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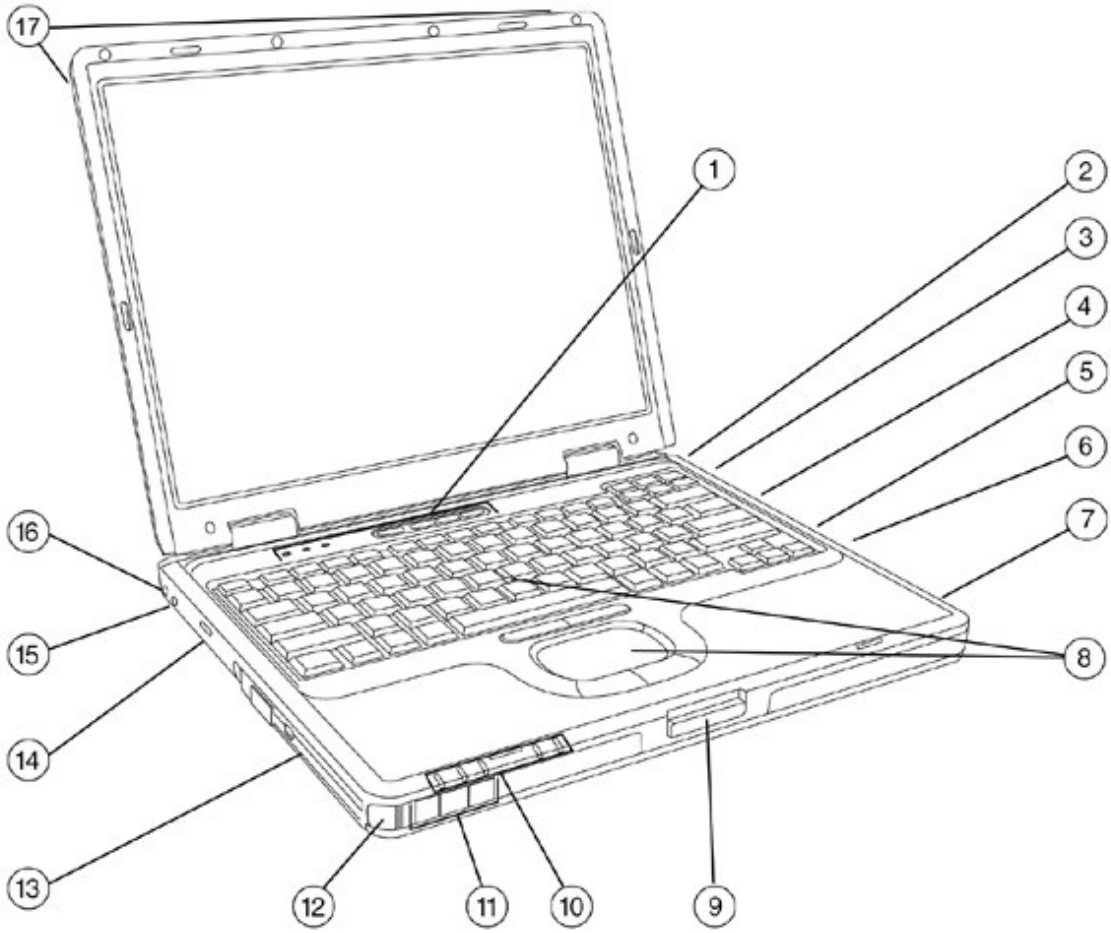
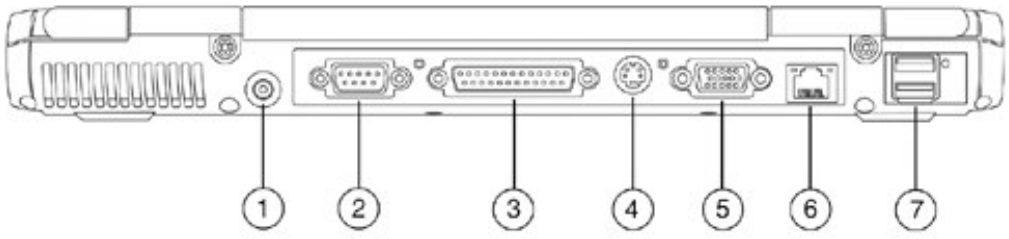
Overview

