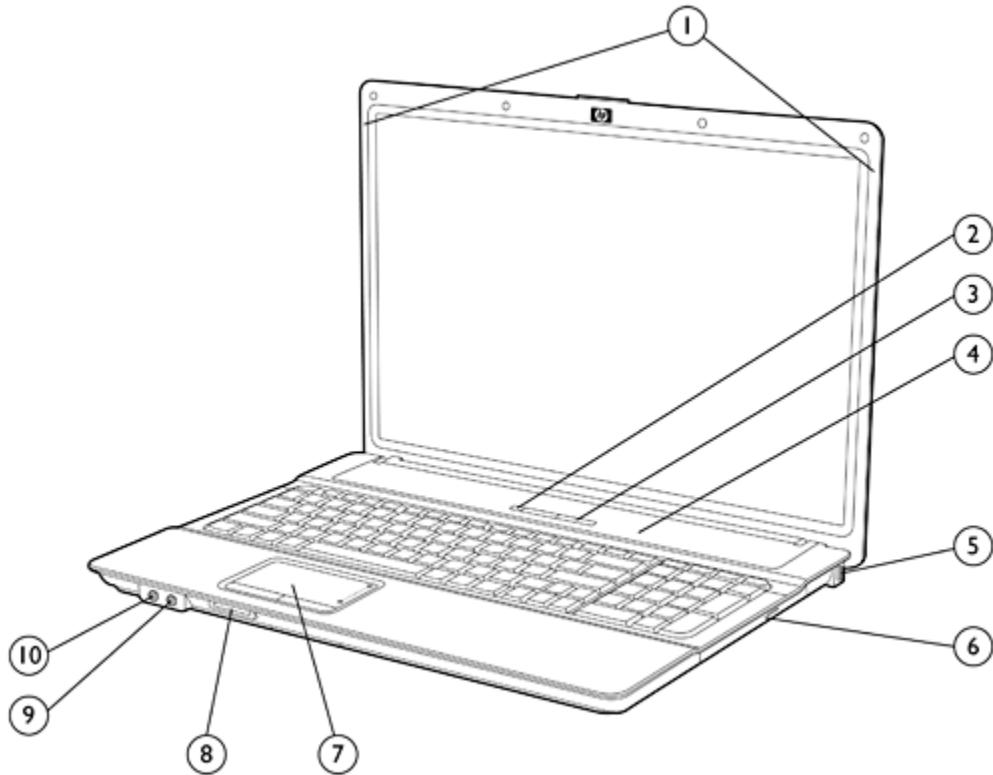
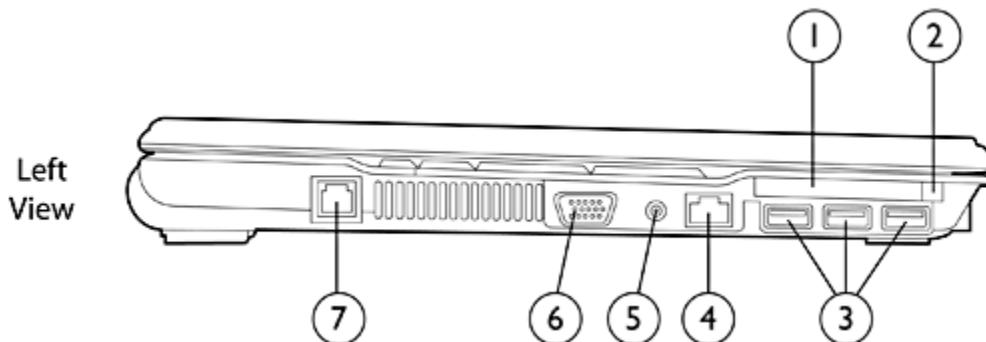


HP recommends Windows Vista® Business



1. Dual-band Wireless LAN Antennas*
 2. Wireless On/Off Button with LED*
 3. Power Button with LED
 4. Speaker
 5. Kensington Lock Slot
- * On select models

