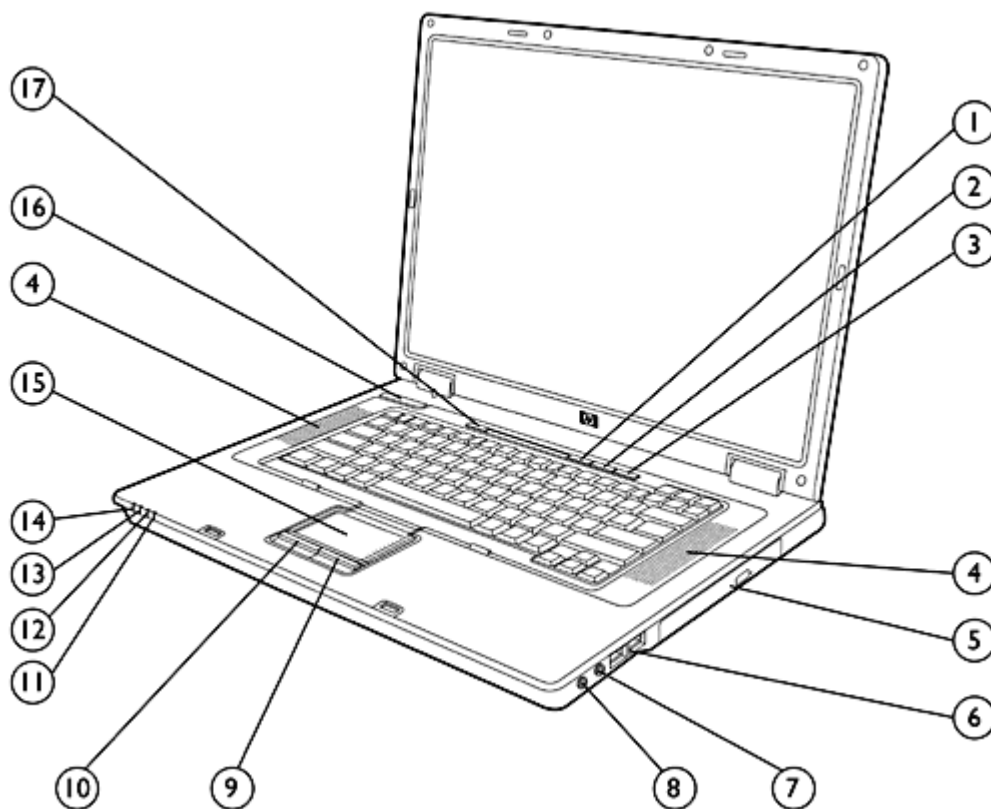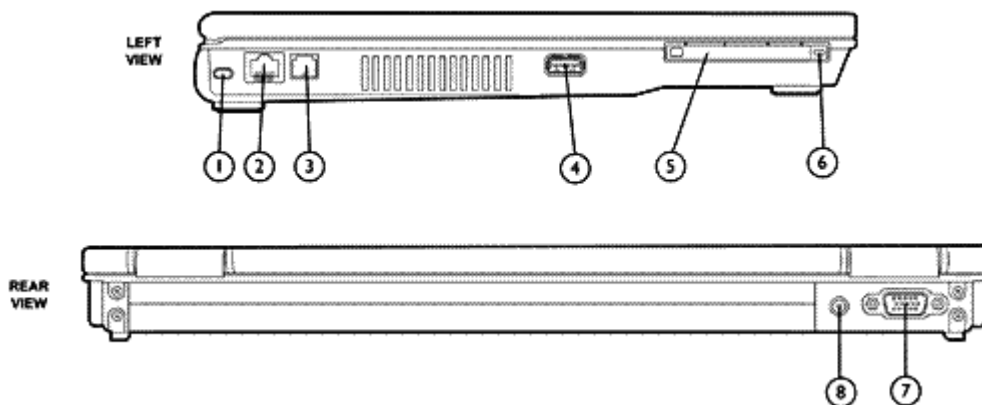Overview

1. Volume Mute Button with LED
2. Volume Down Button
3. Volume Up Button
4. Stereo Speakers
5. Integrated Optical Drive (optional)
6. 2 USB 2.0 Ports
7. Microphone Jack
8. Headphone Jack
9. Right Touchpad Button

10. Left Touchpad Button
11. Internal Storage Activity LED
12. Battery Charging LED
13. Power/Standby LED
14. Wireless On/Off LED
15. Touchpad with scroll zone
16. Power Button with LED
17. Wireless On/Off Button with LED

