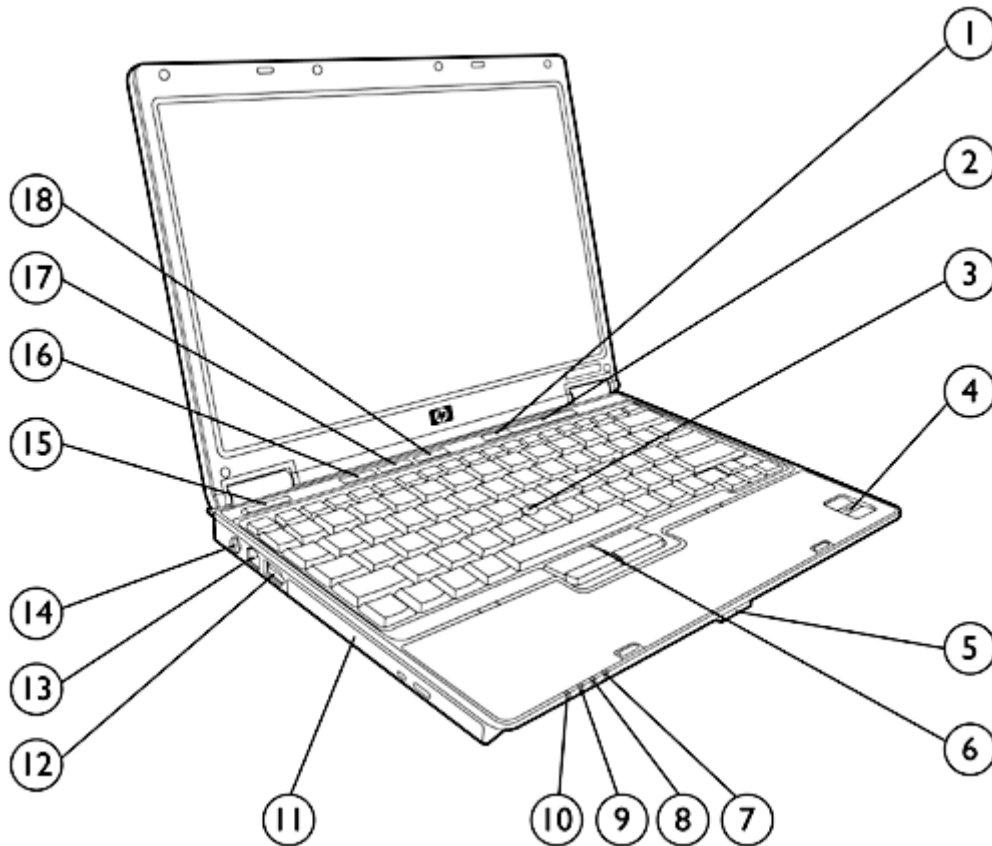


Overview

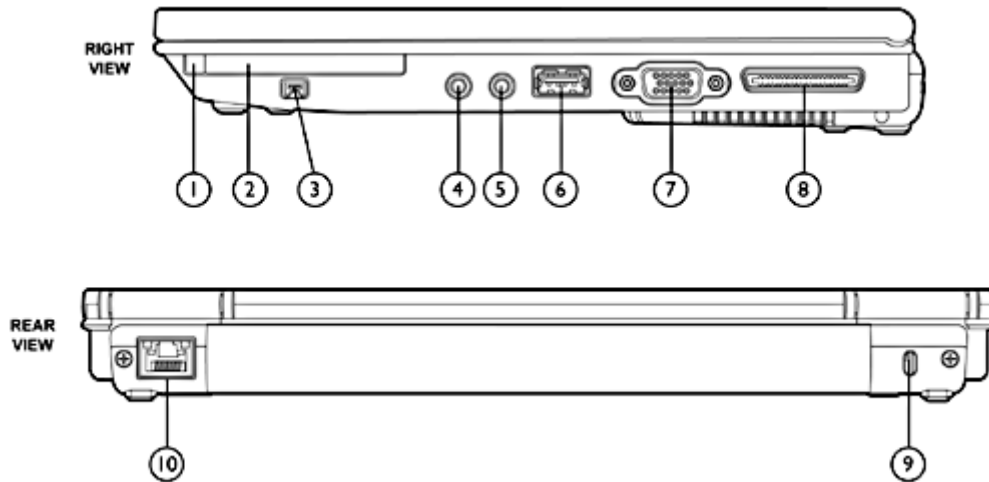
HP Compaq nc2400 Notebook PC

HP recommends Windows® XP Professional



- | | |
|---|---|
| 1. Volume Mute Button with LED | 10. Wireless On/Off LED |
| 2. Volume Scroll Zone with Up/Down LED Indicators | 11. Optical Drive (select models) |
| 3. Pointstick | 12. USB 2.0 Port (powered on select models) |
| 4. HP Biometric Fingerprint Sensor | 13. RJ-11 (modem) Jack |
| 5. Speaker | 14. Power Connector |
| 6. Left and Right Pointstick Buttons | 15. Power Button with LED |
| 7. Hard Drive Activity LED | 16. HP Info Center Button with LED |
| 8. Battery Charging LED | 17. Wireless On/Off Button with LED |
| 9. Power/Standby LED | 18. Presentation Mode Button with LED |

Overview



- | | |
|---|-----------------------------------|
| 1. PC Card Eject Button | 6. USB 2.0 Port |
| 2. PC Card Slot (or smart card reader on select models) | 7. VGA/External Monitor Connector |
| 3. IEEE 1394 Port | 8. Docking Connector |
| 4. Headphone Jack | 9. Kensington Lock Slot |
| 5. Microphone Jack | 10. RJ-45 Port (NIC) |

At A Glance

- Genuine Windows XP Professional, Genuine Windows XP Home Edition (select countries only), or FreeDOS
- Intel® Core™ Duo ULV, Intel Core Solo ULV and Celeron M ULV processors
- Starting at 2.8 lb/1.29 kg
- 12.1-inch WXGA display
- Integrated optical drive support on select models
- Mobile Intel 945GM Express Chipset
- 512-MB to 2048-MB DDR2 SDRAM
- Up to 60-GB 4200 rpm, user-removable hard drive
- Intel Graphics Media Accelerator 950
- Broadcom NetLink Gigabit Ethernet PCI Controller
- Optional integrated 802.11 a/b/g or 802.11 b/g wireless LAN module
- Optional integrated Bluetooth
- HP Mobile Data Protection System 3D
- Touch-sensitive controls
- Security features include integrated HP Biometric Fingerprint Sensor, Trusted Platform Module (TPM) Embedded Security Chip, and optional integrated Smart Card Reader
- Protected by a three-year standard parts and labor warranty – certain restrictions and exclusions apply.

