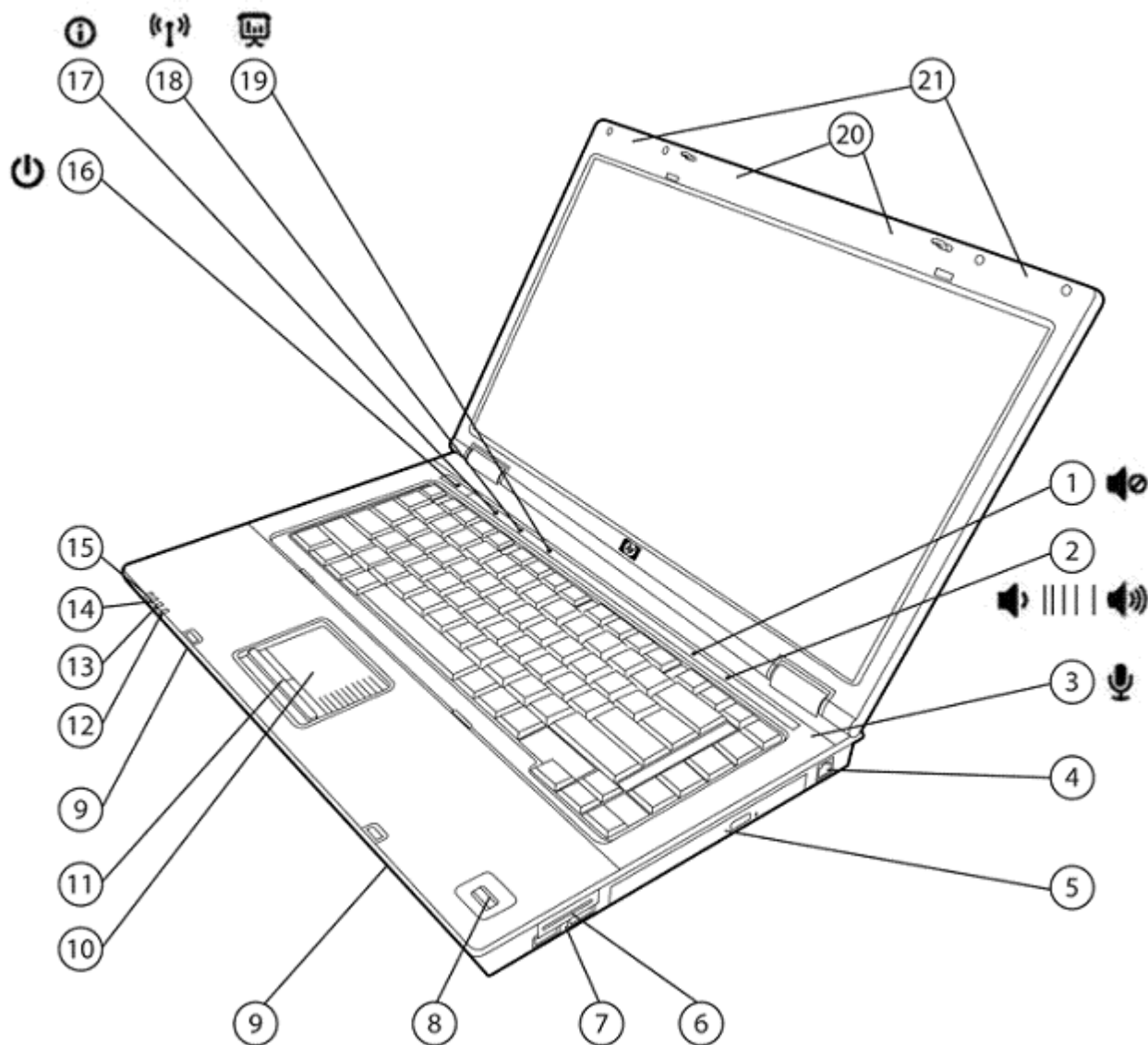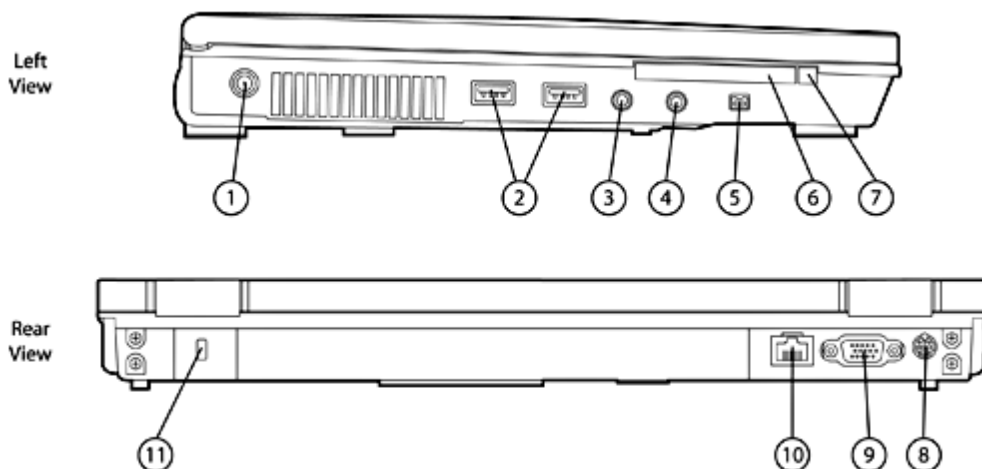HP recommends Windows Vista® Business

1.	Volume mute button with LED indicator	12.	Hard drive activity / HP 3D DriveGuard LED
2.	Volume scroll zone with up/down LED indicators	13.	Battery charging LED
3.	Integrated microphone	14.	Power/standby LED
4.	RJ-11/modem port	15.	Wireless on/off LED
5.	Optical drive	16.	Power button with LED
6.	Media Card Reader	17.	HP Info / HP QuickLook button with LED indicator
7.	2 USB 2.0 ports	18.	Wireless on/off button with LED indicator
8.	HP Fingerprint Sensor	19.	HP Presentation button with LED indicator
9.	Integrated stereo speakers	20.	WLAN antennas (with WLAN option)
10.	Touchpad with scroll zone	21.	WWAN antennas (with WWAN option)
11.	Touchpad buttons		

Overview

1. Power connector
2. 2 USB 2.0 ports
3. Stereo headphone/line out
4. Stereo microphone in
5. 1394a port
6. Type I/II PC Card slot
7. PC Card eject button
8. S-Video TV out
9. VGA/external monitor connector
10. RJ-45/Ethernet port
11. Kensington Lock slot

At A Glance

- Genuine Windows Vista Business*, Genuine Windows Vista Home Basic,
  Genuine Windows XP Professional, or FreeDOS
- Widescreen 15.4-inch diagonal display with wide-viewing angle, BrightView and HP Privacy Filter support
- Flexible wireless connectivity options:
  - Integrated HP ev2200 1xEV-DO or HP hs2300 HSDPA Broadband Wireless module
  - Integrated 802.11 a/b/g/draft-n, a/b/g, or b/g wireless LAN module
  - Bluetooth®
- Intel® Core™2 Duo processor
- Thin, lightweight design starting at 5.7 lb/2.59 kg and 1.4-inch/34.9 mm thin at front
- Security features including Drive Encryption for HP ProtectTools, HP Fingerprint Sensor, TPM 1.2
- HP QuickLook on Windows Vista models for instant access to email, calendar, and contact information
- Up to 160-GB 5400 rpm or 80-GB 7200 rpm user-removable hard drive with HP 3D DriveGuard protection
- 6-in-1 Media Card Reader (Secure Digital, MultiMediaCard, Memory Stick, Memory Stick Pro, Memory Stick Duo (adapter required) and xD memory cards)
- Touch-sensitive controls for HP Info Center, HP QuickLook, wireless on/off, HP Presentation button, external volume up, volume down, and mute
- Integrated optical drive, including optional DVD+/-RW SuperMulti DL LightScribe Drive
- Up to 4 GB of 667-MHz DDR2 SDRAM, dual channel memory support
- Mobile Intel Graphics Media Accelerator X3100, with up to 384-MB shared system memory
- Broadcom NetLink Gigabit 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.