6. Optical Drive
7. Touchpad with Scroll Zone
8. Secure Digital (SD) slot
9. Microphone Jack
10. Headphone Jack



1. Battery Charging LED
2. ExpressCard/54 slot

5. Power Connector
6. VGA/external monitor connector

Overview

3. Three USB 2.0 ports
 4. RJ-45/Ethernet port
 7. RJ-11/modem port
-

At A Glance

- Genuine Windows Vista Business 32, Genuine Windows Vista Home Premium 32, Genuine Windows Vista Home Basic 32, or FreeDOS
- Widescreen 17.0-inch diagonal display with optional BrightView
- ATI Mobility Radeon™ X1350 (64/128-bit 4-channel DDR dedicated graphics memory)
- Thin, lightweight design starting at 6.5 lb/2.95 kg and 1.27-inch/32.3 mm thin at front
- Flexible wireless connectivity options:
 - Integrated 802.11 a/b/g/draft-n, a/b/g, or b/g wireless LAN module
 - Bluetooth® 2.0
- Intel® Core™2 Duo processor or Intel Celeron® processor
- Full-sized keyboard with separate numeric keypad
- Integrated optical drive
- Device Access Manager for HP ProtectTools
- Up to 250-GB 5400 rpm user-removable hard drive with HP DriveGuard protection
- Secure Digital (SD) slot
- Up to 4 GB of 667-MHz DDR2 SDRAM, dual channel memory support
- Intel Fast Ethernet Integrated Controller (10/100 NIC)
- Touchpad with scroll zone

Standard Features

Processors	<p>Intel Core 2 Duo Processor T9300 (2.50 GHz, 6 MB L2 cache, 800 MHz FSB)*</p> <p>Intel Core 2 Duo Processor T8300 (2.40 GHz, 3 MB L2 cache, 800 MHz FSB)*</p> <p>Intel Core 2 Duo Processor T8100 (2.10 GHz, 3 MB L2 cache, 800 MHz FSB)*</p> <p>Intel Core 2 Duo Processor T7800 (2.60 GHz, 4 MB L2 cache, 800 MHz FSB)*</p> <p>Intel Core 2 Duo Processor T7700 (2.40 GHz, 4 MB L2 cache, 800 MHz FSB)*</p> <p>Intel Core 2 Duo Processor T7500 (2.20 GHz, 4 MB L2 cache, 800 MHz FSB)*</p> <p>Intel Core 2 Duo Processor T7300 (2.00 GHz, 4 MB L2 cache, 800 MHz FSB)*</p> <p>Intel Core 2 Duo Processor T7250 (2.00 GHz, 2 MB L2 cache, 800 MHz FSB)*</p> <p>Intel Core 2 Duo Processor T7100 (1.80 GHz, 2 MB L2 cache, 800 MHz FSB)*</p> <p>Intel Core 2 Duo Processor T5750 (2.0 GHz, 2 MB L2 cache, 667 MHz FSB)* (select models)</p> <p>Intel Core 2 Duo Processor T5550 (1.83 GHz, 2 MB L2 cache, 800 MHz FSB)*</p> <p>Intel Core 2 Duo Processor T5470 (1.60 GHz, 2 MB L2 cache, 800 MHz FSB)* (select models)</p> <p>Intel Core 2 Duo Processor T5450 (1.66 GHz, 2 MB L2 cache, 667 MHz FSB)* (select models)</p> <p>Intel Core 2 Duo Processor T5270 (1.4 GHz, 2 MB L2 cache, 800 MHz FSB)*</p> <p>Intel Core Duo Processor T2370 (1.73 GHz, 1 MB L2 cache, 533 MHz FSB)* (select models)</p> <p>Intel Core Duo Processor T2310 (1.46 GHz, 1 MB L2 cache, 533 MHz FSB)* (select models)</p> <p>Intel Celeron Processor 550 (2.0 GHz, 1 MB L2 cache, 533 MHz FSB)*</p> <p>Intel Celeron Processor 540 (1.86 GHz, 1 MB L2 cache, 533 MHz FSB)*</p> <p>Intel Celeron Processor 530 (2.0 GHz, 1 MB L2 cache, 533 MHz FSB)*</p>
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* 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	<p>Genuine Windows Vista Business 32*</p> <p>Genuine Windows Vista Home Premium 32*</p> <p>Genuine Windows Vista Home Basic 32*</p> <p>FreeDOS</p>
	Supported	Genuine Windows XP Professional
	Certified	Novell Linux SUSE

* Certain Windows Vista product features require advanced or additional hardware. See: <http://www.microsoft.com/windowsvista/getready/hardwarereqs.mspx> and: <http://www.microsoft.com/windowsvista/getready/capable.mspx> for details. Windows Vista Upgrade Advisor can help you determine which features of Windows Vista will run on your computer. To download the tool, visit: <http://www.windowsvista.com/upgradeadvisor>.

Chipset	Mobile Intel PM965
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Graphics	<p>ATI Mobility Radeon X1350 (64/128-bit 4-channel DDR dedicated graphics memory)</p> <p>Microsoft DirectX 9 capable</p>
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Standard Features

Display	Internal	17.0-inch diagonal WXGA+ anti-glare (1440 x 900 resolution) 17.0-inch diagonal WXGA+ BrightView (1440 x 900 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.

