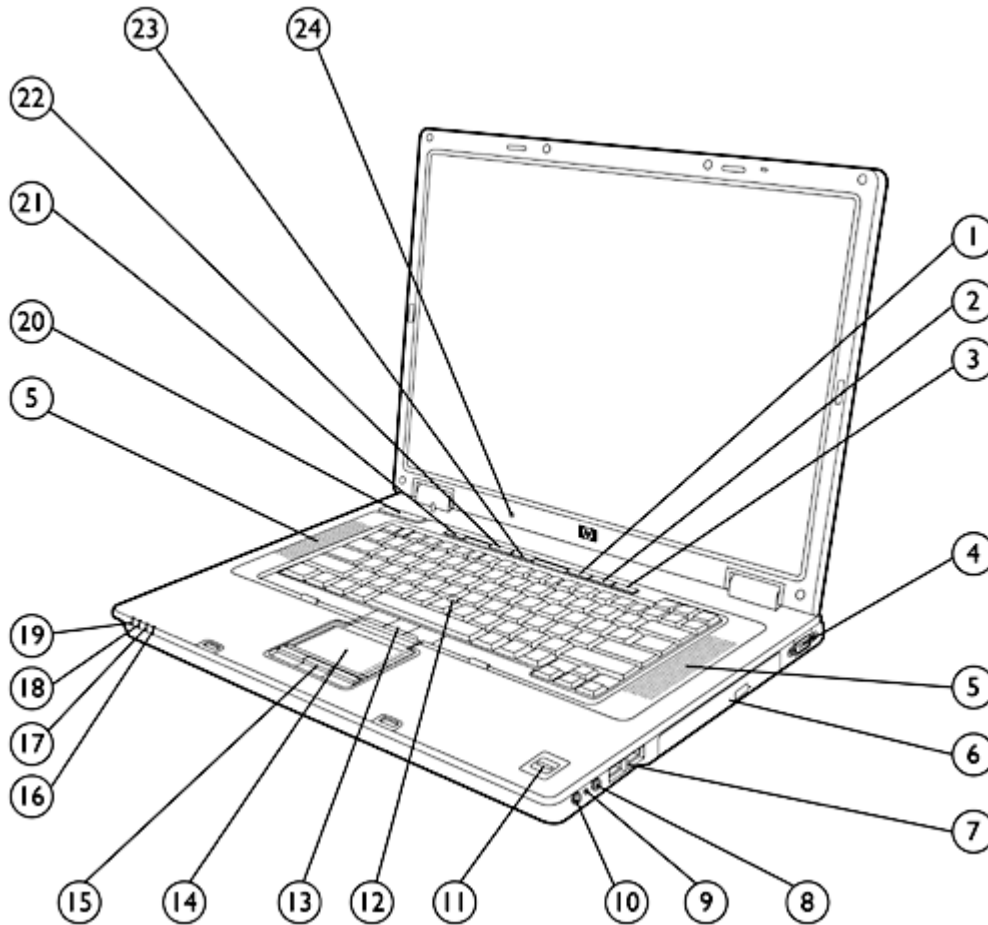


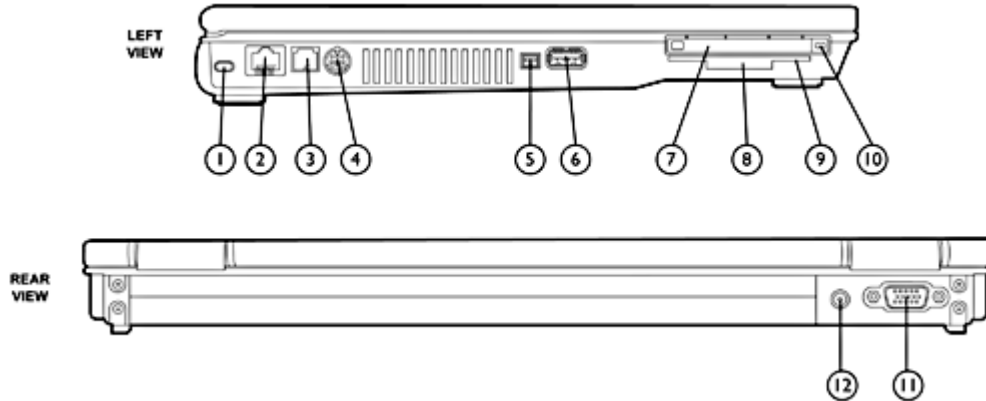
Overview

**HP recommends
Windows Vista® Business**



- | | |
|----------------------------------|-------------------------------------|
| 1. Volume Mute Button with LED | 13. Pointstick Buttons |
| 2. Volume Down Button | 14. Touchpad with scroll zone |
| 3. Volume Up Button | 15. Touchpad Buttons |
| 4. Serial Port | 16. Hard Drive Activity LED |
| 5. Stereo Speakers | 17. Battery Charging LED |
| 6. Integrated Optical Drive | 18. Power/Standby LED |
| 7. 2 USB 2.0 Ports | 19. Wireless On/Off LED |
| 8. Microphone Jack | 20. Power Button with LED |
| 9. Integrated Microphone | 21. HP Info Centre Button |
| 10. Headphone Jack | 22. Wireless On/Off Button with LED |
| 11. Biometric Fingerprint Sensor | 23. Presentation Mode Button |
| 12. Pointstick | 24. Ambient Light Sensor |

