DC373A#xxx
	Monitor Stand	274407-B25	DC377A
Power	8 Cell Primary Battery	NA	DG105A
	MultiBay Battery		DC889A
Common Power Solutions	External Battery Charger	265603-xxx	DC887A
	AC Adapter 65W	265602-xxx	DC359A
	Auto Power Adapter/Charger	265649-B25	DC360A
	Aircraft Power Cables	291370-B25	DC899A
	AC Line Cord (10 ft/3.1 m)	217932-xx2	DC851A
Input Devices	External Enhanced III Keyboard (carbon) USB/PS2 Keyboard	118003-009	DC852A
	HP 2 Button Mouse (carbon) USB/PS2 Keyboard 2-button scroll	103180-B23	DC369A
	External 10-Key Numeric Keypad (carbon)	294317-B21	DC854A
Security	Biometric PC Card	146805-B25	DC859A
	Security Cable Lock	294316-B21	DC368A
	HP Smart Card PC Card Reader	135646-B25	DC350A

Options

Carrying Cases	HP Ultra light Case (nylon)	167336-B21	DC853A
	Top Load Leather	NA	DC917A
	Executive Nylon	NA	DC916A
	HP Backpack	NA	DG102A

HP Compaq Business Notebook nc8000

Standard Memory Plus Optional Memory

Support for up to 2048 MB of 333-MHz DDR SDRAM memory is available with the installation of optional DDR SDRAM Memory Kits

0-MB of memory on system board
2 Slots total
1-512-MB DIMM installed in Slot 1
1-Additional open Memory Slot

Memory	Slot 1	Slot 2
	512 MB	Empty

Standard Memory with Optional Memory Upgrades

Support for up to 2048-MB of SDRAM is available with the installation of optional SDRAM Memory Upgrades.

Up to	Slot 1	Slot 2
512 MB	512 MB	Empty
1024 MB	512 MB	512 MB
1536 MB	1024 MB	512 MB
2048 MB	1024 MB	1024 MB

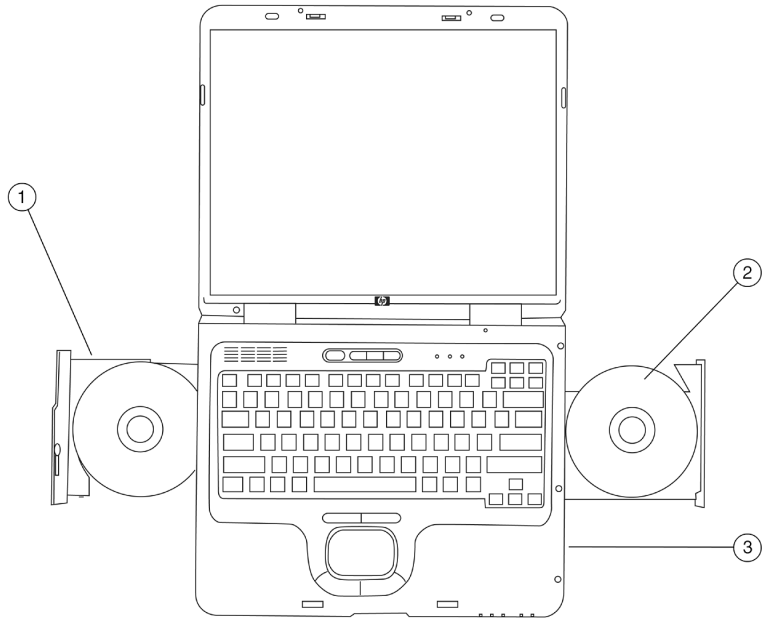
NOTE: This chart does not represent all possible memory configurations. Due to the non industry standard nature of some third-party memory modules, we strongly recommend using only HP branded memory modules to ensure compatibility.

Following are memory options available from HP:

Memory Upgrades	HP PN
1024-MB 333-MHz DDR Memory Upgrade	DC890B
512-MB 333-MHz DDR Memory Upgrade	DC390B
256-MB 333-MHz DDR Memory Upgrade	DC389B

NOTE: 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.

Storage



1. Fixed Drive Bay
2. MultiBay
3. Hard Drive

Removable Media

System Drive Support	Quantity Supported	Drive Bay Supported
1.44-MB Diskette Drive	Up to 1	MultiBay
DVD+RW	Up to 1	MultiBay
DVD/CD-RW Combo Drive	Up to 1	MultiBay
DVD-ROM Drive	Up to 1	MultiBay
CD-RW Drive	Up to 1	MultiBay
CD-ROM Drive	Up to 1	MultiBay

NOTE: MultiBay support includes the integrated MultiBay, the External MultiBay, and the Advanced Port Replicator MultiBay unless otherwise noted.

