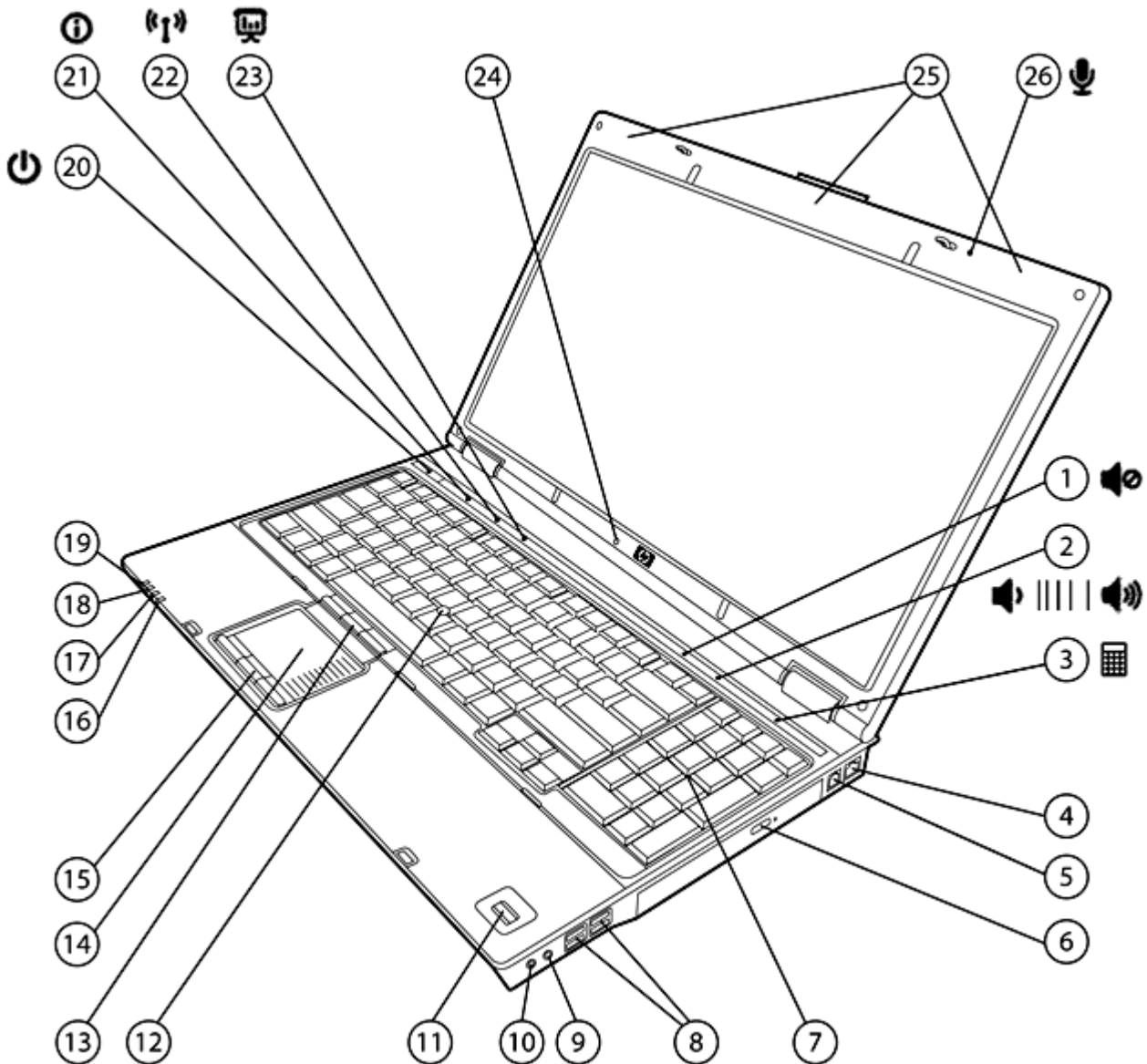


Overview

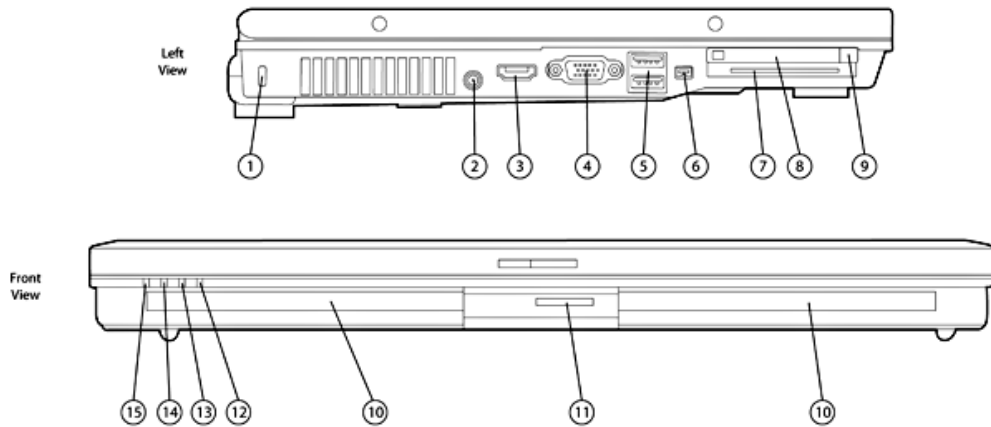
HP recommends Windows Vista® Business



- | | |
|---|--|
| 1. Volume mute button with LED indicator | 14. Touchpad with scroll zone |
| 2. Volume scroll zone with up/down LED indicators | 15. Touchpad buttons, three (two on models without Pointstick) |
| 3. Calculator button | 16. Hard drive / optical drive activity / HP 3D DriveGuard LED |
| 4. RJ-45/Ethernet port | 17. Battery charging LED |
| 5. RJ-11/modem port | 18. Power/standby LED |
| 6. Optical drive | 19. Wireless on/off LED |
| 7. Full numeric keypad | 20. Power button with LED |
| 8. 4 USB 2.0 ports | 21. HP Info / HP QuickLook button with LED indicator |

Overview

- | | |
|---|---|
| 9. Stereo microphone in | 22. Wireless on/off button with LED indicator |
| 10. Stereo headphone/line out | 23. HP Presentation button with LED indicator |
| 11. HP Fingerprint Sensor | 24. Ambient Light Sensor |
| 12. Pointstick (select models) | 25. Three WLAN antennas (with WLAN option) |
| 13. Pointstick buttons, three (select models) | 26. Integrated microphone |



- | | |
|-----------------------------------|--|
| 1. Kensington Lock slot | 9. PC Card eject button |
| 2. Power connector | 10. Integrated stereo speakers |
| 3. HDMI port | 11. Media Card Reader |
| 4. VGA/external monitor connector | 12. Hard drive activity / HP 3D DriveGuard LED |
| 5. 2 USB 2.0 ports | 13. Battery charging LED |
| 6. 1394a port | 14. Power/standby LED |
| 7. Integrated Smart Card Reader | 15. Wireless on/off LED |
| 8. Type I/II PC Card slot | |