HP Compaq nc6000 Business Notebook

HP recommends Microsoft® Windows® XP Professional



1. 3 Quick Launch Buttons (Quicklock, Wireless On/Off, Presentation), Power Button, LEDs (Num Lk, Caps Lk, Scroll Lk)
2. Security Lock
3. Bluetooth
4. RJ-11 Port
5. SD Slot
6. PC Card Slots
7. Battery
8. Dual Pointing Devices
9. Display Latch
10. Wireless, Power, Charge, Hard Drive, and MultiBay Drive Activity LEDs
11. Volume Buttons
12. Infrared Port
13. MultiBay
14. Hard Drive
15. Microphone
16. Headphone
17. Wireless LAN Antennas



1. Power Connector
2. Serial
3. Parallel
4. S-Video
5. VGA
6. RJ-45
7. USB 2.0 (2)

At A Glance

- Microsoft Windows XP Professional
- Intel® Pentium® M Processors
  - Intel 855PM chipset with 400MHz processor side bus
- From 256-MB DDR SDRAM to 2048 MB
- Up to 80-GB (5400 rpm), user-removable hard drives
- Gigabit Ethernet NIC
- Dual pointing devices
- Support for swappable MultiBay devices
- Magnesium alloy display enclosure
- Common Port Replicator and Advanced Port Replicator with Gigabit NIC pass-through
- Protected by a three-year, Worldwide Limited Warranty – certain restrictions and exclusions apply. Consult the HP Customer Support Center for details.

What's New

- Microsoft Windows XP Professional
- Sleek new industrial design weighing 4.96 lb (travel weight) and 1.27-inch thin
- ATI MOBILITY RADEON 9600 graphics controller with 32 or 64MB of Video RAM
- Optional integrated 802.11b, 802.11 b/g, and 802.11 a/b/g wireless LAN modules
- Support for Intel® Centrino™ technology (model dependent)
- Optional integrated Bluetooth
- Integrated Secure Digital (SD) flash media slot
- Security features include optional integrated Smart Card reader or optional HP Protect Tools Embedded Security

What's Special

- Flexible wireless LAN solutions
- Choice of optional integrated Smart Card reader or Embedded Security features
- Integrated Secure Digital (SD) flash media slot
- Up to 5 hours battery life with 6-cell (standard via BTO) Li-Ion battery, 8-cell battery also available for increased productivity
- HP Mobile Printing driver makes on-the-go printing quick and easy
- Support for Common Port Replicator and Advanced Port Replicator docking solutions with Gigabit NIC pass-through

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Standard Features

Processors	Intel Pentium M processor 755* – 2.0GHz, 2MB L2 cache, 400 MHz Front Side Bus (FSB) Intel Pentium M processor 745 – 1.8GHz, 2MB L2 cache, 400MHz Front Side Bus (FSB) Intel Pentium M processor 735 – 1.7GHz, 2MB L2 cache, 400MHz Front Side Bus (FSB) Intel Pentium M processor 725 – 1.6GHz, 2MB L2 cache, 400MHz Front Side Bus (FSB) Intel 855PM Chipset **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. * Intel's numbering is not a measurement of higher performance.
Operating System	Microsoft Windows XP Professional Microsoft Windows XP Home (model dependent)

Chipset	Intel 855PM Chipset with 400MHz processor side bus and enhanced SpeedStep technology	
Display	Internal	14.1-inch TFT XGA with (1024x768) resolution (16M colors) 14.1-inch TFT SXGA+ with (1400x1050) resolution (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	256-MB or 512-MB (333-MHz) DDR SDRAM (SODIMM in slot 1)
	Maximum	2048-MB (333-MHz) 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 High speed 56K modem with digital line guard **NOTE:** Designed only to allow faster downloads from high speed 56K modem 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 nc6000 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 Pointstick and Touchpad)	
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
	Hard Drives	30-GB (4200 rpm) SMART 40-GB (5400 rpm) SMART 60-GB (5400 rpm) SMART 60-GB (7200 rpm) SMART 80-GB (5400 rpm) SMART
	NOTE: The HP nc6000 hard drives are customer removable and will withstand multiple insertion/removal cycles.	

