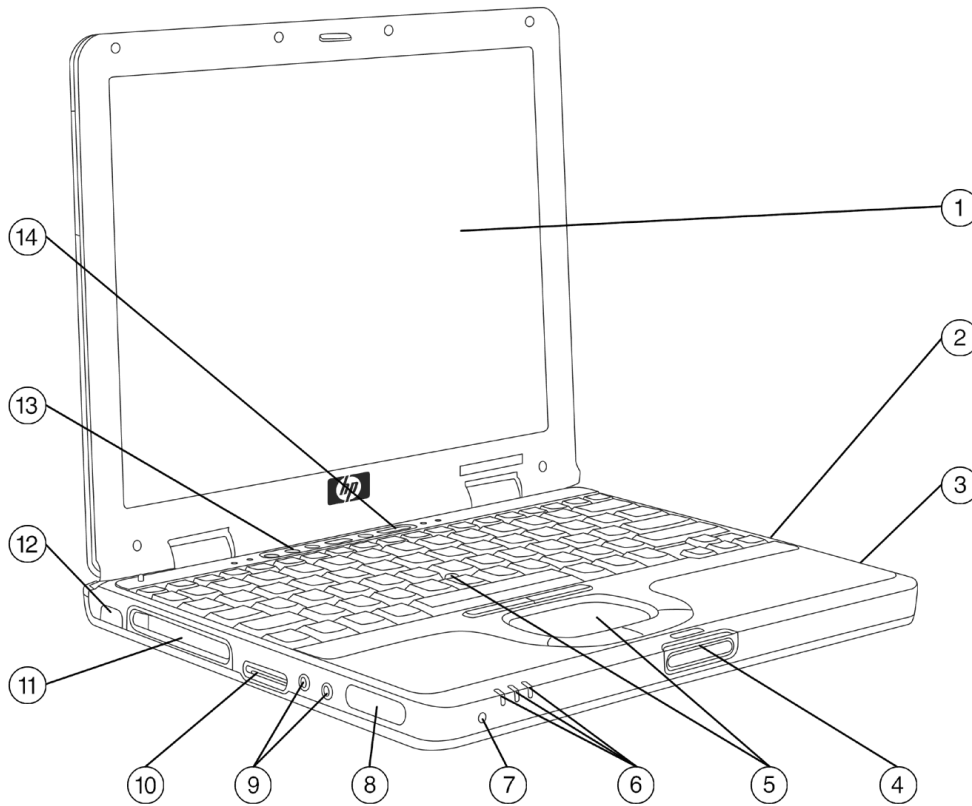
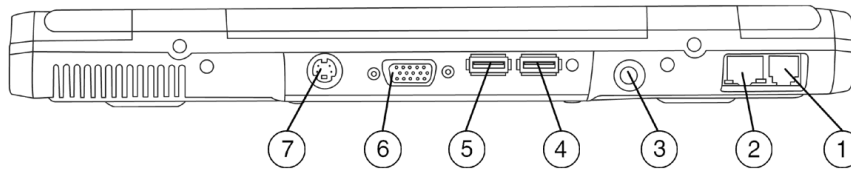


## Overview



- |  |                                 |
|--|---------------------------------|
| 1. Display                                     | 8. Speaker                      |
| 2. User Removable Hard Drive                   | 9. Headphone/Microphone Jacks   |
| 3. Cable Lock Slot                             | 10. Secure Digital (SD) Slot    |
| 4. Display Latch Release                       | 11. PC Card Slot                |
| 5. Dual Pointing Devices (Pointstick/Touchpad) | 12. Infrared Port               |
| 6. Wireless/Power/Charge LEDs                  | 13. Quick Launch Buttons        |
| 7. Microphone                                  | 14. Volume Down/Up/Mute Buttons |



- |                                      |                |
|--------------------------------------|----------------|
| 1. RJ11 (Modem)                      | 5. USB         |
| 2. RJ45 (NIC)                        | 6. VGA Out     |
| 3. DC In                             | 7. S-Video Out |
| 4. Powered USB for External Multibay |                |

## Overview

### What's New

- Intel® Pentium® M Processors
- ATI Mobility Radeon graphics with user selectable 32 or 64-MB DDR SDRAM
- Gigabit Ethernet NIC
- Optional integrated 802.11b and 802.11 a/b wireless LAN modules
- Optional integrated Bluetooth
- Integrated Secure Digital (SD) flash media slot
- Dual pointing devices
- Common Port Replicator and Advanced Port Replicator with Gigabit NIC pass-through.

### At A Glance

- Intel Pentium M Processors at 1.3, 1.4, 1.5, or 1.6.-GHz
- 12.1-inch XGA TFT display
- 256-MB DDR SDRAM upgradeable to 1024 MB
- Up to 60-GB 5400rpm, user -removable hard drives.
- Magnesium alloy display enclosure
- Microsoft® Windows® XP Professional, Microsoft Windows 2000 and limited localizations of Windows XP Home Edition preinstalled
- Protected by a Three-year, Worldwide Limited Warranty — certain restrictions and exclusions apply. Consult the HP Customer Support Center for details.

### What's Special

- Ultra-light weight – 3.5 lb/1.59 kg
- Full sized keyboard
- Support for up to two batteries
- 802.11b and 802.11 a/b modules can be upgraded to support the 802.11g standard once ratified
- Dual pointing devices
- Self powered external MultiBay, which provides a cost effective and travel friendly way to access MultiBay drives.
- HP Mobile Printing driver makes on-the-go printing quick and easy

## Standard Features

### Processors

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

**Chipset:** ATI Radeon IGP 350M with 400-MHz Processor Side Bus

**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 12.1-inch TFT XGA display with 1024 x 768 resolution up to 16.7 M 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 266-MHz SDRAM DDR SDRAM (256-MB SODIMM in slot 1)  
Maximum 1024-MB 266-MHz SDRAM DDR SDRAM (512-MB SODIMMs in slots 1 and 2)

**NOTE:** 256MB of DDR standard with 32MB of system memory shared as video memory

**NOTE:** Shared video memory (UMA) uses part of the total system memory for video performance. For example, if there is 256MB of system memory, 32MB will be shared with the video graphics sub-system. The system will have 224MB of available system memory for other computing activities

**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 is integrated on the system board  
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 desktop compatible keyboard features full size keys, isolated inverted-T cursor control keys, 6 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 19 mm x 19 mm standard key pitch (center-to-center spacing), 2.5 mm key stroke, 2 Windows keys, comfort-dished keycaps, bright key legends for improved visibility in low light conditions, an integrated numeric keypad, and hotkeys providing instant access to power conservation, display brightness, and other controls.