Overview

At A Glance

- Genuine Windows Vista Business*, Genuine Windows Vista Home Basic, Genuine Windows XP Professional, or FreeDOS
- NVIDIA Quadro NVS 320M graphics with up to 256 MB dedicated memory (512 MB TurboCache)
- DirectX 10 support and Dual Link DVI (available through optional docking) provides faster rendering capabilities and support for ultra-high resolution monitors
- Intel® Centrino® with vPro™ technology capable, with Intel Core™2 Duo processors
- HDMI high definition video/audio port
- Optional Blu-Ray DVD+/-RW SuperMulti DL Drive
- Designed to travel, with weight starting at 7.5 lb/3.4 kg and 1.3-inch/33 mm thin at front
- Widescreen 17.0-inch diagonal display with wide-viewing angle (select models), BrightView (select models), Ambient Light Sensor and HP Privacy Filter support
- Integrated Media Card Reader
- Full-sized keyboard with separate numeric keypad
- Enhanced reliability with HP DuraKeys, HP DuraFinish, and magnesium alloy support structures
- Enhanced security features including integrated Smart Card Reader, Drive Encryption for HP ProtectTools, HP Fingerprint Sensor, TPM 1.2**
- HP QuickLook on Windows Vista models for instant access to email, calendar, and contact information
- Flexible wireless connectivity options:
 - Integrated 802.11 a/b/g/draft-n, a/b/g, or b/g wireless LAN module
 - Bluetooth®
- Up to 200-GB 7200 rpm user-removable hard drive with HP 3D DriveGuard protection
- Touch-sensitive controls for HP Info Center, HP QuickLook, wireless on/off, HP Presentation button, volume up, volume down, and mute
- Up to 8-GB of 667-MHz DDR2 SDRAM, dual channel memory support
- Integrated Intel Gigabit Network Connection (10/100/1000 NIC)
- Enhanced dual pointing devices (touchpad with scroll zone and pointstick) or touchpad with scroll zone only

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

** TPM module disabled where not permitted by law (for example, Russia and China).

Standard Features

Processors

Intel Core 2 Duo Processor T9500 (2.60 GHz, 6 MB L2 cache, 800 MHz FSB)*
Intel Core 2 Duo Processor T9300 (2.50 GHz, 6 MB L2 cache, 800 MHz FSB)*
Intel Core 2 Duo Processor T8300 (2.40 GHz, 3 MB L2 cache, 800 MHz FSB)*
Intel Core 2 Duo Processor T8100 (2.10 GHz, 3 MB L2 cache, 800 MHz FSB)*
Intel Core 2 Duo Processor T7800 (2.60 GHz, 4 MB L2 cache, 800 MHz FSB)*
Intel Core 2 Duo Processor T7700 (2.40 GHz, 4 MB L2 cache, 800 MHz FSB)*
Intel Core 2 Duo Processor T7500 (2.20 GHz, 4 MB L2 cache, 800 MHz FSB)*
Intel Core 2 Duo Processor T7300 (2.00 GHz, 4 MB L2 cache, 800 MHz FSB)*
Intel Core 2 Duo Processor T7250 (2.00 GHz, 2 MB L2 cache, 800 MHz FSB)*
Intel Core 2 Duo Processor T7100 (1.80 GHz, 2 MB L2 cache, 800 MHz FSB)*

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

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

Operating System

Preinstalled

Genuine Windows Vista Business†*
Genuine Windows Vista Home Basic*
Genuine Windows XP Professional
FreeDOS

Supported

Genuine Windows Vista Enterprise*
Genuine 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.

* 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 PM965 with 800-MHz front side bus

Standard Features

Intel Centrino with vPro technology capable

Intel Centrino with vPro technology is a selectable feature that is available on units configured with an Intel Wireless WiFi Link 4965AGN or 4965AG. It provides advances in remote manageability, security, energy efficient performance, and wireless connectivity. Intel Active Management Technology (AMT) offers built-in manageability and proactive security for networked notebook PCs, even when they are powered off* or when the operating system is inoperable. It can help identify threats before they reach the operating system, isolate infected systems, and update PCs regardless of their power state.

*Requires a Windows operating system, network hardware and software, connection with a power source, and a direct (non-VPN) corporate network connection which is either cable or wireless LAN.

NOTE: Some functionality of Intel Centrino Pro and vPro technology, such as Intel Active Management technology and Intel Virtualization technology, requires additional 3rd party software in order to run. Availability of future "virtual appliances" applications for Centrino Pro and vPro technology is dependant on 3rd party software providers. Compatibility with future "virtual appliances" and Microsoft Windows Vista operating system is yet to be determined.

Graphics

NVIDIA Quadro NVS 320M graphics with 256 MB dedicated video memory (512 MB TurboCache*)
Microsoft DirectX 10 support

*Indicates dedicated video memory and shared system memory.

Display

Internal

17.0-inch diagonal WXGA+ anti-glare (1440 x 900 resolution)
17.0-inch diagonal WSXGA+ anti-glare wide-viewing angle (1680 x 1050 resolution)
17.0-inch diagonal WSXGA+ wide-viewing angle BrightView (1680 x 1050 resolution)
17.0-inch diagonal WUXGA wide-viewing angle anti-glare (1920 x 1200 resolution)
Ambient light sensor
Integrated lid switch
HP Privacy Filter support

External

Up to 32-bit per pixel color depth
VGA port supports resolutions up to 2048 x 1536 at 75 Hz, and lower resolutions at up to 100 Hz
HDMI 1.2 port supports direct connection to high-definition displays with up to 1920 x 1080 resolution and 7-channel audio with one convenient cable (not included).
DVI port in optional HP Docking Station (sold separately) supports resolutions up to 1920 x 1200 for single-link DVI monitors and up to 2560 x 1600 for dual-link DVI monitors.
NOTE: Resolutions are dependent upon monitor capability and resolution and color depth settings.

Standard Features

| | | |
|---------------|---------------------|--|
| Memory | Standard | 512-MB, 1024-MB, 2048-MB, 4096, or 8192-MB 667-MHz DDR2 SDRAM; two SODIMM slots supporting dual channel memory |
| | Maximum | Upgradeable to 8192-MB with 4096-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. Full availability of 8 GB of memory requires Windows Vista Business 64-bit or Linux. With Windows 32-bit operating systems, the amount of usable memory is dependent upon your configuration, so that above 3 GB all memory may not be available due to system resource requirements.

Communications

Integrated Intel Gigabit Network Connection (10/100/1000 NIC)*
56K V.92 modem**

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

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

Wireless Devices

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

| | |
|--|---|
| All 802.11a/b/g integrated wireless LAN options | Wi-Fi certified Cisco Compatible Extensions support (Version 4.0) with Microsoft Windows XP Wired Equivalent Privacy (WEP) support up to 128-bit keys Wi-Fi Protected Access (WPA) and WPA2 support 802.1x authentication support, including EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, and LEAP Advanced Encryption Standard (AES) support WiFi certified for WPA2, WMM Three antennas integrated in the display enclosure |
| Intel Wireless WiFi Link 4965AGN | Integrated support for 802.11a, b, g, and draft-n Up to 300-mbps data rate |
| Intel Wireless WiFi Link 4965AG | Integrated support for 802.11 a, b and g Up to 54-mbps data rate |
| Intel PRO/Wireless 3945BG Network Connection | Integrated support for 802.11 b and g Up to 54-mbps data rate |
| Broadcom 4311AG 802.11a/b/g WiFi Adapter | Integrated support for 802.11 a, b and g Up to 54-mbps data rate |

Standard Features

| | |
|--|--|
| Broadcom 4311BG 802.11b/g WiFi Adapter | Integrated support for 802.11 b and g Up to 54-mbps data rate |
| HP Integrated Module with Bluetooth Wireless Technology | Bluetooth Specification v2.0 compliant Works with a wide range of Bluetooth devices |

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 a full numeric keypad, hotkeys for instant access to power conservation, brightness, and other features, 19.05-mm x 19.05-mm key pitch (center-to-center spacing), 3.0-mm stroke, and comfort-dished keycaps.

