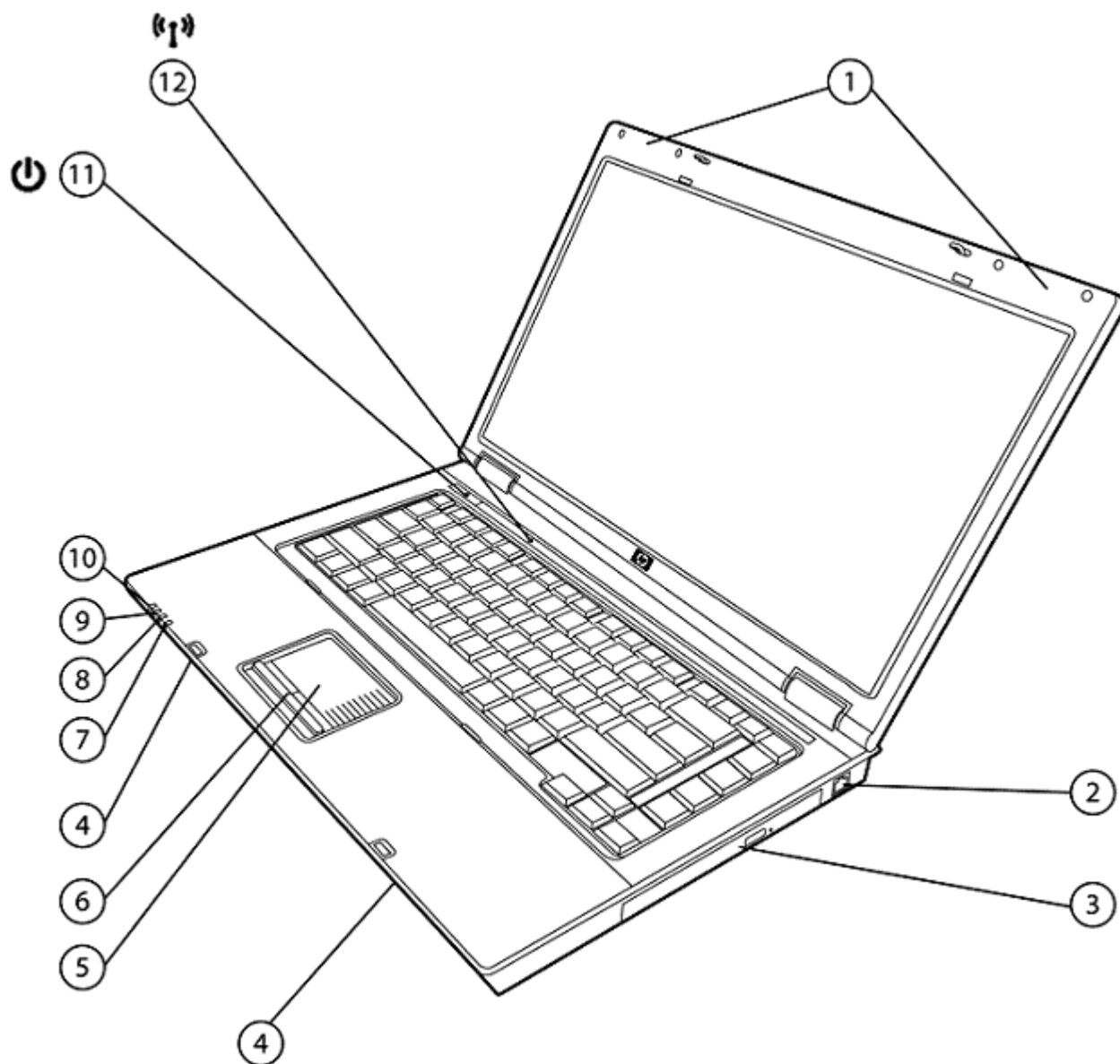


## Overview

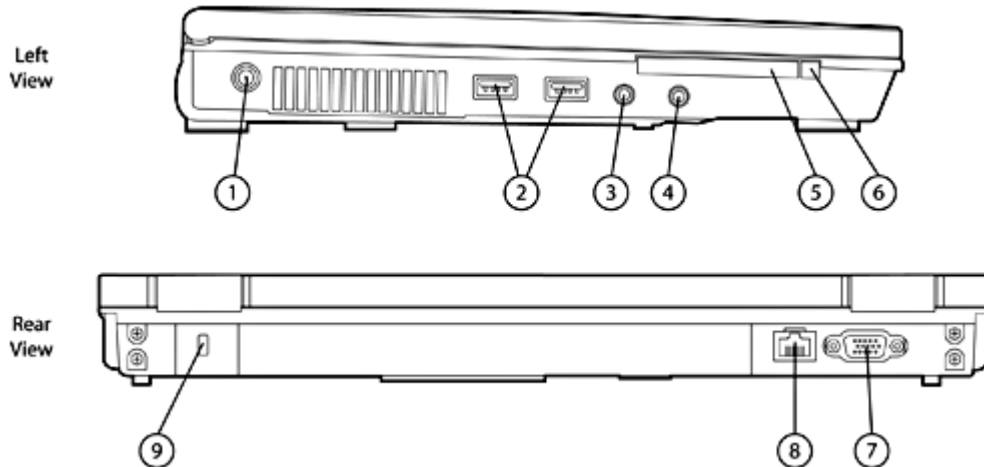
HP recommends Windows Vista®  
Business



1. WLAN Antennas (with WLAN option)
2. RJ-11/modem Port
3. Optical drive
4. Integrated stereo speakers
5. Touchpad with scroll zone
6. Touchpad buttons

7. Hard drive activity LED
8. Battery charging LED
9. Power/standby LED
10. Wireless on/off LED
11. Power button with LED
12. Wireless on/off Button with LED

### Overview



- |                              |                                   |
|------------------------------|-----------------------------------|
| 1. Power connector           | 6. PC Card eject button           |
| 2. 2 USB 2.0 ports           | 7. VGA/external monitor connector |
| 3. Stereo headphone/line out | 8. RJ-45/Ethernet Port            |
| 4. Stereo microphone in      | 9. Kensington Lock slot           |
| 5. Type I/II PC Card slot    |                                   |

### At A Glance

- Genuine Windows Vista Business\*, Genuine Windows Vista Home Basic, or FreeDOS
- Widescreen 15.4-inch diagonal display with wide-viewing angle, BrightView and HP Privacy Filter support
- Wireless connectivity options:
  - Integrated 802.11a/b/g or 802.11b/g wireless LAN module
  - Bluetooth®
- AMD Turion™ 64 X2 Dual-Core Mobile Technology, AMD Athlon™ 64 X2 Dual-Core Processors for Notebook PCs, or Mobile AMD Sempron™ processors
- Thin, lightweight design starting at 5.7 lb/2.59 kg and 1.37 in/34.9 mm thin at front
- Security features including HP ProtectTools Security Manager and Device Access Manager for HP ProtectTools
- Integrated optical drive, including optional DVD+/-RW SuperMulti DL LightScribe Drive
- HP 90W Smart AC Adapter
- Up to 250-GB 5400 rpm user-removable hard drive with HP DriveGuard protection
- Up to 4 GB of 667-MHz DDR2 SDRAM, dual channel memory support
- ATI Radeon X1250 graphics, with up to 831 MB shared system memory (select models)