Removable Media

System Drive Support	Quantity Supported	Drive Bay Supported
DVD+RW	Up to 1	Fixed Drive Bay
DVD/CD-RW Combo Drive	Up to 1	Fixed Drive Bay
DVD-ROM Drive	Up to 1	Fixed Drive Bay
CD-RW Drive	Up to 1	Fixed Drive Bay
CD-ROM Drive	Up to 1	Fixed Drive Bay

Drive Support

System Drive Support

Primary Hard Drives

30-GB SMART Hard Drive	Up to 2	Dedicated hard drive bay and/or MultiBay
40-GB SMART Hard Drive	Up to 2	Dedicated hard drive bay and/or MultiBay
60-GB SMART Hard Drive	Up to 2	Dedicated hard drive bay and/or MultiBay

System Unit	**Dimensions** (HxWxD	15-inch TFT panel display	1.6 x 12.8 x 10.8 in (4.1 x 32.6 x 27.5 cm)
	Weight	System with main battery and MultiBay weight saver	6.5 lb (2.96 kg)
	NOTE: * Height varies depending upon where on the notebook the measurement is made. Weight varies by configuration and components.		
	Stand-Alone Power Requirements	Nominal Operating Voltage (Li-Ion)	14.4 VDC
		Max Operating Power	60W
		Peak Operating Power	65W
	Temperature	Operating	50° to 95° F (10° to 35° C)
		Non-operating	-4° to 140° F (-20° to 60° C)
	Relative Humidity	Operating	10% to 90% relative humidity, non-condensing
		Non-operating	5% to 90% relative humidity, 101.6° F (38.7° C) Maximum wetbulb temperature
	Shock	Operating	40 G, 2 ms, half-sine
		Non-operating	240 G, 2 ms, half-sine
	Vibration	Operating	0.5 G, 10 to 500 Hz, 0.5 Oct/Min sweep rate
		Non-operating	1.0 G, 10 to 500 Hz, 0.5 Oct/Min sweep rate
	Maximum Altitude (unpressurized)	Operating	0 to 10,000 ft (3,048 m) (14.7 to 10.1 psia)
		Non-operating	0 to 30,000 ft (9,144 m) (14.7 to 4.4 psia)
	Industry Standard Certifications	Blue Angel	No
		UL	Yes
		Canadian Safety	Yes
		TUV GS	Yes
		Nordic Safety	Yes
		Mexican Safety	Yes
		Poland Compliance	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

External AC Adapter	**Weight**	0.65 lb (0.29 kg) (adapter)	
		0.29 lb (0.13 kg) (power cord)	
	Power Supply (Input)	Operating Voltage	90 to 264 VAC RMS
		Operating Current	1.6 A RMS
		Operating Frequency Range	47 to 63 Hz AC
		Maximum Transient	4/50 kV
		Maximum Operating Power	65 Watts

Primary Lithium-Ion Battery Pack	**Dimensions** (H x W x L)	0.75 x 3.0 x 5.8 in (1.9 x 7.6 x 14.7 cm)	
	Weight	0.92 lb (0.42 kg)	
	Cells/Type	8-cell Lithium-Ion	
	Energy	Voltage	14.4 V
		Amp-hour capacity	4.4 Ah
		Watt-hour capacity	63Wh
	Temperature	Operating	41° to 113° F (5° to 45° C)
		Non-operating	32° to 140° F (0° to 60° C)
	Battery Re-Charge Time	System in OFF mode or Standby	3 hours
		System ON (depending on system power consumption)	3-5 hours
Optional MultiBay Battery Pack	**Dimensions** (H x W x L)	0.5 x 5.2 x 5.45 in (1.3 x 13.2 x 13.9 cm)	
	Weight (includes caddy)	0.86 lb (0.39 kg)	
	Cells/Type	8-cell Lithium-Ion	
	Energy	Voltage	14.8 V
		Amp-hour capacity	3.6 Ah
		Watt-hour capacity	53Wh
	Temperature	Operating	41° to 113° F (5° to 45° C)
		Non-operating	32° to 140° F (0° to 60° C)
	Battery Re-Charge Time	System in OFF mode or Standby	2-3 hours
		System ON (depending on system power consumption)	3-5 hours
15.0-Inch Color TFT XGA Display	**Dimensions** (H x W x L)	12.0 x 9.0 in (30.4 x 22.8 cm)	
	Diagonal Size	15.0 in (38.0 cm)	
	Mounting	Internal	
	Number of Colors	16 M	
	Contrast Ratio	250:1 typical	
	Refresh Rate	60 Hz	
	Brightness	180 nit typical	
	Pixel Resolution	Pitch	0.297 x 0.297 mm
		Format	1024 x 768
		Configuration	RGB Stripe
	Backlight	CCFT	
	Character Display	80 x 25	
	Total Power Consumption	4 W	
	Viewing Angle	±45° degrees Horizontal, +15° /-35° Vertical (typical)	

