Overview

HP recommends
Windows Vista™ Business
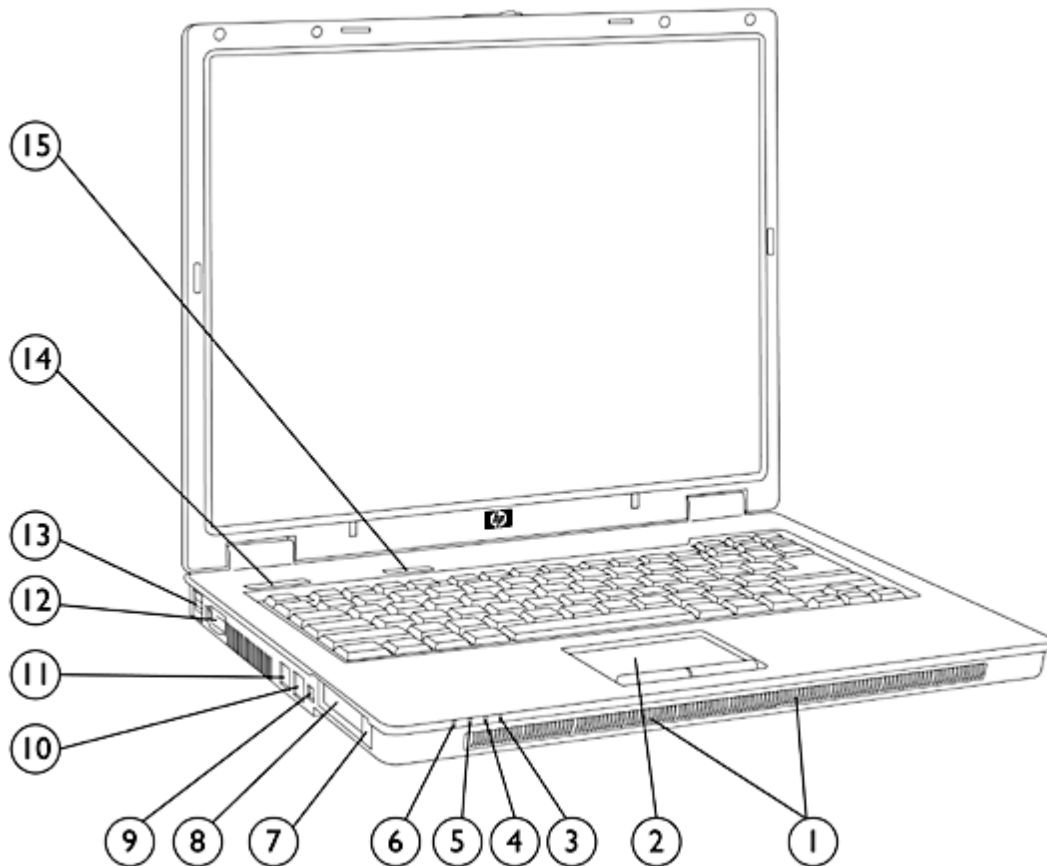
|		
1.	Stereo Speakers	9. IEEE 1394 Port
2.	Touchpad with Scroll Zone	10. RJ-45 Port (NIC)
3.	Hard Drive Activity LED	11. RJ-11 Port (Modem)
4.	Battery Charging LED	12. VGA/External Monitor Connector
5.	Power/Standby LED	13. 2 USB 2.0 Ports
6.	Wireless On/Off LED	14. Power Button with LED
7.	PC Card Eject Button	15. Wireless On/Off Button with LED
8.	PC Card Slot	

Overview

1. Headphone Jack
2. Microphone Jack
3. Optical Drive
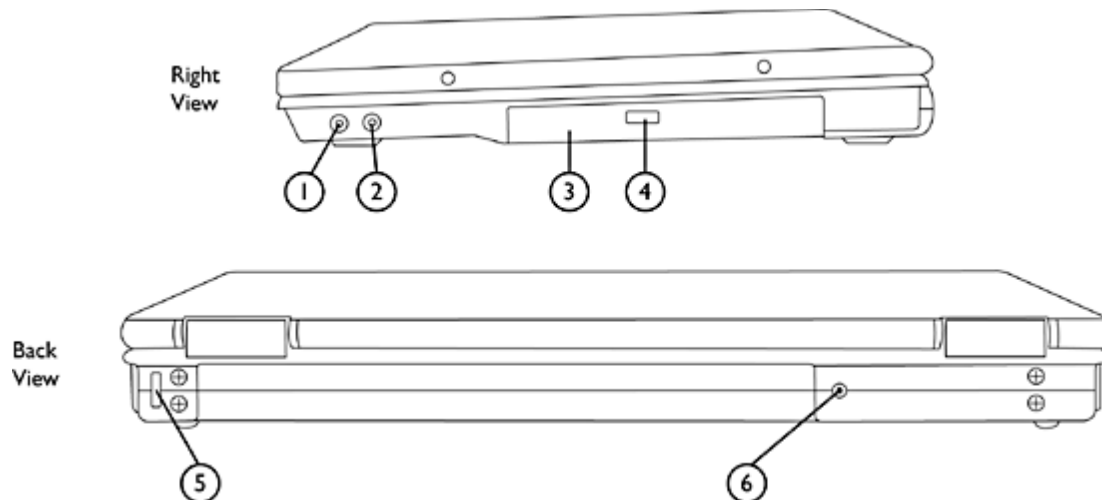
4. Optical Drive Release Button
5. Kensington Lock Slot
6. DC Power Connector