- Broadcom NetLink Fast Ethernet Controller
- Touchpad with scroll zone

\* At initial boot, either 32- or 64-bit can be selected. This is a one time selection and the other version will be deleted.

### Standard Features

#### Processors

AMD Turion 64 X2 Dual-Core Mobile Technology TL-66 (2.3-GHz, 2 x 512-KB L2 cache)  
AMD Turion 64 X2 Dual-Core Mobile Technology TL-64 (2.2-GHz, 2 x 512-KB L2 cache)  
AMD Turion 64 X2 Dual-Core Mobile Technology TL-62 (2.1-GHz, 2 x 512-KB L2 cache)  
AMD Turion 64 X2 Dual-Core Mobile Technology TL-60 (2.0-GHz, 2 x 512-KB L2 cache)  
AMD Turion 64 X2 Dual-Core Mobile Technology TL-58 (1.9-GHz, 2 x 512-KB L2 cache)  
AMD Turion 64 X2 Dual-Core Mobile Technology TL-56 (1.8-GHz, 2 x 512-KB L2 cache)  
AMD Turion 64 X2 Dual-Core Mobile Technology TL-52 (1.6-GHz, 2 x 512-KB L2 cache)  
AMD Turion 64 X2 Dual-Core Mobile Technology TL-50 (1.6-GHz, 2 x 256-KB L2 cache)  
AMD Turion 64 Mobile Processor MK-38 (2.2-GHz, 512-KB L2 cache)  
AMD Athlon 64 X2 Dual-Core Processor for Notebook PCs TK-53 (1.7-GHz, 2 x 256-KB L2 cache)  
Mobile AMD Sempron Processor 4000+ (2.2-GHz, 512-MB L2 cache)  
Mobile AMD Sempron Processor 3800+ (2.2-GHz, 256-KB L2 cache)  
Mobile AMD Sempron Processor 3600+ (2.0-GHz, 256-KB L2 cache)  
Mobile AMD Sempron Processor 3500+ (1.8-GHz, 512-KB L2 cache)  
Mobile AMD Sempron Processor 3400+ (1.8-GHz, 256-KB L2 cache)

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

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#### Operating System

##### Preinstalled

Genuine Windows Vista Business<sup>†</sup>  
Genuine Windows Vista Home Basic\*  
FreeDOS

##### Supported

Genuine Windows XP Professional

##### Certified

SuSE Linux Enterprise Desktop 10

<sup>†</sup> At initial boot, either 32- or 64-bit can be selected. This is a one time selection and the other version will be deleted.