### Quick Launch Buttons

The HP Compaq Business Notebook nc4000 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)

### PC Card Slots

One Type II PC Card Slot that supports both 32-bit CardBus and 16-bit PCMCIA Cards

### Flash Media Slots

One integrated Secure Digital (SD) slot

## Standard Features

Storage	Diskette Drives	Optional Diskette Drive*
	Hard Drives	30-GB 4200 rpm SMART
		40-GB 5400 rpm SMART
		60-GB 5400 rpm SMART
	Optical Drives	24X/10X/24X/8X DVD/CD-RW combo Drive *
24X CD-RW Drive*		
8X DVD-ROM Drive*		
24X CD-ROM Drive*		
Flash Media Storage	One integrated Secure Digital (SD) slot	

**NOTE:** \* Requires optional external MultiBay or Advanced Port Replicator

**NOTE:** The HP nc4000 hard drives are customer removable and will withstand multiple insertion/removal cycles.

Multimedia	HP Premier Sound audio
	Integrated 16-bit Sound Blaster Pro-compatible audio
	Integrated mono speaker and microphone
	External volume controls
	Stereo Headphone-out
	Microphone in
	Software MPEG1 support
	DVD movie playback software
	8X DVD-ROM Drive with DVD movie playback*
	24X DVD/CD-RW Combo Drive*
	24X CD-ROM Drive*
	4X AGP graphics

**NOTE:** \* Requires optional external MultiBay or Advanced Port Replicator.

Interfaces	PC Card Slot	One Type II
	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.)
	S-video out connector	1
	USB version 2.0 Port	2
	Docking Connector	1
	Travel Battery Connector	1
	LED Status Indicators	7

Graphics	ATI Mobility Radeon graphics controller with user selectable 32- or 64-MB DDR SDRAM
	4X AGP
	Hardware support for DirectX 7.0

**NOTE:** Shared video memory (UMA) uses part of the total system memory for video performance. For example, if there is 256MB of system memory, 32MB will be shared with the video graphics sub-system. The system will have 224MB of available system memory for other computing activities

Audio	HP Premier Sound 16 bit sound, Line out/headphone and microphone jacks
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### Standard Features

#### Operating System

One of the following

Microsoft Windows XP Professional  
Microsoft Windows 2000.

**NOTE:** Driver support available for Microsoft Windows 98 SE and Microsoft Windows NT 4.0 in June 2003

#### Software

##### Preloaded Software

Adobe Acrobat Reader  
Altiris eXpress™ Client Win32  
HP Management Agents  
HP Quick Launch Button Software  
HP Mobile Printing Driver  
Intel SpeedStep Technology Applet (Windows 2000 only, built into Windows XP)  
HP Help and Support (XP Only)  
Synaptics Touchpad Driver  
WinDVD DVD Player\* (for optional DVD and DVD/CDRW drives) (with optional external MultiBay or Advanced Port Replicator)  
Roxio Easy CD Creator\* (for optional CDRW and DVD/CDRW drives)(with optional external MultiBay or Advanced Port Replicator)

**NOTE:** \*For optional CD-RW and DVD/CD-RW drives which are supported in the optional External MultiBay or Advanced Port Replicator.

#### 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. (Note: This option erases the hard disk and restores the base operating system. Drivers and applications are installed using the other CDs provided with the kit.)

#### 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 websites: <http://www.hp.com/im>; <http://www.hp.com/easydeploy>; <http://www.hp.com/solutions/pcsolutions>

#### Security

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

#### 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

The HP Compaq Business Notebook nc4000 6-cell internal main Lithium-Ion battery provides up to 3 ½ hours of battery life; up to 7½ hours can be achieved using the optional travel battery.

<b>Battery Re-Charge Time</b>	System in OFF mode or Standby	2 hours
	System ON (depending on system power consumption)	2-5 hours

### Standard Features

**NOTE:** Actual results may vary with product model, configuration, and individual usage. Hewlett-Packard testing of a HP Compaq Business Notebook nc4000 with an Intel Pentium M 1.4 GHz CPU, Windows XP Pro, 12.1-inch XGA LCD, 256-MB RAM, 60-GB HDD, Lithium-Ion battery, and NIC/modem, achieved an overall Business Winstone 2002 BatteryMark score of 3h 39m 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.

**NOTE:** This test was performed without independent verification by eTesting Labs Inc. eTesting Labs Inc. makes no representations or warranties as to the result of the test.. BatteryMark is a trademark of Ziff Davis Publishing Holdings Inc., and affiliate of eTesting Labs Inc., in the U.S. and other countries.

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#### Power Conservation

Supports enhanced Intel SpeedStep Technology (allows a Battery Optimized Mode, Maximum Performance Mode, or Automatic mode)  
Hibernation  
Instant-on via Standby  
Pop-ups with three presets  
ACPI compliant

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#### 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). MultiBay devices can be swapped with system power off under any supported operating system.

**NOTE:** MultiBay devices can only be utilized with the optional External MultiBay or Advanced Port Replicator

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#### Wireless Devices

The HP Compaq Business Notebook nc4000 is designed to offer a choice of wireless configurations. Bluetooth may be combined with 802.11a/b or 802.11b MiniPCI options on any nc4000 notebook. Both the 802.11a/b and 802.11b MiniPCI options are designed to be compliant with the draft 802.11g specification providing future upgradeability. These wireless LAN options offer a wide range of security features: 802.1x user authentication, hardware based Advanced Encryption Standard, and support for all Cisco infrastructures. The HP nc400 is built with high efficiency dual band antennas that provide maximum range and performance.

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#### Docking

Port Replicator and Advanced Port Replicator. The sleek, new port replicator and advanced port replicator designs provide simple and convenient port management. Features include NIC pass through, USB 2.0, and legacy parallel and serial ports. Compatible across multiple platforms for lower total cost of ownership.