HP DuraKeys is a clear coating applied over the notebook keyboard that helps protect the finish and the printed characters on the keys.

HP DuraFinish helps protect the finish on the keyboard deck, graphics, and icons from normal wear and tear.

Touch-sensitive controls

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

Pointing device

Enhanced dual pointing devices (touchpad with scroll zone and pointstick, both with three pick buttons)
or
Touchpad with scroll zone, two pick buttons

Expansion card slots

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

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

Standard Features

Storage

Internal Storage Device 80/120/160/250-GB 5400 rpm SMART SATA Hard Drive
80/100/120/160/200-GB 7200 rpm SMART SATA Hard Drive

NOTE: Hard drives are customer removable and will withstand multiple insertion/removal cycles. Up to 10 GB is reserved for the system recovery software.

HP 3D DriveGuard The hard drive is mounted directly to the notebook frame, reducing the transmission of shock away from the hard drive. Uses three-axis digital motion detection with intelligent sensitivity to help protect the hard drive during normal use from shock and vibration. The digital accelerometer temporarily halts all data transfer and parks the hard drive when abrupt motion is detected.

Optical drives DVD-ROM Drive
DVD/CD-RW Combo Drive
DVD+/-RW SuperMulti DL Drive
DVD+/-RW SuperMulti DL LightScribe Drive
Blu-Ray Disc DVD+/-RW SuperMulti DL Drive

NOTE: Optical drive is user replacable with HP option. Requires single screw removal.

Interfaces

PC Card slot One Type I/II PC Card slot
Smart Card Reader One
Media Card Reader One
External monitor One – VGA
1394a One – 4-pin connector
Stereo microphone in One
Stereo headphone/line out One
Power connector One
RJ-11/modem One
RJ-45/Ethernet One
HDMI One – 1.2 compliant
USB 2.0 Six
Docking connector One
Secondary battery connector One
LED status indicators Sixteen

Audio

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

Standard Features

Software

Preinstalled software with Windows Vista or Windows XP

PDF Complete
HP Backup and Recovery Manager
HP Help and Support Center
HP QuickLook (Windows Vista only)
HP OpenView Radia Management Agent
HP Universal Print Driver
HP ProtectTools Security Manager:
 BIOS Configuration for HP ProtectTools
 Credential Manager for HP ProtectTools
 Device Access Manager for HP ProtectTools
 Drive Encryption for HP ProtectTools
 Embedded Security for HP ProtectTools
HP Quick Launch Buttons
HP Wireless Assistant
Microsoft Office Ready with 60-day Office Professional 2007 Trial Edition (select models)
Roxio Creator 9 (for optional DVD+/-RW and DVD/CDRW drives)
Synaptics Touchpad Driver
Symantec Norton Internet Security with complimentary 60-day live update
Intervideo WinDVD – DVD/Blu-Ray Disc Player

Software provided on disc Roxio Creator 9 (for optional Blu-Ray Disc drives)

Additional software available from the web

HP Client Manager
Java Card Security for HP ProtectTools

HP Backup and Recovery Manager

Each unit is shipped with HP Backup and Recovery Manager. HP Backup and Recovery Manager can provide data and system file protection for HP business PCs to enable fast recovery if the system becomes corrupted or if important information is accidentally deleted. HP Backup and Recovery Manager can perform scheduled or manual backups of the entire drive or individual files and folders. Up to 10 GB of the hard drive is reserved for the system recovery software. HP Backup and Recovery Manager can also create software recovery CDs or DVDs (requires optional CD-RW or DVD+/-RW hardware).

SMBIOS Version 2.4

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

HP ProtectTools Security Manager

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

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

Standard Features

Security

Standard Features

HP ProtectTools Security Manager
HP Fingerprint Sensor
Integrated Smart Card Reader
Configuration Control Hardware
Memory Change Alert
Ownership Tag
Setup Password
Power-On Password
TPM 1.2 Embedded Security Chip*
TPM Enhanced DriveLock*
HP Disk Sanitizer
HP 3D DriveGuard
Kensington Lock Slot
Support for Computrace / LoJack for Laptops (must be purchased separately)

Optional Features

HP Privacy Filter Narrows viewing area so that screen data is visible only to persons directly in front of the monitor

* TPM module disabled where use is restricted by law; for example, Russia and China.
For more information on HP security solutions refer to <http://www.hp.com/go/security>.

Power Supply

External 120-watt Smart AC adapter, 6-foot (1.8-meter) power cord included.
Total length including external AC adapter is 12 feet (3.66 meter).
HP Fast Charge*

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

Battery

Primary battery

8-cell (73 WHr) Lithium-Ion battery

Optional HP Extended Life Battery

8-cell (52 WHr) high capacity Lithium-Ion battery

Optional HP Ultra-Capacity Battery

12-cell (95 WHr) high capacity Lithium-Ion battery

Standard Features

| | | |
|---------------------|---|------------------------------|
| Battery Life | Primary battery | Up to 4 hours and 30 minutes |
| | Primary battery and optional HP Extended Life Battery | Up to 8 hours |
| | Primary battery and optional HP Ultra-Capacity Battery | Up to 10 hours |

NOTE: The listed battery life measurements were taken on models running Microsoft Windows XP Professional. Battery life will vary depending on the product configuration, product model, applications loaded on the product, power management settings of the product, and the product features used by the customer. As with all batteries, the maximum capacity of this battery will decrease with time and usage.

System Standby Time Up to 2 weeks

Power Conservation NVIDIA PowerMizer 6.0 technology
Hibernation
Standby
ACPI compliance

Docking and Stands HP Advanced Docking Station
HP Docking Station
HP Standard Monitor Stand
HP Adjustable Notebook Stand
HP External MultiBay II

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

* HP/Kensington Cable Lock required (purchased separately)

** HP 3-in-1 NAS Docking Station and HP Advanced Docking Station only

Service and Support

HP Services offers limited 3- year, 1-year and 90-day warranty options depending on country; 1-year limited warranty on primary battery. On-site service and warranty upgrades are also available. For HP Care Pack services see <http://www.hp.com/go/lookuptool>.

