Overview
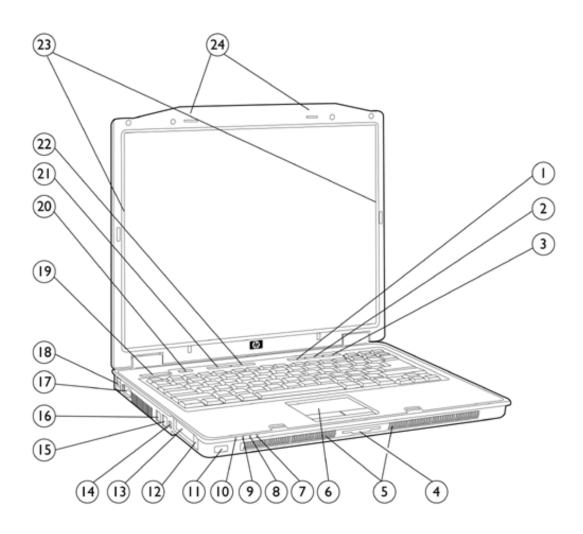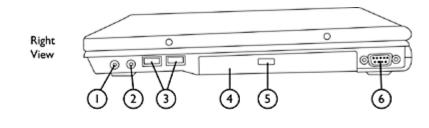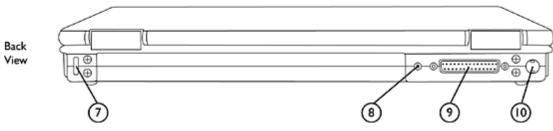

1. Volume Mute Button with LED
2. Volume Down Button
3. Volume Up Button
4. 6-in-1 Media Reader
5. Stereo Speakers
6. Touchpad with Scroll Zone
7. Hard Drive Activity LED
8. Battery Charging LED
9. Power/Standby LED
10. Wireless On/Off
11. Fast Infrared Port
12. PC Card Eject Button

13. PC Card Slots
14. IEEE 1394 Port
15. RJ-45 Port (NIC)
16. RJ-11 Port (Modem)
17. VGA/External Monitor Connector
18. 2 USB 2.0 Ports
19. Power Button with LED
20. HP Info Center Button
21. Wireless On/Off Button with LED
22. Presentation Mode Button
23. Dual-band Wireless LAN Antennas
24. WWAN Antennas

Overview

1. Headphone Jack
2. Microphone Jack
3. 2 USB 2.0 Ports
4. Optical Drive
5. Optical Drive Button

6. Serial Port
7. Kensington Lock Slot
8. DC Power Connector
9. Parallel Port
10. S-Video TV Out

At A Glance

- Genuine Windows XP Professional
- Intel® Pentium® M processors 750 or 760*
- Sleek industrial design starting at 6.06 lb/2.75 kg and 1.2-inch/30.3 mm thin at front
- Mobile Intel 915GM Express Chipset
- 512-MB DDR SDRAM, upgradeable to 2048-MB maximum
- Up to 60-GB 5400 rpm hard drive
- Choice of optical drive: DVD/CD-RW Combo, DVD+/-RW with Double Layer Technology
- Intel Graphics Media Accelerator 900
- Integrated 802.11a/b/g wireless LAN module
- Integrated HP ev2200 1xEV-DO Broadband Wireless module
- Intel Centrino™ mobile technology
- Integrated Bluetooth®
- 6-in-1 Media Reader
- NetXtreme Gigabit Ethernet Controller
- Touchpad with scroll zone
- Support for HP docking solutions and HP Travel Battery
- Security features:
    o HP ProtectTools
    o HP Drivelock
    o Kensington lock slot
- Ease of use features
    o HP Mobile Print Driver for on-the-go printing
    o HP Wireless Assistant
    o HP Info Center
    o HP Fast Charge technology
    o Up to 4 hours of battery life
- Integrated reliability features:
    o HP Mobile Data Protection System
    o HP Panel Protection System
    o Scratch-resistant keyboard using In-mold Lamination