At A Glance

- Genuine Windows XP Professional,
  Genuine Windows XP Home Edition (select countries), or
  FreeDOS
- Certified for Novell Linux Desktop 9
- Intel® Pentium® M processors 740 to 770* or Intel Celeron® M processors to 380*
- Sleek, industrial design starting at 6.06 lb and 1.2-inch/ 30.3-mm thin at front
- Mobile Intel 915GM or 910GML Express Chipset
- 256-MB DDR SDRAM, upgradeable to 2048-MB maximum
- Up to 80-GB 5400 rpm user-removable hard drive
- Optional 8X DVD+/-RW Drive with Double Layer Technology (with optional LightScribe)
- Intel Graphics Media Accelerator 900
- Optional Integrated 802.11a/b/g or 802.11b/g wireless LAN modules
- Support for optional Intel Centrino™ mobile technology
- Optional integrated Bluetooth®
- NetXtreme 10/100 Ethernet Controller
- Touchpad with scroll zone
- Protected by one-year standard parts and labor warranty - certain restrictions and exclusions apply

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

What's Special

- Security features:
  - HP ProtectTools
  - HP Drivelock
  - Kensington lock slot
- Ease of use features
  - HP Mobile Print Driver for on-the-go printing
  - HP Wireless Assistant
  - HP Info Center
  - HP Fast Charge technology
  - Up to 4 hours of battery life
- Integrated reliability features:
  - HP Mobile Data Protection System
  - HP Panel Protection System

QuickSpecs

Standard Features

Processors	Intel Pentium M processor 770* (2.13-GHz, 533-MHz FSB, 2-MB L2 cache)	
	Intel Pentium M processor 760* (2.0-GHz, 533-MHz FSB, 2-MB L2 cache)	
	Intel Pentium M processor 750* (1.86-GHz, 533-MHz FSB, 2-MB L2 cache)	
	Intel Pentium M processor 740* (1.73-GHz, 533-MHz FSB, 2-MB L2 cache)	
	Intel Celeron M processor 380* (1.6-GHz, 400-MHz FSB, 1-MB L2 cache)	
	Intel Celeron M processor 370* (1.5-GHz, 400-MHz FSB, 1-MB L2 cache)	

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

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

Operating System

Preinstalled
Genuine Windows XP Professional SP2
Genuine Windows XP Home Edition SP2
FreeDOS

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

Certified
Novell Linux Desktop 9

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

Chipset
Mobile Intel 910GML Express Chipset
Mobile Intel 915GM Express Chipset

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

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Display

Internal
14.1 inch or 15.0-inch TFT XGA (1024 x 768 resolution)
15.0-inch XGA BrightView (1024 x 768 resolution)
15.0-inch TFT SXGA+ (1400 x 1050 resolution)

External
Up to 32-bit per pixel color depth
VGA port supports resolutions up to 2048 x 1536 at 75 Hz, and lower resolutions at up to 100 Hz
NOTE: Resolutions are dependent upon monitor capability, and resolution and color depth settings.

QuickSpecs

Standard Features

Memory	Standard	256-MB, 512-MB, or 1024-MB 333-MHz DDR SDRAM; two SODIMM slots
	Maximum	Upgradeable to 2048-MB maximum (1024-MB SODIMM 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. If you mix memory speeds, the system will perform at the lower memory speed.

Communications

NetXtreme 10/100 Ethernet Controller

56K modem* with digital line guard

* Designed for downloads from 56K modem compliant sources. Maximum achievable download transmission rates currently do not reach 56 KB/s, and will vary with line conditions. Modem availability is subject to country regulatory approval.

Wireless Devices

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

All integrated wireless LAN options	Wi-Fi certified Cisco Compatible Extensions support (Version 3.0) Wired Equivalent Privacy (WEP) support up to 128-bit keys Wi-Fi Protected Access (WPA) and WPA2 support 802.1x authentication support, including EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, and LEAP Advanced Encryption Standard (AES) support WiFi certified for WPA2, WMM Dual antennas integrated in the display enclosure
Broadcom 802.11b/g WLAN	Integrated support for 802.11 b and g Up to 54-mbps data rate
Broadcom 802.11a/b/g WLAN	Integrated support for 802.11a, b and g Up to 54-mbps data rate
Intel PRO/Wireless 2200BG 802.11 b/g WLAN	Intel Centrino mobile technology Integrated support for 802.11b and g Up to 54-mbps data rate
Intel PRO/Wireless 2915ABG 802.11 a/b/g WLAN	Intel Centrino mobile technology Integrated support for 802.11a, b and g Up to 54-mbps data rate
Integrated Bluetooth	Bluetooth Specification v1.2 compliant Works with a wide range of Bluetooth devices

Keyboard

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

Wireless On/Off Button

Provides one-touch on/off control of the integrated wireless device(s).

Standard Features

Pointing Device	Touchpad with scroll zone, two soft-touch buttons

Expansion Card Slots	**One Type I/II/III PC Card**	Supports 32-bit CardBus and 16-bit PC Cards

Storage	**Hard Drives**	80-GB 4200 rpm SMART 40-, 60-, 80-GB 5400 rpm SMART	
	NOTE: These hard drives are customer removable and will withstand multiple insertion/removal cycles.		
	Optical Drives	Integrated (12.7-mm)	DVD-ROM DVD/CD-RW Combo 8X DVD+/-RW with Double Layer Technology LightScribe 8X DVD+/-RW with Double Layer Technology

Interfaces	**PC Card Slot**	One – Type I/II/III
	External Monitor	One – VGA
	IEEE 1394 Port	One
	External Microphone	One
	Headphone/Line out	One
	Power Connector	One
	RJ-11 (Modem)	One
	RJ-45 (NIC)	One
	USB 2.0	Two
	Travel Battery Connector	One
	LED Status Indicators	Eleven