\* 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>.

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#### Chipset

AMD M690T Chipset

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## Standard Features

### Graphics

ATI Radeon X1250

Total System Memory	Reserved Graphics Memory *	Maximum Graphics Memory **
<b>Windows XP</b>		
256 MB	32 MB	32 MB
512 or 768 MB	64 MB	64 MB
1024 MB or more	128 MB	128 MB
<b>Windows Vista</b>		
512 MB	64 MB	128 MB
768 MB	64 MB	159 MB
1024 MB	128 MB	319 MB
1536 MB	128 MB	575 MB
2048 MB	128 MB	831 MB
<p>* System memory exclusive to graphics.  ** Total available graphics memory (HyperMemory), which includes Reserved Graphics Memory and Shared System Memory.</p>		

Microsoft DirectX 9 capable

### Display

<b>Internal</b>	15.4-inch diagonal WXGA anti-glare (1280 x 800 resolution) 15.4-inch diagonal WXGA BrightView (1280 x 800 resolution) 15.4-inch diagonal WSXGA+ WVA anti-glare (1680 x 1050 resolution) HP Privacy Filter support
<b>External</b>	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 <b>NOTE:</b> Resolutions are dependent upon monitor capability, and resolution and color depth settings.

### Memory

<b>Standard</b>	512-MB, 1024-MB, 2048-MB, or 4096-MB 667-MHz DDR2 SDRAM; two SODIMM slots supporting dual channel memory
<b>Maximum</b>	Upgradeable to 4096-MB maximum (2048-MB SODIMM in slots 1 and 2)
<b>Dual-channel</b>	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.

### Standard Features

<b>Communications</b>	Integrated Broadcom NetLink Fast Ethernet Controller (10/100 NIC) 56K V.92 modem*  * 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.
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<b>Wireless Devices</b>	Support for a broad range of secure, integrated wireless LAN options featuring support for the latest industry standards. Integrated Bluetooth is also available and can be combined with any of the supported wireless LAN options. All wireless options are factory configurable only.
<b>All 802.11a/b/g integrated wireless LAN options</b>	Wi-Fi 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
<b>Broadcom 4311AG 802.11a/b/g WiFi Adapter</b>	Integrated support for 802.11 a, b and g Up to 54-mbps data rate
<b>Broadcom 4311BG 802.11b/g WiFi Adapter</b>	Integrated support for 802.11 b and g Up to 54-mbps data rate
<b>HP Integrated Module with Bluetooth Wireless Technology</b>	Bluetooth Specification v2.0 compliant Works with a wide range of Bluetooth devices

<b>Keyboard</b>	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, and comfort-dished keycaps.
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<b>Pointing device</b>	Touchpad with scroll zone, two pick buttons
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<b>Expansion card slots</b>	<b>1 Type I/II PC Card slot</b> Supports 32-bit CardBus and 16-bit PC Cards
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### Standard Features

Storage	Hard drives	80/120/160/250-GB 5400 rpm SMART SATA
	<b>NOTE:</b> 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-ROM Drive	
	DVD/CD-RW Combo Drive	
	DVD+/-RW SuperMulti DL Drive	
	DVD+/-RW SuperMulti DL LightScribe Drive	

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Interfaces	PC Card slot	One Type I/II PC Card slot
	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	Two
	Secondary battery connector	One
	LED status indicators	Ten

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Audio	High Definition Audio support w/24-bit DAC
	Integrated stereo speakers
	Stereo headphone/line out
	Stereo microphone in

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Software	Preinstalled software with Windows Vista	PDF Complete
		HP Backup and Recovery Manager
		HP Help and Support Center
		HP Universal Print Driver
		HP ProtectTools Security Manager: <sup>*</sup>
		Device Access Manager for HP ProtectTools <sup>*</sup>
		HP Quick Launch Buttons
		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		

<sup>\*</sup> Download available from <http://www.hp.com> for Windows Vista; preinstalled with Windows XP.

### Standard Features

**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.

**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:

- Device Access Manager for HP ProtectTools

<b>Security</b>	<b>Standard Features</b>	HP ProtectTools Security Manager Configuration Control Hardware Memory Change Alert Ownership Tag Setup Password Power-On Password DriveLock HP Disk Sanitizer HP DriveGuard Kensington Lock Slot Support for Computrace / LoJack for Laptops (must be purchased separately)
	<b>Optional Features</b>	HP Privacy Filter      Narrows viewing area so that screen data is visible only to persons directly in front of the monitor

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

**Power Supply** External 90-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\*

\*HP Fast Charge recharges your battery up to 90% within 90 minutes when the system is off. HP Fast Charge does not apply to 12-cell Ultra-Capacity batteries.