Overview



- | | |
|-------------------------|---------------------------------|
| 1. Kensington Lock Slot | 7. PC Card Slot |
| 2. RJ-45 Port (NIC) | 8. SD Media Slot |
| 3. RJ-11 Port (Modem) | 9. Integrated Smart Card Reader |
| 4. S-Video TV Out | 10. PC Card Eject Button |
| 5. IEEE 1394a Port | 11. VGA/External Monitor Port |
| 6. USB 2.0 Port | 12. Power Connector |

At A Glance

- Genuine Windows Vista Business*, Genuine Windows XP Professional, FreeDOS
- Sleek light-weight design starting at 5.95 lb (2.7 kg) and 1.1 inch (28 mm) thin at front
- Intel® Core™ Duo and Intel Core 2 Duo processors
- 15.4-inch wide screen display
- ATI Mobility FireGL V5200 graphics controller with 256 MB of discrete video memory
- Up to 4GB of 533- or 667-MHz DDR2 SDRAM, dual channel memory support
- Up to 120-GB 5400 rpm, user-removable hard drive
- Optional 802.11 a/b/g or 802.11 b/g wireless LAN modules and optional Bluetooth®
- IEEE 1394a Port
- Integrated SD Media Reader
- Security features include integrated Smart Card Reader, TPM Embedded Security Chip**, and optional Biometric Fingerprint Sensor
- Broadcom NetXtreme Gigabit Ethernet PCI Express Controller
- Certified for SUSE Linux Enterprise Desktop 10 for x86 and Novell Linux Desktop 9 SP3 for x86
- ISV certifications for popular MCAD, DCC, and GIS applications
- Protected by 3/3/3 standard parts and labour warranty – certain restrictions and exclusions apply.

* At initial boot, either 32- or 64-bit can be selected. This is a one time selection and the other version will be deleted. The 64-bit version is for Intel Core 2 Duo models only.

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

Standard Features

Processors

Intel Core 2 Duo Processor T7600 (2.33-GHz, 667-MHz FSB, 4-MB L2 cache)*
Intel Core 2 Duo Processor T7400 (2.16-GHz, 667-MHz FSB, 4-MB L2 cache)*
Intel Core 2 Duo Processor T7200 (2.0-GHz, 667-MHz FSB, 4-MB L2 cache)*
Intel Core 2 Duo Processor T5600 (1.83-GHz, 667-MHz FSB, 2-MB L2 cache)*
Intel Core Duo processor T2600* (2.16-GHz, 667-MHz FSB, 2-MB L2 cache)
Intel Core Duo processor T2500* (2.00-GHz, 667-MHz FSB, 2-MB L2 cache)
Intel Core Duo processor T2400* (1.83-GHz, 667-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 XP Professional SP2
FreeDOS

Supported

(select drivers available on
<http://www.hp.com>)

Genuine Windows Vista Enterprise[†]*
Genuine Windows Vista Home Basic 32*
Microsoft Windows 2000

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. The 64-bit version is for Intel Core 2 Duo models only.

* 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 945PM Express Chipset with 667-MHz front side bus

Graphics

ATI Mobility FireGL V5200 graphics controller with 256 MB of video memory
Microsoft DirectX 9 capable

Standard Features

Display	Internal	15.4-inch WSXGA+ wide viewing angle display with 1680 x 1050 resolution 15.4-inch WUXGA wide viewing angle display with 1920 x 1200 resolution Ambient light sensor
	External	Up to 32-bit per pixel colour 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 colour depth settings.
Memory	Standard	512-MB, 1024-MB or 2048-MB 533-MHz or 667-MHz DDR2 SDRAM SODIMMs; two SODIMM slots supporting dual channel memory
	Maximum	Upgradeable to 4096-MB maximum (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. Above 3-GB, all memory may not be available due to system resource requirements.
Communications	Integrated Broadcom NetXtreme Gigabit Ethernet PCI Express Controller (10/100/1000 NIC [*]) with HP Smart Power NIC Technology 56K V.92 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/sec. 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.	

Standard Features

Wireless Devices

Support for a broad range of secure, integrated wireless LAN options featuring support for the latest industry standards. Integrated Bluetooth is also an option (factory configurable only) and can be combined with any one of the supported wireless LAN options.

All integrated wireless LAN options	Wi-Fi certified 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 WiFi Certified for WPA2, WMM Dual antennas integrated in the display enclosure
Intel PRO/Wireless 3945ABG Network Connection	Intel Centrino mobile technology Integrated support for 802.11a, b and g Up to 54-mbps data rate
Broadcom 4311AG WiFi Adapter	Integrated support for 802.11a, b and g Up to 54-mbps data rate
Broadcom 4311BG WiFi Adapter	Integrated support for 802.11 b and g Up to 54-mbps data rate
HP Integrated Module with Bluetooth 2.0 Wireless Technology	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. 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 (centre-to-centre 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, HP Info, Presentation, Volume down, Volume up, and Volume Mute.

Pointing Device

Dual pointing devices – Touchpad with scroll zone and three soft-touch buttons and Pointstick with three soft-touch buttons

Expansion Card Slots

One Type I/II PC Card slot	Supports 32-bit CardBus and 16-bit PC Cards
One Integrated Smart Card Reader	Compatible with ISO 7816 compliant Smart Cards PC/SC interface support

Media Slots

One integrated Secure Digital slot	Supports SD (Secure Digital) and MultiMedia Card media
---	--

Standard Features

Storage

Hard Drives 60-, 80-, 100-, 120-GB 5400 rpm SMART SATA
80-, 100-GB 7200 rpm SMART SATA

NOTE: These hard drives are customer removable and will withstand multiple insertion/removal cycles. Up to 8 GB is reserved for the system recovery software.

HP Mobile Data Protection System 3D 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.