Audio	ADI AC '97 CODEC Integrated 16-bit Sound Blaster Pro compatible audio Integrated stereo speakers Stereo headphone/line out Stereo microphone in

Standard Features

Software	Preloaded Software for Microsoft Windows XP	Adobe Acrobat Reader
		HP Local Recovery provided by Altiris*
		HP One-Touch Button Software
		HP Mobile Print Driver
		Synaptics Touchpad Driver
		HP Help and Support
		HP ProtectTools Security Manager:
		      BIOS Configuration for HP ProtectTools
		      Credential Manager for HP ProtectTools
		HP Wireless Assistant
		Sonic RecordNow! (for optional DVD+/-RW and DVD/CDRW drives)*
		Symantec Norton Antivirus with complimentary 60-day live update
		Intervideo WinDVD – DVD Player (for optional DVD+/-RW, DVD/CDRW and DVD drives)*

	Software on CD	Intervideo WinDVD Creator - DVD Authoring (for optional DVD+/-RW drives)
	Additional software available from the Web	HP Client Manager Software HP ProtectTools Security Manager: Smart Card Security for HP ProtectTools

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

Client Management Software

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

SMBIOS Version 2.3.4

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

HP Local Recovery Provided by Altiris

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

Standard Features

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

Security	**Standard Features**	Configuration Control Hardware Memory Change Alert Ownership Tag Setup Password Power-On Password Drivelock Enabled for PC Smart Card options Kensington Lock Slot
	For more information on HP security solutions refer to http://www.hp.com/go/security.	

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

Battery	**Primary Battery**	6-cell high capacity Lithium-Ion (42Wh)
	Optional Extended Life Battery	8-cell high capacity Lithium-Ion (52Wh)

Battery Life	**Primary Battery**	Up to 4 hours and 30 minutes
	Primary Battery and optional HP Extended Life Battery	Up to 10 hours
	NOTE: Battery life will vary depending on the product configuration, product model, applications loaded on the product, power management settings of the product, and the product features used by the customer. As with all batteries, the maximum capacity of this battery will decrease with time and usage.	
System Standby Time	Up to 1 week	

Power Conservation	Supports enhanced Intel SpeedStep technology with Intel Pentium M processors (allows Battery Optimized Mode, Maximum Performance Mode, or Automatic mode) Intel Display Power Saving technology Hibernation Standby ACPI compliance

Standard Features

Service and Support	HP Services includes a one-year standard parts and labor warranty, pick-up or carry-in, and toll-free 7 x 24 hardware technical phone support. On-site service and warranty upgrades are also available.
	NOTE: Certain restrictions and exclusions apply. Consult the HP Customer Support Center for details. http://h20000.www2.hp.com/bizsupport/TechSupport/ProductRoot.jsp.

Select Model(s)

nx6110	Processor	Intel Pentium M processor 740* (1.7-GHz, 533-MHz FSB, 2-MB L2 cache)
PZ065UA#ABA	Operating System	Genuine Windows XP Professional
Smart Buy	System Memory	512-MB 333-MHz DDR SDRAM (256-MB SODIMM in slot 1 and 2)
	Hard Drive	40-GB 5400 rpm
	Display	15.0-inch TFT XGA with 1024 x 768 resolution
	Graphics	Intel Graphics Media Accelerator 900
	Video Memory	Up to 128 MB of shared system memory
	Audio	ADI AC '97 CODEC, Line out/headphone and microphone jacks
	Optical Drive	24X DVD/CDRW Combo
	Communications	56K Fax/Modem, Integrated NetXtreme Ethernet Controller (10/100 NIC)
	Integrated Wireless	Intel 802.11b/g WLAN
	Pointing Device	Touchpad with scroll zone
	Battery	6-cell high capacity Lithium-Ion (42Wh)
	Power	External 65W adapter
	Warranty**	1/1/0

nx6110	Processor	Intel Pentium M processor 750* (1.86-GHz, 533-MHz FSB, 2-MB L2 cache)
PZ120UA#ABA	Operating System	Genuine Windows XP Professional
	System Memory	512-MB 333-MHz DDR SDRAM (256-MB SODIMM in slot 1 and 2)
	Hard Drive	60-GB 5400 rpm
	Display	15.0-inch TFT XGA with 1024 x 768 resolution
	Graphics	Intel Graphics Media Accelerator 900
	Video Memory	Up to 128 MB of shared system memory
	Audio	ADI AC '97 CODEC, Line out/headphone and microphone jacks
	Optical Drive	DVD+/-RW DL
	Communications	56K Fax/Modem, Integrated NetXtreme Ethernet Controller (10/100 NIC)
	Integrated Wireless	Intel 802.11b/g WLAN
	Pointing Device	Touchpad with scroll zone
	Battery	6-cell high capacity Lithium-Ion (42Wh)
	Power	External 65W adapter
	Warranty**	1/1/0