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#### Service and Support

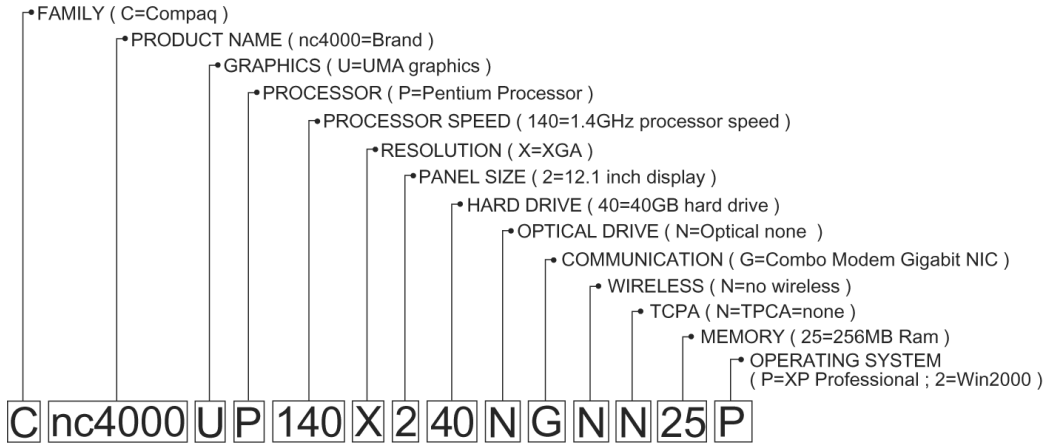
HP Services includes a Three-year, Worldwide Limited Warranty, pick-up or carry-in and toll-free 7 x 24 hardware technical phone support. On-site service or a one-year warranty are also available,

**NOTE:** Certain restrictions and exclusions apply. Consult the HP Customer Support Center for details.

[http://wws1.pro.hp.com/support/warranty\\_upgrades/product\\_specific\\_warranty.asp](http://wws1.pro.hp.com/support/warranty_upgrades/product_specific_warranty.asp)

## Standard Features

The Etymology of a Model name:



<p><b>CNC4000UP140X240NGN25P Processor</b> DG244A#ABA</p>	<p>1.4-GHz Intel Pentium-M processor with 400-MHz Processor Side Bus</p>
<p><b>Display</b></p>	<p>12.1-inch color TFT XGA with 1024 x 768 resolution (up to 16.7M colors internal)</p>
<p><b>Cache Memory</b></p>	<p>1024 KB L2 cache</p>
<p><b>Memory</b></p>	<p>Standard 256-MB 266-MHz DDR SDRAM (256-MB SODIMM in slot 1) Maximum 1-GB 266-MHz DDR SDRAM (512-MB SODIMM in slots 1 and 2)</p>
<p><b>Hard Drive</b></p>	<p>40-GB 5400 rpm SMART Hard Drive</p>
<p><b>Video Memory</b></p>	<p>32 MB standard w/256MB or more main memory, configurable up to 64MB.</p>
<p><b>Optical Drive</b></p>	<p>With optional External MultiBay or Advanced Port Replicator ATI Mobility Radeon graphics controller with user selectable 32- or 64-MB DDR SDRAM Hardware support for DirectX 7.0 4X AGP</p>
<p><b>Audio</b></p>	<p>HP Premier Sound 16 bit sound, Line out/headphone and microphone jacks</p>
<p><b>Communications</b></p>	<p>56K (V.92) modem, integrated 10/100/1000 NIC</p>
<p><b>Pointing Device</b></p>	<p>Dual pointing devices (both Point stick and Touchpad)</p>
<p><b>Operating System</b></p>	<p>Microsoft Windows XP Professional</p>
<p><b>Battery</b></p>	<p>6-cell Lithium-Ion battery Dual battery capability with optional travel battery External 65W adapter</p>
<p><b>Warranty</b></p>	<p>3/3/0</p>

### Standard Features

<b>CNC4000UP140X240NGN252</b> DG245A#ABA	<b>Processor</b>	1.4-GHz Intel Pentium-M processor with 400-MHz Processor Side Bus
	<b>Display</b>	12.1-inch color TFT XGA with 1024 x 768 resolution (up to 16.7M colors internal)
	<b>Cache Memory</b>	1024 KB L2 cache
	<b>Memory</b>	Standard 256-MB 266-MHz DDR SDRAM (256-MB SODIMM in slot 1) Maximum 1-GB 266-MHz DDR SDRAM (512-MB SODIMM in slots 1 and 2)
	<b>Hard Drive</b>	40-GB 5400 rpm SMART Hard Drive
	<b>Video Memory</b>	32 MB standard w/256MB or more main memory, configurable up to 64MB.
	<b>Optical Drive</b>	With optional External MultiBay or Advanced Port Replicator ATI Mobility Radeon graphics controller with user selectable 32- or 64-MB DDR SDRAM Hardware support for DirectX 7.0 4X AGP
	<b>Audio</b>	HP Premier Sound 16 bit sound, Line out/headphone and microphone jacks
	<b>Communications</b>	56K (V.92) modem, integrated 10/100/1000 NIC
	<b>Pointing Device</b>	Dual pointing devices (both Point stick and Touchpad)
	<b>Operating System</b>	Microsoft Windows 2000
	<b>Battery</b>	6-cell Lithium-Ion battery Dual battery capability with optional travel battery External 65W adapter
	<b>Warranty</b>	3/3/0

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<b>CNC4000UP160X240NGD51P</b> DG987A#ABA	<b>Processor</b>	1.6-GHz Intel Pentium-M processor with 400-MHz Processor Side Bus
	<b>Display</b>	12.1-inch color TFT XGA with 1024 x 768 resolution (up to 16.7M colors internal)
	<b>Cache Memory</b>	1024 KB L2 cache
	<b>Memory</b>	Standard 512-MB 266-MHz DDR SDRAM (256-MB SODIMM in slot 1) Maximum 1-GB 266-MHz DDR SDRAM (512-MB SODIMM in slots 1 and 2)
	<b>Hard Drive</b>	40-GB 5400 rpm SMART Hard Drive
	<b>Video Memory</b>	32 MB standard w/256MB or more main memory, configurable up to 64MB.
	<b>Optical Drive</b>	With optional External MultiBay or Advanced Port Replicator ATI Mobility Radeon graphics controller with user selectable 32- or 64-MB DDR SDRAM Hardware support for DirectX 7.0 4X AGP
	<b>Audio</b>	HP Premier Sound 16 bit sound, Line out/headphone and microphone jacks
	<b>Communications</b>	56K (V.92) modem, integrated 10/100/1000 NIC
	<b>Pointing Device</b>	Dual pointing devices (both Point stick and Touchpad)
	<b>Operating System</b>	Microsoft Windows XP Professional
	<b>Battery</b>	6-cell Lithium-Ion battery Dual battery capability with optional travel battery External 65W adapter
	<b>Warranty</b>	3/3/0

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### Standard Features

CNC4000UP160X240NGD512 Processor  
DG988A#ABA

**Display**

**Cache Memory**

**Memory**

**Hard Drive**

**Video Memory**

**Optical Drive**

**Audio**

**Communications**

**Pointing Device**

**Operating System**

**Battery**

**Warranty**

1.6-GHz Intel Pentium-M processor with 400-MHz Processor Side Bus

12.1-inch color TFT XGA with 1024 x 768 resolution (up to 16.7M colors internal)