Memory	Standard	512-MB, 1024-MB, 2048-MB, or 4096-MB 667-MHz DDR2 SDRAM total memory; two SODIMM slots supporting dual channel memory
	Dual-channel	Maximized dual-channel performance requires SODIMMs of the same size and speed in both memory slots.

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. Full availability of 4 GB of memory requires Windows Vista Business 64-bit or Linux. With Windows 32-bit operating systems, the amount of usable memory is dependent upon your configuration, so that above 3 GB all memory may not be available due to system resource requirements.

Communications	Intel Fast Ethernet Integrated Controller (10/100 NIC) 56K V.92 modem*
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* 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 featuring support for the latest industry standards. Integrated Bluetooth is also available (factory configurable only) and can be combined with any of the supported wireless LAN options.
All 802.11a/b/g integrated wireless LAN options	<ul style="list-style-type: none"> WiFi certified Cisco Compatible Extensions support (Version 4.0) with Microsoft Windows XP 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 Wireless WiFi Link 4965AGN*	<ul style="list-style-type: none"> Integrated support for 802.11a, b, g, and draft-n Up to 243-mbps data rate
Intel Wireless WiFi Link 4965AG*	<ul style="list-style-type: none"> Integrated support for 802.11 a, b and g Up to 54-mbps data rate
Intel PRO/Wireless 3945ABG Network Connection*	<ul style="list-style-type: none"> 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"> Integrated support for 802.11 b and g Up to 54-mbps data rate



Standard Features

Broadcom 4311AG 802.11a/b/g WiFi Adapter	Integrated support for 802.11 a, b and g Up to 54-mbps data rate
Broadcom 4311BG 802.11b/g WiFi Adapter	Integrated support for 802.11 b and g Up to 54-mbps data rate
HP Integrated Module Bluetooth Specification v2.0 compliant with Bluetooth WirelessWorks with a wide range of Bluetooth devices Technology	
* Requires Intel Core 2 Duo processor	

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 a full numeric keypad, hotkeys for instant access to power conservation, brightness, and other features, 19.05-mm x 19.05-mm key pitch (center-to-center spacing), 3.0-mm stroke, and comfort-dished keycaps.
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Pointing device	Touchpad with scroll zone, two pick buttons
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Expansion card slots	ExpressCard/54 slot	Supports ExpressCard/54 and ExpressCard/34
	Secure Digital slot	Supports SD (Secure Digital), MMC (MultiMedia Card)

Storage	Hard drives	80-/120-/160-/250-GB 5400 rpm SMART SATA
	NOTE: These hard drives are customer removable and will withstand multiple insertion/removal cycles. Up to 10 GB is reserved for the system recovery software.	
	HP DriveGuard	The hard drive is mounted directly to the notebook frame, reducing the transmission of shock to the hard drive.
Fixed optical drives	DVD/CD-RW Combo Drive	
	DVD+/-RW SuperMulti DL Drive	
	DVD+/-RW SuperMulti DL LightScribe Drive	

Interfaces	ExpressCard/54	Supports ExpressCard/54 and ExpressCard/34
	External monitor	One – VGA
	Stereo microphone in	One
	Stereo headphone/line out	One
	Power connector	One
	RJ-11/modem	One
	RJ-45/Ethernet	One
	USB 2.0	Three
	LED status indicators	Six

Standard Features

Audio	High Definition Audio support Integrated mono speaker Stereo headphone/line out Stereo microphone in
<hr/>	
Software	<p>Preinstalled software with Windows Vista</p> <ul style="list-style-type: none"> HP Client Manager HP Backup and Recovery Manager HP Help and Support Center HP Universal Print Driver HP ProtectTools Security Manager: <ul style="list-style-type: none"> Device Access Manager for HP ProtectTools HP Wireless Assistant Microsoft Office Ready with 60-day Office Professional 2007 Trial Edition (select models) Roxio Creator 9 (for optional DVD+/-RW and DVD/CDRW drives) Synaptics Touchpad Driver Symantec Norton Internet Security with complimentary 60-day live update Intervideo WinDVD – DVD Player <p>Additional software available from the web:</p> <ul style="list-style-type: none"> Java Card Security for HP ProtectTools
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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. Up to 10 GB of the hard drive is reserved for the system recovery software. HP Backup and Recovery Manager can also create software recovery CDs or DVDs (requires optional hardware).