	Optical Drives	MultiBay	4X DVD+RW 24x/24x/24x/8x DVD/CD-RW 8x DVD-ROM 24X CD-ROM
	Flash Media Storage	One integrated Secure Digital (SD) slot	

Multimedia	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 movie playback software DVD+RW Drive 24X DVD/CD-RW Combo Drive 8X DVD-ROM Drive 24X CD-ROM Drive DVD+/-RW Drive

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
	Docking Connector	1
	LED Status Indicators	8

Graphics	ATI MOBILITY RADEON 9600 graphics controller with 32 or 64-MB DDR SDRAM 4X AGP Hardware support for DirectX 9.0 ATI *Powerplay* Technology

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

Software	**Preloaded Software for Microsoft Windows XP**	Adobe Acrobat Reader HP Quick Launch Button Software HP Mobile Printing Driver HP Help and Support (XP Only) Synaptics Touchpad Driver Intervideo WinDVD - DVD Player (for optional DVD+RW, DVD+/-RW,

		DVD/CDRW and DVD drives)*
	Software on CD	Intervideo WinDVD Creator - DVD Authoring (for optional DVD+RW and DVD+/-RW drives) Roxio Easy CD Creator (for optional DVD+RW, DVD+/-RW, DVD/CDRW and CD-RW drives)
	Additional software available from the Web	HP Client Manager Software HP ProtectTools Embedded Security Manager HP ProtectTools Smart Card Security Manager HP Setup Utility

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

System Recovery for Microsoft Windows XP systems only

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.

Client Management Software

In December 2003, Insight Manager was replaced by HP Systems Insight Manager Software (SIM). HP SIM will use WMI to retrieve client system information. A HP SIM connector will be available for the HP Client Manager Software beginning in 2Q/2004. For more information and to download HP Client Manager Software, please refer to the HP website at http://www.hp.com/go/easydeploy.

Security

The HP nc6000 supports a range of standard as well as optional security features including the optional 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	**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
	Integrated Smart Card reader	Compatible with ISO 7816 compliant Smart Cards PC/SC interface support

For more information on HP security solutions refer to http://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 meter).

Battery

Primary Batteries
6-cell Lithium-Ion (4.4Ah) – standard
8-cell Lithium-Ion (4.4Ah) – optional

Secondary Battery (MultiBay)
8-cell Lithium-Ion (3.6Ah) – optional

Battery Life

The HP Compaq Business Notebook nc6000 6-cell primary Lithium-Ion battery provides up to 5 hours of battery life.
The HP Compaq Business Notebook nc6000 8-cell optional primary high capacity Lithium-Ion battery provides up to 6.5 hours of battery life.

NOTE: Actual results may vary with product model, configuration, and individual usage. Hewlett-Packard testing of a HP Compaq nc6000 with an Intel Pentium M processor 735 1.7 GHz CPU, Windows XP Pro, 14.1-inch XGA LCD, 512-MB RAM, 40-GB HDD, 6-cell Lithium-Ion battery, and NIC/modem, achieved an overall Business Winstone® 2002 BatteryMark score of 5h 12m 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, not external devices connected and all wireless turned off.

NOTE: Actual results may vary with product model, configuration, and individual usage. Hewlett-Packard testing of a HP Compaq nc6000 with an Intel Pentium M processor 735 1.7 GHz CPU, Windows XP Pro, 14.1-inch XGA LCD, 512-MB RAM, 40-GB HDD, 8-cell Lithium-Ion battery, and NIC/modem, achieved an overall Business Winstone® 2002 BatteryMark score of 6h 53m 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, not external devices connected and all wireless turned off.