1024 KB L2 cache

Standard 512-MB 266-MHz DDR SDRAM (256-MB SODIMM in slot 1)

Maximum 1-GB 266-MHz DDR SDRAM (512-MB SODIMM in slots 1 and 2)

40-GB 5400 rpm SMART Hard Drive

32 MB standard w/256MB or more main memory, configurable up to 64MB.

With optional External MultiBay or Advanced Port Replicator

ATI Mobility Radeon graphics controller with user selectable 32- or 64-MB DDR SDRAM

Hardware support for DirectX 7.0

4X AGP

HP Premier Sound 16 bit sound, Line out/headphone and microphone jacks

56K (V.92) modem, integrated 10/100/1000 NIC

Dual pointing devices (both Point stick and Touchpad)

Microsoft Windows 2000

6-cell Lithium-Ion battery

Dual battery capability with optional travel battery

External 65W adapter

3/3/0

## Options

		Compaq PN	HP PN
<b>Memory</b>	512-MB 266-MHz DDR Memory Upgrade	269087-B25	
	256-MB 266-MHz DDR Memory Upgrade	269086-B25	
<b>MultiBay Hard Drives</b>	60-GB 5400 rpm SMART Hard Drive	278420-B25	
	40-GB 5400 rpm SMART Hard Drive	263472-B25	
	30-GB 4200 rpm SMART Hard Drive	212791-B25	
<b>MultiBay Storage Devices</b>	24X Combo DVD/CD-RW	269089-B25	
	24X CD-RW		DC921A
	8X DVD Drive	138230-B25	
	24X Max CD-ROM	298452-B25	
	Diskette Drive	226935-B25	
<b>Other Storage Devices</b>	IBM 1-GB Microdrive (PC card Device)	217390-B25	
	USB Diskette Drive	230330-B25	
<b>Expansion Bases</b>	Port Replicator	307648-002	
	Advanced Port Replicator	307651-002	
	External MultiBay		DC373A#ABA
	Advanced Port Replicator Monitor Stand	274407-B25	
<b>Power</b>	6-cell Travel Battery		DD880A
<b>Common Power Solutions</b>	External Battery Charger (single)		DF933A#ABA
	External Battery Charger (multiple)	265604-001	
	AC Adapter 65W	265602-001	
	Auto Adapter 90W		DC303A
	Aircraft Power Adapter	291370-B25	
<b>Input Devices</b>	External Enhanced III Keyboard (carbon) USB/PS2 Keyboard	118003-009	
	HP 2 Button Mouse (carbon) USB/PS2 Keyboard 2-button scroll	103180-B22	
	External 10-Key Numeric Keypad (carbon)	294317-B21	
<b>Security</b>	Biometric PC Card	146805-B25	
	Security Cable Lock	294316-B21	
	HP Smart Card PC Card Reader	135646-B25	
<b>Carrying Cases</b>	HP Ultra light Case (nylon)	167336-B21	
	Top Load Leather		DC917A
	Executive Nylon		DC916A

## Memory

### HP Compaq Business Notebook nc4000 Ultraportable

#### Standard Memory Plus Optional Memory

Support for up to 1024 MB of 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 DIMM installed in Slot 1

1-Additional open Memory Slot

Memory	Slot 1	Slot 2
	256 MB	Empty

#### Standard Memory with Optional Memory Upgrades

Support for up to 1024-MB of SDRAM is available with the installation of optional SDRAM Memory Upgrades.

Up to	Slot 1	Slot 2
256 MB	256 MB	Empty
512 MB	256 MB	256 MB
768 MB	256 MB	512 MB
1024 MB	512 MB	512 MB

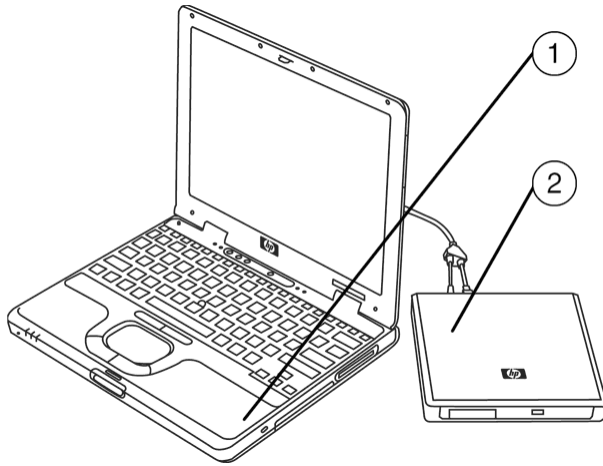
**NOTE:** This chart does not represent all possible memory configurations. Due to the non industry standard nature of some third-party memory modules, we strongly recommend using only HP branded memory modules to ensure compatibility.

Following are memory options available from HP:

	Compaq PN	HP PN
512-MB 266-MHz DDR Memory Upgrade	269087-B25	DC390A
256-MB 266-MHz DDR Memory Upgrade	269086-B25	DC390A

**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. Hard Drive
2. Optional External MultiBay

## Drive Support

### System Drive Support

#### Hard Drives

30-GB SMART Hard Drive	Up to 1	Hard Drive Bay
40-GB SMART Hard Drive	Up to 1	Hard Drive Bay
60-GB SMART Hard Drive	Up to 1	Hard Drive Bay

## External MultiBay Drive Support

Removable Media	Quantity Supported	Drive Bay Supported
1.44-MB Diskette Drive	Up to 1	External MultiBay
CD-RW Drive	Up to 1	External MultiBay
DVD-ROM Drive	Up to 1	External MultiBay
CD-ROM Drive	Up to 1	External MultiBay
DVD/CD-RW Combo Drive	Up to 1	External MultiBay
<b>Secondary Hard Drives</b>		
60-GB SMART Hard Drive	Up to 1	External MultiBay
40-GB SMART Hard Drive	Up to 1	External MultiBay
30-GB SMART Hard Drive	Up to 1	External MultiBay