Standard Features

nx6110
PZ887UA#ABA
Smart Buy

Processor	Intel Celeron M processor 370* (1.5-GHz, 400-MHz FSB, 1-MB L2 cache)
Operating System	Genuine Windows XP Home
System Memory	256-MB 333-MHz DDR SDRAM (256-MB SODIMM in slot 1)
Hard Drive	40-GB 5400 rpm
Display	14.0-inch TFT XGA with 1024 x 768 resolution
Graphics	Intel Graphics Media Accelerator 900
Video Memory	Up to 128 MB of shared system memory
Audio	ADI AC '97 CODEC, Line out/headphone and microphone jacks
Optical Drive	24X DVD/CDRW Combo
Communications	56K Fax/Modem, Integrated NetXtreme Ethernet Controller (10/100 NIC)
Integrated Wireless	none
Pointing Device	Touchpad with scroll zone
Battery	6-cell high capacity Lithium-Ion (42Wh)
Power	External 65W adapter
Warranty**	1/1/0

nx6110
PZ888UA#ABA
Smart Buy

Processor	Intel Celeron M processor 370* (1.5-GHz, 400-MHz FSB, 1-MB L2 cache)
Operating System	Genuine Windows XP Home
System Memory	256-MB 333-MHz DDR SDRAM (256-MB SODIMM in slot 1)
Hard Drive	40-GB 5400 rpm
Display	15.0-inch TFT XGA with 1024 x 768 resolution
Graphics	Intel Graphics Media Accelerator 900
Video Memory	Up to 128 MB of shared system memory
Audio	ADI AC '97 CODEC, Line out/headphone and microphone jacks
Optical Drive	24X DVD/CDRW Combo
Communications	56K Fax/Modem, Integrated NetXtreme Ethernet Controller (10/100 NIC)
Integrated Wireless	Broadcom 802.11b/g WLAN
Pointing Device	Touchpad with scroll zone
Battery	6-cell high capacity Lithium-Ion (42Wh)
Power	External 65W adapter
Warranty**	1/1/0

QuickSpecs

Standard Features

nx6110 PZ889UA#ABA		
	Processor	Intel Celeron M processor 370* (1.5-GHz, 400-MHz FSB, 1-MB L2 cache)
	Operating System	Genuine Windows XP Professional
	System Memory	512-MB 333-MHz DDR SDRAM (1 DIMM)
	Hard Drive	60-GB 5400 rpm
	Display	15.0-inch TFT XGA with 1024 x 768 resolution
	Graphics	Intel Graphics Media Accelerator 900
	Video Memory	Up to 128 MB of shared system memory
	Audio	ADI AC '97 CODEC, Line out/headphone and microphone jacks
	Optical Drive	24X DVD/CDRW Combo
	Communications	56K Fax/Modem, Integrated NetXtreme Ethernet Controller (10/100 NIC)
	Integrated Wireless	Broadcom 802.11b/g WLAN
	Pointing Device	Touchpad with scroll zone
	Battery	6-cell high capacity Lithium-Ion (42Wh)
	Power	External 65W adapter
	Warranty**	1/1/0

nx6110 PZ891UA#ABA		
	Processor	Intel Pentium M processor 730* (1.6-GHz, 533-MHz FSB, 2-MB L2 cache)
	Operating System	Genuine Windows XP Home
	System Memory	256-MB 333-MHz DDR SDRAM (256-MB SODIMM in slot 1)
	Hard Drive	40-GB 5400 rpm
	Display	14.0-inch TFT XGA with 1024 x 768 resolution
	Graphics	Intel Graphics Media Accelerator 900
	Video Memory	Up to 128 MB of shared system memory
	Audio	ADI AC '97 CODEC, Line out/headphone and microphone jacks
	Optical Drive	24X DVD/CDRW Combo
	Communications	56K Fax/Modem, Integrated NetXtreme Ethernet Controller (10/100 NIC)
	Integrated Wireless	Broadcom 802.11b/g WLAN
	Pointing Device	Touchpad with scroll zone
	Battery	6-cell high capacity Lithium-Ion (42Wh)
	Power	External 65W adapter
	Warranty**	1/1/0

*   Intel's numbering is not a measurement of higher performance.
** Certain restrictions and exclusions apply.

Options

Memory	256-MB 333-MHz DDR SDRAM	DC389B
	512-MB 333-MHz DDR SDRAM	DC390B
	1024-MB 333-MHz DDR SDRAM	DC890B

Storage	60-GB 5400 rpm Primary Hard Drive	PA852A
	USB Diskette Drive	DC361B
	HP USB Digital Drive + 128-MB Secure Digital Card	DL702A
	HP 40-GB Mobile USB Hard Drive	DQ549A

Communications	Intel PRO/Wireless 2200BG 802.11b/g WLAN option kit	PF952AA#ABA

Expansion Solutions	HP 4-port USB 2.0 Hub	DG954A

Power	HP 2-bay Battery Charging Station	DT533A#ABA
	HP 10-bay Battery Charging Station	DT534A#ABA
	Battery Adapter kit #1	PK402A
	65W AC Adapter	DC359A#ABA
	90W AC Adapter	DC895B#ABA
	90W Auto Adapter	DC303B
	90W Air/Auto/AC Combo Adapter	DV574A#ABA
	90W Aircraft Cables	DC899A
	Primary 6-cell Battery Pack	PB994A
	HP Extended Life Battery	PB993A

Carrying Cases	HP Entry Value Case	DL617A
	HP Top Load Nylon	DC915A
	HP Executive Leather case	PA847A
	HP Sport Backpack	DG102A

Security	PC Card Smart Card Reader	DC350B
	HP/Kensington Cable Lock	PC766A

Input/Output Devices	USB/PS2 Keyboard	DC852A#ABA
	USB/PS2 Optical Mouse	DC369A
	HP USB Optical Travel Mouse	F2100A
	Rechargeable Wireless Mouse	DU960A