Overview

- ○ HP spill-resistant keyboard with Mylar film
- • Protected by a three-year, standard parts and labor warranty – certain restrictions and exclusions apply

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

Standard Features

Processors	Intel Pentium M processor 760* (2.0-GHz, 533-MHz FSB, 2-MB L2 cache)	
	Intel Pentium M processor 750* (1.87-GHz, 533-MHz FSB, 2-MB L2 cache)	
	* Intel's numbering is not a measurement of higher performance.	
	NOTE: Intel Pentium M processors support enhanced Intel SpeedStep™ technology. Processor speed denotes maximum performance mode; Intel Pentium M processors will run at approximately 800 MHz in battery optimization mode.	

Operating System	Genuine Windows XP Professional SP2	
	Windows Vista Capable - Not all Windows Vista features are available for use on all Windows Vista Capable PCs. All Windows Vista Capable PCs will run the core experiences of Windows Vista, such as innovations in organizing and finding information, security, and reliability. Some features available in premium editions of Windows Vista -- like the new Windows Aero™ user interface -- require advanced or additional hardware. Check http://www.windowsvista.com/getready for details.	
	NOTE: Microsoft Windows 2000 Professional is not available pre-installed, but drivers for it are downloadable from http://www.hp.com.	

Chipset	Mobile Intel 915GM Express Chipset	

Graphics	Intel Graphics Media Accelerator 900 with up to 128-MB shared system memory	

Display	**Internal**	15.0-inch TFT XGA (1024 x 768 resolution and 16 M colors) 15.0-inch TFT SXGA+wva (1400 x 1050 resolution and 16 M colors)
	External	Up to 32-bit per pixel color depth **VGA** port supports resolutions up to 2048 x 1536 at 75 Hz, and lower resolutions at up to 100 Hz **DVI** port in optional HP Docking Station (sold separately) supports resolutions up to 1600 x 1200 at both full and reduced blanking, and 1920 x 1200 at reduced blanking **NOTE:** Resolutions are dependent upon monitor capability, and resolution and color depth settings.

Memory	**Standard**	512-MB or 1024-MB 333-MHz DDR SDRAM; two SODIMM slots
	Maximum	Upgradeable to 2048-MB maximum (1024-MB SODIMM in slots 1 and 2)
	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.	

QuickSpecs

HP Compaq nc6140 Notebook PC

Standard Features

Communications	NetXtreme Gigabit Ethernet Controller (10/100/1000 NIC)*
	56K modem** with digital line guard

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

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

Wireless Devices

Integrated wireless WAN, integrated wireless LAN, and integrated Bluetooth are Standard features.

HP ev2200 1xEV-DO Broadband Wireless Module	Integrated dual band 800-MHz (cellular) and 1900-MHz (PCS) WWAN module connects to the Verizon Wireless BroadbandAccess and NationalAccess networks Supports CDMA 1xEV-DO, 1xRTT connections NOTE: Separately purchased Verizon Wireless service is required. For details, go to http://www.hp.com/go/broadbandwireless. Two 800/1900-MHz antennas integrated in the top of the display panel for optimal reception

Intel PRO/Wireless 2915ABG 802.11 a/b/g WLAN	Intel Centrino mobile technology
	Integrated support for 802.11a, b and g
	Up to 54-mbps data rate
	Wi-Fi certified
	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 (version 3) Program
	Dual antennas integrated in the display enclosure

Integrated Bluetooth	Bluetooth Specification v2.0 compliant Works with a wide range of Bluetooth devices

Keyboard

The 101/102-key compatible keyboard features an industry standard, full-pitch key layout with desktop keyboard features, such as the isolated inverted-T cursor control keys, editing keys, both left and right control and alt keys, and 12 function keys. 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: HP Info Center, Wireless On/Off, Presentation Mode, Volume Up, Volume Down, and Volume Mute