Battery Re-Charge Time

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

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

MultiBay Devices

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

Wireless Devices

The HP nc6000 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
Intel PRO/Wireless 2100 802.11b wireless LAN	Intel® Centrino™ mobile technology Integrated support for 802.11b Up to 11mbps throughput performance

Intel PRO/Wireless 2200 802.11 b/g wireless LAN	Intel® Centrino™ mobile technology Integrated support for 802.11b and g Up to 11mbps throughput performance
Integrated Bluetooth	Designed to the Bluetooth v1.1 specification

Docking

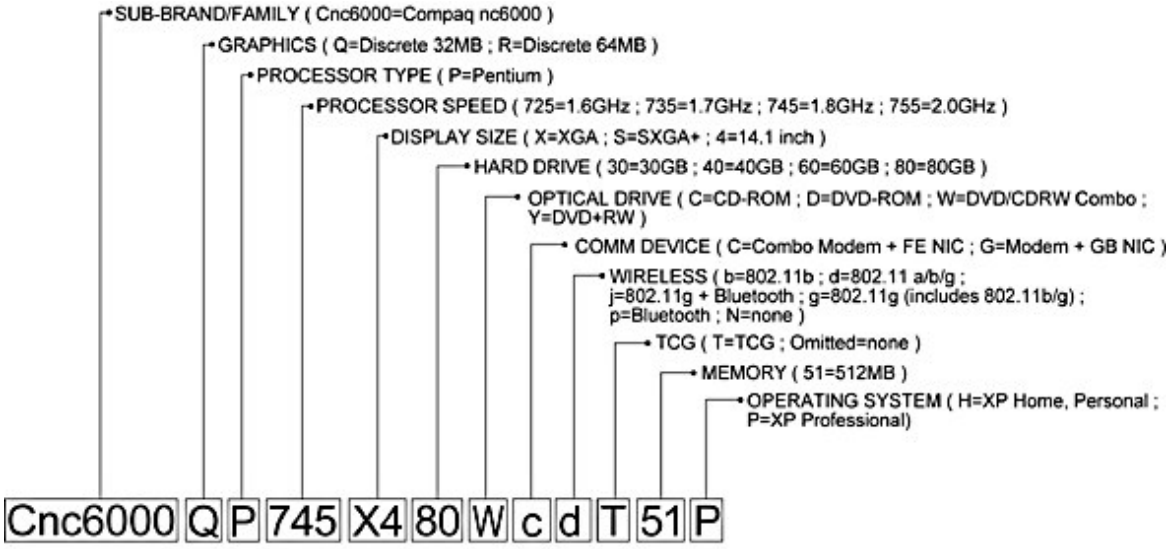
Port Replicator and Advanced Port Replicator. HP's common port replicator and advanced port replicator designs provide simple and convenient port management. Features include Gigabit NIC pass through, legacy parallel and serial ports, DVI, USB 2.0, and a 1394* port. These docking solutions are compatible across multiple Business Notebook platforms enabling a lower total cost of ownership.
NOTE:* The HP Compaq Business Notebook nc6000 does not support 1394 when docked.

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://h20000.www2.hp.com/bizsupport/TechSupport/ProductRoot.jsp.

The Etymology of a Model name:



Models

Cnc6000QP745X460WCd51Pe
PG401UA#ABA

Processor	Intel Pentium M processor 745 *1.8GHz, 2MB L2 cache, 400MHz Front Side Bus (FSB)*
Operating System	Microsoft Windows XP Professional
Cache	2048 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	60GB (5400 RPM)
Display	14-inch color TFT XGA with (1024x768) resolution (up to 16.7M colors internal)

	Graphics	ATI MOBILITY RADEON 9600 graphics controller Hardware support for DirectX 9.0
	Video Memory	32MB
	Audio	Premier Sound 16-bit sound, Line out/headphone and microphone jacks
	Optical Drive	DVD/CD-RW Combo
	Communications	High speed 56K modem, Integrated 10/100/1000 NIC
	Integrated Wireless	802.11 a/b/g + Bluetooth
	Embedded Security Chip	Yes
	Integrated Smart Card Reader	NA
	Pointing Device	Dual pointing devices (both Pointstick and Touchpad)
	Battery	6-cell Lithium-Ion battery
	Power	External 65W adapter
	Warranty	3/3/0