### Standard Features

Battery	Primary battery	6-cell (55 WHr) Lithium-Ion battery 6-cell (47 WHr) Lithium-Ion battery
	Optional HP Extended Life Battery	8-cell (52 WHr) high capacity Lithium-Ion battery
	Optional HP Ultra-Capacity Battery	12-cell (95 WHr) high capacity Lithium-Ion battery

Battery Life		<b>6-cell (55 WHr) Primary</b>	<b>6-cell (47 WHr) Primary</b>
	Primary battery	Up to 4 hours and 30 minutes	Up to 3 hours and 45 minutes
	Primary battery and optional HP Extended Life Battery	Up to 8 hours and 30 minutes	Up to 8 hours
	Primary battery and optional HP Ultra-Capacity Battery	Up to 12 hours	Up to 11 hours and 15 minutes

**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  
ATI PowerPlay technology  
Hibernation  
Standby  
ACPI compliance

Service and Support  
HP Services offers limited 3- year, 1-year and 90-day warranty options depending on country; 1-year limited warranty on primary battery. 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

<b>Memory</b>	HP 512-MB (DDR2 667 MHz) SODIMM	EM993AA
	HP 1-GB (DDR2 667 MHz) SODIMM	EM994AA
	HP 2-GB (DDR2 667 MHz) SODIMM	EM995AA
<b>MultiBay II Storage</b> (9.5-mm) <b>NOTE:</b> Requires HP External MultiBay II	HP MultiBay II DVD-ROM Drive	PA849A
	HP MultiBay II DVD/CD-RW Combo Drive	PA850A
	HP MultiBay II DVD+/-RW SuperMulti DL Drive	PA851A
	HP 80-GB 5400rpm MultiBay II Hard Drive	PH357A
<b>Other Storage</b>	HP 80-GB 5400rpm Primary SATA Hard Drive	ET354AA
	HP DVD+/-RW SuperMulti DL LightScribe Drive	ET353AA
	HP Notebooks USB Diskette Drive	DC361B
<b>Power</b>	HP 2-Bay Battery Charging Station (North America only)	DT533A#xxx
	HP 2-Bay Battery Charging Station (rest of world)	EW424AA#xxx
	HP 10-Bay Battery Charging Station (North America only)	DT534A#ABA
	HP Battery Adapter Kit	PK402A
	HP 90W Smart AC Adapter	ED495AA#xxx
	HP 90W Smart Auto Adapter	ED493AA
	HP 65W AC/Auto/Air Combo Smart Adapter	ED993AA#xxx
	HP 6-Cell Li-Ion Primary Battery	PB994A
	HP 8-cell Extended Life Battery	PB993A
HP 12-cell Ultra-Capacity Battery	EJ092AA	
<b>Carrying Cases</b>	HP Value Nylon Case	RR314AA
	HP Universal Nylon Case	RR315AA
	HP Executive Leather Case	RR316AA
	HP Deluxe Nylon Backpack	RR317AA
	HP Universal Messenger Bag	GD404AA
	HP Deluxe Roller Case	GD405AA
<b>Security</b>	HP PC Card Smart Card Reader with Java Card	EL347AA
	HP ProtectTools Java Card – 10 units	EL348AA
	HP/Kensington MicroSaver Security Lock	PC766A

### Options

Input/Output Devices	HP PS/2 Keyboard & Mouse Bundle	RC464AA#xxx
	HP USB Keyboard & Mouse Bundle	RC465AA#xxx
	HP USB/PS2 Optical 2-Button Scroll Mouse	DC369A
	HP USB Optical Travel Mouse	RH304AA
	HP Bluetooth PC Card Mouse	RJ316AA

### Memory

Support for 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)
  - 4096 MB (2048 MB x 2)

**Optional Memory Upgrades** Support for up to 4096 MB of memory is available (with the installation of optional DDR2 SDRAM memory kits). 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.

<b>Memory Upgrades</b>	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

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	Quantity Supported	Drive Bay
DVD-ROM Drive	One	Fixed optical 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

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### Hard Drive Support

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	Quantity Supported	Drive Bay
<b>Primary Hard Drives</b>		
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

<b>System Unit</b>	<b>Dimensions (HxWxD)</b>	1.37 in (at front) x 14.05 in x 10.43 in 34.9 mm (at front) x 357.0 mm x 265.0 mm
	<b>Weight</b>	Starting from 5.7 lb (2.59 kg)
	<b>NOTE:</b> 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.	
<b>Stand-Alone Power Requirements (AC Power)</b>	Nominal Operating Voltage	18.5 V
	Average Operating Power	12.5 W
	Max Operating Power	< 90 W
<b>Temperature</b>	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)
<b>Relative Humidity</b>	Operating	10% to 90%, non-condensing
	Non-operating	5% to 95%, 101.6° F (38.7° C) maximum wet bulb temperature
<b>Shock</b>	Operating	125 G, 2 ms, half-sine
	Non-operating	200 G, 2 ms, half-sine
<b>Random Vibration</b>	Operating	0.75 grms
	Non-operating	1.50 grms
<b>Altitude (unpressurized)</b>	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)
<b>Industry Standard Certifications</b>	UL	Yes
	CSA	Yes
	FCC Compliance	Yes
	ENERGY STAR® 4.0	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	