Fixed Optical Drives DVD/CD-RW Combo
DVD+/-RW SuperMulti with Double Layer
LightScribe DVD+/-RW with Double Layer

Interfaces

PC Card Slot One – Type I/II
Smart Card Reader One
External Monitor One – VGA
External Microphone One
Headphone/Line out One
Power Connector One
RJ-11 (Modem) One
RJ-45 (NIC) One
Ambient Light Sensor One
Serial Port One
IEEE 1394a Port (4-pin) One
S-Video TV Out One (Support for NTSC/PAL)
USB 2.0 Three
Docking Connector One
Accessory Battery Connector One
LED Status Indicators Eleven

Audio

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

Standard Features

Software

Preinstalled Software Microsoft Windows XP

Adobe Acrobat Reader
HP Backup and Recovery Manager
HP Help and Support Centre
HP Mobile Print Driver
HP ProtectTools Security Manager:
 BIOS Configuration for HP ProtectTools
 Embedded Security for HP ProtectTools
 Credential Manager for HP ProtectTools
HP Quick Launch Buttons
HP Wireless Assistant
HP OpenView Radia Management Solutions
HP Performance Tuning Framework
Sonic Digital Media Plus:
 RecordNow! (for optional DVD+/-RW and DVD/CDRW drives)
 MyDVD (DVD Authoring for optional DVD+/-RW drives)
Synaptics Touchpad Driver
Symantec Norton Internet Security with complimentary 60-day live update
Intervideo WinDVD – DVD Player (for optional DVD+/-RW, DVD/CDRW and DVD drives)

Additional software available from the Web

HP Client Manager Software
Smart Card Security for HP ProtectTools
Device Access Manager for HP ProtectTools

Workstation ISV Certifications

MCAD (Mechanical CAD/Architectural Engineering and Construction)

AutoDesk AutoCAD
AutoDesk Inventor
AutoDesk Revit
Bentley Microstation
Dassault Catia V5
UGS I-DEAS NX 10
UGS I-DEAS NX 11
UGS/PLM Unigraphics NX, NX2, NX3
PTC Pro/E 2001 Mechanica
PTC Pro/E Wildfire Mechanica
MSC.Patran
UGS Solidedge
Solidworks
ICEM Surf
CoCreate OneSpace Designer
SensAble
PTC DV Mockup

DCC (Digital Content Creation)

Discreet 3DS MAX/Combustion
Alias Maya
Alias Studio Tools
Avid SoftImage XSI/3D
Avid Express Pro
Adobe Premiere/After Effects

GIS (Geographic Information Systems)

ESRI ArcGIS 9

Standard Features

Oil and Gas

SMT
Landmark/GeoGrpahix
EDS
Roxar
Schlumberger/Petrel

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 8 GB is reserved for the system recovery software. HP Backup and Recovery Manager can also create software recovery CDs or DVDs (requires optional hardware).

HP OpenView Radia Management Solutions

HP OpenView Radia Management Solutions automate the management of software such as operating systems, software, software updates, content, and configuration settings to ensure that each computer is maintained in the correct configuration.

HP Client Management Interface

HP Client Management Interface is based on industry standards that include Microsoft Windows Management Interface (MS WMI), Web Based Enterprise Management (WBEM), System Management BIOS (SMBIOS), and Advanced Configuration and Power Interface (ACPI). HP CMI is a foundation technology utilized in HP Client Management Solutions.

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 or planned are:

- Smart Card Security for HP ProtectTools
- BIOS Configuration for HP ProtectTools
- Embedded Security for HP ProtectTools
- Credential Manager for HP ProtectTools
- Device Access Manager for HP ProtectTools

Standard Features

Security

Standard Features

HP ProtectTools Security Manager
Configuration Control Hardware
Memory Change Alert
Ownership Tag
Setup Password
Power-On Password
DriveLock
TPM Enhanced DriveLock*
HP Disk Sanitizer
Kensington Lock Slot
Support for Computrace / LoJack for Laptops (must be purchased separately)

Integrated Smart Card Reader

Compatible with ISO 7816 compliant Smart Cards PC/SC interface support

TPM 1.2 Embedded Security Chip*

Designed to the Trusted Computing Group (TCG) standard
Microsoft Crypto API and PKCS#11 software interface support
RSA Secured Partner program certification
***NOTE:** Full functionality of the TPM Embedded Security Chip is available only with Windows XP Professional. TPM module disabled where use is restricted by law; for example, Russia.

Optional Features

Biometric Fingerprint Sensor

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

Power Supply

External 90-watt AC adapter, 6-foot (1.8-metre) power cord included.
Total length including External AC adapter is 12 feet (3.66 metre).
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

8-cell (69Wh) 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

Standard Features

Battery Life

Primary Battery	Up to 4 hours
Primary Battery and optional HP 8-Cell Extended Life Battery	Up to 7 hours
Primary Battery and optional HP 12-Cell Ultra-Capacity Battery	Up to 9 hours and 30 minutes

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 2 weeks

Power Conservation

Supports enhanced Intel SpeedStep technology with Intel Core Duo processors (allows Battery Optimized Mode, Maximum Performance Mode, or Automatic mode)
ATI PowerPlay technology
HP Smart Power NIC technology
Hibernation
Standby
ACPI compliance

Docking

HP Docking Station
HP Advanced Docking Station

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, DVI, 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 labour on-site warranty and toll-free 7 x 24 hardware technical phone support. Warranty upgrades are also available.

NOTE: Certain restrictions and exclusions apply. Consult the HP Customer Support Centre for details.

<http://h20000.www2.hp.com/bizsupport/TechSupport/ProductRoot.jsp>.