QuickSpecs

Standard Features

Processors		Intel Core 2 Duo Processor T7700 (2.40-GHz, 800-MHz FSB, 4-MB L2 cache)*
		Intel Core 2 Duo Processor T7500 (2.20-GHz, 800-MHz FSB, 4-MB L2 cache)*
		Intel Core 2 Duo Processor T7300 (2.00-GHz, 800-MHz FSB, 4-MB L2 cache)*
		Intel Core 2 Duo Processor T7100 (1.80-GHz, 800-MHz FSB, 2-MB L2 cache)*

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

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

Operating System	**Preinstalled**	Genuine Windows Vista Business†*
		Genuine Windows Vista Home Basic*
		Genuine Windows XP Professional
		FreeDOS
	Supported	Genuine Windows Vista Enterprise*
	Certified	SuSE Linux Enterprise Desktop 10

† 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.

Chipset	Mobile Intel GM965

Graphics	Mobile Intel Graphics Media Accelerator X3100, up to 384-MB shared system memory
	Microsoft DirectX 9 capable

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

QuickSpecs

Standard Features

Memory	Standard	512-MB, 1024-MB or 2048-MB 667-MHz DDR2 SDRAM; two SODIMM slots supporting dual channel memory
	Maximum	Upgradeable to 4096-MB with 2048-MB SODIMM in slots 1 and 2
	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.

Communications

Integrated Broadcom NetLink Gigabit Ethernet Controller (10/100/1000 NIC)*
56K V.92 modem**

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

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

Wireless Devices

Support for a broad range of secure, integrated wireless LAN and wireless WAN options featuring support for the latest industry standards. Wireless LAN is factory configurable or available as an option to be added later. Broadband Wireless (WWAN) requires Windows Vista Business or Windows XP Professional and is available in select countries as a standard, factory configurable feature only. Integrated Bluetooth is also available (factory configurable only) and can be combined with any of the supported wireless LAN and wireless WAN options.

HP ev2200 1xEV-DO Broadband Wireless Module	Integrated WWAN module connects to the Verizon Wireless BroadbandAccess and NationalAccess networks (U.S. only) Supports CDMA 1xEV-DO, 1xRTT connections at 850 and 1900 MHz. NOTE: Separately purchased Verizon Wireless service is required. For details, go to http://www.hp.com/go/broadbandwireless. Two 850/900/1800/1900/2100-MHz antennas integrated in the top of the display panel support current and future WWAN technologies
HP hs2300 HSDPA Broadband Wireless Module	Integrated WWAN module that provides connection to GSM, GPRS, EDGE, UMTS, and HSDPA mobile networks in many countries. Currently available for the AT&T Broadbandconnect network in the U.S. (supports international roaming). NOTE: Separately purchased mobile network operator service is required. Two 850/900/1800/1900/2100-MHz antennas integrated in the top of the display panel support current and future WWAN technologies.
All 802.11a/b/g integrated wireless LAN options	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

Standard Features

	Intel Wireless WiFi Link 4965AGN*	Integrated support for 802.11a, b, g, and draft-n Up to 300-mbps data rate
	Intel Wireless WiFi Link 4965AG*	Integrated support for 802.11 a, b and g Up to 54-mbps data rate
	Intel PRO/Wireless 3945ABG Network Connection*	Integrated support for 802.11 a, b and g Up to 54-mbps data rate
	Broadcom 4321AGN 802.11a/b/g/draft-n Wi-Fi Adapter	Integrated support for 802.11a, b, g, and draft-n Up to 300-mbps data rate
	Broadcom 4311AG 802.11a/b/g WiFi Adapter	Integrated support for 802.11 a, b and g Up to 54-mbps data rate
	HP Integrated Module with Bluetooth Wireless Technology	Bluetooth Specification v2.0 compliant Works with a wide range of Bluetooth devices

* 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. U.S. and International key layouts are available. Other features include an integrated numeric keypad, hotkeys for instant access to power conservation, brightness, and other features, 19-mm x 19-mm key pitch (center-to-center spacing), 2.5-mm stroke, and comfort-dished keycaps.

Touch-sensitive controls

Touch-sensitive controls provide easy access to the following features: HP Info Center, HP QuickLook, wireless on/off, HP Presentation button, external volume up, volume down, and mute

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Pointing device

Touchpad with scroll zone, two pick buttons

Expansion card slots

	1 Type I/II PC Card slot or	Supports 32-bit CardBus and 16-bit PC Cards
	Optional Integrated Smart Card Reader (replaces PC Card slot)	Compatible with ISO 7816 compliant Smart Cards PC/SC interface support
	6 - in -1 Media Card Reader	Supports SD (Secure Digital), MMC (MultiMedia Card), Memory Stick, Memory Stick Pro, Memory Stick Duo*, xD-Picture card

* Memory Stick Duo Adapters are required and sold separately. Inserting a Memory Stick Duo Card directly into your notebook could damage the memory card and/or notebook.

QuickSpecs

Standard Features

Storage	Hard drives	80/120/160-GB 5400 rpm SMART SATA 80-GB 7200 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 3D DriveGuard	The hard drive is mounted directly to the notebook frame, reducing the transmission of shock to the hard drive. Uses three-axis digital motion detection with intelligent sensitivity to help protect the hard drive during normal use from shock and vibration. The digital accelerometer temporarily halts all data transfer and parks the hard drive when abrupt motion is detected.
	Fixed optical drives	DVD/CD-RW Combo Drive DVD+/-RW SuperMulti DL Drive DVD+/-RW SuperMulti DL LightScribe Drive

Interfaces	PC Card slot	One Type I/II PC Card slot or optional Smart Card Reader
	External monitor	One – VGA
	1394a	One
	Stereo microphone in	One
	Stereo headphone/line out	One
	Power connector	One
	RJ-11/modem	One
	RJ-45/Ethernet	One
	S-video TV out	One (Support for NTSC/PAL)
	USB 2.0	Four
	Docking connector	One
	Secondary battery connector	One
	LED status indicators	Fifteen

Audio	High Definition Audio support w/24-bit DAC Integrated stereo speakers Integrated microphone Touch-sensitive controls for volume up, volume down, and mute Stereo headphone/line out Stereo microphone in

Standard Features

Software	Preinstalled software with Windows Vista or Windows XP	PDF Complete
		HP Backup and Recovery Manager
		HP Help and Support Center
		HP QuickLook (Windows Vista only)
		HP OpenView Radia Management Agent
		HP Universal Print Driver
		HP ProtectTools Security Manager:
		BIOS Configuration for HP ProtectTools
		Credential Manager for HP ProtectTools
		Device Access Manager for HP ProtectTools*
		Drive Encryption for HP ProtectTools
		Embedded Security for HP ProtectTools
		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
	Additional software available from the web	HP Client Manager
		Java Card Security for HP ProtectTools

* Download available from hp.com for Windows Vista; preinstalled with Windows XP.