Standard Features

Processors

Intel Core Duo Processor U2500* (1.20-GHz, 533-MHz FSB, 2-MB L2 cache)

Intel Core Solo Processor U1400* (1.20-GHz, 533-MHz FSB, 2-MB L2 cache)

Intel Core Solo Processor U1300* (1.06-GHz, 533-MHz FSB, 2-MB L2 cache)

Intel Celeron M Processor 423* (1.06-GHz, 533-MHz FSB, 1-MB L2 cache)

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

NOTE: Processor speed denotes maximum performance mode; processors will run at lower speeds in battery optimization mode.

Operating System

Preinstalled

Genuine Windows XP Professional SP2

Genuine Windows XP Home Edition SP2 (select countries only)

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 www.windowsvista.com/getready for details.

Chipset

Mobile Intel 945GM Express Chipset

Graphics

Intel Graphics Media Accelerator 950, with up to 224-MB of shared system memory

Display

Internal

12.1-inch TFT WXGA (1280 x 800 resolution and 16 M colors)

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.

Memory

Standard

512-MB, 1024-MB or 2048-MB 533-MHz DDR2 SDRAM; one SODIMM slot

Maximum

Up to 2048-MB maximum

Communications

Integrated Broadcom NetLink Gigabit Ethernet PCI Controller (10/100/1000 NIC)* with HP Smart Power NIC technology

56K V92 modem** with digital line guard

* The term "10/100/1000" or "Gigabit" Ethernet indicates compliance with IEEE standard 802.3ab for Gigabit Ethernet, and does not connote actual operating speed of 1 Gb/s. For high-speed transmission, connection to a Gigabit Ethernet server and network infrastructure is required.

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



Standard Features

Wireless Devices

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

All integrated wireless LAN options	<ul style="list-style-type: none"> Wi-Fi certified Cisco Compatible Extensions support (Version 4.0) 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
Intel PRO/Wireless 3945ABG Network Connection	<ul style="list-style-type: none"> Intel Centrino mobile technology Integrated support for 802.11 a, b and g Up to 54-mbps data rate
Intel PRO/Wireless 3945BG Network Connection	<ul style="list-style-type: none"> Intel Centrino mobile technology Integrated support for 802.11 b and g Up to 54-mbps data rate
Broadcom 4311AG WiFi Adapter	<ul style="list-style-type: none"> Integrated support for 802.11 a, b and g Up to 54-mbps data rate
Broadcom 4311BG WiFi Adapter	<ul style="list-style-type: none"> Integrated support for 802.11 b and g Up to 54-mbps data rate
HP Integrated Module with Bluetooth 2.0 Wireless Technology	<ul style="list-style-type: none"> Bluetooth Specification v2.0 compliant Works with a wide range of Bluetooth devices

Keyboard

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

Touch-sensitive Controls

Provide easy access to the following features: HP Info Center, Wireless On/Off, Presentation Mode, Volume Up/Down, and Volume Mute.

Pointing Device

Pointstick with two soft-touch buttons

Expansion Card Slots

One Type I/II PC Card slot	Supports 32-bit CardBus and 16-bit PC Cards
Optional Integrated Smart Card Reader	Compatible with ISO 7816 compliant Smart Cards PC/SC interface support

Storage

Hard Drives	30-, 40-, 60-GB 4200 rpm PATA
HP Mobile Data Protection System 3D	Hard drive is mounted directly to the notebook frame, reducing the transmission of shock to the hard drive. Uses three-axis digital motion detection with intelligent sensitivity to help protect the hard drive during normal use from shock and vibration.



Standard Features

NOTE: These hard drives are customer removable and will withstand multiple insertion/removal cycles. Up to 8 GB is reserved for the system recovery software.

Fixed Optical Drives DVD-ROM
DVD/CD-RW Combo
DVD+/-RW SuperMulti with Double Layer

Interfaces	PC Card Slot	One – Type I/II or optional Smart Card Reader
	External Monitor	One – VGA
	External Microphone	One
	Headphone/Line out	One
	Power Connector	One
	RJ-11 (Modem)	One
	RJ-45 (NIC)	One
	USB 2.0	Two (including one powered USB 2.0 port to support HP External MultiBay II on units without an integrated optical drive)
	Docking Connector	One
	IEEE 1394a Port (4-pin)	One
	LED Status Indicators	Sixteen

Audio ADI High Definition CODEC
Integrated 16-bit Sound Blaster Pro compatible audio
Integrated speaker
External volume up/down scroll, and mute button
Stereo headphone/line out
Stereo microphone in

Software	Preloaded Software	Adobe Acrobat Reader* HP Backup and Recovery Manager HP Help and Support Center* HP Mobile Print Driver* HP ProtectTools Security Manager*: BIOS Configuration for HP ProtectTools Embedded Security for HP ProtectTools Credential Manager for HP ProtectTools HP One-Touch Button Software HP Wireless Assistant HP OpenView Radia Management Solutions* Sonic Digital Media Plus*: RecordNow! (for optional DVD+/-RW and DVD/CDRW drives) MyDVD (DVD Authoring for optional DVD+/-RW drives) Synaptics Touchpad Driver Symantec Norton Internet Security* with complimentary 60-day live update Intervideo WinDVD* – DVD Player (for optional DVD+/-RW, DVD/CDRW and DVD drives)
	Additional software available from the Web	HP Client Manager Interface Smart Card Security for HP ProtectTools Device Access Manager for HP ProtectTools



Standard Features

HP Client Management Interface HP Client Management Interface is based on industry standards that include Microsoft Windows Management Interface (MS WMI), Web Based Enterprise Management (WBEM), System Management BIOS (SMBIOS), and Advanced Configuration and Power Interface (ACPI). HP CMI is a foundation technology utilized in HP Client Management Solutions.