Options

HP Care Pack Services	9x5 Pick-up and Return - 3 Years	U4395E
	9x5 Pick-up and Return - 4 Years	U7881E
	9x5 Pick-up and Return - 5 Years	U7882E
	9x5 Pickup and Return - 1 Year Post Warranty	U4397PE
	9x5 Pick-up and Return Coverage for Notebook with Off-Site Accidental Damage Protection Service - 1 Year	U4399E
	9x5 Pick-up and Return Coverage for Notebook with Off-Site Accidental Damage Protection Service - 3 Years	U4400E
	9x5 Next-Business-Day On-Site Coverage - 1 Years	U4389E
	9x5 Next-Business-Day On-Site Coverage - 3 Years	U4391E
	9x5 Next-Business-Day On-Site Coverage - 4 Years	U7875E
	9x5 Next-Business-Day On-Site Coverage - 5 Years	U7876E
	9x5 Next-Business-Day On-Site Coverage - 1 Year Post Warranty	U4393PE
	9x5 Next-Business-Day On-Site Coverage for Notebook with Off-Site Accidental Damage Protection Service - 3 Years	365714-001
	9x5 Next-Business-Day On-Site Coverage for Notebook with Off-Site Accidental Damage Protection Service - 4 Years	365715-001

QuickSpecs

Memory

Up to 2048 MB of 333-MHz DDR SDRAM
Two DIMM slots (user accessible - one under keyboard deck, one via panel on bottom of unit)
DIMM sizes supported: 256 MB, 512 MB, or 1024 MB

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

Optional Memory Upgrades
Support for up to 2048 MB of memory is available (with the installation of optional DDR SDRAM memory kits). Both memory slots are user accessible. Please refer to the Hardware and Software Guide for installation procedures.

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

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

Memory Upgrades
1024-MB 333-MHz DDR SDRAM	DC890B
512-MB 333-MHz DDR SDRAM	DC390B
256-MB 333-MHz DDR SDRAM	DC389B

Storage

Removable Media Drive Support

	Quantity Supported	Drive Bay
LightScribe 8X DVD+/-RW Drive with Double Layer Technology	One	Fixed optical drive bay
8X DVD+/-RW Drive with Double Layer Technology	One	Fixed optical drive bay
DVD/CD-RW Combo Drive	One	Fixed optical drive bay
DVD-ROM Drive	One	Fixed optical drive bay

Hard Drive Support

	Quantity Supported	Drive Bay
80-GB 5400 rpm SMART Hard Drive	One	Dedicated hard drive bay
60-GB 5400 rpm SMART Hard Drive	One	Dedicated hard drive bay
40-GB 5400 rpm SMART Hard Drive	One	Dedicated hard drive bay
80-GB 4200 rpm SMART Hard Drive	One	Dedicated hard drive bay

Technical Specifications

System Unit	Dimensions (HxWxD)	1.2 (at front) x 12.9 x 10.5 in (30.3 (at front) x 328.6 x 267 mm)
	Weight	nx6110 with 15.0-inch display	6.06 lb (2.75 kg)

NOTE: Height varies depending upon where on the notebook the measurement is made. Weight varies by configuration and components. Weight includes 6-cell battery, 30-GB hard drive, 256-MB memory, and CD-ROM drive. Weight varies by configuration and components.

Stand-Alone Power Requirements	Nominal Operating Voltage	18.5 V
	Average Operating Power	20 W
	Max Operating Power	< 65W
Temperature	Operating	32° to 95° F (0° to 35° C) (not writing optical)
		41° to 95° F (5° to 35° C) (writing optical)
	Non-operating	-4° to 140° F (-20° to 60° C)
Relative Humidity	Operating	10% to 90% relative humidity, non-condensing
	Non-operating	5% to 95%, 101.6° F (38.7° C) maximum wet bulb temperature
Shock	Operating	125 G, 2 ms, half-sine
	Non-operating	200 G, 2 ms, half-sine
Random Vibration	Operating	0.75 grms
	Non-operating	1.50 grms
Altitude (unpressurized)	Operating	-50 to 10,000 ft (-15.24 to 3,048 m)
	Non-operating	-50 to 40,000 ft (-15.24 to 12,192 m)
Industry Standard Certifications	Blue Angel	No
	UL	Yes
	Energy Star	Yes
	Canadian Safety	Yes
	CSA (Canada)	Yes
	ICES	Yes
	TUV GS	No
	Nordic Safety	No
	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

65W External AC Adapter	Weight	0.62 lb (0.28 kg) (adapter)	
		0.29 lb (0.13 kg) (power cord)	
	Dimensions	4.17 x 1.85 x 1.1 in (10.6 x 4.7 x 2.8 cm)	
	Input	Operating Input Voltage	100 to 240 VAC
		Operating Input Current	1.7A at 90 VAC 0.85A at 180 VAC
		Operating Frequency Range	47 to 63 Hz AC
		Efficiency	83% minimum at 115 VAC
	Output	Output Power	65 W
		DC Output Current	18.5 V
	Environmental	Operating Temperature	32° to 104° F (0° to 40° C)
		Non-operating (storage) Temperature	-4° to 149° F (-20° to 65° C)
		Altitude	0 to 10,000 ft (0 to 3,048 m)
		Humidity	20% to 80%
		Storage Humidity	10% to 90%
	EMI and Safety Certifications	CE Mark: full compliance with LVD and EMC directives Worldwide safety standards: IEC950, EN60950, UL1950, Class2, SELV Agency approvals: C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCIB, NOM-1 NYCE	
	MTBF	Over 200,000 hours at 25°C ambient condition	

42Wh Primary Lithium-Ion Battery Pack	Dimensions (H x W x L)	0.8 x 2.1 x 8.0 in (2.0 x 5.3 x 20.3 cm)	
	Weight	0.715 lb (0.325 kg)	
	Cells/Type	6-cell Lithium-Ion	
	Energy	Voltage	10.8 V
		Amp-hour capacity	4.0Ah
		Watt-hour capacity	42Wh
	Temperature	Operating (Charging)	32° to 113° F (0° to 45° C)
		Operating (Discharging)	14° to 140° F (-10° to 60° C)
		Non-operating	-4° to 140° F (-20° to 60° C)
	Battery Re-Charge Time	System in OFF mode or Standby	2.5 hours
		System ON	3 to 5 hours (depending on system power consumption)
		HP Fast Charge Technology	Charges the battery up to 90% within 1.5 hours when system is OFF