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:

- BIOS Configuration for HP ProtectTools
- Credential Manager for HP ProtectTools
- Device Access Manager for HP ProtectTools
- Drive Encryption for HP ProtectTools
- Embedded Security for HP ProtectTools
- Java Card Security for HP ProtectTools

Standard Features

Security	Standard Features	HP ProtectTools Security Manager
		HP Fingerprint Sensor
		Configuration Control Hardware
		Memory Change Alert
		Ownership Tag
		Setup Password
		Power-On Password
		TPM 1.2 Embedded Security Chip*
		TPM Enhanced DriveLock*
		HP Disk Sanitizer
		HP 3D DriveGuard
		Kensington Lock Slot
		Support for Computrace / LoJack for Laptops (must be purchased separately)
	Optional Features	**Smart Card Reader** (replaces Type I/II PC Card slot) — Compatible with ISO 7816 compliant Smart Cards / PC/SC interface support
		HP Privacy Filter — Narrows viewing area so that screen data is visible only to persons directly in front of the monitor

*NOTE: TPM module disabled where use is restricted by law; for example, Russia and China.
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.

Battery	Primary battery	6-cell (55 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	Primary battery	Up to 5 hours and 15 minutes
	Primary battery and optional HP Extended Life Battery	Up to 10 hours and 45 minutes
	Primary battery and optional HP Ultra-Capacity Battery	Up to 14 hours and 30 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 |

Standard Features

Power Conservation	Supports enhanced Intel SpeedStep technology with Intel Core 2 Duo processors (allows Battery Optimized Mode, Maximum Performance Mode, or Automatic mode) Intel Display Power Saving technology Hibernation Standby ACPI compliance

Docking and Stands

HP 3-in-1 NAS Docking Station
HP Advanced Docking Station
HP Basic Docking Station
HP Standard Monitor Stand
HP Adjustable Notebook Stand
HP External MultiBay II

HP's shared docking solutions provide simple and convenient port replication and cable management. Features include Gigabit NIC pass through, modem pass through, legacy parallel and serial ports, S-video TV out, USB 2.0 ports, integrated security mechanism*, integrated MultiBay II and ExpressCard** slots. These docking solutions are compatible across multiple Business Notebook platforms enabling a lower total cost of ownership.

* HP/Kensington Cable Lock required (purchased separately)
** HP 3-in-1 NAS Docking Station and HP Advanced Docking Station only

Service and Support

HP Services offers limited 3- year and 1-year 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.

Select Model(s)

6710b
GF938AT#ABA
Smart Buy

Processor	Intel Core 2 Duo Processor T7100 (1.80-GHz, 800-FSB, 2-MB L2 cache)*
Operating System	Genuine Windows Vista Business** Office Ready
System Memory	1024-MB 667-MHz DDR2 SDRAM (2 DIMM)
Hard Drive	120-GB 5400 rpm SATA HDD
Display	15.4-inch diagonal WXGA BrightView (1280 x 800 resolution)
Graphics	Mobile Intel Graphics Media Accelerator X3100, up to 384-MB shared system memory
Audio	High Definition Audio w/24-bit DAC line out/headphone and microphone jacks integrated microphone
Communications	56K Modem Broadcom NetLink Gigabit Ethernet PCI Controller (10/100/1000 NIC)
Integrated Wireless	Intel PRO/Wireless 3945ABG Network Connection
Integrated Security	TPM 1.2 Embedded Security Chip HP Fingerprint Sensor
Pointing Device	Touchpad with scroll zone, two pick buttons

Standard Features

	Optical Drive	DVD+/-RW SuperMulti DL LightScribe Drive
	Battery	6-cell (55 WHr) Lithium-Ion
	Power	External 90-watt Smart AC adapter
	Warranty	1 Year Limited Warranty

6710b RM206UA#ABA	Processor	Intel Core 2 Duo Processor T7100 (1.80-GHz, 800-FSB, 2-MB L2 cache)*
	Operating System	Genuine Windows Vista Business** Office Ready
	System Memory	1024-MB 667-MHz DDR2 SDRAM (1 DIMM)
	Hard Drive	80-GB 5400 rpm SATA HDD
	Display	15.4-inch diagonal WXGA anti-glare (1280 x 800 resolution)
	Graphics	Mobile Intel Graphics Media Accelerator X3100, up to 384-MB shared system memory
	Audio	High Definition Audio w/24-bit DAC line out/headphone and microphone jacks integrated microphone
	Communications	56K Modem Broadcom NetLink Gigabit Ethernet PCI Controller (10/100/1000 NIC)
	Integrated Wireless	Intel PRO/Wireless 3945ABG Network Connection
	Integrated Security	TPM 1.2 Embedded Security Chip HP Fingerprint Sensor
	Pointing Device	Touchpad with scroll zone, two pick buttons
	Optical Drive	DVD+/-RW SuperMulti DL Drive
	Battery	6-cell (55 WHr) Lithium-Ion
	Power	External 90-watt Smart AC adapter
	Warranty	1 Year Limited Warranty

6710b GF939AT#ABA Smart Buy	Processor	Intel Core 2 Duo Processor T7300 (2.00-GHz, 800-FSB, 4-MB L2 cache)*
	Operating System	Genuine Windows Vista Business** Office Ready
	System Memory	1024-MB 667-MHz DDR2 SDRAM (2 DIMM)
	Hard Drive	160-GB 5400 rpm SATA HDD
	Display	15.4-inch diagonal WXGA BrightView (1280 x 800 resolution)
	Graphics	Mobile Intel Graphics Media Accelerator X3100, up to 384-MB shared system memory
	Audio	High Definition Audio w/24-bit DAC line out/headphone and microphone jacks integrated microphone
	Communications	56K Modem Broadcom NetLink Gigabit Ethernet PCI Controller (10/100/1000 NIC)
	Integrated Wireless	Intel PRO/Wireless 3945ABG Network Connection
	Integrated Security	TPM 1.2 Embedded Security Chip HP Fingerprint Sensor
	Pointing Device	Touchpad with scroll zone, two pick buttons
	Optical Drive	DVD+/-RW SuperMulti DL LightScribe Drive
	Battery	6-cell (55 WHr) Lithium-Ion