## TechSpecs

<b>System Unit</b>	<b>Dimensions (HxWxD)</b>	12.1-inch TFT panel display	1.1 x 11 x 9.2 in (2.79 x 27.94 x 23.37cm)	
	<b>Weight</b>		3.5 lb (1.58 kg)	
	<b>NOTE:</b> * Height varies depending upon where on the notebook the measurement is made. Weight varies by configuration and components.			
	<b>Stand-Alone Power Requirements</b>	Nominal Operating Voltage (Li-Ion)		14.8 VDC
		Max Operating Power		40W
		Peak Operating Power		50W
	<b>Temperature</b>	Operating		50° to 95° F (10° to 35° C)
		Non-operating		14° to 140° F (-10° to 60° C)
	<b>Relative Humidity</b>	Operating		10% to 90% relative humidity, non-condensing
		Non-operating		5% to 90% relative humidity, 101.6° F (38.7° C) Maximum wetbulb temperature
<b>Shock</b>	Operating		40 G, 2 ms, half-sine	
	Non-operating		240 G, 2 ms, half-sine	
<b>Vibration</b>	Operating		0.5 G zero-to-peak, 10 to 500 Hz, 0.25 oct/min sweep rate	
	Non-operating		1.0 G, zero-to-peak, 10 to 500 Hz, 0.5 oct/min sweep rate	
<b>Maximum Altitude (unpressurized)</b>	Operating		0 to 10,000 ft (0 to 3,048 m)	
	Non-operating		0 to 30,000 ft (0 to 9,144 m)	
<b>Industry Standard Certifications</b>	Blue Angel		No	
	UL		Yes	
	CSA		Yes	
	VDE/TUV		Yes	
	Nordic Safety		Yes	
	Mexican Safety		Yes	
	Poland Compliance		Yes	
<b>External AC Adapter</b>	<b>Weight</b>		0.65 lb (0.29 kg) (adapter)	
			0.29 lb (0.13 kg) (power cord)	
	<b>Power Supply (Input)</b>	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	

## TechSpecs

<b>Primary Lithium-Ion Battery Pack</b>	<b>Dimensions (H x W x L)</b>	0.9 x 2.48 x 8.15 in (2.3 x 6.3 x 20.7 cm)		
	<b>Weight</b>	0.62 lb (0.28 kg)		
	<b>Cells/Type</b>	6-cell Lithium-Ion		
	<b>Energy</b>	Voltage	11.1 V	
		Amp-hour capacity	3.96 Ah	
		Watt-hour capacity	40Wh	
	<b>Temperature</b>	Operating	41° to 113° F (5° to 45° C)	
		Non-operating	-4° to 140° F (-20° to 60° C)	
	<b>Battery Re-Charge Time</b>	System in OFF mode or Standby	2-3 hours	
		System ON (depending on system power consumption)	2-5 hours	

<b>Lithium-Ion Travel Battery Pack</b>	<b>Dimensions (H x W x L)</b>	0.9 x 2.48 x 8.15 in (2.3 x 6.3 x 20.7 cm)		
	<b>Weight (includes caddy)</b>	0.86 lb (.39 kg)		
	<b>Cells/Type</b>	6-cell Lithium-Ion		
	<b>Energy</b>	Voltage	11.1 V	
		Amp-hour capacity	3.96 Ah	
		Watt-hour capacity	40Wh	
	<b>Temperature</b>	Operating	41° to 113° F (5° to 45° C)	
		Non-operating	-4° to 140° F (-20° to 60° C)	
	<b>Battery Re-Charge Time</b>	System in OFF mode or Standby	2-3 hours	
		System ON (depending on system power consumption)	2-5 hours	

<b>12.1-Inch Color TFT XGA Display</b>	<b>Dimensions (H x W x L)</b>	10.3 x 7.8 in (26.1 x 19.9 cm)		
	<b>Diagonal Size</b>	12.1 in (30.7 cm)		
	<b>Mounting</b>	Internal		
	<b>Number of Colors</b>	16 M		
	<b>Contrast Ratio</b>	125:1		
	<b>Refresh Rate</b>	60 Hz		
	<b>Brightness</b>	130 nit typical		
	<b>Pixel Resolution</b>	Pitch	0.264 x 0.264 mm	
		Format	1024 x 768	
		Configuration	RGB Stripe	
	<b>Backlight</b>	CCFT		
	<b>Character Display</b>	80 x 25		
	<b>Total Power Consumption</b>	4 W		
<b>Viewing Angle</b>	+/-35° degrees Horizontal, +15° /-35° Vertical (typical)			

## Hard Drives

## TechSpecs

<b>60-GB 5400 rpm</b>	<b>MultiBay Drive Adapter</b>	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)
	<b>Drive Weight</b>	0.21 lb (99 g)	
	<b>Capacity</b>	60 GB	
	<b>Height</b>	0.74 in (9.5 mm)	
	<b>Width</b>	2.75 in (70 mm)	
	<b>Interface</b>	ATA-5	
	<b>Transfer Rate</b>	Synchronous (maximum)	100 MB/s (Drive Capability)
		Security	ATA Security
	<b>Seek Time</b> (typical reads, including settling)	Single Track	3 ms
		Average	13 ms
		Maximum	24 ms
	<b>Rotational Speed</b>	5400 rpm	
	<b>Logical Blocks</b>	117,210,240	
<b>Operating Temperature</b>	41° to 131° F (5° to 55° C)		
<b>Features</b>	Security	ATA Security	

<b>40-GB 5400 rpm</b>	<b>MultiBay Drive Adapter</b>	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)
	<b>Drive Weight</b>	0.21 lb (99 g)	
	<b>Capacity</b>	40 GB	
	<b>Height</b>	0.74 in (9.5 mm)	
	<b>Width</b>	2.75 in (70 mm)	
	<b>Interface</b>	ATA-5	
	<b>Transfer Rate</b>	Synchronous (maximum)	100 MB/s (Drive Capability)
		Security	ATA Security
	<b>Seek Time</b> (typical reads, including settling)	Single Track	3 ms
		Average	13 ms
		Maximum	24 ms
	<b>Rotational Speed</b>	5400 rpm	
	<b>Logical Blocks</b>	78,140,160	
<b>Operating Temperature</b>	41° to 131° F (5° to 55° C)		
<b>Features</b>	Security	ATA Security	

## TechSpecs

<b>30-GB 4200 rpm</b>	<b>MultiBay Drive Adapter</b>	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)
	<b>Drive Weight</b>	0.22 lb (99 g)	
	<b>Capacity</b>	30 GB	
	<b>Height</b>	0.74 in (9.5 mm)	
	<b>Width</b>	2.75 in (70 mm)	
	<b>Interface</b>	ATA-5	
	<b>Transfer Rate</b>	Synchronous (maximum)	100 MB/s (Drive Capability)
		Security	ATA Security
	<b>Seek Time</b>	Single Track	3 ms
	(typical reads, including settling)	Average	13 ms
		Maximum	24 ms
	<b>Rotational Speed</b>	4200 rpm	
	<b>Logical Blocks</b>	58,605,120	
	<b>Operating Temperature</b>	41° to 131° F (5° to 55° C)	
	<b>Features</b>	Security	ATA Security