15.0-Inch Color TFT SXGA+ Display	**Dimensions** (H x W x L)	12.0 x 9.0 in (30.4 x 22.8 cm)	
	Diagonal Size	15.0 in (38.0 cm)	
	Mounting	Internal	
	Number of Colors	16 M	
	Contrast Ratio	300:1 typical	
	Refresh Rate	60 Hz	
	Brightness	180 nit typical	
	Pixel Resolution	Pitch	0.217 x 0.217 mm
		Format	1400 x 1050
		Configuration	RGB Stripe
	Backlight	CCFT	
	Character Display	80 x 25	
	Total Power Consumption	4 W	
	Viewing Angle	±60° degrees Horizontal, +40° /-45° Vertical (typical)	

15.0-Inch Color TFT UXGA Display	**Dimensions** (H x W x L)	12.0 x 9.0 in (30.4 x 22.8 cm)	
	Diagonal Size	15.0 in (38.0 cm)	
	Mounting	Internal	
	Number of Colors	16 M	
	Contrast Ratio	300:1 typical	
	Refresh Rate	60 Hz	
	Brightness	180 nit typical	
	Pixel Resolution	Pitch	0.190 x 0.190 mm
		Format	1600 x 1200
		Configuration	RGB Stripe
	Backlight	CCFT	
	Character Display	80 x 25	
	Total Power Consumption	4 W	
	Viewing Angle	±60° Horizontal, +40° /-45° Vertical (typical)	

Hard Drives

60-GB 5400 rpm	MultiBay Drive Adapter	Dimensions (H x W x D)	1.27 x 13.25 x 12.61 cm (0.5 x 5.21 x 4.97 in)
		Weight	0.15 lb (70 g)
	Drive Weight	0.22 lb (102 g)	
	Capacity	60 GB	
	Height	0.74 in (9.5 mm)	
	Width	2.75 in (70 mm)	
	Interface	ATA-5	
	Transfer Rate	Synchronous (maximum)	100 MB/s (Drive Capability)
		Security	ATA Security
	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	Security	ATA Security
40-GB 5400 rpm	MultiBay Drive Adapter	Dimensions (H x W x D)	1.27 x 13.25 x 12.61 cm (0.5 x 5.21 x 4.97 in)
		Weight	0.15 lb (70 g)
	Drive Weight	0.22 lb (102 g)	
	Capacity	40 GB	
	Height	0.74 in (9.5 mm)	
	Width	2.75 in (70 mm)	
	Interface	ATA-5	
	Transfer Rate	Synchronous (maximum)	100 MB/s (Drive Capability)
		Security	ATA Security
	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	Security	ATA Security

CD-ROM Drive	**Dimensions**	0.5 x 5.22 x 5.46 in (1.35 x 13.28 x 13.88 cm)	
	Weight	0.496 lb (225 g)	
	Access Times	Random	<110 ms CD
		Full Stroke	<220 ms CD
	Max data transfer rate	24X CD-ROM	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	
	Supported Media (write)	None	
	Media Capacity	650MB	
	Transport	Tray Loading	

DVD-ROM Drive	**Dimensions**	0.5 x 5.22 x 5.46 in (1.35 x 13.28 x 13.88 cm)	
	Weight	0.518 lb (235 g)	
	Access Times	Random	<110 ms CD
			<125 ms DVD
		Full Stroke	<175 ms CD
			<225 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, DVD-RAM	
	Supported Media (write)	None	
	Media Capacity	4.7 GB	
	Transport	Tray Loading	