### Technical Specifications

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

<b>HP 90W Smart AC Adapter</b>	<b>Dimensions</b>	5.24 x 2.28 x 1.1 in (13.3 x 5.8 x 2.9 cm)		
	<b>Weight</b>	0.86 lb (390 g)		
	<b>Input</b>	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	
	<b>Output</b>	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	
	<b>Connector</b>	3 pin/grounded, mates with interchangeable cords		
	<b>Environmental Design</b>	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%		
<b>EMI and Safety Certifications</b>	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.			

<b>Optional HP Ultra-Capacity Battery</b>	<b>Dimensions (H x W x L)</b>	1.3 x 6.0 x 10.6 in (3.33 x 15.25 x 26.88 cm)		
	<b>Weight</b>	1.77 lb (0.803 kg)		
	<b>Cells/Type</b>	12-cell Lithium-Ion		
	<b>Energy</b>	Watt-hour Capacity	95Wh	
		<b>Temperature</b>	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)	
	<b>Battery Re-Charge Time</b>	Smart Adapter	3 to 4 hours	
		System ON	4 to 5 hours (depending on system power consumption)	
	<b>Fuel Gauge</b>	When pressed, LEDs light indicating level of charge remaining on battery		

### Technical Specifications

<b>Optional HP Extended Life Battery</b>	<b>Dimensions (H x W x L)</b>	1.0 x 3.9 x 8.7 in (2.5 x 10.0 x 22.0 cm)		
	<b>Weight</b>	1.00 lb (0.455 kg)		
	<b>Cells/Type</b>	8-cell Lithium-Ion		
	<b>Energy</b>	Watt-hour Capacity	52Wh	
	<b>Temperature</b>	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)	
	<b>Battery Re-Charge Time</b>	System in OFF mode or Standby	3 hours	
		System ON	3 to 5 hours (depending on system power consumption)	
		HP Fast Charge	Charges the battery up to 90% within 90 minutes when system is OFF	
<b>Fuel Gauge</b>	When pressed, LEDs light indicating level of charge remaining on battery			

<b>6-Cell (55WHr) Lithium-Ion battery</b>	<b>Dimensions (H x W x L)</b>	0.8 x 2.1 x 8.0 in (2.0 x 5.3 x 20.3 cm)		
	<b>Weight</b>	0.737 lb (0.335 kg)		
	<b>Cells/Type</b>	6-cell Lithium-Ion		
	<b>Energy</b>	Watt-hour Capacity	55Wh	
	<b>Temperature</b>	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)	
	<b>Battery Re-Charge Time</b>	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 90 minutes when system is OFF	

### Technical Specifications

6-Cell (47WHr) 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	0.715 lb (0.325 kg)		
	Cells/Type	6-cell Lithium-Ion		
	Energy	Watt-hour Capacity	47Wh	
	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 90 minutes when system is OFF	

15.4-inch WSXGA+ wide-viewing angle, anti-glare	Dimensions (W x H)	13.0 x 8.1 in (33.1 x 20.7 cm)		
	Diagonal Size	15.4 in (39.1 cm)		
	Surface Treatment	Anti-glare		
	Contrast Ratio	300:1 (typical)		
	Refresh Rate	60 Hz		
	Brightness	200 nit (typical)		
	Pixel Resolution	Pitch	0.197 mm	
		Format	1680 x 1050	
		Configuration	RGB stripe	
	Backlight	CCFL		
PPI	129			
Viewing Angle	±60° Horizontal, ± 50° Vertical (minimum)			

15.4-inch WXGA anti-glare	Active Area (W x H)	13.0 x 8.1 in (33.1 x 20.7 cm)		
	Diagonal Size	15.4 in (39.1 cm)		
	Surface Treatment	Anti-glare		
	Contrast Ratio	300:1 (typical)		
	Refresh Rate	60 Hz		
	Brightness	200 nit (typical)		
	Pixel Resolution	Pitch	0.259 mm	
		Format	1280 x 800	
		Configuration	RGB stripe	
	Backlight	CCFL		
PPI	98			
Viewing Angle	±30° Horizontal, ±10° Vertical (minimum)			