Smart Buy Promotion Models

Smart Buy Promotion Model**

Standard Features

nw8440

EY695AA#ABA (English)

EY695AA#ABC (Fr CAN)

Processor	Intel Core Duo processor T2500* (2.00-GHz, 667-MHz FSB, 2-MB L2 cache)
Operating System	Genuine Microsoft Windows XP Professional Edition
System Memory	1-GB 533-MHz DDR2 SDRAM (1 DIMM)
Hard Drive	80-GB 5400 rpm SATA
Optical Drive	DVD+/-RW SuperMulti with Double Layer (Fixed)
Display	15.4-inch WSXGA+ wide viewing angle display (1680 x 1050 resolution)
Graphics	ATI Mobility FireGL V5200 graphics controller with 256 MB of video memory
Audio	ADI1981HD High Definition CODEC, Line out/headphone and microphone jacks
Communications	56K Fax/Modem, Broadcom NetXtreme Gigabit Ethernet PCI Express Controller (10/100/1000 NIC) with HP Smart Power NIC Technology
Integrated Wireless	Intel Pro/Wireless 802.11 a/b/g
Integrated Security	TPM 1.2 Embedded Security Chip HP Fingerprint Sensor
Pointing Device	Dual pointing devices (both Pointstick and Touchpad)
Battery	8-cell high capacity Lithium-Ion (69Wh)
Power	External 90W AC adapter
Warranty	3/3/3

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

** Specially priced product, certain restrictions apply.

Smart Buy Promotion Model**

nw8440

RB556UT#ABA (English)

RB556UT#ABC (Fr CAN)

Processor	Intel Core 2 Duo Processor T7200 (2.0-GHz, 667-MHz FSB, 4-MB L2 cache)*
Operating System	Genuine Windows XP Professional Edition
System Memory	1-GB 667-MHz DDR2 SDRAM (1 DIMM)
Hard Drive	80-GB 7200 rpm SATA
Optical Drive	DVD+/-RW SuperMulti with Double Layer (Fixed)
Display	15.4-inch WSXGA+ wide viewing angle display (1680 x 1050 resolution)
Graphics	ATI Mobility FireGL V5200 graphics controller with 256 MB of video memory
Audio	ADI1981HD High Definition CODEC, Line out/headphone and microphone jacks
Communications	56K Fax/Modem, Broadcom NetXtreme Gigabit Ethernet PCI Express Controller (10/100/1000 NIC) with HP Smart Power NIC Technology
Integrated Wireless	Intel Pro/Wireless 802.11 a/b/g
Integrated Security	TPM 1.2 Embedded Security Chip HP Fingerprint Sensor
Pointing Device	Dual pointing devices (both Pointstick and Touchpad)
Battery	8-cell high capacity Lithium-Ion (69Wh)
Power	External 90W AC adapter
Warranty	3/3/3

Standard Features

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

** Specially priced product, certain restrictions apply.

Standard Models

nw8440 EY694AA#ABA (English) EY694AA#ABC (Fr CAN)	Processor	Intel Core Duo processor T2600* (2.16-GHz, 667-MHz FSB, 2-MB L2 cache)
	Operating System	Genuine Microsoft Windows XP Professional Edition
	System Memory	1-GB 667-MHz DDR2 SDRAM (1 DIMM)
	Hard Drive	80-GB 7200 rpm SATA
	Optical Drive	DVD+/-RW SuperMulti with Double Layer (Fixed)
	Display	15.4-inch WUXGA wide viewing angle display (1920 x 1200 resolution)
	Graphics	ATI Mobility FireGL V5200 graphics controller with 256 MB of video memory
	Audio	ADI1981HD High Definition CODEC, Line out/headphone and microphone jacks
	Communications	56K Fax/Modem, Broadcom NetXtreme Gigabit Ethernet PCI Express Controller (10/100/1000 NIC) with HP Smart Power NIC Technology
	Integrated Wireless	Intel Pro/Wireless 802.11 a/b/g Integrated Bluetooth
	Integrated Security	TPM 1.2 Embedded Security Chip HP Fingerprint Sensor
	Pointing Device	Dual pointing devices (both Pointstick and Touchpad)
	Battery	8-cell high capacity Lithium-Ion (69Wh)
	Power	External 90W AC adapter
	Warranty	3/3/3

nw8440 EY697AA#ABA (English) EY697AA#ABC (Fr CAN)	Processor	Intel Core Duo processor T2600* (2.16-GHz, 667-MHz FSB, 2-MB L2 cache)
	Operating System	Genuine Microsoft Windows XP Professional Edition
	System Memory	2-GB 533-MHz DDR2 SDRAM (1 DIMM)
	Hard Drive	100-GB 7200 rpm SATA
	Optical Drive	DVD+/-RW SuperMulti with Double Layer (Fixed)
	Display	15.4-inch WUXGA wide viewing angle display (1920 x 1200 resolution)
	Graphics	ATI Mobility FireGL V5200 graphics controller with 256 MB of video memory
	Audio	ADI1981HD High Definition CODEC, Line out/headphone and microphone jacks
	Communications	56K Fax/Modem, Broadcom NetXtreme Gigabit Ethernet PCI Express Controller (10/100/1000 NIC) with HP Smart Power NIC Technology
	Integrated Wireless	Intel Pro/Wireless 802.11 a/b/g Integrated Bluetooth
	Integrated Security	TPM 1.2 Embedded Security Chip HP Fingerprint Sensor

Standard Features

Pointing Device	Dual pointing devices (both Pointstick and Touchpad)
Battery	8-cell high capacity Lithium-Ion (69Wh)
Power	External 90W AC adapter
Warranty	3/3/3

nw8440

RB557UA#ABA (English)
RB557UA#ABC (Fr CAN)