Overview

LEFT VIEW

REAR VIEW

1. Kensington Lock Slot
2. RJ-45 Port (NIC)
3. RJ-11 Port (Modem)
4. USB 2.0 Port

5. PC Card Slot
6. PC Card Eject Button
7. VGA/External Monitor Port
8. Power Connector

At A Glance

- Genuine Windows XP Embedded
- Sleek light-weight design starting at 5.4 lb (2.45 kg) and 1.2 inch (30 mm) thin at front
- 15.4-inch wide screen display
- Intel® Celeron® M processor
- Mobile Intel 945GM Express Chipset
- 1GB of 667 MHz DDR2 SDRAM
- Intel Graphics Media Accelerator 950
- 1 GB Flash Module
- Optional DVD-ROM Drive
- 802.11 a/b/g wireless LAN module
- Protected by a one-year standard parts and labor warranty – certain restrictions and exclusions apply.

Standard Features

Processors	Intel Celeron M Processor 423* (1.06-GHz, 1-MB L2 cache, 533-MHz FSB)	
	* Intel's numbering is not a measurement of higher performance.	
	NOTE: Processor speed denotes maximum performance mode; processors will run at lower speeds in battery optimization mode.	

Operating System	Preinstalled	Genuine Windows XP Embedded

Chipset	Mobile Intel 945GM Express Chipset

Graphics	Intel Graphics Media Accelerator 950 with up to 224-MB shared system memory Microsoft DirectX 9 capable

Display	Internal	15.4-inch WXGA display with 1280 x 800 resolution
	External	Up to 32-bit per pixel color depth VGA port supports resolutions up to 2048 x 1536 at 75 Hz, and lower resolutions at up to 100 Hz NOTE: Resolutions are dependent upon monitor capability, and resolution and color depth settings.

Memory	Standard	1024-MB 667-MHz DDR2 SDRAM SODIMM; one SODIMM slot
	Maximum	Supports up to 2048-MB maximum
	NOTE: Due to the non-industry standard nature of some third-party memory modules, we recommend HP branded memory to ensure compatibility.	

Communications	Integrated Broadcom 10/100 Ethernet PCI Controller 56K V.92 modem* with digital line guard
	* Designed for downloads from 56K modem compliant sources. Maximum achievable download transmission rates currently do not reach 56 KB/s, and will vary with line conditions. Modem availability is subject to country regulatory approval.

Standard Features

Integrated wireless LAN	Broadcom 4311AG WiFi Adapter	Integrated support for 802.11 a, b and g Up to 54-mbps data rate Wi-Fi certified for WPA2, WMM Cisco Compatible Extensions support (Version 4.0) Wired Equivalent Privacy (WEP) support up to 128-bit keys Wi-Fi Protected Access (WPA) and WPA2 support 802.1x authentication support, including EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, and LEAP Advanced Encryption Standard (AES) support s Dual antennas integrated in the display enclosure
Keyboard	The 101/102-key compatible keyboard features an industry standard, full-pitch key layout with desktop keyboard features, such as the isolated inverted-T cursor control keys, editing keys, both left and right control and alt keys, and 12 function keys. US and International key layouts are available. Other features include an integrated numeric keypad, hotkeys for instant access to power conservation, brightness, and other features, 19-mm x 19-mm key pitch (center-to-center spacing), 2.5-mm stroke, comfort-dished keycaps, and bright key legends for improved visibility in low light conditions.	
One-Touch Productivity Buttons	Provide one-touch access to the following features: Wireless On/Off, Volume down, Volume up, and Volume Mute.	
Pointing Device	Touchpad with scroll zone and two soft-touch buttons	
Expansion Card Slots	One Type I/II PC Card slot	Supports 32-bit CardBus and 16-bit PC Cards
Internal Storage	Primary Storage	1 GB Flash Module
	Optional Fixed Optical Drive	DVD-ROM

Standard Features

Interfaces	PC Card Slot	One – Type I/II
	External Monitor	One – VGA
	External Microphone	One
	Headphone/Line out	One
	Power Connector	One
	RJ-11 (Modem)	One
	RJ-45 (NIC)	One
	USB 2.0	Three
	Docking Connector	One
	Accessory Battery Connector	One
	LED Status Indicators	Nine

Audio

ADI1981HD High Definition CODEC
Integrated 16-bit Sound Blaster Pro compatible audio
24-bit DAC
Integrated stereo speakers
External volume up, volume down, and mute buttons
Stereo headphone/line out
Stereo microphone in