Cnc6000QP170X440WGjT51Pe PD468AA#ABA	**Processor**	Intel Pentium M processor 735 *1.7GHz, 2MB L2 cache, 400MHz Front Side Bus (FSB)*
	Operating System	Microsoft Windows XP Professional
	Cache	2048 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	14-inch color TFT XGA with (1024x768) resolution (up to 16.7M colors internal)
	Graphics	ATI MOBILITY RADEON 9600 graphics controller Hardware support for DirectX 9.0 4X AGP
	Video Memory	32MB
	Audio	Premier Sound 16-bit sound, Line out/headphone and microphone jacks
	Optical Drive	DVD/CD-RW Combo
	Communications	High speed 56K modem, Integrated 10/100/1000 NIC
	Integrated Wireless	Intel Pro/Wireless 2200BG – 2.11b/g WLAN Bluetooth
	Embedded Security Chip	Yes
	Integrated Smart Card Reader	NA
	Pointing Device	Dual pointing devices (both Point stick and Touchpad)
	Battery	6-cell Lithium-Ion battery
	Power	External 65W adapter
	Warranty	3/3/0

Cnc6000QP160X440WGn25Pe PD469AA#ABA	**Processor**	Intel Pentium M processor 725 *1.6GHz, 2MB L2 cache, 400MHz Front Side Bus (FSB)*
	Operating System	Microsoft Windows XP Professional

	Cache	1024 KB L2 cache
	System Memory	Standard 256-MB (333-MHz) DDR SDRAM (256-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	14-inch color TFT XGA with (1024x768) resolution (up to 16.7M colors internal)
	Graphics	ATI MOBILITY RADEON 9600 graphics controller Hardware support for DirectX 9.0 4X AGP
	Video Memory	32MB
	Audio	Premier Sound 16-bit sound, Line out/headphone and microphone jacks
	Optical Drive	DVD
	Communications	High speed 56K modem, Integrated 10/100/1000 NIC
	Integrated Wireless	NA – available as an option
	Embedded Security Chip	NA
	Integrated Smart Card Reader	NA
	Pointing Device	Dual pointing devices (both Point stick and Touchpad)
	Battery	6-cell Lithium-Ion battery
	Power	External 65W adapter
	Warranty	3/3/0

Cnc6000QP160X440WGn51Pe PD467AA#ABA	**Processor**	Intel Pentium M processor 725 *1.6GHz, 2MB L2 cache, 400MHz Front Side Bus (FSB)*
	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	14-inch color TFT XGA with (1024x768) resolution (up to 16.7M colors internal)
	Graphics	ATI MOBILITY RADEON 9600 graphics controller Hardware support for DirectX 9.0 4X AGP
	Video Memory	32MB
	Audio	Premier Sound 16-bit sound, Line out/headphone and microphone jacks
	Optical Drive	DVD/CD-RW Combo
	Communications	High speed 56K modem, Integrated 10/100/1000 NIC
	Integrated Wireless	NA – available as an option
	Embedded Security Chip	NA
	Integrated Smart Card Reader	NA