Standard Features

	Power	External 90-watt Smart AC adapter
	Warranty	1 Year Limited Warranty

6710b GF940AT#ABA Smart Buy	Processor	Intel Core 2 Duo Processor T7300 (2.00-GHz, 800-FSB, 4-MB L2 cache)*
	Operating System	Genuine Windows Vista Business** Office Ready
	System Memory	2048-MB 667-MHz DDR2 SDRAM (2 DIMM)
	Hard Drive	160-GB 5400 rpm SATA HDD
	Display	15.4-inch diagonal WSXGA+ WVA anti-glare (1680 x 1050 resolution)
	Graphics	Mobile Intel Graphics Media Accelerator X3100, up to 384-MB shared system memory
	Audio	High Definition Audio w/24-bit DAC line out/headphone and microphone jacks integrated microphone
	Communications	56K Modem Broadcom NetLink Gigabit Ethernet PCI Controller (10/100/1000 NIC)
	Integrated Wireless	Intel PRO/Wireless 3945ABG Network Connection
	Integrated Security	TPM 1.2 Embedded Security Chip HP Fingerprint Sensor
	Pointing Device	Touchpad with scroll zone, two pick buttons
	Optical Drive	DVD+/-RW SuperMulti DL LightScribe Drive
	Battery	6-cell (55 WHr) Lithium-Ion
	Power	External 90-watt Smart AC adapter
	Warranty	1 Year Limited Warranty

6710b RM210UA#ABA	Processor	Intel Core 2 Duo Processor T7100 (1.80-GHz, 800-FSB, 2-MB L2 cache)*
	Operating System	Genuine Windows Vista Home Basic 32 Office Ready
	System Memory	1024-MB 667-MHz DDR2 SDRAM (1 DIMM)
	Hard Drive	80-GB 5400 rpm SATA HDD
	Display	15.4-inch diagonal WXGA anti-glare (1280 x 800 resolution)
	Graphics	Mobile Intel Graphics Media Accelerator X3100, up to 384-MB shared system memory
	Audio	High Definition Audio w/24-bit DAC line out/headphone and microphone jacks integrated microphone
	Communications	56K Modem Broadcom NetLink Gigabit Ethernet PCI Controller (10/100/1000 NIC)
	Integrated Wireless	Intel PRO/Wireless 3945ABG Network Connection HP Integrated Module with Bluetooth Wireless Technology
	Integrated Security	TPM 1.2 Embedded Security Chip HP Fingerprint Sensor
	Pointing Device	Touchpad with scroll zone, two pick buttons
	Optical Drive	DVD/CD-RW Combo Drive
	Battery	6-cell (55 WHr) Lithium-Ion
	Power	External 90-watt Smart AC adapter
	Warranty	3 Year Limited Warranty

Standard Features

6710b RM211UA#ABA	Processor	Intel Core 2 Duo Processor T7100 (1.80-GHz, 800-FSB, 2-MB L2 cache)*
	Operating System	Genuine Windows Vista Home Basic 32 Office Ready
	System Memory	1024-MB 667-MHz DDR2 SDRAM (1 DIMM)
	Hard Drive	80-GB 5400 rpm SATA HDD
	Display	15.4-inch diagonal WXGA anti-glare (1280 x 800 resolution)
	Graphics	Mobile Intel Graphics Media Accelerator X3100, up to 384-MB shared system memory
	Audio	High Definition Audio w/24-bit DAC line out/headphone and microphone jacks integrated microphone
	Communications	56K Modem Broadcom NetLink Gigabit Ethernet PCI Controller (10/100/1000 NIC)
	Integrated Wireless	Intel PRO/Wireless 3945ABG Network Connection HP Integrated Module with Bluetooth Wireless Technology
	Integrated Security	TPM 1.2 Embedded Security Chip HP Fingerprint Sensor
	Pointing Device	Touchpad with scroll zone, two pick buttons
	Optical Drive	DVD+/-RW SuperMulti DL Drive
	Battery	6-cell (55 WHr) Lithium-Ion
	Power	External 90-watt Smart AC adapter
	Warranty	3 Year Limited Warranty

6710b RM220UT#ABA Smart Buy	Processor	Intel Core 2 Duo Processor T7100 (1.80-GHz, 800-FSB, 2-MB L2 cache)*
	Operating System	Genuine Windows Vista Business** Office Ready
	System Memory	1024-MB 667-MHz DDR2 SDRAM (2 DIMM)
	Hard Drive	80-GB 5400 rpm SATA HDD
	Display	15.4-inch diagonal WXGA anti-glare (1280 x 800 resolution)
	Graphics	Mobile Intel Graphics Media Accelerator X3100, up to 384-MB shared system memory
	Audio	High Definition Audio w/24-bit DAC line out/headphone and microphone jacks integrated microphone
	Communications	56K Modem Broadcom NetLink Gigabit Ethernet PCI Controller (10/100/1000 NIC)
	Integrated Wireless	Intel PRO/Wireless 3945ABG Network Connection HP Integrated Module with Bluetooth Wireless Technology
	Integrated Security	TPM 1.2 Embedded Security Chip HP Fingerprint Sensor
	Pointing Device	Touchpad with scroll zone, two pick buttons
	Optical Drive	DVD+/-RW SuperMulti DL LightScribe Drive
	Battery	6-cell (55 WHr) Lithium-Ion
	Power	External 90-watt Smart AC adapter
	Warranty	3 Year Limited Warranty

Standard Features

6710b GF926AW#ABA	Processor	Intel Core 2 Duo Processor T7300 (2.00-GHz, 800-FSB, 4-MB L2 cache)*
	Operating System	Genuine Windows Vista Business** Office Ready
	System Memory	1024-MB 667-MHz DDR2 SDRAM (1 DIMM)
	Hard Drive	80-GB 5400 rpm SATA HDD
	Display	15.4-inch diagonal WXGA anti-glare (1280 x 800 resolution)
	Graphics	Mobile Intel Graphics Media Accelerator X3100, up to 384-MB shared system memory
	Audio	High Definition Audio w/24-bit DAC line out/headphone and microphone jacks integrated microphone
	Communications	56K Modem Broadcom NetLink Gigabit Ethernet PCI Controller (10/100/1000 NIC)
	Integrated Wireless	Intel Wireless WiFi Link 4965ABG HP Integrated Module with Bluetooth Wireless Technology
	Integrated Security	TPM 1.2 Embedded Security Chip HP Fingerprint Sensor
	Pointing Device	Touchpad with scroll zone, two pick buttons
	Optical Drive	DVD/CD-RW Combo Drive
	Battery	6-cell (55 WHr) Lithium-Ion
	Power	External 90-watt Smart AC adapter
	Warranty	3 Year Limited Warranty

6710b RM221UT#ABA Smart Buy	Processor	Intel Core 2 Duo Processor T7300 (2.00-GHz, 800-FSB, 4-MB L2 cache)*
	Operating System	Genuine Windows Vista Business** Office Ready
	System Memory	1024-MB 667-MHz DDR2 SDRAM (2 DIMM)
	Hard Drive	120-GB 5400 rpm SATA HDD
	Display	15.4-inch diagonal WXGA anti-glare (1280 x 800 resolution)
	Graphics	Mobile Intel Graphics Media Accelerator X3100, up to 384-MB shared system memory
	Audio	High Definition Audio w/24-bit DAC line out/headphone and microphone jacks integrated microphone
	Communications	56K Modem Broadcom NetLink Gigabit Ethernet PCI Controller (10/100/1000 NIC)
	Integrated Wireless	Intel PRO/Wireless 3945ABG Network Connection HP Integrated Module with Bluetooth Wireless Technology
	Integrated Security	TPM 1.2 Embedded Security Chip HP Fingerprint Sensor
	Pointing Device	Touchpad with scroll zone, two pick buttons
	Optical Drive	DVD+/-RW SuperMulti DL LightScribe Drive
	Battery	6-cell (55 WHr) Lithium-Ion
	Power	External 90-watt Smart AC adapter
	Warranty	3 Year Limited Warranty