Software	Preinstalled Software	Enhanced Write Filter
		Altiris Deployment Client
		HP ThinState Tools
		HP Session Allocation Manager
		Microsoft RDP
		Citrix ICA
		HP Quick Launch Buttons
		TeemNT Terminal Emulation
		PDF Complete
		Intervideo WinDVD
	Additional software available from the Web	HP RGS Graphics Compression Client HP OpenView Client Configuration Manager

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

Standard Features

Security	Standard Features	Configuration Control Hardware Memory Change Alert Ownership Tag Setup Password Power-On Password Kensington Lock Slot

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

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

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

Battery Life	Primary Battery	Up to 5 hours
	Primary Battery and optional HP 8-Cell Extended Life Battery	Up to 10 hours and 45 minutes
	Primary Battery and optional HP 12-Cell 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

Power Conservation	Standby ACPI compliance

QuickSpecs

Standard Features

Docking	HP Docking Station

HP's shared docking solution provides simple and convenient port replication and cable management. Supported features include 10/100 Ethernet NIC pass through, modem pass through, legacy parallel and serial ports, USB 2.0 ports, and integrated security mechanism.* This docking solution is compatible across multiple Business Notebook platforms enabling a lower total cost of ownership.

*HP/Kensington Cable Lock required (purchased separately)

Service and Support	HP Services includes a one-year standard parts and labor warranty, pick-up or carry-in, and toll-free 7 x 24 hardware technical phone support (depending on model). On-site service and warranty upgrades are also available.

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

Select Model(s)

6720t KL145AA#ABA (English) KL145AA#ABC (Fr CAN) Regional	
Processor	Intel Celeron M Processor 423 (1.06 GHz)
Operating System	Genuine Windows XP Embedded
System Memory	1024MB 667MHz DDR2 SDRAM (1 DIMM)
Internal Storage	1 GB Flash Module
Display	15.4-inch diagonal WXGA anti-glare
Graphics	Intel GMA 950, up to 224MB shared system memory
Audio	ADI High Definition CODEC Stereo headphone/line out and microphone in Integrated microphone
Communications	Integrated Broadcom 10/100 Ethernet Controller 56K V.92 modem
Integrated Wireless	Broadcom 4311AG 802.11a/b/g
Pointing Device	Touchpad with scroll zone
Optical Drive	none
Battery	6-cell (43 WHr) Lithium-Ion
Power	External 65W adapter
Warranty	1/1/0

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

Standard Features

6720t KL145AT#ABA (English) KL145AT#ABC (Fr CAN) Smart Buy	Processor	Intel Celeron M Processor 423 (1.06 GHz)
	Operating System	Genuine Windows XP Embedded
	System Memory	1024MB 667MHz DDR2 SDRAM (1 DIMM)
	Internal Storage	1 GB Flash Module
	Display	15.4-inch diagonal WXGA anti-glare
	Graphics	Intel GMA 950, up to 224MB shared system memory
	Audio	ADI High Definition CODEC Stereo headphone/line out and microphone in Integrated microphone
	Communications	Integrated Broadcom 10/100 Ethernet Controller 56K V.92 modem
	Integrated Wireless	Broadcom 4311AG 802.11a/b/g
	Pointing Device	Touchpad with scroll zone
	Optical Drive	none
	Battery	6-cell (43 WHr) Lithium-Ion
	Power	External 65W adapter
	Warranty	1/1/0

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

6720t KL147AA#ABA (English) KL147AA#ABC (Fr CAN) Regional	Processor	Intel Celeron M Processor 423 (1.06 GHz)
	Operating System	Genuine Windows XP Embedded
	System Memory	1024MB 667MHz DDR2 SDRAM (1 DIMM)
	Internal Storage	1 GB Flash Module
	Display	15.4-inch diagonal WXGA anti-glare
	Graphics	Intel GMA 950, up to 224MB shared system memory
	Audio	ADI High Definition CODEC Stereo headphone/line out and microphone in Integrated microphone
	Communications	Integrated Broadcom 10/100 Ethernet Controller 56K V.92 modem
	Integrated Wireless	Broadcom 4311AG 802.11a/b/g
	Pointing Device	Touchpad with scroll zone
	Optical Drive	8x DVD
	Battery	6-cell (43 WHr) Lithium-Ion
	Power	External 65W adapter
	Warranty	1/1/0