SMBIOS Version 2.4 System Management BIOS, previously known as DMI BIOS, is used to store system management information.

HP Backup and Recovery Manager Each unit is shipped with HP Backup and Recovery Manager. HP Backup and Recovery Manager can provide data and system file protection for HP business PCs to enable fast recovery if the system becomes corrupted or if important information is accidentally deleted. HP Backup and Recovery Manager can perform scheduled or manual backups of the entire drive or individual files and folders. HP Backup and Recovery Manager can also create software recovery CDs or DVDs (requires optional hardware).

HP OpenView Radia Management Solutions HP OpenView Radia Management Solutions automate the management of software such as operating systems, software, software updates, content, and configuration settings to ensure that each computer is maintained in the correct configuration.

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
- Embedded Security for HP ProtectTools
- Credential Manager for HP ProtectTools
- Device Access Manager for HP ProtectTools

Security

Standard Features	<p>HP ProtectTools Security Manager HP Biometric Fingerprint Sensor Configuration Control Hardware Memory Change Alert Ownership Tag Setup Password Power-On Password DriveLock TPM Enhanced DriveLock HP Disk Sanitizer Enabled for PC Smart Card options Kensington Lock Slot Support for Computrace / LoJack for Laptops (must be purchased separately)</p>
	<p>TPM 1.2 Embedded Security Chip Designed to the Trusted Computing Group (TCG) standard Microsoft Crypto API and PKCS#11 software interface support RSA Secured Partner program certification NOTE: Full functionality of the TPM Embedded Security Chip is available only with Windows XP Professional.</p>
Optional Features	<p>Smart Card Reader (replaces PC card slot) Compatible with ISO 7816 compliant Smart Cards</p>



Standard Features

PC/SC interface support

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

Power Supply External 65-watt Smart 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*

* Fast Charge Technology recharges your battery up to 90% within 90 minutes when the system is off. Fast Charge Technology does not apply to 9 cell primary batteries.

Battery	Primary Battery	3-cell (28Wh) high capacity Lithium-Ion 6-cell (55Wh) high capacity Lithium-Ion 9-cell (83Wh) high capacity Lithium-Ion
	Battery Fuel Gauge LEDs	6-cell high capacity and 9-cell high capacity

Battery Life	3-cell Primary Battery	Up to 3 hours
	6-cell Primary Battery	Up to 6 hours 15 minutes
	9-cell Primary 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 Core Solo processors (allows Battery Optimized Mode, Maximum Performance Mode, or Automatic mode)
Intel Display Power Saving technology
HP Smart Power NIC technology
Hibernation
Standby
ACPI compliance

MultiBay II Devices (optional) MultiBay II devices used in the optional HP External MultiBay II may be swapped with the system powered on (hot) under Microsoft Windows XP Professional, Windows XP Home, or Windows 2000 (except MultiBay II secondary hard drive).

Docking (optional) HP 2400 Series Docking Station

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

Select Model(s)

nc2400 EZ126AW#XXX (may	Processor	Intel Core Solo Processor U1400* (1.20-GHz, 533-MHz FSB, 2-MB L2 cache)
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Standard Features

vary based on local regulatory requirements)

Operating System	Genuine Windows XP Professional
System Memory	1024-MB 533-MHz DDR2 SDRAM
Hard Drive	60-GB 4200 rpm SMART
Display	12.1-inch TFT WXGA (1280 x 800 resolution and 16 M colors)
Graphics	Intel Graphics Media Accelerator 950, with up to 224-MB of shared system memory
Audio	ADI High Definition CODEC, Line out/headphone and microphone jacks
Optical Drive	9.5-mm DVD/CD-RW Combo
Communications	Broadcom NetLink Gigabit Ethernet PCI Controller (10/100/1000 NIC)
Integrated Wireless	Intel PRO/Wireless 3945ABG Network Connection (may vary based on local regulatory requirements) Bluetooth
Integrated Security	TPM 1.2 Embedded Standard Security Chip HP Biometric Fingerprint Sensor
Pointing Device	Pointstick
Battery	6-cell (55Wh) high capacity Lithium-Ion
Power	65W Smart AC Adapter
Warranty	3/3/0

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

Options

Memory	512-MB 533-MHz DDR2 SDRAM	PE831A
	1024-MB 533-MHz DDR2 SDRAM	PE832A
	2048-MB 667-MHz DDR2 SDRAM*	EM995AA
	*NOTE: System runs at a maximum of 533-MHz.	
MultiBay II Storage (9.5-mm) NOTE: Requires HP External MultiBay II	DVD-ROM MultiBay II Drive	PA849A
	Combo DVD/CD-RW MultiBay II Drive	PA850A
	DVD+/-RW Dual Format MultiBay II Drive	PA851A
	80-GB 5400 rpm MultiBay II Hard Drive	PH357A
Other Storage	HP USB Digital Drive + 256-MB Secure Digital Card	DL702AA
	HP USB Diskette Drive	DC361B
Communications	Intel PRO/Wireless 3945ABG 802.11 a/b/g WLAN option kit	EX150AA#xxx
Expansion Solutions	HP 2400 Series Docking Station	EQ773AA#xxx
	HP Monitor Stand	PA507A
	HP Adjustable Notebook Stand	PA508A
	HP External MultiBay II (9.5-mm)	PA509A
	HP 4-port USB 2.0 Hub	DG954A
Power	HP 2-bay Battery Charging Station	DT533A#xxx
	HP 10-bay Battery Charging Station	DT534A#ABA
	Battery Adapter kit #1	EH769AA
	65W Smart AC Adapter	ED494AA#xxx
	90W Smart AC Adapter	ED495AA#xxx
	90W Smart Auto Adapter	ED493AA
	65W Air/Auto/AC Combo Adapter	ED993AA#xxx
	Primary 6-cell Battery Pack	EH767AA
Primary 9-cell Battery Pack	EH768AA	
Carrying Cases	HP Entry Value Case	DL617A
	HP Top Load Nylon	DC915A
	HP Executive Leather case	PA847A
	HP Sport Backpack	DG102A
Security	PC PCMCIA Card Smart Card Reader	DC350B
	HP/Kensington Cable Lock	PC766A
Input/Output Devices	USB/PS2 Keyboard	DC852A#xxx
	USB/PS2 Optical Mouse	DC369A
	HP USB Optical Travel Mouse	F2100A