Pointing Device

Touchpad with scroll zone, two soft-touch buttons

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QuickSpecs

Standard Features

Expansion Card Slots	Two Type I/II PC Card slots or one Type III PC Card slot	Supports 32-bit CardBus and 16-bit PC Cards

Media Slots	6-in-1 Media Reader	Supports SD (Secure Digital), MMC (MultiMediaCard), Memory Stick, Memory Stick Pro, Smart Media, xD-Picture card **CAUTION:** This notebook PC does not support Memory Stick Duo Cards or Memory Stick Duo Adapters. Inserting one of these cards or adapters into your notebook can damage the memory card or adapter and/or the notebook PC.

Storage	Hard Drives	40-, 60-GB 5400 rpm SMART
	NOTE: These hard drives are customer removable and will withstand multiple insertion/removal cycles.	
	Optical Drives	Integrated (12.7-mm) DVD/CD-RW Combo DVD+/-RW with Double Layer Technology

Interfaces	PC Card Slot(s)	Two Type I/II or One Type III
	External Monitor	One – VGA
	IEEE 1394 Port	One
	External Microphone	One
	Headphone/Line out	One
	Power Connector	One
	RJ-11 (Modem)	One
	RJ-45 (NIC)	One
	Fast Infrared Port	One (4-Mb/s support) IrDA 4-MB compliant; IR performance will vary depending on performance of IR peripherals and application used.
	Serial Port	One
	S-Video TV Out	One (Support for NTSC/PAL)
	Parallel Port	One
	USB 2.0	Four
	Docking Connector	One
	Travel Battery Connector	One
	LED Status Indicators	Thirteen

Audio	ADI AC '97 CODEC Integrated 16-bit Sound Blaster Pro compatible audio Integrated stereo speakers External volume up, volume down, and mute buttons Stereo headphone/line out Stereo microphone in

Standard Features

Software	Preinstalled Software for Microsoft Windows XP	Verizon VZAccess Manager HP Wireless Assistant Bluetooth for Windows

	Preloaded Software for Microsoft Windows XP	Adobe Acrobat Reader
		HP Local Recovery provided by Altiris*
		HP Easy Access Buttons Software
		HP Mobile Print Driver
		Synaptics Touchpad Driver
		HP Help and Support
		HP ProtectTools Security Manager:
		    BIOS Configuration for HP ProtectTools
		    Credential Manager for HP ProtectTools
		Sonic RecordNow! (for optional DVD+/-RW and DVD/CDRW drives)*
		Symantec Norton Antivirus with complimentary 60-day live update
		Intervideo WinDVD – DVD Player (for optional DVD+/-RW, DVD/CDRW and DVD drives)*

	Software on CD	Intervideo WinDVD Creator – DVD Authoring (for optional DVD+/-RW drives)
	Additional software available from the Web	HP Client Manager Software HP ProtectTools Security Manager: Smart Card Security for HP ProtectTools

* Software is loaded on the hard drive and must be installed by running the Software Setup utility.

System Recovery for Microsoft Windows XP systems only

Each unit is shipped with a recovery kit containing Operating System Recovery and Driver/Application Recovery discs. These discs allow users to either recover or repair the notebook operating system and select drivers without losing personal data. The Operating System disc also provides the option of reinstalling the operating system software provided with the notebook.

Client Management Software

HP Client Manager Software (CMS) provides asset tracking, alerting, diagnostics, and SoftPaq distribution for HP business desktops, notebooks, and workstations. HP CMS is the foundation for HP Client Management Solutions. For more information and to download HP Client Manager Software, please refer to the HP website at http://www.hp.com/go/easydeploy.

HP Local Recovery Provided by Altiris

Provides data and system file protection for HP business PCs to enable fast recovery of information that is accidentally deleted or if the system becomes corrupted. Designed for disconnected or seldom-connected users, Local Recovery protects your HP computer's data and system state by taking scheduled snapshots, which are then stored in a protected area on the local hard disk. System backup and disaster recovery is now simple and fast for all users, regardless of connectivity. For more information and to download, please refer to the HP website at http://www.hp.com/go/easydeploy.