DVD/CD-RW Drive	**Dimensions**	0.5 x 5.22 x 5.46 in (1.35 x 13.28 x 13.88 cm)	
	Weight	0.551 lb (250 g)	
	Access Times	Random	<110 ms CD
			<130 ms DVD
		Full Stroke	<210 ms CD
			<225 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
	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, DVD-RAM	
	Supported Media (write)	CD-R, CD-RW	
	Media Capacity	4.7 GB	
	Transport	Tray Loading	

DVD+RW Drive	**Dimensions**	0.5 x 5.22 x 5.46 in (1.35 x 13.28 x 13.88 cm)	
	Weight	0.551 lb (250 g)	
	Access Times	Random	<175 ms CD
			<230 ms DVD
		Full Stroke	<285 ms CD
			<335 ms DVD
	Max data transfer rate	24X CD-ROM	3,600 KB/s
		8X DVD	10,800 KB/s
		16X CD-R	2,400 KB/s
		8X CD-RW	1,200 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	
	Media Capacity	4.7 GB	
	Transport	Tray Loading	

CD/RW Drive	**Dimensions**	0.5 x 5.22 x 5.46 in (1.35 x 13.28 x 13.88 cm)	
	Weight	0.518 lb (235 g)	
	Access Times	Random	<130 ms CD
		Full Stroke	<200ms CD
	Max data transfer rate	24X CD-ROM	3,600 KB/s
		24X CD-R	3,600 KB/s
		10X CD-RW	1,500 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	
	Supported Media (write)	CD-R, CD-RW,DVD+R,DVD+RW	
	Media Capacity	4.7 GB	
	Transport	Tray Loading	
MultiBay Diskette Drive	**Dimensions** (H x W x D)	0.5 x 5.22 x 5.46 in (1.35 x 13.28 x 13.88 cm)	
	Weight	0.51 lb (230 g)	
	Diskette Size	3.5 in	
	Height	12.7 mm	
	Bytes per Sector	512	
	Sectors per track	High density	18 (1.44 MB)/15 (1.2 MB)
		Low density	9
	Tracks per side	High density	80 (1.44 MB)/80 (1.2 MB)
		Low density	80
	Read/Write heads	2	
	Access Times	Track-to track (high/low)	3 ms/6 ms
		Average (high/low)	94 ms/174 ms
		Settling time	15 ms
		Latency average	100 ms

Audio

Hardware	**Implementation**	AC97 CODEC
	Audio Signal Link to CPU	Audio CODEC (AC) link
	Full Duplex	Yes
	Stereo Inputs	Line In - 20K Impedance (with Port Replicator only)
	Mono Inputs	Microphone - 20K Impedance
	Stereo Outputs	Headphone jack, S/PDIF from Port Replicator only

Audio Output Quality	Frequency Response	20 Hz - 20 kHz
	Signal to Noise Ratio	>94dB
	Total Harmonic Distortion	0.01%
	Noise Floor	-120dB
	Play/Record Sampling Rate(s)	7 kHz - 48 kHz
	AD/DA Resolution	16 bit
Mono Speaker	Amplifier Power	2-Watts RMS
	Speaker Impedance	4-Ohms
Integrated 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 IEEE 802.1p QoS (Quality of Service) Support IEEE 802.3x Flow Control (IEEE 802.3 clauses 31-32; configurable)
	Power Management	ACPI 1.1a 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) Microsoft Large Send Offload (configurable) TCP Segmentation Offload CPU Task Offload Adaptive Interrupts
	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	Windows XP Windows 2000 Linux kernel versions 2.2 and 2.4

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
	Modem Device Driver Name	Agere Systems AC'97 Modem
	Data Mode Capabilities	V.92 V.90 (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
	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

Bluetooth by HP	**Form Factor**	Integrated USB module	
	Bluetooth	1.1 Compliant	
	Dimensions	1.02 x 0.55 x 0.22 in (26 x 14 x 5.7 mm)	
	Temperature	Operating	-4° to 158° F (-20° to 70° C)
		Non-operating	-40° to 176° F (-40° to 80° C)
	Humidity	10% to 90% operating	
		5% to 95% non operating	
	Altitude	Operating	15,000 ft (4,572 m)
		Non-operating	40,000 ft (12,192 m)
	Plug and Play	USB 1.1 compliant	
		Microsoft Windows Plug and Play compliant	