### Technical Specifications

15.4-inch WXGA BrightView	Active Area (W x H)	13.0 x 8.1 in (33.1 x 20.7 cm)	
	Diagonal Size	15.4 in (39.1 cm)	
	Surface Treatment	BrightView	
	Contrast Ratio	300:1 (typical)	
	Refresh Rate	60 Hz	
	Brightness	200 nit (typical)	
	Pixel Resolution	Pitch	0.259 mm
		Format	1280 x 800
		Configuration	RGB stripe
	Backlight	CCFL	
PPI	98		
Viewing Angle	±30° Horizontal, ±10° Vertical (minimum)		

### Hard Drives

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	<b>Synchronous</b> (maximum)	100 MB/s (Drive Capability)
	Seek Time (typical reads, including settling)	<b>Single Track</b>	3 ms
		<b>Average</b>	13ms
		<b>Maximum</b>	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	

### Technical Specifications

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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	<b>Synchronous</b> (maximum) 100 MB/s (Drive Capability)	
	Seek Time (typical reads, including settling)	<b>Single Track</b>	3 ms
		<b>Average</b>	13ms
		<b>Maximum</b>	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	

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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	<b>Synchronous</b> (maximum) 100 MB/s (Drive Capability)	
	Seek Time (typical reads, including settling)	<b>Single Track</b>	3 ms
		<b>Average</b>	13ms
		<b>Maximum</b>	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	

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### Technical Specifications

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	<b>Synchronous</b> (maximum) 100 MB/s (Drive Capability)	
	Seek Time (typical reads, including settling)	<b>Single Track</b>	3 ms
		<b>Average</b>	13 ms
		<b>Maximum</b>	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

DVD-ROM Drive	Access Times	Random	<116 ms CD <125 ms DVD
		Max Data Transfer Rate	24X CD-ROM 3,600 KB/s 8X-DVD 10,800 KB/s
	Transfer Mode	Multiword DMA Mode 2	
	Interface	EIDE	
	Supported Media (read)	CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW	
	Supported Media (write)	None	
	Max Media Capacity (read)	4.7 GB	
	Transport	Tray Loading	

### Technical Specifications

DVD/CD-RW Combo Drive	<b>Access Times</b>	Random	<110 ms CD <130 ms DVD
	<b>Max Data Transfer Rate</b>	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
	<b>Transfer Mode</b>	Multiword DMA Mode 2	
	<b>Interface</b>	EIDE	
	<b>Supported Media (read)</b>	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	
	<b>Supported Media (write)</b>	CD-R, CD-RW	
	<b>Max Media Capacity (read)</b>	8.5 GB	
<b>Max Media Capacity (write)</b>	700 MB		
<b>Transport</b>	Tray loading		

DVD+/-RW SuperMulti DL Drive	<b>Access Times</b>	Random	<175 ms CD <230 ms DVD
	<b>Max Data Transfer Rate</b>	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
	<b>Transfer Mode</b>	Multiword DMA Mode	
	<b>Interface</b>	EIDE	
	<b>Supported Media (read)</b>	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	
	<b>Supported Media (write)</b>	CD-R, CD-RW, DVD+R, DVD+RW, DVD-R, DVD-RW, DVD-RAM	
<b>Max Media Capacity (read)</b>	8.5 GB		
<b>Max Media Capacity (write)</b>	8.5 GB		

### Technical Specifications

	Transport	Tray Loading		
DVD+/-RW SuperMulti DL 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
	Touch-Sensitive Volume Controls	Volume up, volume down, and mute
	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

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Integrated Stereo Speakers	Power Rating	2 Watts
	Impedance	4 Ohms

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### Communications

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Integrated Broadcom NetLink Fast Ethernet Controller (10/100 NIC)	Ethernet Features	10 Mbit/s operation (10BASE-T; IEEE 802.3i; IEEE 802.3 clauses 13-14)
		100 Mbit/s operation (100BASE-TX; IEEE 802.3u; IEEE 802.3 clauses 21-30)
		Auto-Negotiation (Automatic Speed Selection)
		Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/s
	Power Management	IEEE 802.3x Flow Control (IEEE 802.3 clauses 31-32; configurable)
		ACPI compliant -- multiple power modes Situation-sensitive features reduce power consumption
	Manageability	Wake-on-LAN from standby and hibernation (configurable; Magic Packet and Microsoft Wake-Up Frame)
		PXE 2.1 Remote Boot
		Statistics Gathering (RMON, Ethernet-like MIB, Ethernet MIB (802.3x, clause 30))
	Interface	Comprehensive diagnostic and configuration software suite
PCI Express x1		
NIC Device Driver Name		Broadcom 590x 10/100 Ethernet
Drivers Available		Microsoft Windows Vista Microsoft Windows XP

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### Technical Specifications

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) <b>Optional symbol rates:</b> 2800, 3429 Asymmetric Symbol rates <b>Synchronous primary channel data signaling rates:</b> 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 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

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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 with Microsoft Windows 2000 and XP (details at <a href="http://www.hp.com/go/notebooks/WLAN">http://www.hp.com/go/notebooks/WLAN</a> )
	Frequency Band	2.4 GHz and 5 GHz