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

Options

| | | |
|--|--|-------------|
| Memory | HP 512-MB (DDR2 667 MHz) SODIMM | EM993AA |
| | HP 1-GB (DDR2 667 MHz) SODIMM | EM994AA |
| | HP 2-GB (DDR2 667 MHz) SODIMM | EM995AA |
| MultiBay II Storage (9.5-mm) NOTE: Requires HP 3-in-1 NAS Docking Station, HP Advanced Docking Station, or HP External MultiBay II | HP MultiBay II DVD-ROM Drive | PA849A |
| | HP MultiBay II DVD/CD-RW Combo Drive | PA850A |
| | HP MultiBay II DVD+/-RW SuperMulti DL Drive | PA851A |
| | HP 80-GB 5400rpm MultiBay II Hard Drive | PH357A |
| Other Storage | HP 80-GB 5400rpm Primary SATA Hard Drive | ET354AA |
| | HP 120-GB 5400rpm Primary SATA Hard Drive | RT080AA |
| | DVD+/-RW SuperMulti DL LightScribe Drive | ET353AA |
| | HP Notebooks USB Diskette Drive | DC361B |
| Communications | Intel Wireless WiFi Link 4965AGN option kit | RT081AA#xxx |
| Expansion Solutions | HP Docking Station with Smart Adapter | EN488AA#xxx |
| | HP Advanced Docking Station with Smart Adapter | EN489AA#xxx |
| | HP Standard Monitor Stand | PA507A |
| | HP Adjustable Notebook Stand | PA508A |
| | HP External MultiBay II | PA509A#xxx |
| Power | HP 2-Bay Battery Charging Station (North America) | DT533A#xxx |
| | HP 2-Bay Battery Charging Station (rest of world) | EW424AA#xxx |
| | HP 10-Bay Battery Charging Station (North America) | DT534A#ABA |
| | HP Battery Adapter Kit | PK402A |
| | HP 135W Smart AC Adapter | ED519AA#xxx |
| | HP 90W Smart AC Adapter | ED495AA#xxx |
| | HP 90W Smart Auto Adapter | ED493AA |
| | HP 65W AC/Auto/Air Combo Smart Adapter | ED993AA#xxx |
| | HP 8-Cell Li-Ion Primary Battery | PB992A |
| | HP 8-cell Extended Life Battery | PB993A |
| HP 12-cell Ultra-Capacity Battery | EJ092AA | |

Options

| | | |
|-----------------------|----------------------------|---------|
| Carrying Cases | HP Value Nylon Case | RR314AA |
| | HP Universal Nylon Case | RR315AA |
| | HP Executive Leather Case | RR316AA |
| | HP Deluxe Nylon Backpack | RR317AA |
| | HP Universal Messenger Bag | GD404AA |
| | HP Deluxe Roller Case | GD405AA |

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

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

* Requires [HP Docking Station](#), [HP Advanced Docking Station](#), or [HP 3-in-1 NAS Docking Station](#)

Memory

667-MHz DDR2 SDRAM
Two DIMM slots supporting dual channel memory
DIMM sizes supported: 512 MB, 1024 MB, 2048 MB, 4096 MB

- Standard Memory**
- 512 MB (512 MB x 1)
 - 1024 MB (1024 MB x 1 or 512 MB x 2)
 - 2048 MB (2048 MB x 1 or 1024 MB x 2)
 - 4096 MB (2048 MB x 2)
 - 8192 MB (4096 MB x 2)

Optional Memory Upgrades Support for up to 8192 MB of memory with the installation of optional DDR2 SDRAM memory kits. Both memory slots are user accessible. Please refer to the Hardware and Software Guide for installation procedures. Maximized dual-channel performance requires SODIMMs of the same size and speed in both memory slots.

| Up to | Slot 1 | Slot 2 |
|---------|---------|---------|
| 1024 MB | 1024 MB | Empty |
| 1024 MB | 512 MB | 512 MB |
| 1536 MB | 1024 MB | 512 MB |
| 2048 MB | 1024 MB | 1024 MB |
| 4096 MB | 2048 MB | 2048 MB |
| 8192 MB | 4096 MB | 4096 MB |

NOTE: This chart does not represent all possible memory configurations. Due to the non-industry standard nature of some third-party memory modules, we strongly recommend using only HP branded memory modules to ensure compatibility. If you mix memory speeds, the system will perform at the lower memory speed. Full availability of 8 GB of memory requires Windows Vista Business 64-bit or Linux. With Windows 32-bit operating systems, the amount of usable memory is dependent upon your configuration, so that above 3 GB all memory may not be available due to system resource requirements.

| | | |
|------------------------|----------------------------------|---------|
| Memory Upgrades | HP 512-MB (DDR2 667 MHz) SODIMM | EM993AA |
| | HP 1024-MB (DDR2 667 MHz) SODIMM | EM994AA |
| | HP 2048-MB (DDR2 667 MHz) SODIMM | EM995AA |

Storage

Optical Drive Support

| | Quantity Supported | Drive Bay |
|---|--------------------|-------------------------|
| DVD-ROM Drive | One | Fixed optical drive bay |
| DVD/CD-RW Combo Drive | One | Fixed optical drive bay |
| DVD+/-RW SuperMulti DL Drive | One | Fixed optical drive bay |
| DVD+/-RW SuperMulti DL LightScribe Drive | One | Fixed optical drive bay |
| Blu-Ray Disc DVD+/-RW SuperMulti DL Drive | One | Fixed optical drive bay |

Internal Storage Device

| | Quantity Supported | Drive Bay |
|---------------------------------------|--------------------|--------------------------|
| Primary Hard Drives | | |
| 250-GB 5400 rpm SMART SATA Hard Drive | One | Dedicated hard drive bay |
| 160-GB 5400 rpm SMART SATA Hard Drive | One | Dedicated hard drive bay |
| 120-GB 5400 rpm SMART SATA Hard Drive | One | Dedicated hard drive bay |
| 80-GB 5400 rpm SMART SATA Hard Drive | One | Dedicated hard drive bay |
| 200-GB 7200 rpm SMART SATA Hard Drive | One | Dedicated hard drive bay |
| 160-GB 7200 rpm SMART SATA Hard Drive | One | Dedicated hard drive bay |
| 120-GB 7200 rpm SMART SATA Hard Drive | One | Dedicated hard drive bay |
| 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 |

Technical Specifications

| | | |
|--------------------|--|--|
| System Unit | Dimensions (HxWxD) | 1.3 in (at front) x 15.5 in x 10.8 in 33 mm (at front) x 393 mm x 275 mm |
| | Weight | Starting from 7.5 lb (3.4 kg) |
| | NOTE: Height varies depending upon where on the notebook the measurement is made. Starting weight includes 8-cell battery, hard drive, 512-MB memory, 802.11 wireless communications module, Bluetooth, and optical drive. Weight varies by configuration and components. | |
| | Stand-Alone Power Requirements (AC Power) | Nominal Operating Voltage 18.5 V Average Operating Power 12.5 W Max Operating Power < 120 W |
| | Temperature | Operating 32° to 95° F (0° to 35° C) (not writing optical) 41° to 95° F (5° to 35° C) (writing optical) Non-operating -4° to 140° F (-20° to 60° C) |
| | Relative Humidity | Operating 10% to 90%, non-condensing Non-operating 5% to 95%, 101.6° F (38.7° C) maximum wet bulb temperature |
| | Shock | Operating 125 G, 2 ms, half-sine Non-operating 200 G, 2 ms, half-sine |
| | Random Vibration | Operating 0.75 grms Non-operating 1.50 grms |
| | Altitude (unpressurized) | Operating -50 to 10,000 ft (-15.24 to 3,048 m) Non-operating -50 to 40,000 ft (-15.24 to 12,192 m) |
| | Industry Standard Certifications | UL Yes CSA Yes FCC Compliance Yes 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 BELLIS Yes CIT Yes GOST Yes Saudi Arabian Compliance (ICCP) Yes SABS Yes UKRSERTCOMPUTER Yes |