Memory

Up to 2048-MB of 533-MHz DDR2 SDRAM

One DIMM slot

DIMM sizes supported: 512-MB, 1024- or 2048-MB

Standard Memory

- 512-MB (512-MB x 1)
- 1024-MB (1024-MB x 1)
- 2048-MB (2048-MB x 1)

Optional Memory

2048-MB 667-MHz DDR2 SDRAM*

EM995AA

Upgrades

1024-MB 533-MHz DDR2 SDRAM

PE832A

512-MB 533-MHz DDR2 SDRAM

PE831A

***NOTE:** System runs at a maximum of 533-MHz.

Please refer to the Hardware and Software Guide for installation procedures. Memory slot is user-accessible.

Storage

Removable Media Drive Support

	Quantity Supported	Drive Bay
DVD+/-RW SuperMulti Double Layer Drive	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
Primary Hard Drives		
60-GB 4200 rpm SMART Hard Drive	One	Dedicated hard drive bay
40-GB 4200 rpm SMART Hard Drive	One	Dedicated hard drive bay
30-GB 4200 rpm SMART Hard Drive	One	Dedicated hard drive bay

Technical Specifications

System Unit	Dimensions (HxWxD)	25 (at front) x 282 x 213 mm
	Weight	2.8 lbs (1.29 kg)
	NOTE: Height varies depending upon where on the notebook the measurement is made. Weight includes 3-cell battery, 30-GB hard drive, 512-MB memory, 12.1-inch WXGA display, WLAN module, and Bluetooth. Weight varies by configuration and components.	
Stand-Alone Power Requirements	Normal Operating Voltage	18.5 V
	Average Operating Power	18.5 W
	Max Operating Power	< 65 W
Temperature	Operating	32° to 95° F (0° to 35° C) (not writing optical) 41° to 95° F (5° to 35° C) (writing optical)
	Non-operating	-4° to 140° F (-20° to 60° C)
	Relative Humidity	Operating Non-operating
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	Energy Star Compliant	Yes
	UL	Yes
	UL GS	Yes
	CSA	Yes
	ICES	Yes
	Australia/NZ Compliance	Yes
	CCC	Yes
	Japan Compliance	Yes
	MIC	Yes
	BSMI	Yes
	CE Marking Compliance	Yes
	KONCAR	Yes
	GOST	Yes
	SASO	Yes
	SABS	Yes
UKRSERTCOMPUTER	Yes	

HP 65W Smart AC Adapter	Dimensions	4.17 x 1.85 x 1.1 in (10.6 x 4.7 x 2.8 cm)	
	Weight	0.62 lb (280 g)	
	Input	100 to 240 VAC	
		Input Efficiency	83% min at 115 VAC
		Input frequency range	47 to 63 Hz
		Input AC current	1.7 A at 90 VAC, 0.85 A at 180 VAC
	Output	Output power 65W	65W
		DC output	18.5V



Technical Specifications

	Hold-up time	5 msec at 115 VAC input
	Output current limit	<11A, Over voltage protection- 29V max automatic shutdown
Connector	3 pin/grounded, mates with interchangeable cords	
Environmental Design	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.	
Option Kit Contents	65W AC Adapter, power cable, warranty booklet	

83Wh Primary 9-Cell Battery	Dimensions (H x W x L)	1.6 x 2.3 x 8.1 in (4.1 x 5.9 x 20.6 cm)		
	Weight	1.07 lb (0.488 kg)		
	Cells/Type	9-cell Lithium-Ion		
	Energy	Voltage	10.8V	
		Watt-hour Capacity	83Wh	
		Amp-hour Capacity	7.65Ah	
	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 to 4 hours	
		System ON	4 to 5 hours (depending on system power consumption)	
	Fuel Gauge	When pressed, LEDs light indicating level of charge remaining on battery		

55Wh Primary 6-Cell Battery	Dimensions (H x W x L)	0.8 x 2.3 x 8.1 in (2.1 x 5.9 x 20.6 cm)		
	Weight	0.73 lb (0.332 kg)		
	Cells/Type	6-cell Lithium-Ion		
	Energy	Voltage	10.8V	
		Watt-hour capacity	55Wh	
		Amp-hour capacity	5.1Ah	
	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	Charges the battery up to 90% within 1.5 hours	



Technical Specifications

	Fuel Gauge	Technology	when system is OFF
		When pressed, LEDs light indicating level of charge remaining on battery	
28Wh Primary 3-Cell Battery	Dimensions (H x W x L)	0.8 x 1.5 x 8.1 in (2.1 x 3.9 x 20.6 cm)	
	Weight	0.39 lb (0.176 kg)	
	Cells/Type	3-cell Lithium-Ion	
	Energy	Voltage	10.8V
		Watt-hour Capacity	28.8Wh
		Amp-hour Capacity	2.55Ah
	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
12.1-Inch Color TFT WXGA Display	Active Area (W x H)	10.3 x 6.4 in (26.1 x 16.3 cm)	
	Diagonal Size	12.1 in (30.7 cm)	
	Surface Treatment	Anti-glare	
	Number of Colors	Up to 16M	
	Contrast Ratio	300:1 (typical)	
	Refresh Rate	60 Hz	
	Brightness	200 nit (typical)	
	Pixel Resolution	Pitch	0.204 mm
		Format	1280 x 800
		Configuration	RGB Stripe
	Backlight	CCFL	
	PPI	125	
	Viewing Angle	±45° Horizontal, ±25° Vertical (typical)	
Hard Drives			
60-GB 4200 rpm 1.8" PATA	Drive Weight	0.13 lb (59 g)	
	Capacity	60 GB	
	Height	0.31 in (8 mm)	
	Width	2.12 in (54 mm)	
	Interface	ATA-6	
	Transfer Rate	Synchronous (maximum)	100 MB/s (Drive Capability)
	Seek Time	Single Track	3 ms
	(typical reads, including settling)	Average	15 ms
		Maximum	26 ms
	Rotational Speed	4200 rpm	