Frequency Band	2402 to 2480 MHz
Number of Available Channels	79 (1 MHz) available channels
Data Rates and throughput	1 Mbps 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
Antenna type	Internally integrated within module
Range	33 ft (10 m)
OS Support	Microsoft Windows XP Professional and Home Microsoft Windows 2000
Software Stack Supported	User may choose: Microsoft User Interface (Profiles supported: HID, DUN, HCRP) Widcomm User Interface (see profile support below)
Profile Support	General Access Profile Service Discovery Application Profile Serial Port Profile Generic Object Exchange Profile File Transfer Profile Synchronization Profile Dial-Up Networking Profile LAN Access Profile Object Push Profile Hard Copy Cable Replacement Profile Personal Area Networking Profile Human Interface Device Profile
Usage Models	Service Discovery (determine what Bluetooth devices are within range and support authorization) **Synchronization** PDAs to PCs Portable to Desktop **File Transfer** File and directory browsing and navigation on another Bluetooth device. File copying Object manipulation – including add, delete, create new folders etc. Wireless link to Corporate LAN using several Bluetooth devices sharing the same **Access Point** Corporate email, network neighborhood, access to LAN applications, file transfer, ftp, Internet browsing, etc., using TCP/IP Wireless link to WAN thru cell phone Agnostic to WAN technology Send/receive SMS messages Wireless link to Printer Adhoc peer to peer networking (two computers) or Personal Area Networking (PAN) using NDIS (< 7 computers) Adhoc Bluetooth Pico-networking (point to multi-point) Object Push – Business card or appointment exchange **Human Interface Devices** Wirelessly interface to notebook with mouse, keyboard, etc **Printing** Wirelessly print to Bluetooth enabled printers
Transmit Power	-6dBm to 4 dBm (Bluetooth Class II)
Receive Sensitivity	Better than –80 dBM at 0.1 % raw bit error rate
Link Topology	Point to Point, Multipoint Pico Nets up to 7 slaves
Security	Full support of Bluetooth Security Provisions
Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Points Required)

Power Requirement	Peak	< 270 mW
Power Management	Microsoft Windows ACPI, and USB Bus Support Wireless EAB On/Off Software On/Off control Self configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff	
Protocols Supported	TCP/IP IPX/SPX UDP	
LED Activity	Solid Blue LED – On LED Off – Power Off	
Certifications	All necessary regulatory approvals for countries we support 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	

HP W400 802.11b/g WLAN	**Wireless LAN Standards**	IEEE 802. Part 11b (802.11b) IEEE 802. Part 11g (802.11g)	
	Interoperability	Wi-Fi certified (details available 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	
	Modulation	Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM	
	Security	64- and 128-bit WEP encryption Support for WiFi Protected Access (WPA) including TKIP, MIC Hardware-accelerated support for the Advanced Encryption Standard (AES; 256-bit encryption) Support for 802.1x authentication types: EAP-TLS, LEAP (Cisco), PEAP (Microsoft implementation); more details available at http://www.hp.com/go/notebooks/wlan 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 802.11b/g access points.	
	Output Power	802.11b: 17 dBM (typical) 802.11g: 15 dBM (typical)	
	Power Consumption	Transmit: 2.0 W (max) Receive: 1.5 W (max) Sleep mode: 20 mW (max)	
	Power Management	ACPI compliant power management 802.11 Compliant Power Saving Mode Power Saving Mode selectable through the configuration utility	
	Receiver Sensitivity*	54 Mbps: -70 dBm to 1 Mbps: -90 dbm	
	Antenna type	High efficiency dual band antenna with polarization diversity, mounted in the display enclosure	
	Range	802.11 b - Typical	1200 feet - Outdoor Open Area 300 feet - Indoor, Office environment
		802.11 g - Typical	1000 feet - Outdoor Open Area 200 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 Non-operating	32° to 122° F (0° to 50° C) -14° to 158° F (-10° to 70° C)
	Humidity	Operating Non-operating	10% to 90% 5% to 95%
	Altitude	Operating Non-operating	0 to 15,000 ft (4,572 m) 0 to 40,000 ft (12,192 m)
	Configuration Utility	Choice of Configuration Utility: Atheros Client Utility for Microsoft Windows 2000 or XP (required for Cisco Compatible Extensions support) Microsoft Windows XP Wireless Zero Configuration Utility NOTE: May also be compatible with certain third party software supplicants	
	LED Activity	LED Off - Radio OFF; Solid LED - Radio ON	
	Agency Approvals	details at: http://www.hp.com/go/notebooks/wlan	
	*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)		
HP W500 802.11a/b/g WLAN	**Wireless LAN Standards**	IEEE 802 Part 11a (802.11a) IEEE 802. Part 11b (802.11b) IEEE 802. Part 11g (802.11g)	
	Interoperability	Wi-Fi certified (details available at http://www.hp.com/go/notebooks/wlan)	
	Frequency Band	2.4 and 5 GHz	
	Data Rates	802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps	
	Modulation	Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM	
	Security	64- and 128-bit WEP encryption Support for WiFi Protected Access (WPA) including TKIP, MIC Hardware-accelerated support for the Advanced Encryption Standard (AES; 256-bit encryption) Support for 802.1x authentication types: EAP-TLS, LEAP (Cisco), PEAP (Microsoft implementation); more details available at http://www.hp.com/go/notebooks/wlan 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 802.11a and 802.11b/g access points	
	Output Power	802.11b: 17 dBM (typical) 802.11g: 15 dBM (typical)	
	Power Consumption	Transmit: 2.0 W (max) Receive: 1.5 W (max) Sleep mode: 20 mW (max)	
	Power Management	ACPI compliant power management 802.11 Compliant Power Saving Mode Power Saving Mode selectable through the configuration utility	
	Receiver Sensitivity*	54 Mbps: -70 dBm to 1 Mbps: -90 dbm	
	Antenna type	High efficiency dual band antenna with polarization diversity, mounted in the display enclosure	
	Range	802.11a - Typical	500 feet - Outdoors Open Area 150 feet - Indoor, Office-environment