Standard Features

6710b RM207UA#ABA	Processor	Intel Core 2 Duo Processor T7300 (2.00-GHz, 800-FSB, 4-MB L2 cache)*
	Operating System	Genuine Windows Vista Business** Office Ready
	System Memory	1024-MB 667-MHz DDR2 SDRAM (1 DIMM)
	Hard Drive	120-GB 5400 rpm SATA HDD
	Display	15.4-inch diagonal WSXGA+ WVA anti-glare (1680 x 1050 resolution)
	Graphics	Mobile Intel Graphics Media Accelerator X3100, up to 384-MB shared system memory
	Audio	High Definition Audio w/24-bit DAC line out/headphone and microphone jacks integrated microphone
	Communications	56K Modem Broadcom NetLink Gigabit Ethernet PCI Controller (10/100/1000 NIC)
	Integrated Wireless	Intel PRO/Wireless 3945ABG Network Connection HP Integrated Module with Bluetooth Wireless Technology
	Integrated Security	TPM 1.2 Embedded Security Chip HP Fingerprint Sensor
	Pointing Device	Touchpad with scroll zone, two pick buttons
	Optical Drive	DVD+/-RW SuperMulti DL Drive
	Battery	6-cell (55 WHr) Lithium-Ion
	Power	External 90-watt Smart AC adapter
	Warranty	3 Year Limited Warranty

6710b RM222UT#ABA Smart Buy	Processor	Intel Core 2 Duo Processor T7300 (2.00-GHz, 800-FSB, 4-MB L2 cache)*
	Operating System	Genuine Windows Vista Business** Office Ready
	System Memory	2048-MB 667-MHz DDR2 SDRAM (2 DIMM)
	Hard Drive	160-GB 5400 rpm SATA HDD
	Display	15.4-inch diagonal WSXGA+ WVA anti-glare (1680 x 1050 resolution)
	Graphics	Mobile Intel Graphics Media Accelerator X3100, up to 384-MB shared system memory
	Audio	High Definition Audio w/24-bit DAC line out/headphone and microphone jacks integrated microphone
	Communications	56K Modem Broadcom NetLink Gigabit Ethernet PCI Controller (10/100/1000 NIC)
	Integrated Wireless	Intel PRO/Wireless 3945ABG Network Connection HP Integrated Module with Bluetooth Wireless Technology
	Integrated Security	TPM 1.2 Embedded Security Chip HP Fingerprint Sensor
	Pointing Device	Touchpad with scroll zone, two pick buttons
	Optical Drive	DVD+/-RW SuperMulti DL LightScribe Drive
	Battery	6-cell (55 WHr) Lithium-Ion
	Power	External 90-watt Smart AC adapter
	Warranty	3 Year Limited Warranty

Standard Features

6710b GF929AW#ABA	Processor	Intel Core 2 Duo Processor T7500 (2.20-GHz, 800-FSB, 4-MB L2 cache)*
	Operating System	Genuine Windows Vista Business** Office Ready
	System Memory	1024-MB 667-MHz DDR2 SDRAM (1 DIMM)
	Hard Drive	120-GB 5400 rpm SATA HDD
	Display	15.4-inch diagonal WSXGA+ WVA anti-glare (1680 x 1050 resolution)
	Graphics	Mobile Intel Graphics Media Accelerator X3100, up to 384-MB shared system memory
	Audio	High Definition Audio w/24-bit DAC line out/headphone and microphone jacks integrated microphone
	Communications	56K Modem Broadcom NetLink Gigabit Ethernet PCI Controller (10/100/1000 NIC)
	Integrated Wireless	Intel Wireless WiFi Link 4965ABG HP Integrated Module with Bluetooth Wireless Technology
	Integrated Security	TPM 1.2 Embedded Security Chip HP Fingerprint Sensor
	Pointing Device	Touchpad with scroll zone, two pick buttons
	Optical Drive	DVD+/-RW SuperMulti DL Drive
	Battery	6-cell (55 WHr) Lithium-Ion
	Power	External 90-watt Smart AC adapter
	Warranty	3 Year Limited Warranty

6710b RM223UT#ABA Smart Buy	Processor	Intel Core 2 Duo Processor T7300 (2.00-GHz, 800-FSB, 4-MB L2 cache)*
	Operating System	Genuine Windows Vista Business** Office Ready
	System Memory	1024-MB 667-MHz DDR2 SDRAM (1 DIMM)
	Hard Drive	120-GB 5400 rpm SATA HDD
	Display	15.4-inch diagonal WXGA anti-glare (1280 x 800)
	Graphics	Mobile Intel Graphics Media Accelerator X3100, up to 384 MB of shared memory
	Audio	High Definition Audio w/24-bit DAC line out/headphone and microphone jacks integrated microphone
	Communications	56K Modem Broadcom NetLink Gigabit Ethernet PCI Controller (10/100/1000 NIC)
	Integrated Wireless	Intel PRO/Wireless 4965AGN Network Connection HP Integrated Module with Bluetooth Wireless Technology
	Broadband Wireless	HP ev2200 1xEV-DO Broadband Wireless Module (requires Verizon Wireless Service)
	Integrated Security	TPM 1.2 Embedded Security Chip HP Fingerprint Sensor
	Pointing Device	Touchpad with scroll zone, two pick buttons
	Optical Drive	LightScribe DVD+/-RW SuperMulti DL Drive
	Battery	6-cell (55 WHr) Lithium-Ion
	Power	External 90-watt Smart AC adapter

Standard Features

	Warranty	3 Year Limited Warranty

6710b RM224UT#ABA Smart Buy	Processor	Intel Core 2 Duo Processor T7300 (2.00-GHz, 800-FSB, 4-MB L2 cache)*
	Operating System	Genuine Windows Vista Business** Office Ready
	System Memory	1024-MB 667-MHz DDR2 SDRAM (1 DIMM)
	Hard Drive	120-GB 5400 rpm SATA HDD
	Display	15.4-inch diagonal WXGA anti-glare (1280 x 800)
	Graphics	Mobile Intel Graphics Media Accelerator X3100, up to 384 MB of shared memory
	Audio	High Definition Audio w/24-bit DAC line out/headphone and microphone jacks integrated microphone
	Communications	56K Modem Broadcom NetLink Gigabit Ethernet PCI Controller (10/100/1000 NIC)
	Integrated Wireless	Intel PRO/Wireless 4965AGN Network Connection HP Integrated Module with Bluetooth Wireless Technology\
	Broadband Wireless	HP hs2300 HSDPA Broadband Wireless Module (requires mobile network operator service)
	Integrated Security	TPM 1.2 Embedded Security Chip HP Fingerprint Sensor
	Pointing Device	Touchpad with scroll zone, two pick buttons
	Optical Drive	LightScribe DVD+/-RW SuperMulti DL Drive
	Battery	6-cell (55 WHr) Lithium-Ion
	Power	External 90-watt Smart AC adapter
	Warranty	3 Year Limited Warranty