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

Technical Specifications

HP 120W Smart AC Adapter

| | |
|--------------------------------------|---|
| Weight | 1.52 lb (0.69 kg) (adapter) 0.29 lb (0.13 kg) (power cord) |
| Dimensions | 6.65 x 2.56 x 1.50 in (16.9 x 6.5 x 3.8 cm) |
| Input | Operating Input Voltage 100 to 240 VAC Operating Input Current PFC Version: 2.20 A at 90 VAC 1.10 A at 180 VAC Non-PFC Version: 2.5 A at 110 VAC 1.25 A at 180 VAC |
| Output | Operating Frequency Range 47 to 63 Hz AC Efficiency 83% minimum at 115 VAC Output power 120 W DC Output Voltage 18.5 V |
| Environmental Design | Operating Temperature 32° to 104° F (0° to 35° 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, Class2, SELV Agency approvals: C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE, S-Mark, Australian Electric Permit, PSB, eK, BSMI, BNCI, KONCAR, GS, GOST, SASO, SABS, UKRSERTCOMPUTER NOTE: Approvals in italics apply to PFC version only. |
| MTBF | Over 200,000 hours at 25°C ambient condition |

Technical Specifications

| | | | | |
|---|--|--|-------------------------------|--|
| Optional HP Ultra-Capacity Battery | Dimensions (H x W x L) | 1.3 x 6.0 x 10.6 in (3.33 x 15.25 x 26.88 cm) | | |
| | Weight | 1.77 lb (0.803 kg) | | |
| | Cells/Type | 12-cell Lithium-Ion | | |
| | Energy | Watt-hour Capacity | 95Wh | |
| | Temperature | Operating (Charging) | 32° to 113° F (0° to 45° C) | |
| | | Operating (Discharging) | 14° to 140° F (-10° to 60° C) | |
| | | Non-operating | -4° to 140° F (-20° to 60° C) | |
| | Battery Re-Charge Time | Smart Adapter | 3 to 4 hours | |
| System ON | | 4 to 5 hours (depending on system power consumption) | | |
| Fuel Gauge | When pressed, LEDs light indicating level of charge remaining on battery | | | |

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

| | | | | |
|---|-------------------------------|---|-------------------------------|--|
| 8-Cell (73Whr) Lithium-Ion 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 | Watt-hour Capacity | 73Wh | |
| | Temperature | Operating (Charging) | 32° to 113° F (0° to 45° C) | |
| | | Operating (Discharging) | 14° to 140° F (-10° to 60° C) | |
| | | Non-operating | -4° to 140° F (-20° to 60° C) | |
| | Battery Re-Charge Time | System in OFF mode or Standby | 2.5 hours | |
| System ON | | 3 to 5 hours (depending on system power consumption) | | |
| HP Fast Charge | | Charges the battery up to 90% within 1.5 hours when system is OFF | | |

Technical Specifications

| | | | | |
|-----------------------------------|--|--------------------------------|------------|--|
| 17.0-inch WXGA+ anti-glare | Active Area (W x H) | 14.5 x 9.0 in (36.7 x 22.9 cm) | | |
| | Diagonal Size | 17.0 in (43.2 cm) | | |
| | Surface Treatment | Anti-glare | | |
| | Contrast Ratio | 300:1 typical | | |
| | Refresh Rate | 60 Hz | | |
| | Brightness | 200 nit typical | | |
| | Pixel Resolution | Pitch | 0.255 mm | |
| | | Format | 1440 x 900 | |
| | | Configuration | RGB Stripe | |
| | Backlight | CCFL | | |
| | PPI | 100 | | |
| Viewing Angle | ±30° Horizontal, ±10° Vertical (minimum) | | | |

| | | | | |
|--|--|--------------------------------|-------------|--|
| 17.0-inch WSXGA+ wide-viewing angle, anti-glare | Active Area (W x H) | 14.5 x 9.0 in (36.7 x 22.9 cm) | | |
| | Diagonal Size | 17.0 in (43.2 cm) | | |
| | Surface Treatment | Anti-glare | | |
| | Contrast Ratio | 300:1 typical | | |
| | Refresh Rate | 60 Hz | | |
| | Brightness | 200 nit typical | | |
| | Pixel Resolution | Pitch | 0.219 mm | |
| | | Format | 1680 x 1050 | |
| | | Configuration | RGB Stripe | |
| | Backlight | CCFL | | |
| | PPI | 116 | | |
| Viewing Angle | ±60° Horizontal, ±50° Vertical (minimum) | | | |

Technical Specifications

| | | | |
|---|--|--------------------------------|-------------|
| 17.0-inch WSXGA+ wide-viewing angle BrightView | Active Area (W x H) | 14.5 x 9.0 in (36.7 x 22.9 cm) | |
| | Diagonal Size | 17.0 in (43.2 cm) | |
| | Surface Treatment | BrightView | |
| | Contrast Ratio | 300:1 typical | |
| | Refresh Rate | 60 Hz | |
| | Brightness | 200 nit typical | |
| | Pixel Resolution | Pitch | 0.219 mm |
| | | Format | 1680 x 1050 |
| | | Configuration | RGB Stripe |
| | Backlight | CCFL | |
| PPI | 116 | | |
| Viewing Angle | ±60° Horizontal, ±50° Vertical (minimum) | | |

| | | | |
|---|--|--------------------------------|-------------|
| 17.0-inch WUXGA wide-viewing angle, anti-glare | Active Area (W x H) | 14.5 x 9.0 in (36.7 x 22.9 cm) | |
| | Diagonal Size | 17.0 in (43.2 cm) | |
| | Surface Treatment | Anti-glare | |
| | Contrast Ratio | 300:1 typical | |
| | Refresh Rate | 60 Hz | |
| | Brightness | 200 nit typical | |
| | Pixel Resolution | Pitch | 0.191 mm |
| | | Format | 1920 x 1200 |
| | | Configuration | RGB Stripe |
| | Backlight | CCFL | |
| PPI | 133 | | |
| Viewing Angle | ±60° Horizontal, ±50° Vertical (minimum) | | |

Hard Drives

Technical Specifications

| | | | |
|------------------------------|---|--|-------|
| 200-GB 7200 rpm SATA | Drive Weight | 0.25 lb (113 g) | |
| | Capacity | 200 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 | NEED THIS FROM HDD TEAM | |
| Operating Temperature | 41° to 140° F (5° to 60° C) [case temp] | | |
| Features | ATA Security | | |

| | | | |
|------------------------------|---|--|-------|
| 160-GB 7200 rpm SATA | Drive Weight | 0.25 lb (113 g) | |
| | Capacity | 160 GB | |
| | Height | 0.37 in (9.5 mm) | |
| | Width | 2.75 in (70 mm) | |
| | Interface | ATA-7 / SATA 1.0a | |
| | Transfer Rate | Synchronous (maximum) 100 MB/s (Drive Capability) | |
| | Seek Time (typical reads, including settling) | Single Track | 1 ms |
| | | Average | 10 ms |
| | | Maximum | 18 ms |
| | Rotational Speed | 7200 rpm | |
| | Logical Blocks | 312,581,808 | |
| Operating Temperature | 41° to 140° F (5° to 60° C) [case temp] | | |
| Features | ATA Security | | |