<b>24X/10X/24X/8X DVD/CD- RW Combo Drive</b>	<b>MultiBay Drive</b>	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	0.74 lb (0.33 kg)
	<b>Center Hole Diameter</b>	39 cm	
	<b>Disk Diameter</b>	12 cm/8 cm	
	<b>Disk Thickness</b>	1.2 mm	
	<b>Track Pitch</b>	0.74 μm	
	<b>Access Times</b>	Random CD	< 150 ms
	(typical reads, including settling)	Full-Stroke CD	< 225 ms
	<b>Audio Output Level</b>	Line-out	0.7 Vrms
	<b>Cache Buffer</b>	128 KB/s (minimum)	
	<b>Data Transfer Rate</b>	CD-R (24X)	3600 KB/s (150 KB/s at 1X CD rate)
	(typical, including settling)	CD-RW (10X)	1500 KB/s (150 KB/s at 1X CD rate)
		CD-ROM (24X)	3600 KB/s (150 KB/s at 1X CD rate)
		DVD (8X)	10,800 KB/s (1352 KB/s at 1X DVD rate)
		Normal PIO Mode 4 (single burst)	16.6 MB/s
	<b>Start-up Time</b>	< 15 seconds	
	<b>Stop Time</b>	< 6 seconds	



## TechSpecs

<b>24X CD-RW Drive</b>	<b>MultiBay Drive</b>	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	0.74 lb (0.33 kg)
	<b>Center Hole Diameter</b>	1.5 cm	
	<b>Disk Diameter</b>	12 cm/8 cm	
	<b>Disk Thickness</b>	1.2 mm	
	<b>Track Pitch</b>	0.74 $\mu$ m	
	<b>Access Times</b> (typical reads, including settling)	Random CD	< 150 ms
		Full-Stroke CD	< 225 ms
	<b>Audio Output Level</b>	Line-out	0.7 Vrms
	<b>Cache Buffer</b>	128 KB/s (minimum)	
	<b>Data Transfer Rate</b> (typical, including settling)	CD-R (24X)	3600 KB/s
		CD-RW (10X)	1500 KB/s
		CD-ROM (24X)	3600 KB/s
Normal PIO Mode 4 (single burst)		16.6 MB/s	
<b>Start-up Time</b>	< 15 seconds		
<b>Stop Time</b>	< 6 seconds		

<b>8X DVD-ROM Drive</b>	<b>MultiBay Drive</b>	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	0.74 lb (0.33 kg)
	<b>Center Hole Diameter</b>	1.5 cm	
	<b>Disk Diameter</b>	12 cm/8 cm	
	<b>Disk Thickness</b>	1.2 mm	
	<b>Track Pitch</b>	0.74 $\mu$ m	
	<b>Access Times</b> (typical reads, including settling)	Random (typical)	< 150 ms DVD Media
		Full-Stroke (typical)	< 225 ms DVD Media
		Random (typical)	< 110 ms CD Media
		Full-Stroke (typical)	< 200 ms CD Media
	<b>Cache Buffer</b>	512 KB/s (minimum)	
	<b>Data Transfer Rate</b> (typical, including settling)	Max 24X CD	3600 KB/s (150 KB/s at 1X CD rate)
		Max 8X DVD	10,800 KB/s (1352 KB/s at 1X DVD rate)
Normal PIO Mode 4 (single burst)		16.6 MB/s	
<b>Start-up Time</b>	< 10 seconds	Single Session CD-ROM	
<b>Stop Time</b>	< 3 seconds		

## TechSpecs

<b>24X CD-ROM Drive</b>	<b>MultiBay Drive</b>	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	0.50 lb (0.22 kg)
	<b>Applicable Disk</b>	CD-ROM (Mode 1, 2 and 3), CD-XA ready (Mode 2, Form 1 and 2), CD-I ready (Mode 2, Form 1 and 2), CD-R (read only), CD Plus, Photo CD (Single and Multi-session), CD-Extra, Video CD, CD-WO (fixed packets only), CD-Bridge	
	<b>Center Hole Diameter</b>	15 mm	
	<b>Disk Diameter</b>	12 cm/8 cm	
	<b>Disk Thickness</b>	1.2 mm	
	<b>Track Pitch</b>	1.6 $\mu$ m	
	<b>Access Times</b> (typical reads, including settling)	Random	< 150 ms
		Full-Stroke	< 300 ms
	<b>Audio Output Level</b>	Line-out	0.7 Vrms
	<b>Cache Buffer</b>	128 KB	
	<b>Data Transfer Rate</b> (typical, including settling)	Sustained (16X)	2400 KB/s
		Variable	1500 to 3600 KB/s (10X to 24X)
		Normal PIO Mode 4 (single burst)	16.66 MB/s
	<b>Start-up Time</b>	< 8 seconds	
<b>Stop Time</b>	< 4 seconds		

<b>MultiBay Diskette Drive</b>	<b>MultiBay Drive</b>	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	0.51 lb (230 g)
	<b>Diskette Size</b>	3.5 in	
	<b>Height</b>	12.7 mm	
	<b>Bytes per Sector</b>	512	
	<b>Sectors per track</b>	High density	18 (1.44 MB)/15 (1.2 MB)
		Low density	9
	<b>Tracks per side</b>	High density	80 (1.44 MB)/80 (1.2 MB)
		Low density	80
	<b>Read/Write heads</b>	2	
	<b>Access Times</b>	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

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

## TechSpecs

<b>Audio Output Quality</b>	<b>Frequency Response</b>	20 Hz - 20 kHz	
	<b>Signal to Noise Ratio</b>	>94dB	
	<b>Total Harmonic Distortion</b>	0.01%	
	<b>Noise Floor</b>	-120dB	
	<b>Play/Record Sampling Rate(s)</b>	7 kHz - 48 kHz	
	<b>AD/DA Resolution</b>	16 bit	
	<hr/>		
<b>Mono Speaker</b>	<b>Amplifier Power</b>	2-Watts RMS	
	<b>Speaker Impedance</b>	4-Ohms	
<hr/>			
<b>Integrated 10/100/1000 NIC</b>	<b>Ethernet Features</b>	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)	
	<b>Power Management</b>	ACPI 1.1a compliant -- multiple power modes Situation-sensitive features reduce power consumption NIC Battery Saving Mode (enabled by default)	
	<b>Performance Features</b>	TCP / IP / UDP Checksum Offload (configurable) Microsoft Large Send Offload (configurable) TCP Segmentation Offload CPU Task Offload Adaptive Interrupts	
	<b>Manageability</b>	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	
	<b>NIC Device Driver Name</b>	Broadcom NetXtreme Gigabit Ethernet	
	<b>Drivers Available</b>	Windows XP Windows 2000 Windows NT 4.0 Windows 98 Linux kernel versions 2.2 and 2.4	
	<hr/>		