6710b RM209UA#ABA	Processor	Intel Core 2 Duo Processor T7300 (2.00-GHz, 800-FSB, 4-MB L2 cache)*
	Operating System	Genuine Windows Vista Business** Office Ready
	System Memory	1024-MB 667-MHz DDR2 SDRAM (1 DIMM)
	Hard Drive	120-GB 5400 rpm SATA HDD
	Display	15.4-inch diagonal WXGA anti-glare (1280 x 800)
	Graphics	Mobile Intel Graphics Media Accelerator X3100, up to 384 MB of shared memory
	Audio	High Definition Audio w/24-bit DAC line out/headphone and microphone jacks integrated microphone
	Communications	56K Modem Broadcom NetLink Gigabit Ethernet PCI Controller (10/100/1000 NIC)
	Integrated Wireless	Intel PRO/Wireless 3945ABG Network Connection HP Integrated Module with Bluetooth Wireless Technology
	Broadband Wireless	HP ev2200 1xEV-DO Broadband Wireless Module (requires Verizon Wireless Service)
	Integrated Security	TPM 1.2 Embedded Security Chip HP Fingerprint Sensor
	Pointing Device	Touchpad with scroll zone, two pick buttons

Standard Features

	Optical Drive	DVD+/-RW SuperMulti DL Drive
	Battery	6-cell (55 WHr) Lithium-Ion
	Power	External 90-watt Smart AC adapter
	Warranty	3 Year Limited Warranty

6710b RM208UA#ABA	Processor	Intel Core 2 Duo Processor T7300 (2.00-GHz, 800-FSB, 4-MB L2 cache)*
	Operating System	Genuine Windows Vista Business** Office Ready
	System Memory	1024-MB 667-MHz DDR2 SDRAM (1 DIMM)
	Hard Drive	120-GB 5400 rpm SATA HDD
	Display	15.4-inch diagonal WXGA anti-glare (1280 x 800)
	Graphics	Mobile Intel Graphics Media Accelerator X3100, up to 384 MB of shared memory
	Audio	High Definition Audio w/24-bit DAC line out/headphone and microphone jacks integrated microphone
	Communications	56K Modem Broadcom NetLink Gigabit Ethernet PCI Controller (10/100/1000 NIC)
	Integrated Wireless	Intel PRO/Wireless 3945ABG Network Connection HP Integrated Module with Bluetooth Wireless Technology
	Broadband Wireless	HP hs2300 HSDPA Broadband Wireless Module (requires mobile network operator service)
	Integrated Security	TPM 1.2 Embedded Security Chip HP Fingerprint Sensor
	Pointing Device	Touchpad with scroll zone, two pick buttons
	Optical Drive	DVD+/-RW SuperMulti DL Drive
	Battery	6-cell (55 WHr) Lithium-Ion
	Power	External 90-watt Smart AC adapter
	Warranty	3 Year Limited Warranty

* Intel's numbering is not a measurement of higher performance.
** At initial boot, either 32- or 64-bit can be selected. This is a one time selection and the other version will be deleted.

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

MultiBay II Storage (9.5-mm)	HP MultiBay II DVD-ROM Drive	PA849A
NOTE: Requires HP 3-in-1 NAS Docking Station, HP Advanced Docking Station, or HP External MultiBay II	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

Other Storage	HP 80-GB 5400rpm Primary SATA Hard Drive	ET354AA
	HP DVD+/-RW SuperMulti DL LightScribe Drive	ET353AA
	HP Notebooks USB Diskette Drive	DC361B

| Communications | Intel Wireless WiFi Link 4965AGN option kit* | RT081AA#ABA |
| | * Requires Intel Core 2 Duo processor | |

Expansion Solutions	HP Docking Station with Smart Adapter	EN488AA#ABA
	HP Advanced Docking Station with Smart Adapter	EN489AA#ABA
	HP 3-in1 NAS Docking Station	EM537AA#ABA
	HP Standard Monitor Stand	PA507A
	HP Adjustable Notebook Stand	PA508A
	HP External MultiBay II	PA509A#ABA

Power	HP 2-Bay Battery Charging Station (North America only)	DT533A#ABA
	HP 10-Bay Battery Charging Station (North America only)	DT534A#ABA
	HP Battery Adapter Kit	PK402A
	HP 90W Smart AC Adapter	ED495AA#ABA
	HP 90W Smart Auto Adapter	ED493AA
	HP 65W AC/Auto/Air Combo Smart Adapter	ED993AA#ABA
	HP 6-Cell Li-Ion Primary Battery	PB994A
	HP 8-cell Extended Life Battery	PB993A
	HP 12-cell Ultra-Capacity Battery	EJ092AA

Options

Carrying Cases	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

Security	HP PC Card Smart Card Reader with Java Card	EL347AA
	HP ProtectTools Java Card – 10 units	EL348AA
	HP/Kensington MicroSaver Security Lock	PC766A

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

Memory

667-MHz DDR2 SDRAM
Two DIMM slots supporting dual channel memory
DIMM sizes supported: 512 MB, 1024 MB, 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.

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

QuickSpecs

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		
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
80-GB 7200 rpm SMART SATA Hard Drive	One	Dedicated hard drive bay

Technical Specifications

| System Unit | Dimensions (HxWxD) | 1.4 in (at front) x 14.1 in x 10.4 in
34.9 mm (at front) x 357.0 mm x 265.0 mm |
| | Weight | 5.7 lb (2.59 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® 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

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

Technical Specifications

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.	

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

QuickSpecs

Technical Specifications

Optional HP Extended Life Battery	Dimensions (H x W x L)	1.0 x 3.9 x 8.7 in (2.5 x 10.0 x 22.0 cm)	
	Weight	1.00 lb (0.455 kg)	
	Cells/Type	8-cell Lithium-Ion	
	Energy	Watt-hour Capacity	52Wh
	Temperature	Operating (Charging)	32° to 113° F (0° to 45° C)
		Operating (Discharging)	14° to 140° F (–10° to 60° C)
		Non-operating	–4° to 140° F (–20° to 60° C)
	Battery Re-Charge Time	System in OFF mode or Standby	3 hours
		System ON	3 to 5 hours (depending on system power consumption)
		HP Fast Charge	Charges the battery up to 90% within 90 minutes when system is OFF
	Fuel Gauge	When pressed, LEDs light indicating level of charge remaining on battery	

6-Cell (55WHr) 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)
		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)	

Technical Specifications

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)	

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

80-GB 7200 rpm SATA	Drive Weight	0.25 lb (113 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 (typical reads, including settling)	**Single Track**	1 ms
		Average	10 ms
		Maximum	18 ms
	Rotational Speed	7200 rpm	
	Logical Blocks	156,301,488	
	Operating Temperature	41° to 140° F (5° to 60° C) [case temp]	
	Features	ATA Security	