QuickSpecs

Technical Specifications

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

15.0-Inch Color TFT XGA Display	Active Area (W x H)	12.0 x 9.0 in (30.4 x 22.8 cm)	
	Diagonal Size	15.0 in (38.0 cm)	
	Surface Treatment	Anti-glare	
	Contrast Ratio	300:1 (typical)	
	Refresh Rate	60 Hz	
	Brightness	150 nit (typical)	
	Pixel Resolution	Pitch	0.296 mm
		Format	1024 x 768
		Configuration	RGB Stripe
	Backlight	CCFL	
	PPI	86	
	Viewing Angle	±45° Horizontal, ±25° Vertical (typical)	

15.0-Inch Color TFT SXGA+ Display	Active Area (W x H)	12.0 x 9.0 in (30.4 x 22.8 cm)	
	Diagonal Size	15.0 in (38.0 cm)	
	Surface Treatment	Anti-glare	
	Contrast Ratio	300:1 (typical)	
	Refresh Rate	60 Hz	
	Brightness	170 nit (typical)	
	Pixel Resolution	Pitch	0.217 mm
		Format	1400 x 1050
		Configuration	RGB Stripe
	Backlight	CCFL	
	PPI	116	
	Viewing Angle	±60° Horizontal, ±50° Vertical (typical)	

Technical Specifications

Hard Drives

80-GB 5400 rpm	Drive Weight	0.22 lb (101 g)	
	Capacity	80 GB	
	Height	0.37 in (9.5 mm)	
	Width	2.75 in (70 mm)	
	Interface	ATA-7	
	Transfer Rate	Synchronous (maximum)	100 MB/s (Drive Capability)
	Seek Time (typical reads, including settling)	Single Track	3 ms
		Average	13 ms
		Maximum	24 ms
	Rotational Speed	5400 rpm	
	Logical Blocks	156,301,488	
	Operating Temperature	41° to 131° F (5° to 55° C)	
	Features	ATA Security	

60-GB 5400 rpm	Drive Weight	0.22 lb (101 g)	
	Capacity	60 GB	
	Height	0.37 in (9.5 mm)	
	Width	2.75 in (70 mm)	
	Interface	ATA-7	
	Transfer Rate	Synchronous (maximum)	100 MB/s (Drive Capability)
	Seek Time (typical reads, including settling)	Single Track	3 ms
		Average	13 ms
		Maximum	24 ms
	Rotational Speed	5400 rpm	
	Logical Blocks	117,210,240	
	Operating Temperature	41° to 131° F (5° to 55° C)	
	Features	ATA Security	

Technical Specifications

40-GB 5400 rpm	Drive Weight	0.22 lb (101 g)	
	Capacity	40 GB	
	Height	0.37 in (9.5 mm)	
	Width	2.75 in (70 mm)	
	Interface	ATA-7	
	Transfer Rate	Synchronous (maximum)	100 MB/s (Drive Capability)
	Seek Time (typical reads, including settling)	Single Track	3 ms
		Average	13 ms
		Maximum	24 ms
	Rotational Speed	5400 rpm	
	Logical Blocks	78,140,160	
	Operating Temperature	41° to 131° F (5° to 55° C)	
	Features	ATA Security	

80-GB 4200 rpm	Drive Weight	0.22 lb (101 g)	
	Capacity	80 GB	
	Height	0.37 in (9.5 mm)	
	Width	2.75 in (70 mm)	
	Interface	ATA-7	
	Transfer Rate	Synchronous (maximum)	100 MB/s (Drive Capability)
	Seek Time (typical reads, including settling)	Single Track	3 ms
		Average	13 ms
		Maximum	24 ms
	Rotational Speed	4200 rpm	
	Logical Blocks	156,301,488	
	Operating Temperature	41° to 131° F (5° to 55° C)	
	Features	ATA Security	

Removable Storage Drives – Fixed Bay

Technical Specifications

DVD-ROM Drive	Access Times	Random	<100 ms CD
			<125 ms DVD
	Max Data Transfer Rate	24X-CD-ROM	3,600 KB/s
		8X-DVD	10,800 KB/s
	Transfer Mode	Multiword DMA Mode 2	
	Interface	EIDE	
	Supported Media (read)	CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW	
	Supported Media (write)	None	
	Max Media Capacity (read)	4.7 GB	
	Transport	Tray Loading	

DVD/CD-RW Combo Drive	Access Times	Random	<110 ms CD
			<130 ms DVD
	Max Data Transfer Rate	24X CD-ROM	3,600 KB/s
		8X DVD	10,800 KB/s
		24X CD-R	3,600 KB/s
		24X CD-RW	3,600 KB/s
	Transfer Mode	Multiword DMA Mode 2	
	Interface	EIDE	
	Supported Media (read)	CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW	
	Supported Media (write)	CD-R, CD-RW	
	Max Media Capacity (read)	4.7 GB	
	Max Media Capacity (write)	700 MB	
	Transport	Tray loading	