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

Security	<p>Standard Features</p> <ul style="list-style-type: none"> Device Access Manager for HP ProtectTools Configuration Control Hardware Memory Change Alert Ownership Tag Setup Password Power-On Password HP DriveGuard Kensington Lock Slot Support for Computrace / LoJack for Laptops (must be purchased separately) <p>For more information on HP security solutions refer to http://www.hp.com/go/security.</p>
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Power Supply External 90-watt AC adapter, 6-foot (1.8-meter) power cord included. Total length including external AC adapter is 12 feet (3.66 meter).

Standard Features

Battery Primary battery 6-cell (55 WHr) Lithium-Ion battery

Battery Life Intel Core 2 Duo Processor Intel Celeron Processor
Primary battery TBD TBD

NOTE: The listed battery life measurements were taken on models running Microsoft Windows XP Professional. 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 2 Duo processors (allows Battery Optimized Mode, Maximum Performance Mode, or Automatic mode)
ATI PowerPlay technology
Hibernation
Standby
ACPI compliance

Service and Support HP Services offers limited 1-year warranty. On-site service and warranty upgrades are also available. For HP Care Pack services see <http://www.hp.com/go/lookuptool>.

NOTE: Certain restrictions and exclusions apply. Consult the HP Customer Support Center for details. <http://h20000.www2.hp.com/bizsupport/TechSupport/ProductRoot.jsp>.

Options

Memory	HP 512-MB (DDR2 667 MHz) SODIMM	EM993AA
	HP 1-GB (DDR2 667 MHz) SODIMM	EM994AA
	HP 2-GB (DDR2 667 MHz) SODIMM	EM995AA
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Other Storage	HP Notebooks USB Diskette Drive	DC361B
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Power	HP 90W Smart AC Adapter	ED495AA#xxx
	HP 90W Primary Battery	GJ655AA
<hr/>		
Carrying Cases	HP Universal Nylon Case	RR315AA
	HP Executive Leather Case	RR316AA
	HP Deluxe Nylon Backpack	RR317AA
	HP Deluxe Roller Case	GD405AA
<hr/>		
Security	HP/Kensington MicroSaver Security Lock	PC766A
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Input/Output Devices	HP PS/2 Keyboard & Mouse Bundle	RC464AA#xxx
	HP USB Optical Travel Mouse	RH304AA

Memory

Up to 4096 MB of 667-MHz DDR2 SDRAM

Two DIMM slots

DIMM sizes supported: 512 MB, 1024 MB, and 2048 MB

- Standard Memory
- 512 MB (512 MB x 1)
 - 1024 MB (1024 MB x 1 or 512 MB x 2)
 - 2048 MB (2048 MB x 1 or 1024 MB x 2)

Optional Memory Upgrades Both memory slots are user accessible. Please refer to the Hardware and Software Guide for installation procedures. Maximized dual-channel performance requires SODIMMs of the same size and speed in both memory slots.

Up to	Slot 1	Slot 2
1024 MB	1024 MB	Empty
1024 MB	512 MB	512 MB
1536 MB	1024 MB	512 MB
2048 MB	1024 MB	1024 MB
4096 MB	2048 MB	2048 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. Full availability of 4 GB of memory requires Windows Vista Business 64-bit or Linux. With Windows 32-bit operating systems, the amount of usable memory is dependent upon your configuration, so that above 3 GB all memory may not be available due to system resource requirements.

Memory Upgrades	HP 512-MB (DDR2 667 MHz) SODIMM	EM993AA
	HP 1024-MB (DDR2 667 MHz) SODIMM	EM994AA
	HP 2048-MB (DDR2 667 MHz) SODIMM	EM995AA

Storage

Removable Media Drive Support

	Quantity Supported	Drive Bay
DVD/CD-RW Combo Drive	One	Fixed optical drive bay
DVD+/-RW SuperMulti DL Drive	One	Fixed optical drive bay
DVD+/-RW SuperMulti DL LightScribe Drive	One	Fixed optical drive bay

Hard Drive Support

	Quantity Supported	Drive Bay
Primary Hard Drives		
250-GB 5400 rpm SMART SATA Hard Drive	One	Dedicated hard drive bay
160-GB 5400 rpm SMART SATA Hard Drive	One	Dedicated hard drive bay
120-GB 5400 rpm SMART SATA Hard Drive	One	Dedicated hard drive bay
80-GB 5400 rpm SMART SATA Hard Drive	One	Dedicated hard drive bay