Processor	Intel Core 2 Duo Processor T7400 (2.16-GHz, 667-MHz FSB, 4-MB L2 cache)*
Operating System	Genuine Windows XP Professional Edition
System Memory	1-GB 667-MHz DDR2 SDRAM (1 DIMM)
Hard Drive	80-GB 7200 rpm SATA
Optical Drive	DVD+/-RW SuperMulti with Double Layer (Fixed)
Display	15.4-inch WSXGA+ wide viewing angle display (1680 x 1050 resolution)
Graphics	ATI Mobility FireGL V5200 graphics controller with 256 MB of video memory
Audio	ADI1981HD High Definition CODEC, Line out/headphone and microphone jacks
Communications	56K Fax/Modem, Broadcom NetXtreme Gigabit Ethernet PCI Express Controller (10/100/1000 NIC) with HP Smart Power NIC Technology
Integrated Wireless	Intel Pro/Wireless 802.11 a/b/g Integrated Bluetooth
Integrated Security	TPM 1.2 Embedded Security Chip HP Fingerprint Sensor
Pointing Device	Dual pointing devices (both Pointstick and Touchpad)
Battery	8-cell high capacity Lithium-Ion (69Wh)
Power	External 90W AC adapter
Warranty	3/3/3

nw8440

RN040AW#ABA (English)
RN040AW#ABC (Fr CAN)

Processor	Intel Core 2 Duo Processor T7400 (2.16-GHz, 667-MHz FSB, 4-MB L2 cache)*
Operating System	Genuine Windows XP Professional Edition
System Memory	1-GB 667-MHz DDR2 SDRAM (1 DIMM)
Hard Drive	80-GB 7200 rpm SATA
Optical Drive	DVD+/-RW SuperMulti with Double Layer (Fixed)
Display	15.4-inch WUXGA wide viewing angle display (1920 x 1200 resolution)
Graphics	ATI Mobility FireGL V5200 graphics controller with 256 MB of video memory
Audio	ADI1981HD High Definition CODEC, Line out/headphone and microphone jacks
Communications	56K Fax/Modem, Broadcom NetXtreme Gigabit Ethernet PCI Express Controller (10/100/1000 NIC) with HP Smart Power NIC Technology
Integrated Wireless	Intel Pro/Wireless 802.11 a/b/g Integrated Bluetooth
Integrated Security	TPM 1.2 Embedded Security Chip HP Fingerprint Sensor

Standard Features

Pointing Device	Dual pointing devices (both Pointstick and Touchpad)
Battery	8-cell high capacity Lithium-Ion (69Wh)
Power	External 90W AC adapter
Warranty	3/3/3

nw8440

RB558UA#ABA (English)
RB558UA#ABC (Fr CAN)

Processor	Intel Core 2 Duo Processor T7600 (2.33-GHz, 667-MHz FSB, 4-MB L2 cache)*
Operating System	Genuine Windows XP Professional Edition
System Memory	2-GB 667-MHz DDR2 SDRAM (1 DIMM)
Hard Drive	100-GB 7200 rpm SATA
Optical Drive	DVD+/-RW SuperMulti with Double Layer (Fixed)
Display	15.4-inch WUXGA wide viewing angle display (1920 x 1200 resolution)
Graphics	ATI Mobility FireGL V5200 graphics controller with 256 MB of video memory
Audio	ADI1981HD High Definition CODEC, Line out/headphone and microphone jacks
Communications	56K Fax/Modem, Broadcom NetXtreme Gigabit Ethernet PCI Express Controller (10/100/1000 NIC) with HP Smart Power NIC Technology
Integrated Wireless	Intel Pro/Wireless 802.11 a/b/g Integrated Bluetooth
Integrated Security	TPM 1.2 Embedded Security Chip HP Fingerprint Sensor
Pointing Device	Dual pointing devices (both Pointstick and Touchpad)
Battery	8-cell high capacity Lithium-Ion (69Wh)
Power	External 90W AC adapter
Warranty	3/3/3

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

Options

Memory	512-MB 533-MHz DDR2 SDRAM	PE831A
	1-GB 533-MHz DDR2 SDRAM	PE832A
	512-MB 667-MHz DDR2 SDRAM	EM993AA
	1-GB 667-MHz DDR2 SDRAM	EM994AA
	2-GB 667-MHz DDR2 SDRAM	EM995AA

MultiBay II Storage (9.5-mm) NOTE: Requires HP Advanced Docking Station or HP External MultiBay II	DVD-ROM MultiBay II Drive	PA849A
	Combo DVD/CD-RW MultiBay II Drive	PA850A
	DVD+/-RW SuperMultiwith Double Layer MultiBay II Drive	PA851A
	80-GB 5400 rpm MultiBay II Hard Drive	PH357A

Other Storage	80-GB 5400 rpm Primary SATA Hard Drive (Available May 2006)	ET354AA
	DVD+/-RW Double Layer Drive with LightScribe Upgrade (Available July 2006)	ET353AA
	HP USB Digital Drive + 256-MB Secure Digital Card	DL702AA
	HP USB Diskette Drive	DC361B

Communications	Intel PRO/Wireless 3945ABG 802.11 a/b/g WLAN option kit	EX150AA#ABA
-----------------------	---	-------------

Expansion Solutions	HP Docking Station	EN488AA#ABA
	HP Advanced Docking Station	EN489AA#ABA
	HP 3-in-1 NAS Docking Station	EM537AA#ABA
	HP Monitor Stand	PA507A
	HP Adjustable Notebook Stand	PA508A
	HP External MultiBay II (9.5-mm)	PA509A#ABA
	HP 4-port USB 2.0 Hub	DG954A