	802.11 b - Typical	1200 feet - Outdoor Open Area 300 feet - Indoor, Office environment
	802.11 g - Typical	1000 feet - Outdoor Open Area 200 feet - Indoor, Office environment
Form Factor	MiniPCI Type IIIA	
Weight	0.036 lb (16.5 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 Non-operating	32° to 122° F (0° to 50° C) -14° to 158° F (-10° to 70° C)
Humidity	Operating Non-operating	10% to 90% 5% to 95%
Altitude	Operating Non-operating	0 to 15,000 ft (4,572 m) 0 to 40,000 ft (12,192 m)
Configuration Utility	Choice of Configuration Utility: Atheros Client Utility for Microsoft Windows 2000 or XP (required for Cisco Compatible Extensions support) Microsoft Windows XP Wireless Zero Configuration Utility NOTE: May also be compatible with certain third party software supplicants	
LED Activity	LED Off - Radio OFF; Solid LED - Radio ON	
Agency Approvals	details at: http://www.hp.com/go/notebooks/wlan	

*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)

Intel Pro/Wireless 2100 802.11b WLAN	**Wireless LAN Standards**	IEEE 802. Part 11b (802.11b)
	Interoperability	Wi-Fi certified (details available at www.hp.com/go/notebooks/wlan)
	Frequency Band	2.4 GHz
	Data Rates	802.11b: 1, 2, 5.5, 11 Mbps
	Modulation	Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK
	Security	64- and 128-bit WEP encryption Support for WiFi Protected Access (WPA) including TKIP, MIC Hardware-accelerated support for the Advanced Encryption Standard (AES; 256-bit encryption) Support for 802.1x authentication types: EAP-TLS, LEAP (Cisco), PEAP (Microsoft implementation); more details available at www.hp.com/go/notebooks/wlan 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 802.11b access points
	Output Power	16 dBM (typical)
	Power Consumption	Transmit: 2.0 W (max) Receive: 1.75 W (max) Sleep mode: 200 mW (max)
	Power Management	ACPI compliant power management 802.11 Compliant Power Saving Mode
	Receiver Sensitivity*	11 Mbps: -82 dBm to 1 Mbps: -89 dBm
	Antenna type	High efficiency dual band antenna with polarization diversity, mounted in the display enclosure
		802.11 b - Typical: 1200 feet - Outdoor Open Area 300 feet - Indoor, Office environment
	Form Factor	MiniPCI Type IIIA
	Weight	0.026 lb (11.75 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 158° F (0° 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: 0 to 10,000 ft (3,048 m) Non-operating: 0 to 50,000 ft (15,240 m)
	Configuration Utility	Choice of Configuration Utility: Intel ProSet for Microsoft Windows 2000 or XP (required for Cisco Compatible Extensions support) Microsoft Windows XP Wireless Zero Configuration Utility NOTE: May also be compatible with certain third party software supplicants
	LED Activity	LED Off - Radio OFF; Solid LED - Radio ON
	Agency Approvals	details at: www.hp.com/go/notebooks/wlan

*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)

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