### Technical Specifications

<b>Data Rates</b>	802.11b: 1, 2, 5.5, 11 Mbps 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps	
<b>Modulation</b>	Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM	
<b>Security<sup>1</sup></b>	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).	
<b>Sub-channels</b>	Multinational support with frequency bands and channels compliant to local regulations.	
<b>Media Access Protocol</b>	CSMA/CA (Collision Avoidance) with ACK	
<b>Network Architecture Models</b>	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)	
<b>Roaming</b>	IEEE 802.11 compliant roaming between access points	
<b>Output Power (for CCK)<sup>2</sup></b>	17.5 dBm	
<b>Output Power (for OFDM; power varies by data rate)<sup>2</sup></b>	15 dBm	
<b>Power Consumption</b>	Transmit: 2.0 W (max) Receive: 1.5 W (max) Idle mode <sup>3</sup> : 390 mW (nominal) Sleep mode: 20 mW (max)	
<b>Power Management</b>	ACPI compliant power management 802.11 compliant power saving mode	
<b>Receiver Sensitivity<sup>4</sup></b>	54 Mbps: -72 dBm, 11 Mbps: -88 dBm , 1 Mbps: -97 dBm	
<b>Antenna type</b>	High efficiency dual band antenna with spatial diversity, mounted in the display enclosure	
<b>Range</b>	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
<b>Form Factor</b>	PCI-Express MiniCard	
<b>Weight</b>	0.026 lb (12 g)	
<b>Dimensions</b>	0.19 x 1.2 x 2.0 in (4.75 x 29.85 x 50.8 mm)	
<b>Operating Voltage</b>	3.3v +/- 10%	
<b>Temperature</b>	Operating	32° to 176° F (0° to 80° C)
	Non-operating	-40° to 176° F (-40° to 80° C)
<b>Humidity</b>	Operating	10% to 90% (non-condensing)
	Non-operating	5% to 95% (non-condensing)
<b>Altitude</b>	Operating	0 to 10,000 ft (3,048 m)
	Non-operating	0 to 50,000 ft (15,240 m)



### Technical Specifications

<b>Configuration Utility<sup>5</sup></b>	<p>Microsoft Windows 2000 or XP Choice of Configuration Utility:</p> <ul style="list-style-type: none"> <li>• Microsoft Windows XP Wireless Network Connection Manager</li> <li>• Broadcom Wireless Configuration Utility (required for Cisco Compatible Extensions support)</li> </ul> <p>Microsoft Windows Vista</p> <ul style="list-style-type: none"> <li>• Microsoft Windows Vista Wireless Network Connection Manager</li> </ul>
<b>LED Activity</b>	<p>LED Off – Radio OFF; Solid LED On – Radio ON</p> <ol style="list-style-type: none"> <li>1. Check latest software/driver release for updates on supported security features.</li> <li>2. Maximum output power may vary by country according to local regulations.</li> <li>3. In Power Save Polling mode.</li> <li>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).</li> <li>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.</li> </ol>

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<b>Broadcom 4311BG 802.11b/g WiFi Adapter</b>	<b>Wireless LAN Standards</b>	IEEE 802.11b IEEE 802.11g
	<b>Interoperability</b>	Wi-Fi certified Cisco Compatible Extensions Program compliant with Microsoft Windows 2000 and XP (details at <a href="http://www.hp.com/go/notebooks/WLAN">http://www.hp.com/go/notebooks/WLAN</a> )
	<b>Frequency Band</b>	2.4 GHz
	<b>Data Rates</b>	802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
	<b>Modulation</b>	Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM
	<b>Security<sup>1</sup></b>	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).
	<b>Sub-channels</b>	Multinational support with frequency bands and channels compliant to local regulations.
	<b>Media Access Protocol</b>	CSMA/CA (Collision Avoidance) with ACK
	<b>Network Architecture Models</b>	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
	<b>Roaming</b>	IEEE 802.11 compliant roaming between access points
	<b>Output Power (for CKK)<sup>2</sup></b>	17.5 dBm
	<b>Output Power (for OFDM; 15 dBm power varies by data rate)<sup>2</sup></b>	