Power	HP 2-bay Battery Charging Station	DT533A#ABA
	HP 10-bay Battery Charging Station	DT534A#ABA
	Battery Adapter kit #1	PK402A
	90W Smart AC Adapter	ED495AA#ABA
	90W Smart Auto Adapter	ED493AA
	65W Air/Auto/AC Combo Adapter	ED993AA#ABA
	Primary 8-cell Battery Pack	PB992A
	HP 8-cell Extended Life Battery	PB993A
	HP 12-cell Ultra-Capacity Battery	EJ092AA

Options

Carrying Cases	HP Entry Value Case	DL617A
	HP Top Load Nylon Case	DC915A
	HP Executive Leather case	PA847A
	HP Sport Backpack	DG102A

Security	HP PCMCIA Smart Card Reader	DC350B
	HP/Kensington Cable Lock	PC766A

Input/Output Devices	USB/PS2 Keyboard	DC852A#ABA
	USB/PS2 Keyboard (French)	DC852A#ABC
	USB/PS2 Optical Mouse	DC369A
	HP USB Optical Travel Mouse	F2100A

SmartBuy Promotion Options***	SmartBuy Top Load Nylon Case	DC915UT
	SmartBuy Keyboard and Mouse bundle	DM687X#ABA
	SmartBuy Standard Monitor Stand	PA507UT
	SmartBuy Executive Leather/Nylon Case	PA847UT
	SmartBuy MultiBay II DVD+/-RW (using Advanced Dock or External Multibay II)	PA851UT
	SmartBuy Li-Ion 8-Cell Common Travel Battery	PB993UT
	SmartBuy Kensington Security Lock	PC766UT
	SmartBuy 400MHz/533MHz 512MB PC2-3200 DDR2	PE831UT
SmartBuy 400MHz/533MHz 1GB PC2-4200 DDR2	PE832UT	

***Specially priced product, certain restrictions apply.

Memory

Supports up to 4096 MB* of 533-MHz or 667-MHz DDR2 SDRAM
Two DIMM slots
DIMM sizes supported: 512 MB, 1024 MB, and 2048 MB

- Standard Memory**
- 512 MB (512 MB x 1)
 - 1024 MB (1024 MB x 1 or 512 MB x 2)
 - 2048 MB (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
512 MB	512 MB	Empty
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	512-MB 533-MHz DDR2 SDRAM	PE831A
	1024-MB 533-MHz DDR2 SDRAM	PE832A
	512-MB 667-MHz DDR2 SDRAM	EM993AA
	1024-MB 667-MHz DDR2 SDRAM	EM994AA
	2048-MB 667-MHz DDR2 SDRAM	EM995AA

* Above 3-GB, all memory may not be available due to system resource requirements.

Storage

Removable Media Drive Support

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

Hard Drive Support

	Quantity Supported	Drive Bay
Primary Hard Drives		
100-GB 7200 rpm SMART SATA Hard Drive	One	Dedicated hard drive bay
80-GB 7200 rpm SMART SATA Hard Drive	One	Dedicated hard drive bay
120-GB 5400 rpm SMART SATA Hard Drive	One	Dedicated hard drive bay
100-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
60-GB 5400 rpm SMART SATA Hard Drive	One	Dedicated hard drive bay

Technical Specifications

System Unit	Dimensions (HxWxD)	1.1 in (at front) x 14.1 in x 10.2 in 28 mm (at front) x 358 mm x 259 mm
	Weight	5.95 lb (2.7 kg)
	NOTE: Height varies depending upon where on the notebook the measurement is made. Weight includes 8-cell battery, 60-GB hard drive, 512-MB memory, 802.11 wireless communications module, and TPM Embedded Security Chip. Weight varies by configuration and components.	
Stand-Alone Power Requirements	Normal Operating Voltage	19 V
	Average Operating Power	39 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	Blue Angel	No
	UL	Yes
	CSA	Yes
	FCC Compliance	Yes
	Energy Star Compliant	Yes
	ICES	Yes
	GS	Yes
	Australia / NZ A-Tick Compliance	Yes
	CCC	Yes
	Japan VCCI Compliance	Yes
	MIC	Yes
	BSMI	Yes
	CE Marking Compliance	Yes
	BNCI or BELUS	Yes
	CIT	Yes
	GOST	Yes
	Saudi Arabian Compliance (ICCP)	Yes
SABS	Yes	

Technical Specifications

UKRSERTCOMPUTER Yes

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	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	Output power 65W	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	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	90W AC Adapter, power cable, warranty booklet			

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	Energy	Voltage	14.8V
		Watt-hour Capacity	95Wh	
		Amp-hour Capacity	6.45Ah	
	Temperature	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	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		

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		

69Wh Primary 8-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	0.980 lb (0.445 kg)		
	Cells/Type	8-cell Lithium-Ion		
	Energy	Voltage	14.4V	
		Watt-hour Capacity	69Wh	
		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 90 minutes when system is OFF	

Technical Specifications

15.4-inch Colour TFT WUXGA Wide Viewing Angle Display	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	170 nit (typical)	
	Pixel Resolution	Pitch	0.173 mm
		Format	1920 x 1200
		Configuration	RGB stripe
		Backlight	CCFL
	PPI	147	
	Viewing Angle	±65° Horizontal, ± 50° Vertical (typical)	

15.4-inch Colour TFT WSXGA+ Wide Viewing Angle 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	0.197 mm
		Format	1680 x 1050
		Configuration	RGB stripe
		Backlight	CCFL
	PPI	129	
	Viewing Angle	±65° Horizontal, ± 50° Vertical (typical)	