Technical Specifications

| | | | |
|-----------------------------|---|--|-------|
| 120-GB 7200 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 | 1 ms |
| | | Average | 10 ms |
| | | Maximum | 18 ms |
| | Rotational Speed | 7200 rpm | |
| | Logical Blocks | 234,441,648 | |
| | Operating Temperature | 41° to 140° F (5° to 60° C) [case temp] | |
| Features | ATA Security | | |

| | | | |
|-----------------------------|---|--|-------|
| 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 | | |

Technical Specifications

| | | | |
|----------------------------|---|--|-------|
| 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 | |

| | | | |
|-----------------------------|---|--|-------|
| 250-GB 5400 rpm SATA | Drive Weight | 0.22 lb (101 g) | |
| | Capacity | 250 GB | |
| | Height | 0.37 in (9.5 mm) | |
| | Width | 2.75 in (70 mm) | |
| | Interface | ATA-7 / SATA 1.0a | |
| | Transfer Rate | Synchronous (maximum) 100 MB/s (Drive Capability) | |
| | Seek Time (typical reads, including settling) | Single Track | 3 ms |
| | | Average | 13ms |
| | | Maximum | 24 ms |
| | Rotational Speed | 5400 rpm | |
| | Logical Blocks | TBD | |
| | Operating Temperature | 41° to 140° F (5° to 60° C) [case temp] | |
| | Features | ATA Security | |

Technical Specifications

| | | | |
|-----------------------------|---|--|-------|
| 160-GB 5400 rpm SATA | Drive Weight | 0.22 lb (101 g) | |
| | Capacity | 160 GB | |
| | Height | 0.37 in (9.5 mm) | |
| | Width | 2.75 in (70 mm) | |
| | Interface | ATA-7 / SATA 1.0a | |
| | Transfer Rate | Synchronous (maximum) 100 MB/s (Drive Capability) | |
| | Seek Time (typical reads, including settling) | Single Track | 3 ms |
| | | Average | 13ms |
| | | Maximum | 24 ms |
| | Rotational Speed | 5400 rpm | |
| | Logical Blocks | 312,581,808 | |
| | Operating Temperature | 41° to 140° F (5° to 60° C) [case temp] | |
| Features | ATA Security | | |

| | | | |
|-----------------------------|---|--|-------|
| 120-GB 5400 rpm SATA | Drive Weight | 0.22 lb (101 g) | |
| | Capacity | 120 GB | |
| | Height | 0.37 in (9.5 mm) | |
| | Width | 2.75 in (70 mm) | |
| | Interface | ATA-7 / SATA 1.0a | |
| | Transfer Rate | Synchronous (maximum) 100 MB/s (Drive Capability) | |
| | Seek Time (typical reads, including settling) | Single Track | 3 ms |
| | | Average | 13ms |
| | | Maximum | 24 ms |
| | Rotational Speed | 5400 rpm | |
| | Logical Blocks | 234,441,648 | |
| | Operating Temperature | 41° to 140° F (5° to 60° C) [case temp] | |
| Features | ATA Security | | |

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 | |

Optical Drives – Fixed

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

Technical Specifications

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

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

Technical Specifications

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

| | | | |
|--|-------------------------------|---------------|---|
| Blu-Ray Disc DVD+/-RW SuperMulti DL Drive | Access Times | Random | <140 ms CD-ROM <160 ms DVD-ROM <300 ms BD-ROM |
| | Max Data Transfer Rate | 24X CD-ROM | 3,600 KB/s |
| | | 8X DVD-ROM | 10,800 KB/s |
| | | 8X CD-R | 1,200 KB/s |
| | | 8X CD-RW | 1,200 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 |
| | | 1X BD-ROM | 4,500 KB/s |
| | | 1X BD-R | 4,500 KB/s |

Technical Specifications

| | | |
|-----------------------------------|---|------------|
| | 1X BD-RE | 4,500 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, BD-ROM, BD-R, BD-RE | |
| Supported Media (write) | CD-R, CD-RW, DVD+R, DVD+R(9), DVD+RW, DVD-R, DVD-R(9), DVD-RW, DVD-RAM, BD-R, BD-RE | |
| Max Media Capacity (read) | 50.0 GB | |
| Max Media Capacity (write) | 50.0 GB | |
| Transport | Tray Loading | |

Security

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

Audio

| | | |
|-----------------|--|----------------------------------|
| Hardware | Implementation | ADI1981HD High Definition CODEC |
| | Touch-Sensitive Volume Controls | Volume up, volume down, and mute |
| | Full Duplex | Yes |
| | Sound Blaster Pro compatible | Yes |
| | Microphone In | Stereo |
| | Headphone/Line Out | Stereo |
| | Integrated Microphone | Yes |

Technical Specifications

| | | |
|-----------------------------|-------------------------------------|------------------|
| Audio Output Quality | Frequency Response | 20 Hz – 20 kHz |
| | Signal to Noise Ratio | >85 dB |
| | Total Harmonic Distortion | 0.01% |
| | Noise Floor | -110 dB |
| | Play/Record Sampling Rate(s) | 8 kHz – 48kHz |
| | DAC | 16, 20 or 24-bit |
| | ADC | 16 or 20-bit |

| | | |
|-----------------------------------|---------------------|---------|
| Integrated Stereo Speakers | Power Rating | 2 Watts |
| | Impedance | 4 Ohms |

Communications

| | | | |
|---|-------------------------------|--|--|
| Integrated Intel Gigabit Network Connection (10/100/1000 NIC) | Ethernet Features | 10 Mbit/s operation (10BASE-T; IEEE 802.3i; IEEE 802.3 clauses 13-14) 100 Mbit/s operation (100BASE-TX; IEEE 802.3u; IEEE 802.3 clauses 21-30) 1000 Mbit/s operation (1000BASE-T; IEEE 802.3z and 802.3ab; IEEE 802.3 clauses 34-42) Auto-Negotiation (Automatic Speed Selection) Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/s IEEE 802.1p QoS (Quality of Service) Support IEEE 802.3x Flow Control (IEEE 802.3 clauses 31-32; configurable) | |
| | Power Management | ACPI compliant -- multiple power modes Situation-sensitive features reduce power consumption | |
| | Performance Features | TCP/IP/UDP Checksum Offload (configurable) | |
| | Manageability | Wake-on-LAN from standby and hibernation (Magic Packet and Microsoft Wake-Up Frame); Wake-on-LAN from off (Magic Packet only) PXE 2.1 Remote Boot Statistics Gathering (SNMP MIB II, Ethernet-like MIB, Ethernet MIB (802.3x, clause 30)) Comprehensive diagnostic and configuration software suite Intel Advanced Management Technology (iAMT) | |
| | Interface | PCI Express x1 | |
| | NIC Device Driver Name | Intel 82566MM Gigabit Network Connection | |
| | Drivers Available | Microsoft Windows Vista Microsoft Windows XP | |
| | | | |
| | | | |
| | | | |