SMBIOS Version 2.3.4

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

QuickSpecs

HP Compaq nc6140 Notebook PC

Standard Features

HP ProtectTools Security Manager	HP ProtectTools Security Manager is the security platform for business notebooks and desktops. The HP ProtectTools Security Manager is an extensible client security console that delivers enhanced security capabilities through add-on software modules. Modules currently available are: - Smart Card Security for HP ProtectTools - BIOS Configuration for HP ProtectTools - Credential Manager for HP ProtectTools

Security	Standard Features	Configuration Control Hardware Memory Change Alert Ownership Tag Setup Password Power-On Password Drivelock Enabled for PC Smart Card options Kensington Lock Slot

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

Power Supply	External 65-watt slim 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

Battery	Primary Battery	6-cell high capacity Lithium-Ion (52Wh)
	Optional Travel Battery	8-cell high capacity Lithium-Ion (52Wh)

Battery Life	Primary Battery	Up to 4 hours and 30 minutes (preliminary)
	Primary Battery and optional HP Travel Battery	Up to 10 hours (preliminary)

NOTE: Battery life will vary depending on the product configuration, product model, applications loaded on the product, power management settings of the product, and the product features used by the customer. As with all batteries, the maximum capacity of this battery will decrease with time and usage.

System Standby Time	Up to 1 week

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

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QuickSpecs

HP Compaq nc6140 Notebook PC

Standard Features

Docking	HP Basic Docking Station HP Advanced Docking Station HP Adjustable Notebook Stand HP Monitor Stand

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 Advanced Docking Station only

Service and Support

HP Services includes a three-year standard parts and labor warranty, pick-up or carry-in, and toll-free 7 x 24 hardware technical phone support (battery carries a one-year warranty). 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)

nc6140
EQ638AA#ABA
Smart Buy

Processor	Intel Pentium M processor 750* (1.87-GHz, 533-MHz FSB, 2-MB L2 cache)
Operating System	Genuine Windows XP Professional
System Memory	512-MB 333-MHz DDR SDRAM (512-MB SODIMM in slot 1)
Hard Drive	40-GB 5400 rpm
Display	15.0-inch TFT XGA with 1024 x 768 resolution (up to 16 M colors internal)
Graphics	Intel Graphics Media Accelerator 900
Video Memory	Up to 128 MB of shared video memory
Audio	ADI AC '97 CODEC, Line out/headphone and microphone jacks
Optical Drive	DVD/CD-RW Combo
Communications	56K Fax/Modem, Integrated NetXtreme Ethernet Controller (10/100/1000 NIC)
Integrated Wireless	HP ev2200 1xEV-DO Broadband Wireless Module WWAN, Intel PRO/Wireless 2915ABG 802.11 a/b/g WLAN, Bluetooth
Pointing Device	Touchpad with scroll zone
Battery	6-cell high capacity Lithium-Ion (52Wh)
Power	External 65W adapter
Warranty**	3/3/0

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Standard Features

nc6140		
EQ639AA#ABA	Processor	Intel Pentium M processor 760* (2.0-GHz, 533-MHz FSB, 2-MB L2 cache)
	Operating System	Genuine Windows XP Professional
	System Memory	1024-MB 333-MHz DDR SDRAM (512-MB SODIMMs in slots 1 and 2)
	Hard Drive	60-GB 5400 rpm
	Display	15.0-inch TFT SXGA+wva (1400 x 1050 resolution and 16 M colors)
	Graphics	Intel Graphics Media Accelerator 900
	Video Memory	Up to 128 MB of shared video memory
	Audio	ADI AC '97 CODEC, Line out/headphone and microphone jacks
	Optical Drive	DVD+/-RW with Double Layer Technology
	Communications	56K Fax/Modem, Integrated NetXtreme Ethernet Controller (10/100/1000 NIC)
	Integrated Wireless	HP ev2200 1xEV-DO Broadband Wireless Module WWAN, Intel PRO/Wireless 2915ABG 802.11 a/b/g WLAN, Bluetooth
	Pointing Device	Touchpad with scroll zone
	Battery	6-cell high capacity Lithium-Ion (52Wh)
	Power	External 65W adapter
	Warranty**	3/3/0