	Pointing Device	Dual pointing devices (both Point stick and Touchpad)
	Battery	6-cell Lithium-Ion battery
	Power	External 65W adapter
	Warranty	3/3/0
Cnc6000QP160X440WGg51Pe PL639UA#ABA	**Processor**	Intel Pentium M processor 725 *1.6GHz, 2MB L2 cache, 400MHz Front Side Bus (FSB)*
	Operating System	Microsoft Windows XP Professional
	Cache	1024 KB L2 cache
	System Memory	Standard 512-MB (333-MHz) DDR SDRAM (256-MB SODIMMs in slots1 & 2) Maximum 2-GB (333-MHz) DDR SDRAM (1-GB SODIMM in slots 1 and 2)
	Hard Drive	40GB (5400 RPM)
	Display	14-inch color TFT XGA with (1024x768) resolution (up to 16.7M colors internal)
	Graphics	ATI MOBILITY RADEON 9600 graphics controller Hardware support for DirectX 9.0 4X AGP
	Video Memory	32MB
	Audio	Premier Sound 16-bit sound, Line out/headphone and microphone jacks
	Optical Drive	DVD
	Communications	High speed 56K modem, Integrated 10/100/1000 NIC
	Integrated Wireless	Intel PRO/Wireless 2200BG 802.11b/g WLAN
	Embedded Security Chip	NA
	Integrated Smart Card Reader	NA
	Pointing Device	Dual pointing devices (both Point stick and Touchpad)
	Battery	6-cell Lithium-Ion battery
	Power	External 65W adapter
	Warranty	3/3/0
Cnc6000QP755X460WGkT51Pe PL644UA#ABA	**Processor**	Intel Pentium M processor 755 *2.0GHz, 2MB L2 cache, 400MHz Front Side Bus (FSB)*
	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	60GB (5400 RPM)
	Display	14-inch color TFT XGA with (1024x768) resolution (up to 16.7M colors internal)
	Graphics	ATI MOBILITY RADEON 9600 graphics controller Hardware support for DirectX 9.0 4X AGP
	Video Memory	32MB
	Audio	Premier Sound 16-bit sound, Line out/headphone and microphone jacks
	Optical Drive	DVD/CD-RW Combo

Communications	High speed 56K modem, Integrated 10/100/1000 NIC
Integrated Wireless	Intel PRO/Wireless 2200BG 802.11b/g WLAN + Bluetooth
Embedded Security Chip	Yes
Integrated Smart Card Reader	NA
Pointing Device	Dual pointing devices (both Point stick and Touchpad)
Battery	6-cell Lithium-Ion battery
Power	External 65W adapter
Warranty	3/3/0

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Options

Memory	1024-MB (333-MHz) DDR Memory Upgrade	DC890B
	512-MB (333-MHz) DDR Memory Upgrade	DC390B
	256-MB (333-MHz) DDR Memory Upgrade	DC389B
MultiBay Hard Drives	80-GB (5400 rpm) SMART Hard Drive	DC920A
	60-GB (5400 rpm) SMART Hard Drive	DC894A
	40-GB (5400 rpm) SMART Hard Drive	263472-B25
MultiBay Storage Devices	DVD+RW Drive	DG189A
	24X Combo DVD/CD-RW Drive	DC364A
	8X DVD Drive	DC352A
	24X Max CD-ROM Drive	DC351A
	Diskette Drive	DC362A
Other Storage Devices	USB Digital Drive with 128MB SDRAM	DL702A
	USB Diskette Drive	230330-B25/ DC361B
Expansion Bases	Port Replicator	DC367B#ABA
	Advanced Port Replicator	DC366B#ABA
	External MultiBay	DC373A#ABA
	Monitor Stand	DC377A
Power	8-Cell Primary High Capacity Lithium-ion Primary Battery	DG105A
	MultiBay Battery	DC889A
Common Power Solutions	External Battery Charger	DF933A#ABA
	AC Adapter 65W	DC359A#ABA
	Auto Power Adapter/Charger	DC303B
	Aircraft Power Adapter	DC899A
	AC Line Cord (10 ft/3.1 m)	DC851B#ABA

Input Devices	Wireless Keyboard & Mouse	DL989A#ABA
	Keyboard & Mouse budle USB/PS2	DM687A#ABA
	External Keyboard (carbon) USB/PS2	DC852A#ABA
	2 Button Mouse (carbon) USB/PS2	DC369A
Security	Security Cable Lock	DC368A
	HP Smart Card PC Card Reader	DC350B
Carrying Cases	Top Load Nylon	DC915A
	Top Load Leather	DC917A
	Executive Nylon	DC916A
	HP Backpack	DG102A

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Memory

Standard Memory Plus Optional Memory
Support for up to 2048 MB (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
1-256 MB or 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.