### Technical Specifications

<b>Power Consumption</b>	Transmit: 2.0 W (max) Receive: 1.5 W (max) Idle mode <sup>3</sup> : 390 mW (nominal) Sleep mode: 20 mW (max)	
<b>Power Management</b>	ACPI compliant power management 802.11 compliant power saving mode	
<b>Receiver Sensitivity<sup>4</sup></b>	54 Mbps: -72 dBm, 11 Mbps: -88 dBm , 1 Mbps: -97 dBm	
<b>Antenna type</b>	High efficiency dual band antenna with spatial diversity, mounted in the display enclosure	
<b>Range</b>	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
<b>Form Factor</b>	PCI-Express MiniCard	
<b>Weight</b>	0.026 lb (12 g)	
<b>Dimensions</b>	0.19 x 1.2 x 2.0 in (4.75 x 29.85 x 50.8 mm)	
<b>Operating Voltage</b>	3.3v +/- 10%	
<b>Temperature</b>	Operating	32° to 176° F (0° to 80° C)
	Non-operating	-40° to 176° F (-40° to 80° C)
<b>Humidity</b>	Operating	10% to 90% (non-condensing)
	Non-operating	5% to 95% (non-condensing)
<b>Altitude</b>	Operating	0 to 10,000 ft (3,048 m)
	Non-operating	0 to 50,000 ft (15,240 m)
<b>Configuration Utility<sup>5</sup></b>	Microsoft Windows 2000 or XP Choice of Configuration Utility: <ul style="list-style-type: none"> <li>● Microsoft Windows XP Wireless Network Connection Manager</li> <li>● Broadcom Wireless Configuration Utility (required for Cisco Compatible Extensions support)</li> </ul> <p>Microsoft Windows Vista</p> <ul style="list-style-type: none"> <li>● Microsoft Windows Vista Wireless Network Connection Manager</li> </ul>	
<b>LED Activity</b>	LED Off – Radio OFF; Solid LED On – Radio ON	
	<ol style="list-style-type: none"> <li>1. Check latest software/driver release for updates on supported security features.</li> <li>2. Maximum output power may vary by country according to local regulations.</li> <li>3. In Power Save Polling mode.</li> <li>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).</li> <li>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 suppliers.</li> </ol>	

#### HP Integrated Module with Bluetooth Wireless Technology

<b>Bluetooth Specification</b>	2.0 Compliant
<b>Dimensions</b>	1.02 x 0.55 x 0.22 in (26 x 14 x 5.7 mm)
<b>Frequency Band</b>	2402 to 2480 MHz
<b>Number of Available Channels</b>	79 (1 MHz) available channels



### Technical Specifications

<b>Data Rates and Throughput</b>	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
<b>Transmit Power</b>	-6 dBm to 4 dBm (Bluetooth Class II)
<b>Receiver Sensitivity</b>	Better than -80 dBm at 0.1 % raw bit error rate
<b>Power Consumption</b>	Peak (Tx) 264 mW Peak (Rx) 231 mW Sleep <1 mW
<b>Antenna</b>	Internally integrated within module
<b>Range</b>	Up 33 ft (10 m)
<b>Electrical Interface</b>	USB 2.0 compliant Microsoft Windows Plug and Play compliant
<b>OS Support</b>	Genuine Windows Vista Genuine Windows XP Genuine Windows 2000
<b>Bluetooth Software Supported</b>	Broadcom Bluetooth for Windows Microsoft Windows XP Bluetooth Software
<b>Link Topology</b>	Point to Point, Multipoint Pico Nets up to 7 slaves
<b>Security</b>	Full support of Bluetooth Security Provisions
<b>Power Management</b>	Microsoft Windows ACPI, and USB Bus Support Self configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff
<b>Certifications</b>	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
<b>Temperature</b>	Operating -4° to 158° F (-20° to 70° C) Non-operating -40° to 176° F (-40° to 80° C)
<b>Humidity</b>	Operating 10% to 90% Non-operating 5% to 95%
<b>Altitude</b>	Operating 15,000 ft (4,572 m) Non-operating 40,000 ft (12,192 m)
<b>Bluetooth Profiles Supported</b>	(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)*

### Technical Specifications

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)
- Taiwan Green Mark
- China Energy Conservation Program
- IT ECO declaration
- Korean Eco Label

#### 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	13.76 W	13.24 W	13.65 W
Sleep (Energy Star low power mode)	1.16 W	1.38 W	1.15 W
Off	1.2 W	1.4 W	1.2 W

#### Heat Dissipation\*

	115 VAC	230 VAC	100 VAC
Normal Operation	46.949 BTU/hr	45.174 BTU/hr	45.823 BTU/hr
Sleep	3.957 BTU/hr	4.708 BTU/hr	3.923 BTU/hr
Off	4.094 BTU/hr	4.776 BTU/hr	4.094 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	3.25	21.9
Operating mode (HDD)	3.2	23.2

#### 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:



### Technical Specifications

- 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; optional 8 cell Lithium-Ion battery available

#### 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 95% recyclable when properly disposed of at end of life.

#### Packaging Materials

- Corrugated / Paper – 2.41 lb (1094 g)
- EPE Foam – 0.112 lb (51 g)
- LDPE Bag – 0.011 lb (5 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.
- 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

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

### Technical Specifications

#### Specification of the Environment

([http://www.hp.com/hpinfo/globalcitizenship/environment/supplychain/gen\\_specifications.html](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/environment/operations/envmanagement.html>

## *Technical Specifications*

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