Technical Specifications

System Unit	Dimensions (HxWxD)	1.27 in (at front) x 15.6 in x 11.22 in 32.3 mm (at front) x 396 mm x 285 mm)
	Weight	Starting at 6.5 lb (2.95 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, 80-GB hard drive, and optical drive. Weight varies by configuration and components.	
Stand-Alone Power Requirements (AC Power)	Nominal Operating Voltage	18.5 V
	Average Operating Power	12.5 W
	Max Operating Power	< 90 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	10% to 90%, 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	UL	Yes
	CSA	Yes
	FCC Compliance	Yes
	Energy Star Compliant	Yes
	ICES	Yes
	GS*	Yes
	Australia / NZ A-Tick Compliance	Yes
	CCC	Yes
	Japan VCCI Compliance	Yes
	MIC	Yes
	BSMI	Yes
	CE Marking Compliance	Yes
	BNCI or BELUS	Yes
	CIT	Yes
	GOST	Yes
	Saudi Arabian Compliance (ICCP)	Yes
	SABS	Yes
	UKRSERTCOMPUTER	Yes

For accessibility information on HP products, please visit <http://www.hp.com/accessibility>.



Technical Specifications

* This device is not intended for use at visual display workplace in compliance with BildschirmV. If this product is used in an Office Environment where the VDU Directive 90/270/EEC is applicable (Bildschirmarbeitsverordnung), an external monitor and external keyboard are recommended to avoid potential reflections.

HP 90W Smart AC Adapter	Dimensions	5.24 x 2.28 x 1.1 in (13.3 x 5.8 x 2.9 cm)		
	Weight	0.86 lb (390 g)		
	Input	100 to 240 VAC		
		Input Efficiency	83% min at 115 VAC	
		Input frequency range	47 to 63 Hz	
		Input AC current	1.5 A at 90 VAC, 0.75 A at 180 VAC PFC Version	
			2.4 A at 90 VAC, 1.2 A at 180 VAC NON PFC Version	
		Output	Output power	90W
			DC output	18.5V
			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 – IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals – C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE; MTBF- over 200,000 hours at 25°C ambient condition.		

6-Cell (55WWhr) Lithium-Ion battery	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	0.737 lb (0.335 kg)		
	Cells/Type	6-cell Lithium-Ion		
	Energy	Watt-hour Capacity	55Wh	
	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)		

Technical Specifications

17.0-inch WXGA+ anti-glare	Active Area (W x H)	14.5 x 9.0 in (36.7 x 22.9 cm)
	Diagonal Size	17.0 in (43.2 cm)
	Surface Treatment	Anti-glare
	Contrast Ratio	300:1 (typical)
	Refresh Rate	60 Hz
	Brightness	200 nit (typical)
	Pixel Resolution	Pitch 0.255 mm Format 1440 x 900 Configuration RGB Stripe
	Backlight	CCFL
	PPI	100
	Viewing Angle	±30° Horizontal, ±10° Vertical (minimum)

17.0-inch WXGA+ Brightview	Active Area (W x H)	14.5 x 9.0 in (36.7 x 22.9 cm)
	Diagonal Size	17.0 in (43.2 cm)
	Surface Treatment	Brightview
	Contrast Ratio	300:1 (typical)
	Refresh Rate	60 Hz
	Brightness	200 nit (typical)
	Pixel Resolution	Pitch 0.255 mm Format 1440 x 900 Configuration RGB Stripe
	Backlight	CCFL
	PPI	100
	Viewing Angle	±30° Horizontal, ±10° Vertical (minimum)

Hard Drives

Technical Specifications

250-GB 5400 rpm SATA Drive Weight	0.22 lb (101 g)	
Capacity	250 GB	
Height	0.37 in (9.5 mm)	
Width	2.75 in (70 mm)	
Interface	ATA-7 / SATA 1.0a	
Transfer Rate	Synchronous (maximum)	100 MB/s (Drive Capability)
Seek Time	Single Track	3 ms
(typical reads, including settling)	Average	13ms
	Maximum	24 ms
Rotational Speed	5400 rpm	
Logical Blocks	488,397,168	
Operating Temperature	41° to 140° F (5° to 60° C) [case temp]	
Features	ATA Security	

160-GB 5400 rpm SATA Drive Weight	0.22 lb (101 g)	
Capacity	160 GB	
Height	0.37 in (9.5 mm)	
Width	2.75 in (70 mm)	
Interface	ATA-7 / SATA 1.0a	
Transfer Rate	Synchronous (maximum)	100 MB/s (Drive Capability)
Seek Time	Single Track	3 ms
(typical reads, including settling)	Average	13ms
	Maximum	24 ms
Rotational Speed	5400 rpm	
Logical Blocks	312,581,808	
Operating Temperature	41° to 140° F (5° to 60° C) [case temp]	
Features	ATA Security	