Hard Drives

Technical Specifications

100-GB 7200 rpm SATA	Drive Weight	0.25 lb (113 g)	
	Capacity	100 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	195,371,568	
	Operating Temperature	41° to 140° F (5° to 60° C) [case temp]	
Features	ATA Security		

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

120-GB 5400 rpm SATA	Drive Weight	0.25 lb (113 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	12 ms
		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		

100-GB 5400 rpm SATA	Drive Weight	0.22 lb (101 g)	
	Capacity	100 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	195,371,568	
	Operating Temperature	41° to 140° F (5° to 60° C) [case temp]	
Features	ATA Security		

Technical Specifications

80-GB 5400 rpm SATA	Drive Weight	0.22 lb (101 g)	
	Capacity	80 GB	
	Height	0.37 in (9.5 mm)	
	Width	2.75 in (70 mm)	
	Interface	ATA-7 / SATA 1.0a	
	Transfer Rate	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	

60-GB 5400 rpm SATA	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 / 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	117,231,408	
	Operating Temperature	41° to 140° F (5° to 60° C) [case temp]	
	Features	ATA Security	

Fixed Optical Drives

Technical Specifications

DVD/CD-RW Combo Drive	Access Times	Random	<110 ms CD <130 ms DVD
	Max Data Transfer Rate	24X CD-ROM	3,600 KB/s
		8X DVD	10,800 KB/s
		24X CD-R	3,600 KB/s
		24X CD-RW	3,600 KB/s
	Transfer Mode	Multiword DMA Mode 2	
	Interface	EIDE	
	Supported Media (read)	CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW	
	Supported Media (write)	CD-R, CD-RW	
	Max Media Capacity (read)	8.5 GB	
Max Media Capacity (write)	700 MB		
Transport	Tray loading		

LightScribe DVD+/-RW Drive with Double Layer	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	
	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, LightScribe		
Max Media Capacity (read)	8.5 GB		
Max Media Capacity (write)	8.5 GB		
Transport	Tray Loading		

Technical Specifications

DVD+/-RW SuperMulti Drive with Double Layer	Access Times	Random	<175 ms CD <230 ms DVD
	Max Data Transfer Rate	24X CD-ROM	3,600 KB/s
		8X DVD	10,800 KB/s
		24X CD-R	3,600 KB/s
		16X CD-RW	2,400 KB/s
		8X DVD+R	10,800 KB/s
		4X DVD+RW	5,400 KB/s
		8X DVD-R	10,800 KB/s
		4X DVD-RW	5,400 KB/s
		2.4X DVD+R(9)	2,700 KB/s
5X DVD-RAM		6,750 KB/s	
Transfer Mode	Multiword DMA Mode		
Interface	EIDE		
Supported Media (read)	CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW, DVD-RAM		
Supported Media (write)	CD-R, CD-RW, DVD+R, DVD+RW, DVD-R, DVD-RW, DVD-RAM		
Max Media Capacity (read)	8.5 GB		
Max Media Capacity (write)	8.5 GB		
Transport	Tray Loading		

HP Biometric Fingerprint Sensor (Optional)	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
		9.7mm x 0.81mm 500 ppi High-Resolution Images

Audio

Technical Specifications

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

Internal Speakers	Power Rating	2 Watts
	Impedance	4 Ohms

Communications

Integrated Broadcom NetXtreme Gigabit Ethernet PCI Express Controller (BCM5753M)	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 NIC Battery Saving Mode (enabled by default)
	Performance Features	TCP/IP/UDP Checksum Offload (configurable) TCP Segmentation Offload CPU Task Offload Adaptive Interrupts
	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,

Technical Specifications

	clause 30)) Comprehensive diagnostic and configuration software suite Cable Analyzer
Interface	PCI Express x1
NIC Device Driver Name	Broadcom NetXtreme Gigabit Ethernet
Drivers Available	Microsoft Windows XP Microsoft Windows 2000

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

Technical Specifications

Data compression: +DS, +DR
V.251

Broadcom 4311BG 802.11b/g WiFi Adapter	Wireless LAN Standards	IEEE 802.11b IEEE 802.11g
	Interoperability	Wi-Fi certified Cisco Compatible Extensions Program compliant (details at www.hp.com/go/notebooks/WLAN)
	Frequency Band	2.4 GHz
	Data Rates	802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
	Modulation	Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM
	Security¹	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 CCK)²	17.5 dBm
	Output Power (for OFDM; power varies by data rate)²	15 dBm
	Power Consumption	Transmit: 2.0 W (max) Receive: 1.5 W (max) Idle mode ³ : 390 mW (nominal) Sleep mode: 20 mW (max)
	Power Management	ACPI compliant power management 802.11 compliant power saving mode
	Receiver Sensitivity⁴	54 Mbps: -72 dBm, 11 Mbps: -88 dBm , 1 Mbps: -97 dBm
	Antenna type	High efficiency dual band antenna with spatial diversity, mounted in the display enclosure
	Range	802.11 b – Typical 1200 feet – Outdoor Open Area (@1 Mbps) 300 feet – Indoor, Office environment 802.11 g – Typical 1200 feet – Outdoor Open Area (@1 Mbps) 300 feet – Indoor, Office environment
	Form Factor	PCI-Express MiniCard
	Weight	0.026 lb (12 g)

Technical Specifications

Dimensions	0.19 x 1.2 x 2.0 in (4.75 x 29.85 x 50.8 mm)	
Operating Voltage	3.3v +/- 10%	
Temperature	Operating	32° to 176° F (0° to 80° C)
	Non-operating	-40° to 176° F (-40° to 80° C)
Humidity	Operating	10% to 90% (non-condensing)
	Non-operating	5% to 95% (non-condensing)
Altitude	Operating	0 to 10,000 ft (3,048 m)
	Non-operating	0 to 50,000 ft (15,240 m)
Configuration Utility⁵	Choice of Configuration Utility: <ul style="list-style-type: none">• Microsoft Windows XP Wireless Network Connection Manager• Broadcom Wireless Configuration Utility (required for Cisco Compatible Extensions support)	
LED Activity	LED Off – Radio OFF; Solid LED On – Radio ON	
	<ol style="list-style-type: none">1. Check latest software/driver release for updates on supported security features.2. Maximum output power may vary by country according to local regulations.3. In Power Save Polling mode.4. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CCK 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.	