Technical Specifications

Logical Blocks	117,210,240
Operating Temperature	41° to 140° F (5° to 60° C) [case temp]
Features	ATA Security

40-GB 4200 rpm 1.8" PATA

Drive Weight	0.13 lb (59 g)
Capacity	40 GB
Height	0.31 in (8 mm)
Width	2.12 in (54 mm)
Interface	ATA-6
Transfer Rate	Synchronous (maximum) 100 MB/s (Drive Capability)
Seek Time (typical reads, including settling)	Single Track 3 ms Average 15 ms Maximum 26 ms
Rotational Speed	4200 rpm
Logical Blocks	78,126,048
Operating Temperature	41° to 140° F (5° to 60° C) [case temp]
Features	ATA Security

30-GB 4200 rpm 1.8" PATA

Drive Weight	0.10 lb (48 g)
Capacity	30 GB
Height	0.20 in (5 mm)
Width	2.12 in (54 mm)
Interface	ATA-6
Transfer Rate	Synchronous (maximum) 100 MB/s (Drive Capability)
Seek Time (typical reads, including settling)	Single Track 3 ms Average 15 ms Maximum 26 ms
Rotational Speed	4200 rpm
Logical Blocks	58,605,120
Operating Temperature	41° to 140° F (5° to 60° C) [case temp]
Features	ATA Security

Fixed Optical Drives

DVD-ROM Drive

Dimensions	0.37 x 5.51 x 5.04 in (0.95 x 14.0 x 12.8 cm)	
Weight	0.45 lb (205 g)	
Access Times	Random	<120 ms CD <200 ms DVD
Max Data Transfer Rate	24X-CD-ROM	3,600 KB/s
	8X-DVD	10,800 KB/s
Transfer Mode	Multiword DMA Mode 2	
Interface	EIDE	
Supported Media (read)	CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD),	



Technical Specifications

Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW

Supported Media (write) None
Max Media Capacity (read) 8.5 GB
Transport Tray Loading

DVD/CD-RW Combo Drive

Dimensions 0.37 x 5.51 x 5.04 in (0.95 x 14.0 x 12.8 cm)
Weight 0.45 lb (205 g)
Access Times Random <120 ms CD
 <155 ms DVD
Max Data Transfer Rate 24X CD-ROM 3,600 KB/s
 8X DVD 10,800 KB/s
 24X CD-R 3,600 KB/s
 24X CD-RW 3,600 KB/s

Transfer Mode Multiword DMA Mode 2
Interface EIDE
Supported Media (read) CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW
Supported Media (write) CD-R, CD-RW
Max Media Capacity (read) 8.5 GB
Max Media Capacity (write) 700-MB
Transport Tray loading

DVD+/-RW SuperMulti Drive with Double Layer

Dimensions 0.37 x 5.51 x 5.04 in (0.95 x 14.0 x 12.8 cm)
Weight 0.45 lb (205 g)
Access Times Random <150 ms CD
 <125 ms DVD
Max Data Transfer Rate 24X CD-ROM 3,600 KB/s
 8X DVD 10,800 KB/s
 24X CD-R 3,600 KB/s
 10X CD-RW 1,500 KB/s
 4X DVD+R 5,400 KB/s
 2.4X DVD+RW 3,240 KB/s
 4X DVD-R 5,400 KB/s
 2X DVD-RW 2,700 KB/s
 2X DVD-RAM 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,



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	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, DVD-RAM
Max Media Capacity (read)	8.5 GB
Max Media Capacity (write)	8.5 GB
Transport	Tray Loading

Audio

Hardware	Implementation	ADI1981HD High Definition CODEC
	Volume Controls	Up/Down scroll and Mute
	Full Duplex	Yes
	Sound Blaster Pro compatible	Yes
	Microphone Jack	Stereo or mono
	Headphone/Line Out Jack	Stereo

Audio Output Quality	Frequency Response	20 Hz – 20 kHz
	Signal to Noise Ratio	>85 dB
	Total Harmonic Distortion	0.01%
	Noise Floor	-110 dB
	Play/Record Sampling Rate(s)	8 kHz– 48 kHz
	DAC	16, 20 or 24-bit
	ADC	16 or 20-bit

Internal Speaker	Power Rating	2 Watts
	Impedance	4 Ohms

HP Biometric Fingerprint Sensor	Mobile Voltage Operation	3.0V–3.6V Single Supply
	Operating Temperature	32° – 158°F (0° – 70°C)
	Current Consumption @ 3.3V	Less than 70 mA peak imaging and scrolling Less than 25 mA hardware finger detection Advanced Power Management
	High-Rate Image Capture	Up to 240 image frames /sec
	ESD Resistance	IEC 61000-4-2 Level 4 (±15KV)
	Detection Matrix	192 x 16 Pixels 9.7 mm x 0.81 mm 500 ppi High-Resolution Images