QuickSpecs

HP Compaq nx6110 Notebook PCs

Technical Specifications

8X DVD+/-RW Drive with Double Layer Technology	Access Times	Random	<175 ms CD
			<230 ms DVD
and	Max Data Transfer Rate	24X CD-ROM	3,600 KB/s
		8X DVD	10,800 KB/s
LightScribe 8X DVD+/-RW Drive with Double Layer Technology		24X CD-R	3,600 KB/s
		10X CD-RW	1,500 KB/s
		8X DVD+R	10,800 KB/s
		4X DVD+RW	5,400 KB/s
		8X DVD-R	10,800 KB/s
		4X DVD-RW	5,400 KB/s
		2.4X DVD+R(9)	2,700 KB/s
	Transfer Mode	Multiword DMA Mode 2	
	Interface	EIDE	
	Supported Media (read)	CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW	
	Supported Media (write)	CD-R, CD-RW, DVD+R, DVD+RW, DVD-R, DVD-RW	
	Max Media Capacity (read)	8.5 GB	
	Max Media Capacity (write)	8.5 GB	
	Transport	Tray Loading	

Audio

Hardware	Implementation	ADI AC '97 CODEC
	Volume Controls	Up, down, and mute buttons
	Full Duplex	Yes
	Sound Blaster Pro compatible	Yes
	Microphone Jack	Stereo or mono
	Headphone/Line Out Jack	Stereo

DA - 12135   North America — Version 30 — May 23, 2007   Page 22

QuickSpecs

Technical Specifications

Audio Output Quality	Frequency Response	20 Hz - 20 kHz
	Signal to Noise Ratio	>85 dB
	Total Harmonic Distortion	0.01%
	Noise Floor	-110 dB
	Play/Record Sampling Rate(s)	7 kHz - 48 kHz
	AD/DA Resolution	16 bit

Internal Speakers	Power Rating	2 Watts
	Impedance	4 Ohms

Communications

Integrated NetXtreme 10/100 Ethernet Controller	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)
		Auto-Negotiation (Automatic Speed Selection)
		Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/s
		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
	Manageability	Wake-on-LAN from all Power-Managed States (configurable; Magic Packet and Microsoft Wake-Up Frame)
		PXE 2.0 Remote Boot
		Statistics Gathering (RMON, Ethernet-like MIB, Ethernet MIB (802.3x, clause 30))
		Comprehensive diagnostic and configuration software suite
	NIC Device Driver Name	Broadcom 440X 10/100 Integrated Controller
	Drivers Available	Windows XP
		Windows 2000
		DOS NDIS2 and ODI

Technical Specifications

Agere Systems AC'97 Modem	Form Factor	MDC Daughtercard
	Power Management Support	APM Revision 1.2, ACPI
	Approvals/ Certifications	UL, CSA, NEMKO, CCIB, Industry Canada, FCC Part 68, CTR21, FCC Part 15 Class B, Canadian ICES-003 Class B, C.I.S.P.R.22, Australian ACA, CE Mark, Other Countries
	Data Mode Capabilities	56K modem (a-law, mu-law)
		V.8bis
		V.80
		V44, V.42bis, MNP5 (Compression)
		V.42 (LAPM, MNP2-4) (Error Correction)
		V.34 (file date: 10/96)
		Optional symbol rates: 2800, 3429 Asymmetric Symbol rates
		Synchronous primary channel data signaling rates: 3600, 31200 Automatic rate re-negotiation V.32bis V.32 V.23 V.22bis V.22 V.21 Bell 212A Bell 103J
	Fax Mode Capabilities	TIA/EIA-578-B (Class 1) T.30, T.4 (Group 3) V.17 V.29 V.27ter V.21 Channel 2
	Command Set	V.250 (Partial) TIA-602 Identification: +GMI, +GMM, +GMR Port control: +IPR, +ICF, +IFC, +ILRR Modulation: +MS, +MR, +MA Error control: +ES, +ER, +EB, +ESR, +ETBM Data compression: +DS, +DR V.251

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

Technical Specifications

Modulation	Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM
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]	17.5 dBm +/- 1.5 dB
Output Power (for OFDM; power varies by data rate)[2]	13.5 dBm +/- 1.5 dB
Power Consumption	Transmit: 2.0 W (max) Receive: 1.5 W (max) Idle mode: 248 mW (nominal) Sleep mode: 20 mW (max)
Power Management	ACPI compliant power management 802.11 Compliant Power Saving Mode
Receiver Sensitivity[3]	54 Mbps: -72 dBm,1 Mbps: -94 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 (12 g)
Dimensions	0.20 x 1.75 x 2.34 in (4.9 x 44.6 x 59.8 mm)
Operating Voltage	3.3v
Temperature	Operating 32° to 122° F (0° to 50° C) Non-operating -14° to 158° F (-10° to 70° C)
Humidity	Operating 10% to 90% (non-condensing) Non-operating 5% to 95% (non-condensing)
Altitude	Operating 0 to 15,000 ft (4,572 m) Non-operating 0 to 40,000 ft (12,192 m)

QuickSpecs

HP Compaq nx6110 Notebook PCs

Technical Specifications

Configuration Utility[4]   Choice of Configuration Utility:

- Microsoft Windows XP Wireless Network Connection Manager
- Broadcom Wireless Configuration Utility (required for Cisco Compatible Extensions support)

1. Check latest software/driver release for updates on supported security features.
2. Maximum output power may vary by country according to local regulations.
3. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).
4. WLAN supplier's client utility is required for Cisco Compatible Extensions support. WLAN may also be compatible with certain third-party software supplicants.