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

** Certain restrictions and exclusions apply.

Options

Memory	256-MB 333-MHz DDR SDRAM	DC389B
	512-MB 333-MHz DDR SDRAM	PA525A
	1024-MB 333-MHz DDR SDRAM	DC890B

Storage	60-GB 5400 rpm Primary Hard Drive	PA852A
	80-GB 5400 rpm Primary Hard Drive	EH424AA
	USB Diskette Drive	DC361B
	HP USB Digital Drive + 256-MB Secure Digital Card	DL702AA
	HP 40-GB Mobile USB Hard Drive	DQ549A

MultiBay II Storage (9.5-mm) NOTE: Requires HP External MultiBay II or HP Advanced Docking Station	8X DVD-ROM MultiBay II Drive	PA849A
	24X Combo DVD/CD-RW MultiBay II Drive	PA850A
	2X DVD+/-RW Dual Format MultiBay II Drive	PA851A
	80-GB 5400 rpm MultiBay II Hard Drive	PH357A

Communications	Intel PRO/Wireless 2200BG 802.11b/g wLAN Option Kit	PF952AA#ABA
	Intel PRO/Wireless 2915ABG 802.11a/b/g wLAN Option Kit	PN302AA#ABA

Expansion Solutions	HP Basic Docking Station	PA286A#ABA
	HP Advanced Docking Station	PA287A#ABA
	HP 3-in-1 NAS Docking Station	EM537AA#ABA
	HP External MultiBay II	PA509A#ABA
	HP Monitor Stand	PA507A
	HP Adjustable Notebook Stand	PA508A
	HP 4-port USB 2.0 Hub	DG954A

Power NOTE: HP Battery Charging Stations require use of Battery Adapter Kit.	HP 2-bay Battery Charging Station	DT533A#ABA
	HP 10-bay Battery Charging Station	DT534A#ABA
	Battery Adapter kit #1	PK402A
	65W AC Adapter	DC359A#ABA
	90W AC Adapter	DC895B#ABA
	90W Auto Adapter	DC303B
	90W Air/Auto/AC Combo Adapter	DV574A#ABA
	90W Aircraft Cables	DC899A
	Primary 6-cell Battery Pack	PB994A
	HP Common Travel Battery	PB993A

QuickSpecs

HP Compaq nc6140 Notebook PC

Options

Carrying Cases	HP Entry Value Case	DL617A
	HP Top Load Nylon	DC915A
	HP Executive Leather case	PA847A
	HP Sport Backpack	DG102A
Security	PC Card Smart Card Reader	DC350B
	HP/Kensington Cable Lock	PC766A
Input/Output Devices	USB/PS2 Keyboard	DC852A#ABA
	USB/PS2 Optical Mouse	DC369A
	HP USB Optical Travel Mouse	F2100A

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Memory

Up to 2048 MB of 333-MHz DDR SDRAM
Two DIMM slots (user accessible – one under keyboard deck, one via panel on bottom of unit)
DIMM sizes supported: 256 MB, 512 MB, or 1024 MB

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

Optional Memory Upgrades

Support for up to 2048 MB of memory is available (with the installation of optional DDR SDRAM memory kits). Both memory slots are user accessible. Please refer to the Hardware and Software Guide for installation procedures.