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
	Security¹	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)

Technical Specifications

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)
Configuration Utility ⁵	Choice of Configuration Utility: <ul style="list-style-type: none">● Microsoft Windows XP Wireless Network Connection Manager● Broadcom Wireless Configuration Utility (required for Cisco Compatible Extensions support)	
LED Activity	LED Off – Radio OFF; Solid LED On – Radio ON	
	<ol style="list-style-type: none">1. Check latest software/driver release for updates on supported security features.2. Maximum output power may vary by country according to local regulations.3. In Power Save Polling mode.4. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).5. WLAN supplier's client utility is required for Cisco Compatible Extensions support. WLAN may also be compatible with certain third-party software supplicants.	

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 Utility⁵	Choice of Configuration Utility:	
	<ul style="list-style-type: none">• Microsoft Windows XP Wireless Network Connection Manager• Intel PROSet (required for Cisco Compatible Extensions support)	
LED Activity	LED Off – Radio OFF; Solid LED On – Radio ON	
	<ol style="list-style-type: none">1. Check latest software/driver release for updates on supported security features.2. Maximum output power may vary by country according to local regulations.3. In Power Save Polling mode.4. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).5. WLAN supplier's client utility is required for Cisco Compatible Extensions support. 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

Technical Specifications

Security	Full support of Bluetooth Security Provisions
Power Management	Microsoft Windows ACPI, and USB Bus Support Self configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff
Certifications	All necessary regulatory approvals for supported countries, including: FCC (47 CFR) Part 15C, Section 15.247 & 15.249 ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark
Temperature	Operating -4° to 158° F (-20° to 70° C) Non-operating -40° to 176° F (-40° to 80° C)
Humidity	Operating 10% to 90% Non-operating 5% to 95%
Altitude	Operating 15,000 ft (4,572 m) Non-operating 40,000 ft (12,192 m)
Bluetooth Profiles Supported	(with Bluetooth for Windows 4.0 software) Serial Port Profile (SPP)* Dial-Up Networking (DUN)* Generic Object Exchange Profile (GOEP) 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

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:

- US Energy Star
- US Federal Energy Management Program (FEMP)
- Taiwan Green Mark
- China Energy Conservation Program
- IT ECO declaration

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

23 W

23.5 W

23 W

Sleep (Energy Star low power mode)

1.72 W

1.88 W

1.73 W

Off

1.90 W

1.98 W

1.90 W

Heat Dissipation*

115 VAC

230 VAC

100 VAC

Normal Operation

78.5 BTU/hr

80.2 BTU/hr

78.5 BTU/hr

Sleep

5.9 BTU/hr

6.4 BTU/hr

5.9 BTU/hr

Off

6.5 BTU/hr

6.8 BTU/hr

6.5 BTU/hr

***NOTE:** 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)

System Fan Off

Idle

3.0

28.0

Fixed Disk
(random writes)

3.9

33.8

Optical Drive
(sequential reads)

34.0

System fan is usually off except when charging the battery.

System Fan On

Idle

29.0

34.0

Fixed Disk
(random writes)

42.0

Batteries

This product complies with ISO standards:

EU Directive 91/ 157/ EEC

EU Directive 93/ 86/ EEC

EU Directive 98/ 101/ EEC

Batteries used in the product do not contain:

Technical Specifications

Mercury greater than 5ppm by weight
Cadmium greater than 10ppm by weight
Lead greater than 4000 ppm by weight.

Battery type and chemistry used in the product:

Primary battery
8-cell high capacity extended life Lithium-Ion battery

Real Time Clock battery
CR2032 (coin cell), Lithium

Additional Information

This product is in compliance with the 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 0.055 pounds (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 85% recycle-able when properly disposed of at end of life.

Packaging

Packaging Materials

- External:
 - Corrugated Paper – 2.03 lb (920 g)
- Internal:
 - EPE Foam – 0.59 lb (266 g)
 - LDPE Bag – 0.03 lb (14 g)
 - Corrugated/Paper – 0.46 lb (210 g)
- The plastic packaging material is made from 0% recycled content.
- The corrugated paper packaging materials contains at least 80% 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

Technical Specifications

Material Usage

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.

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>

Copyright © 2007 Hewlett-Packard Development Company, L.P.

All rights reserved. Microsoft, Windows, Windows Vista, and Windows XP are registered trademarks or trademarks of Microsoft Corporation in the U.S. and/or other countries. Core Duo, Centrino, and SpeedStep are registered trademarks or trademarks of Intel Corporation in the U.S. and/or other countries. Bluetooth is a registered trademark of Bluetooth SIG, Inc., in the U.S. and other countries. All other product names mentioned herein may be trademarks of their respective companies.

The information contained herein is subject to change without notice and is provided "as is" without warranty of any kind. The warranties for HP products are set forth in the express limited warranty statements accompanying such products. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.