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Storage

1. MultiBay
2. Hard Drive

Removable Media

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

Hard Drive Support

System Drive Support	Quantity Supported	Drive Bay Supported
Primary Hard Drives		
30-GB (4200 rpm) SMART Hard Drive	Up to 2	Dedicated hard drive bay and/or MultiBay
40-GB (5400 rpm) SMART Hard Drive	Up to 2	Dedicated hard drive bay and/or MultiBay
60-GB (5400 rpm) SMART Hard Drive	Up to 2	Dedicated hard drive bay and/or MultiBay
80-GB (5400 rpm) SMART Hard Drive	Up to 2	Dedicated hard drive bay and/or MultiBay

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Technical Specifications

System Unit	**Dimensions** (HxWxD)	14.1-inch TFT panel display	1.27/1.34 x 12.51 x 10.31 in (32.3/34.1 x 317.6 x 262.0 mm)

Weight	With 6-cell std battery & MultiBay weight saver	4.962 lb (2.250 kg)
	With 6-cell std battery & MultiBay DVD-ROM drive	5.423 lb (2.460 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	10.8V (6-cell) 14.4 V (8-cell)
	Average Operating Power	10.5 W
	Peak Operating Power	65 W
	Power in suspended mode	<400 mW
	Power in hibernation mode	<50mW
Temperature	Operating	50° to 95° F (10° to 35° C) (not writing opitical) 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-operating	5% to 90%
Shock	Operating	50g, 2ms, half-sine
	Non-operating	175g, 2ms, half-sine
Random Vibration	Operating	0.75 grms
	Non-operating	1.50 grms
Maximum Altitude (unpressurized)	Operating	-50 to 10, 000 ft
	Non-operating	-50 to 40, 000 ft
Industry Standard Certifications	Blue Angel	No
	UL	Yes
	Energy Star	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
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	0.75 lb (0.34 kg)	
	Cells/Type	6-cell Lithiurn-Ion	
	Energy	Voltage	11.1 V
		Amp-hour capacity	4.4 Ah
		Watt-hour capacity	48Wh
	Temperature	Operating	41° to 113° F (5° to 45° C)
		Non-operating	32° to 140° F (-20° 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
Optional High Capacity 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 (includes caddy)	0.94 lb (0.43 kg)	
	Cells/Type	8-cell Lithium-Ion	
	Energy	Voltage	14.4 V
		Amp-hour capacity	4.4Ah
		Watt-hour capacity	63Wh
	Temperature	Operating	41° to 113° F (5° to 45° C)
		Non-operating	32° to 140° F (-20° 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
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 (-20° 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
14.1-Inch Color TFT XGA Display	**Dimensions** (H x W x L)	11.2 x 8.4 in (28.6 x 21.4 cm)	
	Diagonal Size	14.1 in (35.7 cm)	

	Mounting	Internal	
	Number of Colors	16 M	
	Contrast Ratio	250:1 typical	
	Refresh Rate	60 Hz	
	Brightness	160 nit typical **NOTE:** Brightness is listed as an average measurement and may vary among panels.	
	Pixel Resolution	Pitch	0.279 x 0.279 mm
		Format	1024 x 768
		Configuration	RGB Stripe
	Backlight	CCFT	
	Character Display	80 x 25	
	Total Power Consumption	4 W	
	Viewing Angle	±45° Horizontal, +15°/-35° Vertical (typical)	
14.1-Inch Color TFT SXGA+	**Dimensions** (H x W x L)	11.2 x 8.4 in (28.6 x 21.4 cm)	
	Diagonal Size	14.1 in (35.7 cm)	
	Mounting	Internal	
	Number of Colors	16 M	
	Contrast Ratio	250:1 typical	
	Refresh Rate	60 Hz	
	Brightness	180 nit typical **NOTE:** Brightness is listed as an average measurement and may vary among panels.	
	Pixel Resolution	Pitch	0.204 x 0.204 mm
		Format	1400 x 1050
		Configuration	RGB Stripe
	Backlight	CCFT	
	Character Display	80 x 25	
	Total Power Consumption	4 W	
	Viewing Angle	±40° Horizontal, +20°/-40° Vertical (typical)	