Up to	Slot 1	Slot 2
768 MB	512 MB	256 MB
1024 MB	1024 MB	Empty
1024 MB	512 MB	512 MB
1280 MB	1024 MB	256 MB
1536 MB	1024 MB	512 MB
2048 MB	1024 MB	1024 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

1024-MB 333-MHz DDR SDRAM	DC890B
512-MB 333-MHz DDR SDRAM	PA525A
256-MB 333-MHz DDR SDRAM	DC389B

Storage

Removable Media Drive Support

	Quantity Supported	Drive Bay
DVD+/-RW Drive with Double Layer Technology	One	Fixed optical drive bay
DVD/CD-RW Combo Drive	One	Fixed optical drive bay

Hard Drive Support

	Quantity Supported	Drive Bay
60-GB 5400 rpm SMART Hard Drive	One	Dedicated hard drive bay
40-GB 5400 rpm SMART Hard Drive	One	Dedicated hard drive bay

Technical Specifications

System Unit	Dimensions (HxWxD)	1.2 in (at front) x 12.9 in x 10.8 in
		30.3 mm (at front) x 328.6 mm x 274.3 mm
	Weight	6.06 lb (2.75 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, 40-GB hard drive, 512-MB memory, and DVD/CD-RW Combo drive. Weight varies by configuration and components.

Stand-Alone Power Requirements	Nominal Operating Voltage	18.5 V	
	Average Operating Power	21 W	
	Max Operating Power	< 65 W	
Temperature	Operating	32° to 95° F (0° to 35° C) (not writing optical)	
		41° to 95° F (5° to 35° C) (writing optical)	
	Non-operating	-4° to 140° F (-20° to 60° C)	
Relative Humidity	Operating	10% to 90% relative humidity, 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	200G, 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	Blue Angel	No	
	UL	Yes	
	Energy Star	Yes	
	Canadian Safety	Yes	
	CSA (Canada)	Yes	
	ICES	Yes	
	TUV GS	No	
	Nordic Safety	No	
	Mexican Safety	Yes	
	Poland Compliance	Yes	
	Australia / NZ Compliance	Yes	
	CCC	Yes	
	Japan Compliance	Yes	
	MIC	Yes	
	BSMI	Yes	
	CE Marking Compliance	Yes	
	KONCAR	Yes	
	GOST	Yes	
	SASO	Yes	
	SABS	Yes	
	UKRSERTCOMPUTER	Yes	

Technical Specifications

65W External AC Adapter	Weight	0.62 lb (0.28 kg) (adapter)	
		0.29 lb (0.13 kg) (power cord)	
	Dimensions	4.17 x 1.85 x 1.1 in (10.6 x 4.7 x 2.8 cm)	
	Input	Operating Input Voltage	100 to 240 VAC
		Operating Input Current	1.7A at 90 VAC
			0.85A at 180 VAC
		Operating Frequency Range	47 to 63 Hz AC
		Efficiency	83% minimum at 115 VAC
	Output	Output Power	65 W
		DC Output Current	18.5 V
	Environmental	Operating Temperature	32° to 104° F (0° to 40° C)
		Non-operating (storage) Temperature	-4° to 149° F (-20° to 65° C)
		Altitude	0 to 10,000 ft (0 to 3,048 m)
		Humidity	20% to 80%
		Storage Humidity	10% to 90%
	EMI and Safety Certifications	CE Mark: full compliance with LVD and EMC directives Worldwide safety standards: IEC950, EN60950, UL1950, Class2, SELV Agency approvals: C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCIB, NOM-1 NYCE	
	MTBF	Over 200,000 hours at 25°C ambient condition	

52Wh Primary 6-Cell 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	Voltage	10.8V
		Watt-hour Capacity	52Wh
		Amp-hour Capacity	4.8Ah
	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	Voltage	14.4V
		Watt-hour Capacity	52Wh
		Amp-hour Capacity	3.6Ah
	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	