Technical Specifications

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 (typical reads, including settling)	Single Track	3 ms
		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	

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 (typical reads, including settling)	Single Track	3 ms
		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 (typical reads, including settling)	Single Track	3 ms
		Average	13 ms
		Maximum	24 ms
	Rotational Speed	5400 rpm	
	Logical Blocks	156,301,488	
	Operating Temperature	41° to 140° F (5° to 60° C) [case temp]	
	Features	ATA Security	

QuickSpecs

HP Compaq 6710b Notebook PC

Technical Specifications

Removable Storage Drives

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 DL 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	

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Technical Specifications

	Max Media Capacity (write)	8.5 GB	
	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	

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

QuickSpecs

Technical Specifications

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
	Integrated Microphone	Yes
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 Stereo Speakers	Power Rating	2 Watts
	Impedance	4 Ohms

Communications

Integrated Broadcom NetLink Gigabit Ethernet Controller (10/100/1000 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) 1000 Mbit/s operation (1000BASE-T; IEEE 802.3z and 802.3ab; IEEE 802.3 clauses 34-42) Auto-Negotiation (Automatic Speed Selection) Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/s IEEE 802.1p QoS (Quality of Service) Support IEEE 802.3x Flow Control (IEEE 802.3 clauses 31-32; configurable)
	Power Management	ACPI compliant -- multiple power modes Situation-sensitive features reduce power consumption
	Performance Features	TCP/IP/UDP Checksum Offload (configurable)
	Manageability	Wake-on-LAN from standby and hibernation (Magic Packet and Microsoft Wake-Up Frame); Wake-on-LAN from off (Magic Packet only) PXE 2.1 Remote Boot Statistics Gathering (SNMP MIB II, Ethernet-like MIB, Ethernet MIB (802.3x, clause 30)) Comprehensive diagnostic and configuration software suite

Technical Specifications

	Interface	PCI Express x1
	NIC Device Driver Name	Broadcom NetLink Gigabit Ethernet
	Drivers Available	Microsoft Windows Vista Microsoft Windows XP

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 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

QuickSpecs

Technical Specifications

HP ev2200 1xEV-DO Broadband Wireless Module		
Band and Power Class	0 (North American Cellular) – Class III; 1 (North American PCS) – Class II	
Wireless Protocol Standards	CDMA 1x Release 0/A; IS-95A, IS-95B, IS-2000	
Wireless Parametric Standards	Meets or exceeds TIA/EIA IS-98-D	
Interoperability	CDG 22 (TIA/EIA/IS-95-A) CDG 53(TIA/EIA/IS-95-B) C.S0031 (TIA/EIA/IS-2000) CDG 64 (TIA/EIA/IS-2000) C.S0032 (TIA/EIA/IS-866)	
Frequency Band	Dual Band: 850 MHz (Cellular) and 1900 MHz (PCS)	
Data Rates (Packet Mode)	IS-856 rates up to 2.4 Mbps IS-2000 data rates up to 307.2 kbps	
Maximum Output Power	24dBm (+/-1)	
Power Consumption (maximum)	500mA	
Power Consumption, Sleep Mode	1.7mA – 3.5mA	
Power Management	USB selective suspend CDMA slotted mode sleep and dormant modes	
Antenna Type	High efficiency dual band antennae with spatial diversity, mounted in the display enclosure	
Form Factor	PCI-Express MiniCard	
Weight	0.35 oz (10 g)	
Dimensions (Length x Width x Thickness)	2.01 x 1.18 x 0.18 in (51 x 30 x 4.5 mm)	
Voltage, Operating	3.3v +/- 10%	
Temperature, Operating (from TIA/EIA/IS-98-D)	–22° to 140° F (–30° to 60° C) (full RF performance) –22° to 167° F (–30° to 75° C) (reduced RF performance)	
Temperature, Non-operating, 96 hours (from MIL-STD 202 Method 108)	–40° to 185° F (–40° to 85° C)	
Humidity, Non-operating	85% relative humidity for 48 hours @ 185° F (85° C) (non-condensing)	
Configuration Utilities	Verizon Wireless VZAccess Manager	
LED Activity	LED Off – Radio Off; Solid LED On – Radio On	

Technical Specifications

HP hs2300 HSDPA Broadband Wireless Module	Frequency Bands and Power Class	850/1900/2100MHz WCDMA Power class 3 (+24dBm) 850MHz GSM/GPRS/EDGE 900MHz GSM/GPRS/EDGE, 1800MHz GSM/GPRS/EDGE 1900MHz GSM/GPRS/EDGE EDGE E2 power GPRS/EDGE Multislot Class 12 GPRS PCS/DCS power class 1 GSM power class 4
	Wireless Protocol Standards	GPRS/EDGE: 3GPP R99 GERAN P1 WCDMA Release 5 (R5) High-Speed Downlink Packet Access (HSDPA) 3.6Mbps GSM Phase 2+
	Wireless Parametric Standards	Complies with 3GPP specifications
	Additional Standards Compliance	FCC parts 15/22/24, CE, Microsoft WHQL, R&TTE directive 1999/5/EC (health, safety, EMC, spectrum), GCF-CC (Module), European Union Directive 2002/95/EC (restrictions of the use of certain Hazardous Substances (RoHS) in electronic equipment), Infrastructure Interoperability Testing (IOT)
	Data Rates (Packet Mode)	Designed maximum data rate: EDGE 118 kbps UL / 236 kbps DL UMTS 384 kbps UL / 384 kbps DL HSDPA 384 kbps UL / 3.6 Mbps DL
	Chipset and Module	Qualcomm MSM6280 chipset; Sierra Wireless MC8775 module
	Maximum Output Power	32 dBm (+/-2) GSM/EDGE GMSK mode
	Power Consumption (maximum)	800mA
	Power Consumption, Sleep Mode	4 – 8mA
	Power Management	USB Selective Suspend sleep and standby mode
	Antenna Type	High efficiency 5- band antennae, mounted in the display enclosure
	Form Factor	PCI-Express MiniCard
	Weight	0.35 oz (10 g)
	Dimensions (Length x Width x Thickness)	2.01 x 1.18 x 0.18 in (51 x 30 x 4.5 mm)
	Voltage, Operating	3.3v +/- 10%
	Temperature, Operating	–22° to 140° F (–30° to 60° C) (full RF performance) –22° to 167° F (–30° to 75° C) (reduced RF performance)
	Temperature, Non-operating, 96 hours (from MIL-STD 202 Method 108)	–40° to 185° F (–40° to 85° C)
	Humidity, Non-operating	85% relative humidity for 48 hours @ 185° F (85° C) (non-condensing)
	LED Activity	LED Off – Radio Off; Solid LED On – Radio On
	Configuration Utilities	Varies per country and mobile network operator

Technical Specifications

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 Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
	Roaming	IEEE 802.11 compliant roaming between access points
	Output Power (for CKK)[2]	15 dBm
	Output Power (for OFDM; power varies by 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 (@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%

Technical Specifications

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:

- Microsoft Windows XP Wireless Network Connection Manager
- Intel PROSet for Microsoft Windows 2000 or XP (required for Cisco Compatible Extensions support)

Microsoft Windows Vista

- Microsoft Windows Vista Wireless Network Connection Manager

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

1. Check latest software/driver release for updates on supported security features.
2. Maximum output power may vary by country according to local regulations.
3. In Power Save Polling mode.
4. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).
5. WLAN supplier's client utility is required for Cisco Compatible Extensions support with Microsoft Windows 2000 or XP. WLAN may also be compatible with certain third-party software supplicants.