Technical Specifications

Communications

Integrated Broadcom NetLink Gigabit Ethernet PCI Controller (BCM5788M)	Ethernet Features	<p>10 Mbit/s operation (10BASE-T; IEEE 802.3i; IEEE 802.3 clauses 13-14)</p> <p>100 Mbit/s operation (100BASE-TX; IEEE 802.3u; IEEE 802.3 clauses 21-30)</p> <p>1000 Mbit/s operation (1000BASE-T; IEEE 802.3z and 802.3ab; IEEE 802.3 clauses 34-42)</p> <p>Auto-Negotiation (Automatic Speed Selection)</p> <p>Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/s</p> <p>IEEE 802.1p QoS (Quality of Service) Support</p> <p>IEEE 802.3x Flow Control (IEEE 802.3 clauses 31-32; configurable)</p>
	Power Management	<p>ACPI compliant -- multiple power modes</p> <p>Situation-sensitive features reduce power consumption</p> <p>NIC Battery Saving Mode (enabled by default)</p>
	Performance Features	<p>TCP/IP/UDP Checksum Offload (configurable)</p>
	Manageability	<p>Wake-on-LAN from standby and hibernation (Magic Packet and Microsoft Wake-Up Frame); Wake-on-LAN from off (Magic Packet only)</p> <p>PXE 2.1 Remote Boot</p> <p>Statistics Gathering (SNMP MIB II, Ethernet-like MIB, Ethernet MIB (802.3x, clause 30))</p> <p>Comprehensive diagnostic and configuration software suite</p>
	Interface	<p>32-bit PCI, 33-MHz</p>
	NIC Device Driver Name	Broadcom NetLink Gigabit Ethernet
	Drivers Available	<p>Microsoft Windows XP</p> <p>Microsoft Windows 2000</p>

V.92 56K Data/Fax Modem	Form Factor	MDC 1.5 Daughtercard
	Power Management Support	APM Revision 1.2, ACPI
	Approvals/Certifications	<p>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</p>
	Data Mode Capabilities	<p>V.92 data</p> <p>V.8bis</p> <p>V.80</p> <p>V44, V.42bis, MNP5 (Compression)</p> <p>V.42 (LAPM, MNP2-4) (Error Correction)</p> <p>Optional symbol rates:</p> <p>2800, 3429</p> <p>Asymmetric Symbol rates</p> <p>Synchronous primary channel data signaling rates:</p> <p>3600, 31200</p> <p>Automatic rate re-negotiation</p> <p>V.34</p> <p>V.32bis</p> <p>V.32</p> <p>V.23</p> <p>V.22bis</p>



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	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 4311BG 802.11b/g WiFi Adapter	Wireless LAN Standards	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
	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
	Security¹	Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated AES, 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, LEAP, EAP-FAST, EAP-SIM. Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program Version 4).
	Sub-channels	Multinational support with frequency bands and channels compliant to local regulations.
	Media Access Protocol	CSMA/CA (Collision Avoidance) with ACK
	Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
	Roaming	IEEE 802.11 compliant roaming between access points
	Output Power (for CCK)²	17.5 dBm
	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 ³ : 390 mW (nominal) Sleep mode: 20 mW (max)
	Power Management	ACPI compliant power management



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Receiver Sensitivity⁴	802.11 compliant power saving mode 54 Mbps: -72 dBm, 11 Mbps: -88 dBm , 1 Mbps: -97 dBm	
Antenna type	High efficiency dual band antenna with spatial diversity, mounted in the display enclosure	
Range	802.11 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	PCI-Express MiniCard	
Weight	0.026 lb (12 g)	
Dimensions	0.19 x 1.2 x 2.0 in (4.75 x 29.85 x 50.8 mm)	
Operating Voltage	3.3v +/- 10%	
Temperature	Operating	32° to 176° F (0° to 80° C)
	Non-operating	-40° to 176° F (-40° to 80° C)
Humidity	Operating	10% to 90% (non-condensing)
	Non-operating	5% to 95% (non-condensing)
Altitude	Operating	0 to 10,000 ft (3,048 m)
	Non-operating	0 to 50,000 ft (15,240 m)
Configuration Utility⁵	Choice of Configuration Utility:	
	<ul style="list-style-type: none"> • Microsoft Windows XP Wireless Network Connection Manager • Broadcom Wireless Configuration Utility (required for Cisco Compatible Extensions support) 	
LED Activity	LED Off – Radio OFF; Solid LED On – Radio ON	
	<ol style="list-style-type: none"> 1. Check latest software/driver release for updates on supported security features. 2. Maximum output power may vary by country according to local regulations. 3. In Power Save Polling mode. 4. 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). 5. WLAN supplier's client utility is required for Cisco Compatible Extensions support. WLAN may also be compatible with certain third-party software supplicants. 	

Broadcom 4311AG 802.11a/b/g WiFi Adapter

Wireless LAN Standards	IEEE 802.11a IEEE 802.11b IEEE 802.11g
Interoperability	Wi-Fi certified Cisco Compatible Extensions Program compliant (details at www.hp.com/go/notebooks/WLAN)
Frequency Band	2.4 GHz and 5 GHz
Data Rates	802.11b: 1, 2, 5.5, 11 Mbps 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
Modulation	Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM
Security¹	Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated AES, 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, LEAP, EAP-FAST, EAP-SIM.



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	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 ³ : 390 mW (nominal) Sleep mode: 20 mW (max)	
Power Management	ACPI compliant power management 802.11 compliant power saving mode	
Receiver Sensitivity⁴	54 Mbps: -72 dBm, 11 Mbps: -88 dBm , 1 Mbps: -97 dBm	
Antenna type	High efficiency dual band antenna with spatial diversity, mounted in the display enclosure	
Range	802.11 a – Typical (@6 Mbps)	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	PCI-Express MiniCard	
Weight	0.026 lb (12 g)	
Dimensions	0.19 x 1.2 x 2.0 in (4.75 x 29.85 x 50.8 mm)	
Operating Voltage	3.3v +/- 10%	
Temperature	Operating	32° to 176° F (0° to 80° C)
	Non-operating	-40° to 176° F (-40° to 80° C)
Humidity	Operating	10% to 90% (non-condensing)
	Non-operating	5% to 95% (non-condensing)
Altitude	Operating	0 to 10,000 ft (3,048 m)
	Non-operating	0 to 50,000 ft (15,240 m)
Configuration Utility⁵	Choice of Configuration Utility:	
	<ul style="list-style-type: none"> • Microsoft Windows XP Wireless Network Connection Manager • Broadcom Wireless Configuration Utility (required for Cisco Compatible Extensions support) 	