## TechSpecs

<b>Agere Systems AC'97 Modem</b>	<b>Form Factor</b>	MDC
	<b>OS Support</b> (with all released Service Packs)	Windows XP (Home, Professional), Microsoft Windows 2000, Microsoft Windows 98 (Gold, SE), Windows NT 4.0, DOS Application Support under Windows
	<b>Power Management Support</b>	APM Revision 1.2, ACPI
	<b>Approvals/Certifications</b>	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
	<b>Modem Device Driver Name</b>	Agere Systems AC'97 Modem
	<b>Data Mode Capabilities</b>	V.90/V.92 (a-law, mu-law) V.8bis V.80 V.44, V.42bis, MNP5 (Compression) V.42 (LAPM, MNP2-4) (Error Correction) V.34 (file date: 10/96) <b>Optional symbol rates:</b> 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 (300 bps)
	<b>Fax Mode Capabilities</b>	TIA/EIA-578-B (Class 1) T.30, T.4 (Group 3) V.17 V.29 V.27ter V.21 Channel 2
	<b>Command Set</b>	V.250 (Partial) TIA-602 Identification: +GMI, +GMM, +GMR Port control: +IPR, +ICF, +IFC, +Iirr Modulation: +MS, +MR, +MA Error control: +ES, +ER, +EB, +ESR, +ETBM Data compression: +DS, +DR V.251

<b>HP Integrated Wireless LAN Mini PCI 802.11a/b W500</b>	<b>Form Factor</b>	MiniPCI Type III	
	<b>Weight</b>	100 Grams (max)	
	<b>Operating Temperature</b>	Operating	14° to 149° F (-10° to 65° C)
	<b>Storage Temperature</b>	Non-operating	-40° to 176° F (-40° to 80° C)
	<b>Humidity</b>	Operating	10 to 90%
		Non-operating	5 to 95%
	<b>Altitude</b>	Operating	0 to 15,000 ft (4,572 m)
Non-operating		0 to 40,000 ft (12,192 m)	
<b>RF Network Standard</b>	EEE 802 Part 11a (802.11a) IEEE 802. Part 11b (802.11b)		

	Compliant with draft 802.11g*
	<b>NOTE:</b> *Driver/Firmware update is expected 4Q03. User can download update from the HP website.
<b>Frequency Band</b>	4.9 -4.95 GHz (New Japan Limits Pending) 5.15 – 5.25 GHz, U-NII Lower Band (Japan/USA/Canada) 5.25 – 5.35 GHz, U-NII Middle Band (USA/Canada/Europe) 5.45 – 5.725 GHz (Europe) 5.725 – 5.825 GHz, U-NII Upper Band (USA/Canada) 5.825 - 5.850 GHz (USA) 2.4000 to 2.497 GHz (2.4 GHz ISM Band)
<b>Number of Selectable Sub-channels</b>	<b>Worldwide Certification – 802.11a/b</b> Japan (JP) 802.11a = 45 non overlapping channels 802.11b = 14 channels, 3 non-overlapping Europe 802.11a = 19 non-overlapping channels 802.11b = 13 channels, 3 non-overlapping United States (FCC) 802.11a = 12 non-overlapping channels 802.11b = 11 channels, 3 non-overlapping
<b>Data Rates</b>	802.11a: 6, 9, 12, 24, 36, 48, 54Mbps 802.11b: 1, 2, 5.5, 11 Mbps
<b>Antenna type</b>	Internal (with spatial pattern and polarization diversity)
<b>Antenna Polarization</b>	Linear
<b>Antenna Efficiency</b>	65% +/- 10%
<b>Configuration Utility</b>	Choice of Configuration Utility: <ul style="list-style-type: none"> <li>● Single Configuration Utility for all Operating Systems (works with Cisco Infrastructure)</li> <li>● Windows XP Zero Configuration Utility</li> </ul>
<b>Roaming</b>	IEEE 802.11 compliant roaming between 802.11a and 802.11b access points Module checks signal strength, packet error rates and latency to automatically connect to the access point offering the best throughput.
<b>Security</b>	64 bit encryption keys compliant to IEEE 802.11 Standard 128 bit encryption key compliant to WiFi Standard Advanced Encryption Standard (AES) Support in Hardware Ability to function in an 802.1x security environment using: <ul style="list-style-type: none"> <li>● Microsoft 802.1x client; supports EAP-TLS, PEAP on XP and 2K.</li> <li>● Approved Cisco Compatibility Extension Product (*); Support via Single Configuration Utility; support for LEAP and CKIP</li> <li>● EAP-TTLS support via web release with Odyssey Client Utility available on the web</li> <li>● Supports for TKIP (Temporal Key Integrity Protocol)</li> </ul> <p>(*)Cisco Compatibility Extension Program: The Cisco Compatible Extensions program ensures proven interoperability with Cisco wireless LAN infrastructure products.</p>
<b>Network Architecture Models</b>	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
<b>Modulation Technique</b>	Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM
<b>Receiver Sensitivity – Bit Error Rate (1E-5)</b>	54 Mbps: -73 dBm to 1 Mbps: -94 dbm

## TechSpecs

<b>Maximum Receive Level</b>	802.11a: -30 dBm (with PER <8%) 802.11b: -4 dBm (with PER <8%)						
<b>Output Power</b> (approximately)	18 dBm +/-2 dB						
<b>Image Rejection</b>	60 dB (with PER <8%)						
<b>IF Rejection</b>	100 dB (with PER <8%)						
<b>Operating Voltage</b>	5 V power operation						
<b>Power Management</b>	Wireless Button Power On/Off control						
<b>Power Consumption</b>	Transmit State – 2.0 Watts (Max) Receive State - 1.5 Watts (Max) 802.11 Power save Mode State – 0.75 Watts (Max) Standby State – 20 mwatts (Max)						
<b>Power Management</b>	802.11 Compliant Power Saving Power Saving Mode selectable through the configuration utility ACPI compliant power management						
<b>Media Access Protocol</b>	CSMA/CA (Collision Avoidance) with ACK						
<b>OS Support</b>	Microsoft Windows 2000 Microsoft Windows XP Home and Pro						
<b>LED Activity</b>	LED Off – Radio OFF Solid LED - ON LED Off – Power Off						
<b>Throughput, Data Rate and Operating Distance</b>	<table><tr><td></td><td>Operating Distance</td></tr><tr><td>802.11a - Typical</td><td>1000 feet – Outdoors Open Area 300 feet – Indoor, Office environment</td></tr><tr><td>802.11 b - Typical</td><td>1200 feet – Outdoor Open Area 300 feet – Indoor, Office environment</td></tr></table>		Operating Distance	802.11a - Typical	1000 feet – Outdoors Open Area 300 feet – Indoor, Office environment	802.11 b - Typical	1200 feet – Outdoor Open Area 300 feet – Indoor, Office environment
	Operating Distance						
802.11a - Typical	1000 feet – Outdoors Open Area 300 feet – Indoor, Office environment						
802.11 b - Typical	1200 feet – Outdoor Open Area 300 feet – Indoor, Office environment						