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

Standard Features

6720t		
KL147AT#ABA (English)	Processor	Intel Celeron M Processor 423 (1.06 GHz)
KL147AT#ABC (Fr CAN)	Operating System	Genuine Windows XP Embedded
Smart Buy	System Memory	1024MB 667MHz DDR2 SDRAM (1 DIMM)
	Internal Storage	1 GB Flash Module
	Display	15.4-inch diagonal WXGA anti-glare
	Graphics	Intel GMA 950, up to 224MB shared system memory
	Audio	ADI High Definition CODEC
		Stereo headphone/line out and microphone in
		Integrated microphone
	Communications	Integrated Broadcom 10/100 Ethernet Controller
		56K V.92 modem
	Integrated Wireless	Broadcom 4311AG 802.11a/b/g
	Pointing Device	Touchpad with scroll zone
	Optical Drive	8x DVD
	Battery	6-cell (43 WHr) Lithium-Ion
	Power	External 65W adapter
	Warranty	1/1/0

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

Options

| Memory | 1-GB 667-MHz DDR2 SDRAM | EM994AA |
| | 2-GB 667-MHz DDR2 SDRAM | EM995AA |

| Other Storage | HP USB Diskette Drive | DC361B |

Expansion Solutions	HP Docking Station	EN488AA#ABA
	HP Monitor Stand	PA507A
	HP Adjustable Notebook Stand	PA508A

Power	HP 1-bay Battery Charging Station	RW635AA#ABA
	HP 5-bay Battery Charging Station	RW636AA#ABA
	Battery Adapter Kit	RW637AA
	65W Smart AC Adapter	ED494AA#ABA
	90W Smart AC Adapter	ED495AA#ABA
	90W Smart Auto Adapter	ED493AA
	65W Air/Auto/AC Smart Combo Adapter	ED993AA#ABA
	6-cell 47Whr Li Ion Battery	TBD
	HP 8-cell Extended Life Battery	PB993A
	HP 12-cell Ultra-Capacity Battery	EJ092AA

Carrying Cases	HP Basic Carrying Case	AJ078AA
	HP Value Nylon Case	RR314AA
	HP Universal Nylon Case	RR315AA
	HP Executive Leather Case	RR316AA
	HP Deluxe Nylon Backpack	RR317AA
	HP Deluxe Roller Case	GD405AA

| Security | HP/Kensington MicroSaver Security Lock | PC766A |

| Input/Output Devices | USB/PS2 Optical Mouse | DC369A |
| | HP USB Optical Travel Mouse | RH304AA |

Memory

Supports up to 2048 MB* of 667-MHz DDR2 SDRAM
One DIMM slots
DIMM sizes supported: 1024 MB and 2048 MB

Standard Memory   1024 MB (1024 MB x 1)

Optional Memory Upgrades Support for up to 2048 MB* of memory is available (with the installation of optional DDR2 SDRAM memory kit). Memory slot is user accessible. Please refer to the Hardware and Software Guide for installation procedures.

Up to	Slot 1
2048 MB	2048 MB

NOTE: 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.

Memory Upgrades   2-GB 667-MHz DDR2 SDRAM   EM995AA

Storage

Removable Media Drive Support

	Quantity Supported	Drive Bay
DVD-ROM Drive	One	Fixed optical drive bay

Internal Storage Support

	Quantity Supported	Drive Bay
Primary Hard Drives		
1 GB Flash Module	One	Flash Drive Bay

Technical Specifications

System Unit	Dimensions (HxWxD)	1.2 in (at front) x 14.1 in x 10.2 in 30 mm (at front) x 357 mm x 260 mm	
	Weight	5.4 lb (2.45 kg)	

NOTE: Height varies depending upon where on the notebook the measurement is made. Weight includes 6-cell battery, 1 GB memory, 1 GB flash module, 802.11 wireless communications module. Weight varies by configuration and components.

	Stand-Alone Power Requirements	Normal Operating Voltage	19 V
		Average Operating Power	25 W
		Max Operating Power	< 65 W
	Temperature	Operating	32° to 95° F (0° to 35° C)
		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
		ICES	Yes
		Australia / NZ A-Tick Compliance	Yes
		CCC	Yes
		Japan VCCI Compliance	Yes
		MIC	Yes
		BSMI	Yes

QuickSpecs

Technical Specifications

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

47Wh Primary 6-Cell Battery	Dimensions (H x W x L)	0.8 x 1.9 x 10.6 in (2.0 x 4.8 x 27.0 cm)	
	Weight	0.74 lb (0.336 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 Technology	Charges the battery up to 90% within 1.5 hours when system is OFF

Technical Specifications

Optional HP 8-Cell 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 Technology	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	

Optional HP 12-Cell 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	System in OFF mode or Standby	3 to 4 hours
		System ON	4 to 5 hours (depending on system power consumption)
	Fuel Gauge	When pressed, LEDs light indicating level of charge remaining on battery	