Technical Specifications

120-GB 5400 rpm SATA Drive	Weight	0.22 lb (101 g)
	Capacity	120 GB
	Height	0.37 in (9.5 mm)
	Width	2.75 in (70 mm)
	Interface	ATA-7 / SATA 1.0a
	Transfer Rate	Synchronous (maximum) 100 MB/s (Drive Capability)
	Seek Time	Single Track 3 ms
	(typical reads, including settling)	Average 13ms
		Maximum 24 ms
	Rotational Speed	5400 rpm
	Logical Blocks	234,441,648
	Operating Temperature	41° to 140° F (5° to 60° C) [case temp]
	Features	ATA Security

80-GB 5400 rpm SATA 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 / SATA 1.0a
	Transfer Rate	Synchronous (maximum) 100 MB/s (Drive Capability)
	Seek Time	Single Track 3 ms
	(typical reads, including settling)	Average 13 ms
		Maximum 24 ms
	Rotational Speed	5400 rpm
	Logical Blocks	156,301,488
	Operating Temperature	41° to 140° F (5° to 60° C) [case temp]
	Features	ATA Security

Removable Storage Drives

Technical Specifications

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)	8.5 GB	
Max Media Capacity (write)	700 MB		
Transport	Tray loading		

DVD+/-RW SuperMulti Drive	Access Times	Random	<175 ms CD <230 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
		16X CD-RW	2,400 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
	5X DVD-RAM	6,750 KB/s	
	Transfer Mode	Multiword DMA Mode	
	Interface	EIDE	
Supported Media (read)	CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW, DVD-RAM		
Supported Media (write)	CD-R, CD-RW, 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		

Technical Specifications

DVD+/-RW SuperMulti LightScribe Drive	Access Times	Random	<175 ms CD <230 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
		16X CD-RW	2,400 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
		5X DVD-RAM	6,750 KB/s
	Transfer Mode	Multiword DMA Mode	
	Interface	EIDE	
	Supported Media (read)	CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW, DVD-RAM	
	Supported Media (write)	CD-R, CD-RW, DVD+R, DVD+RW, DVD-R, DVD-RW, DVD-RAM, LightScribe	
	Max Media Capacity (read)	8.5 GB	
	Max Media Capacity (write)	8.5 GB	
	Transport	Tray Loading	

Audio

Hardware	Implementation	ADI1981HD High Definition CODEC
	Full Duplex	Yes
	Sound Blaster Pro compatible	Yes
	Microphone In	Stereo
	Headphone/Line Out	Stereo

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)	8 kHz – 48kHz
	DAC	16, 20 or 24-bit
	ADC	16 or 20-bit

Integrated Mono Speaker	Power Rating	2 Watts
	Impedance	4 Ohms

Communications

V.92 56K Data/Fax Modem	Form Factor	MDC 1.5 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	V.92 data V.8bis V.80 V44, V.42bis, MNP5 (Compression) V.42 (LAPM, MNP2-4) (Error Correction) Optional symbol rates: 2800, 3429 Asymmetric Symbol rates Synchronous primary channel data signaling rates: 3600, 31200 Automatic rate re-negotiation V.34 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

Technical Specifications

Command Set	V.21 Channel 2 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
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Intel PRO/Wireless 3945ABG Network Connection	Wireless LAN Standards IEEE 802.11a IEEE 802.11b IEEE 802.11g
Interoperability	Wi-Fi certified Cisco Compatible Extensions Program compliant with Microsoft Windows 2000 and XP (details at: http://www.hp.com/go/notebooks/WLAN)
Frequency Band	2.4 GHz
Data Rates	802.11b: 1, 2, 5.5, 11 Mbps 802.11a/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	Ad-hoc (Peer to Peer)
Models	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 Sensitivity ⁴	54 Mbps: -72 dBm, 11 Mbps: -88 dBm, 1 Mbps: -97 dBm
Antenna Connections	2 U.FL type connectors, 50 ohm nominal impedance
Range	802.11 a – Typical 600 feet – Outdoor Open Area

Technical Specifications

	(@6 Mbps)	150 feet – Indoor, Office environment
	802.11 b – Typical	1200 feet – Outdoor Open Area
	(@1 Mbps)	300 feet – Indoor, Office environment
	802.11 g – Typical	1200 feet – Outdoor Open Area
	(@1 Mbps)	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 +/- 9%, 1.5V +/- 5%	
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 Utility ⁵	Microsoft Windows 2000 or XP	
	Choice of Configuration Utility:	
	<ul style="list-style-type: none"> • Microsoft Windows XP Wireless Network Connection Manager • Intel PROSet for Microsoft Windows 2000 or XP (required for Cisco Compatible Extensions support) 	
	Microsoft Windows Vista	
	<ul style="list-style-type: none"> • Microsoft Windows Vista Wireless Network Connection Manager 	
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 with Microsoft Windows 2000 or XP. WLAN may also be compatible with certain third-party software supplicants. 	

