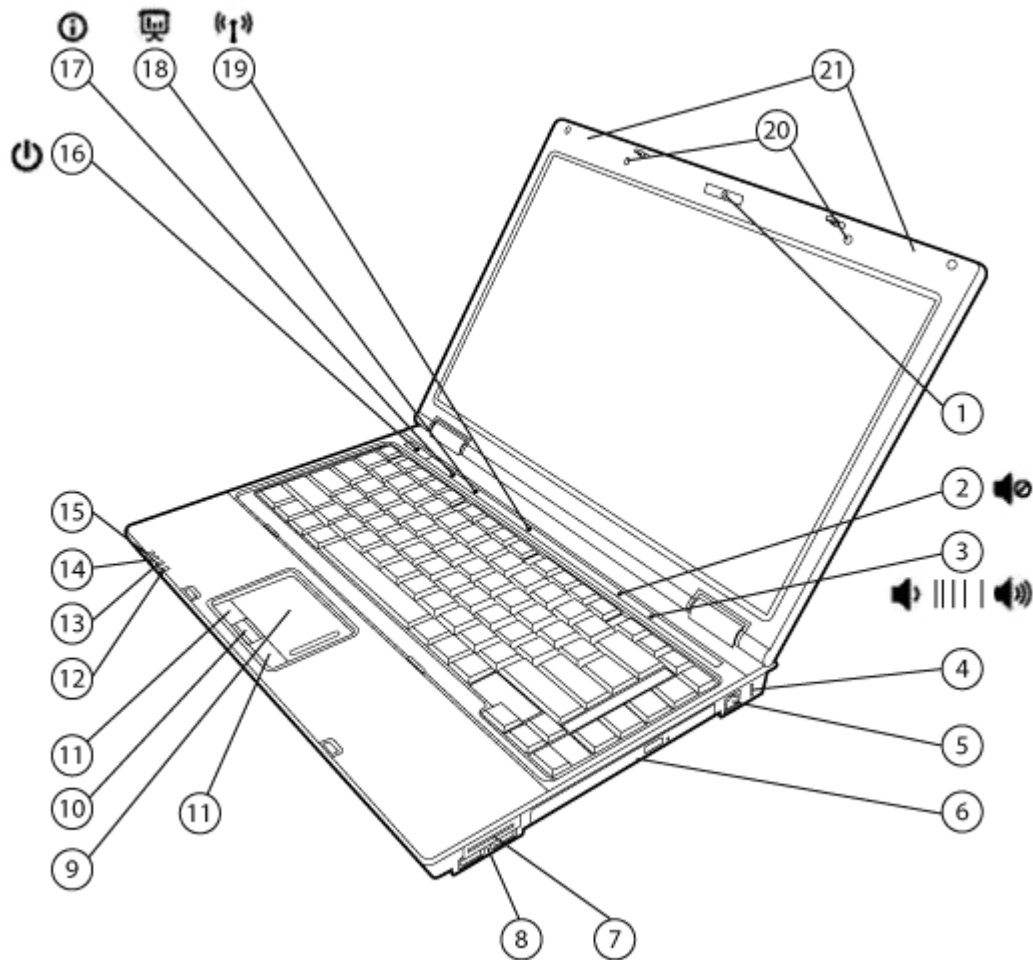
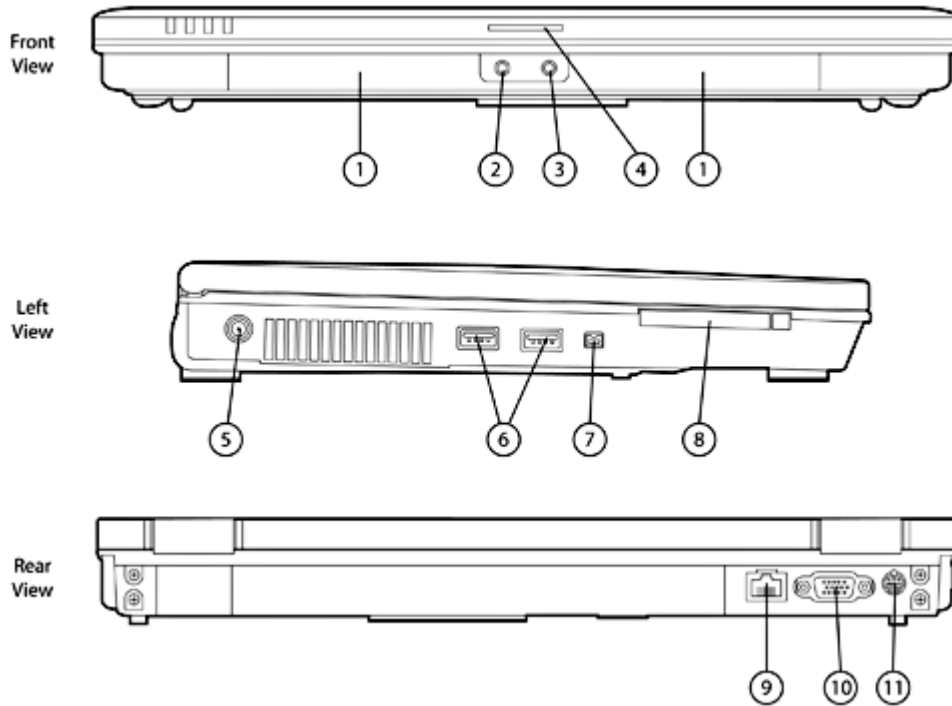