Technical Specifications

| | |
|--|---|
| V.92 56K Data/Fax Modem Form Factor | MDC 1.5 Daughtercard |
| Power Management Support | APM Revision 1.2, ACPI |
| Approvals/Certifications | UL, CSA, NEMKO, CCIB, Industry Canada, FCC Part 68, CTR21, FCC Part 15 Class B, Canadian ICES-003 Class B, C.I.S.P.R.22, Australian ACA, CE Mark, Other Countries |
| Data Mode Capabilities | V.92 data V.8bis V.80 V44, V.42bis, MNP5 (Compression) V.42 (LAPM, MNP2-4) (Error Correction) Optional symbol rates: 2800, 3429 Asymmetric Symbol rates Synchronous primary channel data signaling rates: 3600, 31200 Automatic rate re-negotiation V.34 V.32bis V.32 V.23 V.22bis V.22 V.21 Bell 212A Bell 103J |
| Fax Mode Capabilities | TIA/EIA-578-B (Class 1) T.30, T.4 (Group 3) V.17 V.29 V.27ter V.21 Channel 2 |
| Command Set | V.250 (Partial) TIA-602 Identification: +GMI, +GMM, +GMR Port control: +IPR, +ICF, +IFC, +ILRR Modulation: +MS, +MR, +MA Error control: +ES, +ER, +EB, +ESR, +ETBM Data compression: +DS, +DR V.251 |

| | | |
|---|-------------------------------|---|
| Intel PRO/Wireless 3945BG Network Connection | Wireless LAN Standards | IEEE 802.11b IEEE 802.11g |
| | Interoperability | Wi-Fi certified Cisco Compatible Extensions Program compliant with Microsoft Windows 2000 and XP (details at http://www.hp.com/go/notebooks/WLAN) |

Technical Specifications

| | | |
|---|---|--|
| Frequency Band | 2.4 GHz | |
| 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 | 15 dBm | |
| Output Power (for OFDM; power varies by data rate)² | 15 dBm | |
| Power Consumption | Transmit: 1.8 Watts (max) Receive: 1.4 Watts (max) Idle mode ³ : 150 mW (nominal) Sleep mode: 30 mW (max) | |
| Power Management | ACPI compliant power management 802.11 compliant power saving mode | |
| Receiver Sensitivity⁴ | 54 Mbps: -72 dBm, 11 Mbps: -88 dBm , 1 Mbps: -97 dBm | |
| Antenna Connections | 2 U.FL type connectors, 50 ohm nominal impedance | |
| Range | 802.11 b – Typical (@1 Mbps) | 1200 feet – Outdoor Open Area 300 feet – Indoor, Office environment |
| | 802.11 g – Typical (@1 Mbps) | 1200 feet – Outdoor Open Area 300 feet – Indoor, Office environment |
| Form Factor | PCI-Express MiniCard | |
| Weight | 0.013 lb (6 g) | |
| Dimensions | 0.19 x 1.2 x 2.0 in (4.75 x 29.85 x 50.8 mm) | |
| Operating Voltage | 3.3V +/- 9%, 1.5V +/- 5% | |
| Temperature | Operating | 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 Utility⁵ | <p>Microsoft Windows 2000 or XP Choice of Configuration Utility:</p> <ul style="list-style-type: none"> • Microsoft Windows XP Wireless Network Connection Manager • Intel PROSet for Microsoft Windows 2000 or XP (required for Cisco Compatible Extensions support) <p>Microsoft Windows Vista</p> <ul style="list-style-type: none"> • Microsoft Windows Vista Wireless Network Connection Manager |
| LED Activity | <p>LED Off – Radio OFF; Solid LED On – Radio ON</p> <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 with Microsoft Windows 2000 or XP. WLAN may also be compatible with certain third-party software supplicants. |

| | | |
|--|---|--|
| Intel Wireless WiFi Link 4965AG | Wireless LAN Standards | IEEE 802.11a IEEE 802.11b IEEE 802.11g |
| | Interoperability | Wi-Fi certified Cisco Compatible Extensions Program compliant with Microsoft Windows 2000 and XP (details at http://www.hp.com/go/notebooks/WLAN) |
| | Frequency Band | 2.4 GHz and 5 GHz |
| | Data Rates | 802.11b: 1, 2, 5.5, 11 Mbps 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps |
| | Modulation | Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM |
| | Security¹ | Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated AES (support for key sizes of 128, 192, and 256 bits), 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, LEAP, EAP-FAST. Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program Version 4) with Microsoft Windows 2000 and XP only. |
| | Sub-channels | Multinational support with frequency bands and channels compliant to local regulations. |
| | Media Access Protocol | CSMA/CA (Collision Avoidance) with ACK |
| | Network Architecture Models | Ad-hoc (Peer to Peer) Infrastructure (Access Point Required) |
| | Roaming | IEEE 802.11 compliant roaming between access points |
| | Output Power (for CKK)² | 15 dBm |
| | Output Power (for OFDM; power varies by data rate)² | 15 dBm |

Technical Specifications

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|--|--|
| Weight | 0.013 lb (6 g) |
| Dimensions | 0.19 x 1.2 x 2.0 in (4.75 x 29.85 x 50.8 mm) |
| Operating Voltage | 3.3V +/- 9%, 1.5V +/- 5% |
| Temperature | Operating 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 90% (non-condensing) |
| Altitude | Operating 0 to 10,000 ft (3,048 m) Non-operating 0 to 50,000 ft (15,240 m) |
| Configuration Utility⁵ | Microsoft Windows 2000 or XP Choice of Configuration Utility: <ul style="list-style-type: none">• Microsoft Windows XP Wireless Network Connection Manager• Intel PROSet for Microsoft Windows 2000 or XP (required for Cisco Compatible Extensions support) Microsoft Windows Vista <ul style="list-style-type: none">• Microsoft Windows Vista Wireless Network Connection Manager |
| 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 and on battery power.4. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).5. WLAN supplier's client utility is required for Cisco Compatible Extensions support with Microsoft Windows 2000 or XP. WLAN may also be compatible with certain third-party software supplicants. |

| | | |
|---|-------------------------------|--|
| Broadcom 4311AG 802.11a/b/g WiFi Adapter | Wireless LAN Standards | IEEE 802.11a IEEE 802.11b IEEE 802.11g |
| | Interoperability | Wi-Fi certified Cisco Compatible Extensions Program compliant with Microsoft Windows 2000 and XP (details at http://www.hp.com/go/notebooks/WLAN) |
| | 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. Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program Version 4). |