Intel PRO/Wireless 3945BG Network Connection	Wireless LAN Standards	IEEE 802.11b IEEE 802.11g
	Interoperability	Wi-Fi certified Cisco Compatible Extensions Program compliant with Microsoft Windows 2000 and XP (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, EAP-SIM.

Technical Specifications

Configuration Utility ⁵	<p>Microsoft Windows 2000 or XP Choice of Configuration Utility:</p> <ul style="list-style-type: none"> • Microsoft Windows XP Wireless Network Connection Manager • Intel PROSet for Microsoft Windows 2000 or XP (required for Cisco Compatible Extensions support) <p>Microsoft Windows Vista</p> <ul style="list-style-type: none"> • Microsoft Windows Vista Wireless Network Connection Manager
LED Activity	<p>LED Off – Radio OFF; Solid LED On – Radio ON</p> <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 with Microsoft Windows 2000 or XP. WLAN may also be compatible with certain third-party software supplicants.
Intel Wireless WiFi Link 4965AGN	<p>Wireless LAN Standards IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n (draft 1.02)</p>
Interoperability	<p>Wi-Fi certified (802.11abg only) Cisco Compatible Extensions Program compliant (802.11abg only) with Microsoft Windows 2000 and XP (details at http://www.hp.com/go/notebooks/WLAN) Tested with wireless access points from several major manufacturers (details at http://www.hp.com/go/notebooks/WLAN/draft-n)</p>
Frequency Band	2.4 GHz and 5 GHz
Data Rates	<p>802.11b: 1, 2, 5.5, 11 Mbps 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n (draft): 66 possible data rates, ranging from 6 Mbps to 300 Mbps, depending on the combination of Bandwidth, Modulation Coding Scheme, and Guard Interval used, as defined in IEEE 802.11n (draft) specification</p>
Modulation	<p>Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM, BPSK, QPSK, 16-QAM, 64-QAM</p>
Security ¹	<p>Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated AES (support for key sizes of 128, 192, and 256 bits), 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, LEAP, EAP-FAST.</p> <p>Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program Version 4) with Microsoft Windows 2000 and XP only.</p>
Sub-channels	Multinational support with frequency bands and channels compliant to local regulations.
Media Access Protocol	CSMA/CA (Collision Avoidance) with ACK

Technical Specifications

Network Architecture	Ad-hoc (Peer to Peer)	
Models	Infrastructure (Access Point Required)	
Roaming	IEEE 802.11 compliant roaming between access points	
Output Power (for CKK) ²	15 dBm	
Output Power (for OFDM)	5 dBm	
	power varies by data rate) ²	
Power Consumption	Transmit: 2.3 Watts (average, with two spatial streams) Receive: 1.9 Watts (average with three receive chains) Idle mode ³ : 30 mW (average) Radio off: 20 mW (max)	
Power Management	ACPI compliant power management 802.11 compliant power saving mode	
Receiver Sensitivity ⁴	300 Mbps: -68 dBm, 54 Mbps: -74 dBm, 6 Mbps: -90 dBm	
Antenna Connections	3 U.FL type connectors, 50 ohm nominal impedance	
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)	
Dimensions	0.19 x 1.2 x 2.0 in (4.75 x 29.85 x 50.8 mm)	
Operating Voltage	3.3V +/- 9%, 1.5V +/- 5%	
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 90% (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 ⁵	<p>Microsoft Windows 2000 or XP Choice of Configuration Utility:</p> <ul style="list-style-type: none"> • Microsoft Windows XP Wireless Network Connection Manager • Intel PROSet for Microsoft Windows 2000 or XP (required for Cisco Compatible Extensions support) <p>Microsoft Windows Vista</p> <ul style="list-style-type: none"> • Microsoft Windows Vista Wireless Network Connection Manager
LED Activity	<p>LED Off – Radio OFF; Solid LED On – Radio ON</p> <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 and on battery power. 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 with Microsoft Windows 2000 or XP. WLAN may also be compatible with certain third-party software supplicants.