Hard Drives

80-GB (5400 rpm)	**MultiBay Drive Adapter**	**Dimensions** (H x W x D)	0.5 x 5.21 x 4.97 in (1.27 x 13.25 x 12.61 cm)
		Weight	0.15 lb (70 g)
	Drive Weight	0.22 lb (102 g)	
	Capacity	80 GB	
	Height	0.74 in (9.5 mm)	
	Width	2.75 in (70 mm)	
	Interface	ATA-5, ATA security	
	Transfer Rate	**Synchronous** (maximum)	100 MB/s (Drive Capability)
		Security	ATA Security
	Seek Time (typical reads, including	**Single Track**	2.5 ms
		Average	12 ms

	settling)	**Maximum**	23 ms
	Rotational Speed	5400 rpm	
	Logical Blocks	156,301,488	
	Operating Temperature	41° to 131° F (5° to 55° C)	
60-GB (5400 rpm)	**MultiBay Drive Adapter**	**Dimensions** (H x W x D)	0.5 x 5.21 x 4.97 in (1.27 x 13.25 x 12.61 cm)
		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)	0.5 x 5.21 x 4.97 in (1.27 x 13.25 x 12.61 cm)
		Weight	0.15 lb (70 g)
	Drive Weight	0.21 lb (99 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
30-GB (4200 rpm)	**MultiBay Drive Adapter**	**Dimensions** (H x W x D)	0.5 x 5.21 x 4.97 in (1.27 x 13.25 x 12.61 cm)

		Weight	0.15 lb (70 g)
	Drive Weight	0.15 lb (99 g)	
	Capacity	30 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**	2.5 ms
		Average	12 ms
		Maximum	23 ms
	Rotational Speed	4200 rpm	
	Logical Blocks	58,605,120	
	Operating Temperature	41° to 131° F (5° to 55° C)	

Removable Storage Drives - MultiBay

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-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)	None	
	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	
DVD/CD-RW	**Dimensions**	0.5 x 5.46 x 5.23 in (1.35 x 13.88 x 13.28 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	3600 KB/s
		8X DVD	10,800 KB/s
		24X CD-R	3600 KB/s
		24X CD-RW	3600 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	

	Max Media Capacity (read)	4.7GB	
	Max Media Capacity (write)	700MB	
	Transport	Tray loading	
Diskette Drive	**MultiBay 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 Imped
	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
Two Stereo Speakers	**Amplifier Power**	2-Watts RMS
	Speaker Impedance	4-Ohms

Communications

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	Microsoft Windows XP Microsoft 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
	Data Mode Capabilities	High speed 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
	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
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	Supports 64- and 128-bit WEP, WPA, hardware-accelerated AES, 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, LEAP 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	

*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
	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
	Modulation	Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK
	Security[1]	Supports 64- and 128-bit WEP, WPA, 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, LEAP. 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[2]	16 dBM
	Power Consumption	Transmit: 2.0 Watts (max) Receive: 1.7 Watts (max) Idle mode: 170 mW Sleep mode: 200mW (nominal)
	Power Management	ACPI compliant power management 802.11 Compliant Power Saving Mode
	Receiver Sensitivity[3]	11 Mbps: -82 dBm, 1 Mbps: -89 dBm

Antenna type	High efficiency dual band antenna with polarization diversity, mounted in the display enclosure	
	802.11 b – 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 Non-operating	32° to 158° F (0° to 70° C) -40° to 176° F (-40° to 80° C)
Humidity	Operating Non-operating	0% to 90% (non-condensing) 5% to 95% (non-condensing)
Altitude	Operating Non-operating	0 to 10,000 ft (3,048 m) 0 to 50,000 ft (15,240 m)
Configuration Utility[4]	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	
LED Activity	LED Off – Radio OFF; Solid LED – Radio ON	

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 Exensions 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
Modulation	Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM
Security[1]	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 CKK)[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 Sensitivity[3]	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 Non-operating	32° to 158° F (0° to 70° C) -40° to 176° F (-40° to 80° C)
Humidity	Operating Non-operating	10% to 90% (non-condensing) 5% to 95% (non-condensing)
Altitude	Operating Non-operating	0 to 10,000 ft (3,048 m) 0 to 50,000 ft (15,240 m)
Configuration Utility[4]	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 supplicants.

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	
	Microsoft Windows Plug and Play compliant	
OS Support	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

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