LED Activity LED Off – Radio OFF; Solid LED On – Radio ON

1. Check latest software/driver release for updates on supported security features.
2. Maximum output power may vary by country according to local regulations.
3. In Power Save Polling mode.
4. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CKK modulation) and



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- a packet error rate of 10% for 802.11a/g (OFDM modulation).
- 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 3945ABG 802.11a/b/g Network Connection	Wireless LAN Standards	IEEE 802.11a IEEE 802.11b IEEE 802.11g
	Interoperability	Wi-Fi certified Cisco Compatible Extensions Program compliant (details at www.hp.com/go/notebooks/WLAN)
	Frequency Band	2.4 GHz and 5 GHz
	Data Rates	802.11b: 1, 2, 5.5, 11 Mbps 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
	Modulation	Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM
	Security¹	Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated AES, 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, LEAP, EAP-FAST, EAP-SIM. Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program Version 4).
	Sub-channels	Multinational support with frequency bands and channels compliant to local regulations.
	Media Access Protocol	CSMA/CA (Collision Avoidance) with ACK
	Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
	Roaming	IEEE 802.11 compliant roaming between access points
	Output Power (for CCK)²	15 dBm
	Output Power (for OFDM; power varies by data rate)²	15 dBm
	Power Consumption	Transmit: 1.8 Watts (max) Receive: 1.4 Watts (max) Idle mode ³ : 150 mW (nominal) Sleep mode: 30 mW (max)
	Power Management	ACPI compliant power management 802.11 compliant power saving mode
	Receiver Sensitivity⁴	54 Mbps: -72 dBm, 11 Mbps: -88 dBm , 1 Mbps: -97 dBm
	Antenna type	High efficiency dual band antenna with spatial diversity, mounted in the display enclosure
	Range	802.11 a – Typical (@6 Mbps) 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	PCI-Express MiniCard
	Weight	0.013 lb (6 g)



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Dimensions	0.19 x 1.2 x 2.0 in (4.75 x 29.85 x 50.8 mm)	
Operating Voltage	3.3v +/- 10%	
Temperature	Operating	32° to 176° F (0° to 80° C)
	Non-operating	-40° to 176° F (-40° to 80° C)
Humidity	Operating	10% to 90% (non-condensing)
	Non-operating	5% to 95% (non-condensing)
Altitude	Operating	0 to 10,000 ft (3,048 m)
	Non-operating	0 to 50,000 ft (15,240 m)
Configuration Utility⁵	Choice of Configuration Utility:	
	<ul style="list-style-type: none"> • Microsoft Windows XP Wireless Network Connection Manager • Intel PROSet (required for Cisco Compatible Extensions support) 	

LED Activity LED Off – Radio OFF; Solid LED On – Radio ON

1. Check latest software/driver release for updates on supported security features.
2. Maximum output power may vary by country according to local regulations.
3. In Power Save Polling mode.
4. 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).
5. 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 3945BG 802.11b/g Network Connection	Wireless LAN Standards	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
	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
	Security¹	Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated AES, 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, LEAP, EAP-FAST, EAP-SIM.
		Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program Version 4).
	Sub-channels	Multinational support with frequency bands and channels compliant to local regulations.
	Media Access Protocol	CSMA/CA (Collision Avoidance) with ACK
	Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
	Roaming	IEEE 802.11 compliant roaming between access points
	Output Power (for CKK)²	15 dBm
	Output Power (for OFDM; power varies by	15 dBm



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	data rate) ²	
Power Consumption	Transmit: 1.8 Watts (max) Receive: 1.4 Watts (max) Idle mode ³ : 150 mW (nominal) Sleep mode: 30 mW (max)	
Power Management	ACPI compliant power management 802.11 compliant power saving mode	
Receiver Sensitivity⁴	54 Mbps: -72 dBm, 11 Mbps: -88 dBm , 1 Mbps: -97 dBm	
Antenna type	High efficiency dual band antenna with spatial diversity, mounted in the display enclosure	
Range	802.11 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	PCI-Express MiniCard	
Weight	0.013 lb (6 g)	
Dimensions	0.19 x 1.2 x 2.0 in (4.75 x 29.85 x 50.8 mm)	
Operating Voltage	3.3v +/- 10%	
Temperature	Operating	32° to 176° F (0° to 80° C)
	Non-operating	-40° to 176° F (-40° to 80° C)
Humidity	Operating	10% to 90% (non-condensing)
	Non-operating	5% to 95% (non-condensing)
Altitude	Operating	0 to 10,000 ft (3,048 m)
	Non-operating	0 to 50,000 ft (15,240 m)
Configuration Utility⁵	Choice of Configuration Utility:	
	<ul style="list-style-type: none"> • Microsoft Windows XP Wireless Network Connection Manager • Intel PROSet (required for Cisco Compatible Extensions support) 	

LED Activity LED Off – Radio OFF; Solid LED On – Radio ON

1. Check latest software/driver release for updates on supported security features.
2. Maximum output power may vary by country according to local regulations.
3. In Power Save Polling mode.
4. 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).
5. WLAN supplier's client utility is required for Cisco Compatible Extensions support. WLAN may also be compatible with certain third-party software supplicants.