Intel Wireless WiFi Link 4965AG	<p>Wireless LAN Standard IEEE 802.11a IEEE 802.11b IEEE 802.11g</p>
Interoperability	<p>Wi-Fi certified Cisco Compatible Extensions Program compliant with Microsoft Windows 2000 and XP (details at http://www.hp.com/go/notebooks/WLAN)</p>
Frequency Band	2.4 GHz and 5 GHz
Data Rates	<p>802.11b: 1, 2, 5.5, 11 Mbps 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps</p>
Modulation	<p>Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM</p>
Security ¹	<p>Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated AES (support for key sizes of 128, 192, and 256 bits), 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, LEAP, EAP-FAST.</p> <p>Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program Version 4) with Microsoft Windows 2000 and XP only.</p>
Sub-channels	Multinational support with frequency bands and channels compliant to local regulations.
Media Access Protocol	CSMA/CA (Collision Avoidance) with ACK
Network Architecture	Ad-hoc (Peer to Peer)
Models	Infrastructure (Access Point Required)
Roaming	IEEE 802.11 compliant roaming between access points
Output Power (for CKK) ²	15 dBm
Output Power (for OFDM) ²	5 dBm
	power varies by data rate) ²

Technical Specifications

Interoperability	Wi-Fi certified Cisco Compatible Extensions Program compliant with Microsoft Windows 2000 and XP (details at: http://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. 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	Ad-hoc (Peer to Peer)	
Models	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 802.11 compliant power saving mode	
Receiver Sensitivity ⁴	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)

Technical Specifications

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 Utility ⁵	Microsoft Windows 2000 or XP 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) 	
	Microsoft Windows Vista	
	<ul style="list-style-type: none"> • Microsoft Windows Vista Wireless Network Connection Manager 	
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 with Microsoft Windows 2000 or XP. WLAN may also be compatible with certain third-party software supplicants. 	

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 with Microsoft Windows 2000 and XP (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 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	Ad-hoc (Peer to Peer)
	Models	Infrastructure (Access Point Required)
Roaming	IEEE 802.11 compliant roaming between access points	

Technical Specifications

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 Sensitivity ⁴	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 Utility ⁵	Microsoft Windows 2000 or XP 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) Microsoft Windows Vista <ul style="list-style-type: none"> • Microsoft Windows Vista Wireless Network Connection Manager 	
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 with Microsoft Windows 2000 or XP. WLAN may also be compatible with certain third-party software supplicants. 	

Technical Specifications

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
	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 Microsoft Windows Plug and Play compliant
	OS Support Genuine Windows Vista Genuine Windows XP Genuine 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)

Technical Specifications

- 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

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:

- ENERGY STAR® 4.0
- US Federal Energy Management Program (FEMP)
- ECO declaration
- Taiwan Green Mark
- China Energy Certification Program (CECP)
- Korean Eco Label
- EPEAT Silver Rating

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

	115 VAC	230 VAC	100 VAC
Energy Consumption			
Normal Operation	18.6 W	18.9 W	18.8 W
Sleep (Energy Star low power mode)	1 W	1.1 W	0.99 W
Off	0.9 W	1.01 W	0.9 W
Heat Dissipation*			
Normal Operation	63.463 BTU/hr	64.486 BTU/hr	64.145 BTU/hr
Sleep	3.412 BTU/hr	3.753 BTU/hr	3.377 BTU/hr
Off	3.07 BTU/hr	3.446 BTU/hr	3.07 BTU/hr

* 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	3.4	27.3
Operating mode (HDD)	3.4	27.4

Batteries This product complies with ISO standards:



Technical Specifications

- 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.

The battery type and chemistry used in the product is:

CR2032 (coin cell), Lithium

6 cell rechargeable Lithium-Ion battery

Additional
information:

This product is in compliance with the EU Restrictions of Hazardous Substances (RoHS) Directive – 2002/95/EC.

This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive – 2002/96/EC.

Keyboard complies with ISO standard: ISO 9995, EN 29241-4, and ISO/IEC 15412

Input devices of this product comply with ISO 9241, part 9.

Plastics parts weighing over 25 grams used in the product are marked per ISO 11469 and ISO1043.

This product contains 0% recycled materials (by wt.)

This product is greater than 96% recyclable when properly disposed of at end of life.

Packaging Materials

- External:
 - Corrugated / Paper – 2.25 lb (1019 g)
- Internal:
 - EPE Foam – 0.15 lb (70 g)
 - LDPE Bag – 0.043 lb (19.44 g)
- The corrugated paper packaging materials contains at least 40% recycled content.

HP follows these guidelines to decrease the environmental impact of product packaging:

- 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.

Technical Specifications

Material Usage

- Reduce size and weight of packages to improve transportation fuel efficiency.
- Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.

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

(http://www.hp.com/hpinfo/globalcitizenship/environment/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/>



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