Technical Specifications

| | | |
|---|---|--|
| Sub-channels | Multinational support with frequency bands and channels compliant to local regulations. | |
| Media Access Protocol | CSMA/CA (Collision Avoidance) with ACK | |
| Network Architecture Models | Ad-hoc (Peer to Peer) Infrastructure (Access Point Required) | |
| Roaming | IEEE 802.11 compliant roaming between access points | |
| Output Power (for CKK)² | 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 a – Typical (@6 Mbps) | 600 feet – Outdoor Open Area 150 feet – Indoor, Office environment |
| | 802.11 b – Typical (@1 Mbps) | 1200 feet – Outdoor Open Area 300 feet – Indoor, Office environment |
| | 802.11 g – Typical (@1 Mbps) | 1200 feet – Outdoor Open Area 300 feet – Indoor, Office environment |
| Form Factor | PCI-Express MiniCard | |
| Weight | 0.026 lb (12 g) | |
| Dimensions | 0.19 x 1.2 x 2.0 in (4.75 x 29.85 x 50.8 mm) | |
| Operating Voltage | 3.3v +/- 10% | |
| Temperature | Operating | 32° to 176° F (0° to 80° C) |
| | Non-operating | -40° to 176° F (-40° to 80° C) |
| Humidity | Operating | 10% to 90% (non-condensing) |
| | Non-operating | 5% to 95% (non-condensing) |
| Altitude | Operating | 0 to 10,000 ft (3,048 m) |
| | Non-operating | 0 to 50,000 ft (15,240 m) |

Technical Specifications

| | |
|--|---|
| Configuration Utility⁵ | Microsoft Windows 2000 or XP 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) Microsoft Windows Vista <ul style="list-style-type: none">• Microsoft Windows Vista Wireless Network Connection Manager |
| 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 with Microsoft Windows 2000 or XP. WLAN may also be compatible with certain third-party software supplicants. |

Broadcom 4311BG 802.11b/g WiFi Adapter

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|---|--|
| Wireless LAN Standards | IEEE 802.11b IEEE 802.11g |
| Interoperability | Wi-Fi certified Cisco Compatible Extensions Program compliant with Microsoft Windows 2000 and XP (details at http://www.hp.com/go/notebooks/WLAN) |
| Frequency Band | 2.4 GHz |
| Data Rates | 802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 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. Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program Version 4). |
| Sub-channels | Multinational support with frequency bands and channels compliant to local regulations. |
| Media Access Protocol | CSMA/CA (Collision Avoidance) with ACK |
| Network Architecture Models | Ad-hoc (Peer to Peer) Infrastructure (Access Point Required) |
| Roaming | IEEE 802.11 compliant roaming between access points |
| Output Power (for CKK)² | 17.5 dBm |
| Output Power (for OFDM; power varies by data rate)² | 15 dBm |

Technical Specifications

| | | |
|--|--|--|
| Power Consumption | Transmit: 2.0 W (max) Receive: 1.5 W (max) Idle mode ³ : 390 mW (nominal) Sleep mode: 20 mW (max) | |
| Power Management | ACPI compliant power management 802.11 compliant power saving mode | |
| Receiver 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 (@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 Utility⁵ | Microsoft Windows 2000 or XP 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) Microsoft Windows Vista <ul style="list-style-type: none"> ● Microsoft Windows Vista Wireless Network Connection Manager | |
| 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 with Microsoft Windows 2000 or XP. WLAN may also be compatible with certain third-party software suppliers. | |

| | | |
|--|--------------------------------|--|
| 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 |

Technical Specifications

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|-------------------------------------|---|
| Number of Available Channels | 79 (1 MHz) available channels |
| Data Rates and Throughput | 3 Mbps data rate; throughput up to 2.17 Mbps Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric or 1306.9 kbps symmetric |
| Transmit Power | -6 dBm to 4 dBm (Bluetooth Class II) |
| Receiver Sensitivity | Better than -80 dBm at 0.1 % raw bit error rate |
| Power Consumption | Peak (Tx) 264 mW Peak (Rx) 231 mW Sleep <1 mW |
| Antenna | Internally integrated within module |
| Range | Up 33 ft (10 m) |
| Electrical Interface | USB 2.0 compliant Microsoft Windows Plug and Play compliant |
| OS Support | Genuine Windows Vista Genuine Windows XP Genuine Windows 2000 |
| Bluetooth Software Supported | Broadcom Bluetooth for Windows Microsoft Windows XP Bluetooth Software |
| Link Topology | Point to Point, Multipoint Pico Nets up to 7 slaves |
| Security | Full support of Bluetooth Security Provisions |
| Power Management | Microsoft Windows ACPI, and USB Bus Support Self configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff |
| 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) |

Technical Specifications

- Object Push Profile (OPP)*
- File Transfer Profile (FTP)
- Synchronization Profile (SYNC)
- Hard Copy Cable Replacement (HCRP)*
- Personal Area Networking Profile (PAN)*
- Human Interface Device Profile (HID)*
- FAX Profile (FAX)
- Basic Imaging Profile (BIP)
- Headset Profile (HSP)
- Hands Free Profile (HFP)
- Advanced Audio Distribution Profile (A2DP)

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

Environmental Data

Eco-Label Certifications

This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks:

- US Federal Energy Management Program (FEMP)
- ECO declaration
- Korean Eco Label
- EPEAT Silver Rating

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
- Sleep (Energy Star low power mode)
- Off

18.05 W
1.261 W

19.49 W
1.281 W

12.19 W
1.261 W

1.563 W

1.57 W

1.563 W

Heat Dissipation*

115 VAC

230 VAC

100 VAC

- Normal Operation
- Sleep
- Off

61.586 BTU/hr
4.302 BTU/hr
5.332 BTU/hr

66.499 BTU/hr
4.37 BTU/hr
5.356 BTU/hr

41.592 BTU/hr
4.302 BTU/hr
5.332 BTU/hr

* Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.

This product is in compliance with US executive order 13221, WOL (wake on LAN) disabled.

Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)

Sound Power (LWAd, bels)

Sound Pressure (LpAm, decibels)

- Idle
- Operating mode (HDD)

3.1
3.1

25
26

Batteries

This product complies with ISO standards:

Technical Specifications

- EU Directive 91/ 157/ EEC
- EU Directive 93/ 86/ EEC
- EU Directive 98/ 101/ EEC

Batteries used in the product do not contain:

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

The battery type and chemistry used in the product is:

CR2032 (coin cell), Lithium

8 cell rechargeable Lithium-Ion battery

Additional information:

This product is in compliance with the EU Restrictions of Hazardous Substances (RoHS) Directive – 2002/95/EC.

This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive – 2002/96/EC.

Keyboard complies with ISO standard: ISO 9995, EN 29241-4, and ISO/IEC 15412

Input devices of this product comply with ISO 9241, part 9.

Plastics parts weighing over 25 grams used in the product are marked per ISO 11469 and ISO1043.

This product contains 0% recycled materials (by wt.)

This product is greater than 92% recyclable when properly disposed of at end of life.

Packaging Materials

- External:
 - Corrugated / Paper – 2.25 lb (1019 g)
- Internal:
 - EPE Foam – 0.15 lb (70 g)
 - LDPE Bag – 0.04 lb (19.44 g)
- The corrugated paper packaging materials contains at least 40% recycled content.

HP follows these guidelines to decrease the environmental impact of product packaging:

- Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials.
- Eliminate the use of ozone-depleting substances (ODS) in packaging materials.
- Design packaging materials for ease of disassembly.
- Maximize the use of post-consumer recycled content materials in packaging materials.
- Use readily recyclable packaging materials such as paper and

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)

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:

Technical Specifications

<http://www.hp.com/hpinfo/globalcitizenship/environment/operations/envmanagement.html>

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