Technical Specifications

15.4-inch Color TFT WXGA Display	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	170 nit (typical)	
	Pixel Resolution	Pitch	0.259 mm
		Format	1280 x 800
		Configuration	RGB stripe
	Backlight	CCFL	
	PPI	98	
	Viewing Angle	±45° Horizontal, ±25° Vertical (typical)	

Internal Storage

1 GB Flash Module Drive (PATA)	Interface	Standard ATA / IDE
	Connector	40-pin (2.54mm pitch) / 44-pin (2.00mm pitch)
	Capacities	64MB~8GB
	Transfer mode	PIO Mode-4; MWDMA Mode-2
	Sustained Read/Write Performance	11 / 7 (MB/sec)
	ECC Support	3 random 12 bit symbol ECC per 512 bytes (RS)
	Low Power Consumption (3.3V/5.0V)	Active mode: 35mA/55mA Sleep mode: 100μA/150μA
	Security function	Write protection jumper (Optional) Factory-programmed, up to 20-byte unique ID (Software Protect mechanism) Protection Zone (Optional)
	Product types	Standard, Low-profile, Housing, Through Pin, Dual Through Pin
	Orientation	90D, 180D, 270D

Removable Storage Drives – Fixed Bay

Technical Specifications

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	

PremierSound Audio

Hardware	Implementation	ADI1981HD High Definition CODEC
	Volume Controls	Up, down, and mute buttons
	Full Duplex	Yes
	Sound Blaster Pro compatible	Yes
	Microphone Jack	Stereo or mono
	Headphone/Line Out Jack	Stereo

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

Internal Speakers	Power Rating	2 Watts
	Impedance	4 Ohms

Communications

Technical Specifications

Integrated Broadcom 10/100 Ethernet PCI Controller (BCM4401)	Ethernet Features	10 Mbit/s operation (10BASE-T; IEEE 802.3i; IEEE 802.3 clauses 13-14)
		100 Mbit/s operation (100BASE-TX; IEEE 802.3u; IEEE 802.3 clauses 21-30)
		Auto-Negotiation (Automatic Speed Selection)
		Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/s
		IEEE 802.3x Flow Control (IEEE 802.3 clauses 31-32; configurable)
	Power Management	ACPI compliant – multiple power modes Situation-sensitive features reduce power consumption
	Manageability	Wake-on-LAN from standby (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)
		Comprehensive diagnostic and configuration software suite
	Interface	32-bit PCI, 33-MHz
	NIC Device Driver Name	Broadcom 440X 10/100 Integrated Controller

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

Technical Specifications

Fax Mode Capabilities	TIA/EIA-578-B (Class 1)
	T.30, T.4 (Group 3)
	V.17
	V.29
	V.27ter
	V.21 Channel 2
Command Set	V.250 (Partial)
	TIA-602
	Identification: +GMI, +GMM, +GMR
	Port control: +IPR, +ICF, +IFC, +ILRR
	Modulation: +MS, +MR, +MA
	Error control: +ES, +ER, +EB, +ESR, +ETBM
	Data compression: +DS, +DR
	V.251

Broadcom 4311AG 802.11a/b/g WiFi Adapter	Wireless LAN Standards	IEEE 802.11a
		IEEE 802.11b
		IEEE 802.11g
	Interoperability	Wi-Fi certified
		Cisco Compatible Extensions Program compliant
		(details at: www.hp.com/go/notebooks/WLAN)
	Frequency Band	2.4 GHz and 5 GHz
	Data Rates	802.11b: 1, 2, 5.5, 11 Mbps
		802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
	Modulation	Direct Sequence Spread Spectrum
		DBPSK, DQPSK, CCK, OFDM
	Security[1]	Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated AES, 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, LEAP, EAP-FAST, EAP-SIM.
		Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program Version 4).
	Sub-channels	Multinational support with frequency bands and channels compliant to local regulations.
	Media Access Protocol	CSMA/CA (Collision Avoidance) with ACK
	Network Architecture Models	Ad-hoc (Peer to Peer)
		Infrastructure (Access Point Required)
	Roaming	IEEE 802.11 compliant roaming between access points
	Output Power (for CKK)[2]	17.5 dBm
	Output Power (for OFDM, power varies by data rate)[2]	15 dBm

Technical Specifications

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 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 95% (non-condensing)
Altitude	Operating Non-operating	0 to 10,000 ft (3,048 m) 0 to 50,000 ft (15,240 m)
Configuration Utility[5]	Choice of Configuration Utility:	

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

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

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

Technical Specifications

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:

- (NEED CERTIFICATIONS)

	System Configuration	The configuration used for the Energy Consumption and Declared Noise Emissions data is based on [add configuration here]

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