15.0-Inch Color TFT XGA Display	Active Area (W x H)	12.0 x 9.0 in (30.4 x 22.8 cm)	
	Diagonal Size	15.0 in (38.0 cm)	
	Surface Treatment	Anti-glare	
	Number of Colors	Up to 16M	
	Contrast Ratio	300:1 (typical)	
	Refresh Rate	60 Hz	
	Brightness	150 nit (typical)	
	Pixel Resolution	Pitch	0.296 mm
		Format	1024 x 768
		Configuration	RGB Stripe
	Backlight	CCFL	
	PPI	86	
	Viewing Angle	±45° Horizontal, ±25° Vertical (typical)	

Technical Specifications

15.0-Inch Color TFT SXGA+wva Display	Active Area (W x H)	12.0 x 9.0 in (30.4 x 22.8 cm)	
	Diagonal Size	15.0 in (38.0 cm)	
	Surface Treatment	Anti-glare	
	Number of Colors	Up to 16 M	
	Contrast Ratio	300:1 (typical)	
	Refresh Rate	60 Hz	
	Brightness	180 nit (typical)	
	Pixel Resolution	Pitch	0.217 mm
		Format	1400 x 1050
		Configuration	RGB Stripe
	Backlight	CCFL	
	PPI	116	
	Character Display	80 x 25	
	Total Power Consumption	5.8 W	
	Viewing Angle	±60° Horizontal, ±50° Vertical (typical)	

Hard Drives

60-GB 5400 rpm	Drive Weight	0.22 lb (101 g)	
	Capacity	60 GB	
	Height	0.37 in (9.5 mm)	
	Width	2.75 in (70 mm)	
	Interface	ATA-7	
	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	117,210,240	
	Operating Temperature	41° to 131° F (5° to 55° C)	
	Features	ATA Security	

Technical Specifications

40-GB 5400 rpm	Drive Weight	0.22 lb (101 g)	
	Capacity	40 GB	
	Height	0.37 in (9.5 mm)	
	Width	2.75 in (70 mm)	
	Interface	ATA-7	
	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	78,140,160	
	Operating Temperature	41° to 131° F (5° to 55° C)	
	Features	ATA Security	

Removable Storage Drives – Fixed Bay

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

Technical Specifications

DVD+/-RW SuperMulti with Double Layer MultiBay II Drive	Dimensions	0.37 x 5.51 x 5.04 in (0.95 x 14.0 x 12.8 cm)	
	Weight	0.45 lb (205 g)	
	Access Times	Random	<150 ms CD
			<125 ms DVD
	Max Data Transfer Rate	24X CD-ROM	3,600 KB/s
		8X DVD	10,800 KB/s
		24X CD-R	3,600 KB/s
		10X CD-RW	1,500 KB/s
		4X DVD+R	5,400 KB/s
		2.4X DVD+RW	3,240 KB/s
		4X DVD-R	5,400 KB/s
		2X DVD-RW	2,700 KB/s
		2X DVD-RAM	2,700 KB/s
	Transfer Mode	Multiword DMA Mode 2	
	Interface	EIDE	
	Supported Media (read)	CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW	
	Supported Media (write)	CD-R, CD-RW, DVD+R, DVD+RW, DVD-R, DVD-RW	
	Max Media Capacity (read)	8.5 GB	
	Max Media Capacity (write)	4.7 GB	
	Transport	Tray Loading	

Audio

Hardware	Implementation	ADI AC '97 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

QuickSpecs

HP Compaq nc6140 Notebook PC

Technical Specifications

Audio Output Quality	Frequency Response	20 Hz - 20 kHz
	Signal to Noise Ratio	>85 dB
	Total Harmonic Distortion	0.01%
	Noise Floor	-110 dB
	Play/Record Sampling Rate(s)	7 kHz - 48 kHz
	AD/DA Resolution	16 bit