HP Integrated Module with Bluetooth Wireless Technology	Bluetooth Specification	2.0 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	3 Mbps data rate; throughput up to 2.17 Mbps Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric or 1306.9 kbps symmetric



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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 2.0 compliant
OS Support	Microsoft Windows Plug and Play compliant Microsoft Windows XP Professional and Home Microsoft Windows 2000
Bluetooth Software Supported	Broadcom Bluetooth for Windows Microsoft Windows XP Bluetooth Software
Link Topology	Point to Point, Multipoint Pico Nets up to 7 slaves
Security	Full support of Bluetooth Security Provisions
Power Management	Microsoft Windows ACPI, and USB Bus Support Self configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff
Certifications	All necessary regulatory approvals for supported countries, including: FCC (47 CFR) Part 15C, Section 15.247 & 15.249 ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark
Temperature	Operating -4° to 158° F (-20° to 70° C) Non-operating -40° to 176° F (-40° to 80° C)
Humidity	Operating 10% to 90% Non-operating 5% to 95%
Altitude	Operating 15,000 ft (4,572 m) Non-operating 40,000 ft (12,192 m)
Bluetooth Profiles Supported	(with Bluetooth for Windows 4.0 software) Serial Port Profile (SPP)* Dial-Up Networking (DUN)* Generic Object Exchange Profile (GOEP) Object Push Profile (OPP)* File Transfer Profile (FTP) Synchronization Profile (SYNC) Hard Copy Cable Replacement (HCRP)* Personal Area Networking Profile (PAN)* Human Interface Device Profile (HID)* FAX Profile (FAX) Basic Imaging Profile (BIP) Headset Profile (HSP) Hands Free Profile (HFP) Advanced Audio Distribution Profile (A2DP)

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



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Environmental Data **Eco-Label Certifications** This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks:

- US Energy Star
- US Federal Energy Management Program (FEMP)
- Taiwan Green Mark
- China Energy Conservation Program
- IT ECO declaration

System Configuration The configuration used for the Energy Consumption and Declared Noise Emissions data is based on a "Typically Configured Notebook."

Energy Consumption	115 VAC	230 VAC	100 VAC
Normal Operation	16.4 W	16.3 W	16.6 W
Sleep (Energy Star low power mode)	1.4 W	1.0 W	1.5 W
Off	1.0 W	0.8 W	1.1 W
Heat Dissipation*	115 VAC	230 VAC	100 VAC
Normal Operation	56 BTU/hr	55.6 BTU/hr	56.6 BTU/hr
Sleep	4.8 BTU/hr	3.8 BTU/hr	5.1 BTU/hr
Off	3.4 BTU/hr	2.7 BTU/hr	3.8 BTU/hr

***NOTE:** Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.

This product is in compliance with US executive order 13221, WOL (wake on LAN) disabled.

Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)	Sound Power (LWAd, bels)	Sound Pressure (LpAm, decibels)
Idle	2.43	17.8
Fixed Disk (random writes)	2.96	22.4

Batteries This product complies with ISO standards:

EU Directive 91/ 157/ EEC
 EU Directive 93/ 86/ EEC
 EU Directive 98/ 101/ EEC

Batteries used in the product do not contain:

Mercury greater than 5ppm by weight
 Cadmium greater than 10ppm by weight
 Lead greater than 4000 ppm by weight.

Battery type and chemistry used in the product:

Primary battery
 3-, 6-, or 9-cell high capacity Lithium-Ion battery



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	Real Time Clock battery CR2016 (coin cell), Lithium
Additional Information	<p>This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive – 2002/95/EC.</p> <p>This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive – 2002/96/EC.</p> <p>Keyboard complies with ISO standard: ISO 9995, EN 29241-4, and ISO/IEC 15412</p> <p>Input devices of this product comply with ISO 9241, part 9.</p> <p>Plastics parts weighing over 0.055 pounds (25 grams) used in the product are marked per ISO 11469 and ISO1043.</p> <p>This product contains 0% recycled materials (by wt.)</p> <p>This product is greater than 85% recycle-able when properly disposed of at end of life.</p>
Packaging	<p>Packaging Materials</p> <ul style="list-style-type: none">• External:<ul style="list-style-type: none">○ Corrugated Paper – 2.41 lb (1,094 g)• Internal:<ul style="list-style-type: none">○ EPE Foam – 0.11 lb (50.8 g)○ LDPE Bag – 0.01 lb (5 g)• The corrugated paper packaging materials contains at least 90% recycled content. <p>HP follows these guidelines to decrease the environmental impact of product packaging:</p> <ul style="list-style-type: none">• Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials.• Eliminate the use of ozone-depleting substances (ODS) in packaging materials.• Design packaging materials for ease of disassembly.• Maximize the use of post-consumer recycled content materials in packaging materials.• Use readily recyclable packaging materials such as paper and corrugated materials.• Reduce size and weight of packages to improve transportation fuel efficiency.• Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.
Material Usage	<p>This product does not contain any of the following substances in excess of regulatory limits (for reference of these limits please refer to the HP General Specification of the Environment</p> <p>http://www.hp.com/hpinfo/globalcitizenship/environment/</p>



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[supplychain/gen_specifications.html](#)):

- Asbestos
- Certain Azo Colorants
- Certain Brominated Flame Retardants – may not be used as flame retardants in plastics
- Cadmium
- Chlorinated Hydrocarbons
- Chlorinated Paraffins
- Formaldehyde
- Halogenated Diphenyl Methanes
- Lead carbonates and sulfates
- Lead and Lead compounds
- Mercuric Oxide Batteries
- Nickel – finishes must not be used on the external surface designed to be frequently handled or carried by the user.
- Ozone Depleting Substances
- Polybrominated Biphenyls (PBBs)
- Polybrominated Biphenyl Ethers (PBBEs)
- Polybrominated Biphenyl Oxides (PBBOs)
- Polychlorinated Biphenyl (PCB)
- Polychlorinated Terphenyls (PCT)
- Polyvinyl Chloride (PVC) – except for wires and cables, and certain retail packaging has been voluntarily removed from most applications.
- Radioactive Substances
- Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)

End-of-life Management and Recycling

HP offers our customers several other options for handling their aging computers while also minimizing the impact on the environment-including product trade-in and leasing services-in addition to recycling services. please go to: <http://www.hp.com/recycle> or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.

Hewlett-Packard Corporate Environmental Information

For more information about HP's commitment to the environment:

Global Citizenship Report

<http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html>

Environment website

<http://www.hp.com/environment>

Eco-label certifications

<http://www.hp.com/hpinfo/globalcitizenship/environment/productdesign/ecolabels.html>

ISO 14001 certificates:

<http://www.hp.com/hpinfo/globalcitizenship/environment/operations/envmanagement.html>

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Technical Specifications

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