Intel Wireless WiFi Link 4965AGN

Wireless LAN Standards	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n (draft 1.02)
Interoperability	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)
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 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
Modulation	Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM, BPSK, QPSK, 16-QAM, 64-QAM
Security[1]	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. 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.

Technical Specifications

Sub-channels	Multinational support with frequency bands and channels compliant to local regulations.
Media Access Protocol	CSMA/CA (Collision Avoidance) with ACK
Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
Roaming	IEEE 802.11 compliant roaming between access points
Output Power (for CKK)[2]	15 dBm
Output Power (for OFDM; power varies by data rate)[2]	15 dBm
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 Non-operating	32° to 176° F (0° to 80° C) –40° to 176° F (–40° to 80° C)
Humidity	Operating Non-operating	10% to 90% (non-condensing) 5% to 90% (non-condensing)
Altitude	Operating Non-operating	0 to 10,000 ft (3,048 m) 0 to 50,000 ft (15,240 m)

Technical Specifications

	Configuration Utility[5]	Microsoft Windows 2000 or XP Choice of Configuration Utility:

- Microsoft Windows XP Wireless Network Connection Manager
- Intel PROSet for Microsoft Windows 2000 or XP (required for Cisco Compatible Extensions support)

Microsoft Windows Vista

- Microsoft Windows Vista Wireless Network Connection Manager

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

1. Check latest software/driver release for updates on supported security features.
2. Maximum output power may vary by country according to local regulations.
3. In Power Save Polling mode 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	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 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 (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. 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.
	Sub-channels	Multinational support with frequency bands and channels compliant to local regulations.
	Media Access Protocol	CSMA/CA (Collision Avoidance) with ACK
	Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
	Roaming	IEEE 802.11 compliant roaming between access points
	Output Power (for CKK)[2]	15 dBm
	Output Power (for OFDM; power varies by data rate)[2]	15 dBm

Technical Specifications

Power Consumption	Transmit: 1.6 Watts (average) Receive: 1.1 Watts (average) 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]	54 Mbps: -74 dBm, 6 Mbps: -90 dBm	
Antenna Connections	2 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 Non-operating	32° to 176° F (0° to 80° C) –40° to 176° F (–40° to 80° C)
Humidity	Operating Non-operating	10% to 90% (non-condensing) 5% to 90% (non-condensing)
Altitude	Operating Non-operating	0 to 10,000 ft (3,048 m) 0 to 50,000 ft (15,240 m)

Configuration Utility[5]   Microsoft Windows 2000 or XP
          Choice of Configuration Utility:

- Microsoft Windows XP Wireless Network Connection Manager
- Intel PROSet for Microsoft Windows 2000 or XP (required for Cisco Compatible Extensions support)

     Microsoft Windows Vista

- Microsoft Windows Vista Wireless Network Connection Manager

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

1. Check latest software/driver release for updates on supported security features.
2. Maximum output power may vary by country according to local regulations.
3. In Power Save Polling mode 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.

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 http://www.hp.com/go/notebooks/WLAN)

Technical Specifications

Frequency Band	2.4 GHz and 5 GHz
Data Rates	802.11b: 1, 2, 5.5, 11 Mbps 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
Modulation	Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM
Security[1]	Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated AES, 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, LEAP, EAP-FAST. Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program Version 4).
Sub-channels	Multinational support with frequency bands and channels compliant to local regulations.
Media Access Protocol	CSMA/CA (Collision Avoidance) with ACK
Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
Roaming	IEEE 802.11 compliant roaming between access points
Output Power (for CKK)[2]	17.5 dBm
Output Power (for OFDM; power varies by data rate)[2]	15 dBm
Power Consumption	Transmit: 2.0 W (max) Receive: 1.5 W (max) Idle mode[3]: 390 mW (nominal) Sleep mode: 20 mW (max)
Power Management	ACPI compliant power management 802.11 compliant power saving mode
Receiver 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)
Humidity	Operating 10% to 90% (non-condensing) Non-operating 5% to 95% (non-condensing)
Altitude	Operating 0 to 10,000 ft (3,048 m) Non-operating 0 to 50,000 ft (15,240 m)

Technical Specifications

Configuration Utility[5]	Microsoft Windows 2000 or XP	

   Choice of Configuration Utility:

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

Microsoft Windows Vista

- Microsoft Windows Vista Wireless Network Connection Manager

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

1. Check latest software/driver release for updates on supported security features.
2. Maximum output power may vary by country according to local regulations.
3. In Power Save Polling mode.
4. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).
5. WLAN supplier's client utility is required for Cisco Compatible Extensions support with Microsoft Windows 2000 or XP. WLAN may also be compatible with certain third-party software supplicants.

HP Integrated Module with Bluetooth Wireless Technology	Bluetooth Specification	2.0 Compliant
	Dimensions	1.02 x 0.55 x 0.22 in (26 x 14 x 5.7 mm)
	Frequency Band	2402 to 2480 MHz
	Number of Available Channels	79 (1 MHz) available channels
	Data Rates and Throughput	3 Mbps data rate; throughput up to 2.17 Mbps
		Synchronous Connection Oriented links up to 3, 64 kbps, voice channels
		Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric or 1306.9 kbps symmetric
	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

Technical Specifications

Certifications	All necessary regulatory approvals for supported countries, including:			
	FCC (47 CFR) Part 15C, Section 15.247 & 15.249			
	ETS 300 328, ETS 300 826			
	Low Voltage Directive IEC950			
	UL, CSA, and CE Mark			

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

Bluetooth Profiles Supported

(with Bluetooth for Windows 4.0 software)

Serial Port Profile (SPP)*

Dial-Up Networking (DUN)*

Generic Object Exchange Profile (GOEP)

Object Push Profile (OPP)*

File Transfer Profile (FTP)

Synchronization Profile (SYNC)

Hard Copy Cable Replacement (HCRP)*

Personal Area Networking Profile (PAN)*

Human Interface Device Profile (HID)*

FAX Profile (FAX)

Basic Imaging Profile (BIP)

Headset Profile (HSP)

Hands Free Profile (HFP)

Advanced Audio Distribution Profile (A2DP)

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

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 (CECP)
- 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	13.92 W	13.95 W	13.65 W
Sleep (Energy Star low power mode)	0.9 W	1.11 W	0.87 W
Off	1.19 W	1.4 W	1.18 W
Heat Dissipation*	115 VAC	230 VAC	100 VAC

Technical Specifications

Normal Operation	47.495 BTU/hr	47.597 BTU/hr	46.573 BTU/hr
Sleep	3.07 BTU/hr	3.787 BTU/hr	2.968 BTU/hr
Off	4.06 BTU/hr	4.776 BTU/hr	4.026 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	3.1	21.4
Operating mode (HDD)	3.1	22.2

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:

- Mercury greater the 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)

Technical Specifications

- 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 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)

Technical Specifications

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