Internal Speakers	Power Rating	2 Watts
	Impedance	4 Ohms

Communications

Integrated NetXtreme 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 1.1a compliant -- multiple power modes Situation-sensitive features reduce power consumption NIC Battery Saving Mode (enabled by default)
	Performance Features	TCP/IP/UDP Checksum Offload (configurable) Microsoft Large Send Offload (configurable) TCP Segmentation Offload CPU Task Offload Adaptive Interrupts
	Manageability	Wake-on-LAN from all Power-Managed States (configurable; Magic Packet and Microsoft Wake-Up Frame) PXE 2.0 Remote Boot Statistics Gathering (SNMP MIB II, Ethernet-like MIB, Ethernet MIB (802.3x, clause 30)) Comprehensive diagnostic and configuration software suite Cable Analyzer
	NIC Device Driver Name	Broadcom NetXtreme Gigabit Ethernet
	Drivers Available	Microsoft Windows XP Microsoft Windows 2000

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Technical Specifications

Agere Systems AC'97 Modem	Form Factor	MDC 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	56K modem (a-law, mu-law)
		V.8bis
		V.80
		V44, V.42bis, MNP5 (Compression)
		V.42 (LAPM, MNP2-4) (Error Correction)
		V.34 (file date: 10/96)
		Optional symbol rates: 2800, 3429 Asymmetric Symbol rates
		Synchronous primary channel data signaling rates: 3600, 31200 Automatic rate re-negotiation 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

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: 800 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
Intel PRO/Wireless 2915ABG 802.11a/b/g WLAN	Wireless LAN Standards	IEEE 802.11a IEEE 802.11b IEEE 802.11g
	Interoperability	Wi-Fi certified Cisco Compatible Exensions Program compliant (details at http://www.hp.com/go/notebooks/WLAN)
	Frequency Band	2.4 GHz and 5 GHz

Technical Specifications

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).
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]	16 dBm +/- 2 dB
Output Power (for OFDM; power varies by data rate)[2]	15 dBm +2/-5 dB
Power Consumption	Transmit: 1.8 Watts (max) Receive: 1.4 Watts (max) Idle mode: 100 mW (nominal) Sleep mode: 60 mW (max)
Power Management	ACPI compliant power management 802.11 Compliant Power Saving Mode
Receiver Sensitivity[3]	54 Mbps: -72 dBm, 11 Mbps: -89 dBm , 1 Mbps: -97 dBm
Antenna type	High efficiency dual band antenna with polarization 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	MiniPCI Type IIIB
Weight	0.026 lb (11.75 gm) (max)
Dimensions	0.20 x 1.75 x 2.34 in (4.9 x 44.6 x 59.8 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[4]	Choice of Configuration Utility:	

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

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. 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).
4. WLAN supplier's client utility is required for Cisco Compatible Extensions support. WLAN may also be compatible with certain third-party software supplicants.

HP Integrated Module with Bluetooth Wireless Technology	Bluetooth Specification	2.0 Compliant
	Dimensions	1.02 x 0.55 x 0.22 in (26 x 14 x 5.7 mm)
	Frequency Band	2402 to 2480 MHz
	Number of Available Channels	79 (1 MHz) available channels
	Data Rates and Throughput	3 Mbps data rate; throughput up to 2.17 Mbps
		Synchronous Connection Oriented links up to 3, 64 kbps, voice channels
		Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric or 1306.9 kbps symmetric
	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	Microsoft Windows XP Professional and Home
		Microsoft Windows 2000
	Bluetooth Software Supported	Broadcom Bluetooth for Windows
		Microsoft Windows XP Bluetooth Software
	Link Topology	Point to Point, Multipoint Pico Nets up to 7 slaves
	Security	Full support of Bluetooth Security Provisions
	Power Management	Microsoft Windows ACPI, and USB Bus Support
		Self configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff
	Certifications	All necessary regulatory approvals for supported countries, including:
		FCC (47 CFR) Part 15C, Section 15.247 & 15.249
		ETS 300 328, ETS 300 826
		Low Voltage Directive IEC950
		UL, CSA, and CE Mark
	Temperature	Operating -4° to 158° F (-20° to 70° C)

Technical Specifications

	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