## TechSpecs

<b>HP Integrated Wireless LAN Mini PCI 802.11b W400</b>	<b>Form Factor</b>	MiniPCI Type III	
	<b>Weight</b>	100 Grams (max)	
	<b>Operating Temperature</b>	Operating 14° to 149° F (-10° to 65° C)	
	<b>Storage Temperature</b>	Non-operating -40° to 176° F (-40° to 80° C)	
	<b>Humidity</b>	Operating 10 to 90%	
		Non-operating 5 to 95%	
	<b>Altitude</b>	Operating 0 to 15,000 ft (4,572 m)	
		Non-operating 0 to 40,000 ft (12,192 m)	
	<b>RF Network Standard</b>	IEEE 802. Part 11b (802.11b) Compliant with draft 802.11g*	
	<b>Frequency Band</b>	2.4000 to 2.497 GHz (2.4 GHz ISM Band)	
	<b>Number of Selectable Sub-channels</b>	<b>Worldwide Certification – 802.11b</b>	
		United States (FCC) – 11 Channels, 3 non-overlapping	
		Japan (JP) – 14 Channels, 3 non-overlapping	
		Europe – 13 Channels, 3 non-overlapping	
	<b>Data Rates</b>	802.11a: 6, 9, 12, 24, 36, 48, 54Mbps 802.11b: 1, 2, 5.5, 11 Mbps	
	<b>Antenna type</b>	Internal (with spatial pattern and polarization diversity)	
	<b>Antenna Polarization</b>	Linear	
	<b>Antenna Efficiency</b>	65% +/- 10%	
	<b>Configuration Utility</b>	Choice of Configuration Utility:	
		<ul style="list-style-type: none"> <li>● Single Configuration Utility for all Operating Systems (works with Cisco Infrastructure)</li> <li>● Windows XP Zero Configuration Utility</li> </ul>	
<b>Roaming</b>	IEEE 802.11 compliant roaming between 802.11a and 802.11b access points. Module checks signal strength, packet error rates and latency to automatically connect to the access point offering the best throughput.		
<b>Security</b>	64 bit encryption keys compliant to IEEE 802.11 Standard		
	128 bit encryption key compliant to WiFi Standard		
	Advanced Encryption Standard (AES) Support in Hardware		
	Ability to function in an 802.1x security environment using:		
	<ul style="list-style-type: none"> <li>● Microsoft 802.1x client; supports EAP-TLS, PEAP on XP and 2K.</li> <li>● Approved Cisco Compatibility Extension Product (*); Support via Single Configuration Utility; support for LEAP and CKIP</li> <li>● EAP-TTLS support via web release with Odyssey Client Utility available on the web</li> <li>● Supports for TKIP (Temporal Key Integrity Protocol)</li> </ul>		
<p>(*)Cisco Compatibility Extension Program: The Cisco Compatible Extensions program ensures proven interoperability with Cisco wireless LAN infrastructure products.</p>			
<b>Network Architecture Models</b>	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)		
<b>Modulation Technique</b>	Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM		
<b>Receiver Sensitivity – Bit Error Rate (1E-5)</b>	54 Mbps: -73 dBm to 1 Mbps: -94 dbm		

## Bluetooth by HP

<b>Form Factor</b>	Integrated USB module
<b>Bluetooth</b>	1.1 Compliant



## TechSpecs

<b>Dimensions</b>	1.02 x 0.55 x 0.22 in (26 x 14 x 5.7 mm)
<b>Temperature</b>	Operating -4° to 158° F (-20° to 70° C) Non-operating -40° to 176° F (-40° to 80° C)
<b>Humidity</b>	10 to 90% operating 5 to 95% non operating
<b>Altitude</b>	Operating 15,000 ft (4572 m) Non-operating 40,000 ft (12192 m)
<b>Plug and Play</b>	USB 1.1 compliant Microsoft Windows Plug and Play compliant
<b>Frequency Band</b>	2402 to 2480 MHz
<b>Number of Available Channels</b>	79 (1 MHz) available channels
<b>Data Rates and throughput</b>	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
<b>Antenna type</b>	Internally integrated within module
<b>Range</b>	33 ft (10 m)
<b>OS Support</b>	Microsoft Windows XP Professional and Home Microsoft Windows 2000
<b>Software Stack Supported</b>	User may choose: Microsoft User Interface (Profiles supported: HID, DUN, HCRP) Widcomm User Interface (see profile support below)
<b>Profile Support</b>	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
<b>Usage Models</b>	Service Discovery (determine what Bluetooth devices are within range and support authorization) <b>Synchronization:</b> PDAs to PCs Portable to Desktop <b>File Transfer:</b> 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 <b>Access Point:</b> 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



	<b>Human Interface Devices</b>
	Wirelessly interface to notebook with mouse, keyboard, etc
	<b>Printing</b>
	Wirelessly print to Bluetooth enabled printers
<b>Transmit Power</b>	-6dBm to 4 dBm (Bluetooth Class II)
<b>Receive Sensitivity</b>	Better than -80 dBm at 0.1 % raw bit error rate
<b>Link Topology</b>	Point to Point, Multipoint Pico Nets up to 7 slaves
<b>Security</b>	Full support of Bluetooth Security Provisions
<b>Network Architecture Models</b>	Ad-hoc (Peer to Peer) Infrastructure (Access Points Required)
<b>Power Requirement</b>	Peak < 270 mW
<b>Power Management</b>	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
<b>Protocols Supported</b>	TCP/IP IPX/SPX UDP
<b>LED Activity</b>	Solid Blue LED – On LED Off – Power Off
<b>Certifications</b>	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

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