Broadcom 4311AG 802.11a/b/g WiFi Adapter	Wireless LAN Standards	IEEE 802.11a IEEE 802.11b IEEE 802.11g
	Interoperability	Wi-Fi certified Cisco Compatible Extensions Program compliant (details at www.hp.com/go/notebooks/WLAN)
	Frequency Band	2.4 GHz and 5 GHz
	Data Rates	802.11b: 1, 2, 5.5, 11 Mbps 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
	Modulation	Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM
	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, EAP-SIM. Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program Version 4).
	Sub-channels	Multinational support with frequency bands and channels compliant to local regulations.
	Media Access Protocol	CSMA/CA (Collision Avoidance) with ACK
	Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
	Roaming	IEEE 802.11 compliant roaming between access points
	Output Power (for CKK)[2]	17.5 dBm
	Output Power (for OFDM; power varies by data rate)[2]	15 dBm
	Power Consumption	Transmit: 2.0 W (max) Receive: 1.5 W (max) Idle mode: 390 mW (nominal) Sleep mode: 20 mW (max)
	Power Management	ACPI compliant power management 802.11 compliant power saving mode
	Receiver Sensitivity[3]	54 Mbps: -72 dBm, 11 Mbps: -88 dBm , 1 Mbps: -97 dBm
	Antenna type	High efficiency dual band antenna with spatial diversity, mounted in the display enclosure

DA - 12135   North America — Version 30 — May 23, 2007   Page 26

QuickSpecs

HP Compaq nx6110 Notebook PCs

Technical Specifications

Range	802.11 a – Typical (@6 Mbps)	1000 feet – Outdoor Open Area 300 feet – Indoor, Office environment
	802.11 b – Typical (@1 Mbps)	1200 feet – Outdoor Open Area 300 feet – Indoor, Office environment
	802.11 g – Typical (@1 Mbps)	1200 feet – Outdoor Open Area 300 feet – Indoor, Office environment
Form Factor	MiniPCI Type IIIA	
Weight	0.035 lb (16 g)	
Dimensions	0.19 x 2.00 x 2.35 in (4.8 x 50.95 x 59.75 mm)	
Operating Voltage	3.3v	
Temperature	Operating 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% (non-condensing) 5% to 95% (non-condensing)
Altitude	Operating Non-operating	0 to 15,000 ft (4,572 m) 0 to 40,000 ft (12,192 m)
Configuration Utility[4]	Choice of Configuration Utility:	

- Microsoft Windows XP Wireless Network Connection Manager
- Broadcom Wireless Configuration Utility (required for Cisco Compatible Extensions support)

1. Check latest software/driver release for updates on supported security features.
2. Maximum output power may vary by country according to local regulations.
3. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).
4. WLAN supplier's client utility is required for Cisco Compatible Extensions support. WLAN may also be compatible with certain third-party software supplicants.

Intel PRO/Wireless 2200BG 802.11b/g WLAN	Wireless LAN Standards	IEEE 802.11b IEEE 802.11g
	Interoperability	Wi-Fi certified Cisco Compatible Extensions Program compliant (details at http://www.hp.com/go/notebooks/wlan)
	Frequency Band	2.4 GHz
	Data Rates	802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
	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

DA - 12135   North America — Version 30 — May 23, 2007   Page 27

Technical Specifications

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.

Intel PRO/Wireless 2915ABG 802.11a/b/g WLAN	Wireless LAN Standards	IEEE 802.11a IEEE 802.11b IEEE 802.11g
	Interoperability	Wi-Fi certified Cisco Compatible Exensions Program compliant (details at http://www.hp.com/go/notebooks/WLAN)

Technical Specifications

Frequency Band	2.4 GHz and 5 GHz
Data Rates	802.11b: 1, 2, 5.5, 11 Mbps 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
Modulation	Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM
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: 100 mW (nominal) Sleep mode: 60 mW (max)
Power Management	ACPI compliant power management 802.11 Compliant Power Saving Mode
Receiver Sensitivity[3]	54 Mbps: -72 dBm, 11 Mbps: -89 dBm , 1 Mbps: -97 dBm
Antenna type	High efficiency dual band antenna with polarization diversity, mounted in the display enclosure

Range	802.11 a – Typical (@6 Mbps) 600 feet – Outdoor Open Area
	                                      150 feet – Indoor, Office environment
	802.11 b – Typical (@1 Mbps) 1200 feet – Outdoor Open Area
	                                      300 feet – Indoor, Office environment
	802.11 g – Typical (@1 Mbps) 1200 feet – Outdoor Open Area
	                                      300 feet – Indoor, Office environment

Form Factor	MiniPCI Type IIIB
Weight	0.026 lb (11.75 gm) (max)
Dimensions	0.20 x 1.75 x 2.34 in (4.9 x 44.6 x 59.8 mm)
Operating Voltage	3.3v +/- 10%
Temperature	Operating 32° to 176° F (0° to 80° C) Non-operating -40° to 176° F (-40° to 80° C)
Humidity	Operating 10% to 90% (non-condensing) Non-operating 5% to 95% (non-condensing)
Altitude	Operating 0 to 10,000 ft (3,048 m) Non-operating 0 to 50,000 ft (15,240 m)

Technical Specifications

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

Technical Specifications

Temperature	Operating	-4° to 158° F (-20° to 70° C)
	Non-operating	-40° to 176° F (-40° to 80° C)
Humidity	Operating	10% to 90%
	Non-operating	5% to 95%
Altitude	Operating	15,000 ft (4,572 m)
	Non-operating	40,000 ft (12,192 m)

Bluetooth Profiles Supported

(with Bluetooth for Windows 4.0 software)

Serial Port Profile (SPP)*

Dial-Up Networking (DUN)*

Generic Object Exchange Profile (GOEP)

Object Push Profile (OPP)*

File Transfer Profile (FTP)

Synchronization Profile (SYNC)

Hard Copy Cable Replacement (HCRP)*

Personal Area Networking Profile (PAN)*

Human Interface Device Profile (HID)*

FAX Profile (FAX)

Basic Imaging Profile (BIP)

Headset Profile (HSP)

Hands Free Profile (HFP)

Advanced Audio Distribution Profile (A2DP)

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