### Overview

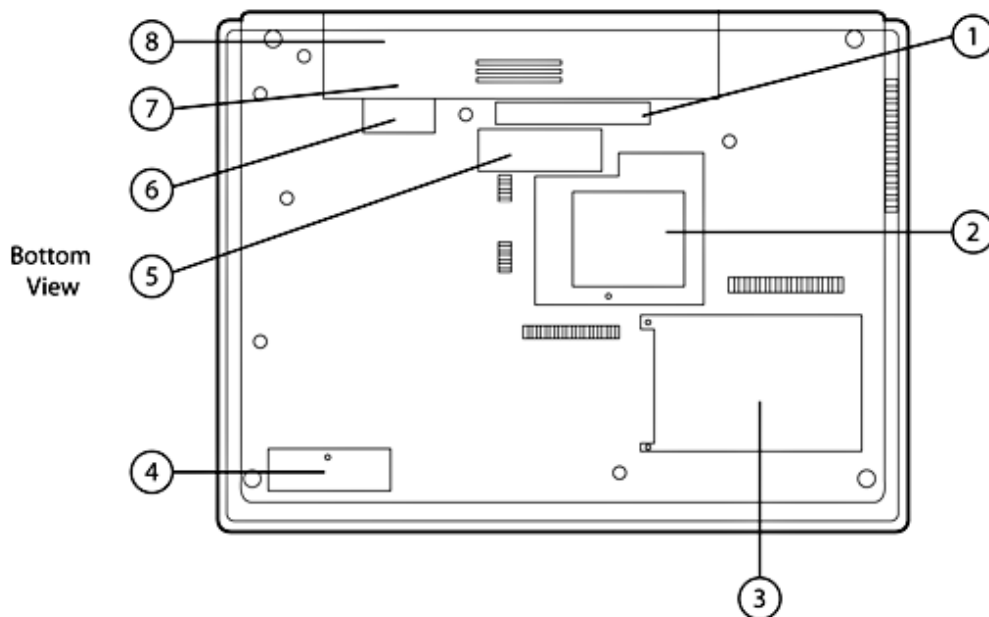


1. Optional VGA webcam
2. Volume mute button with LED indicator
3. Volume scroll zone with up/down LED indicators
4. Kensington Lock slot
5. RJ-11/modem port
6. Optical drive/Upgrade Bay
7. Media Card Reader
8. (2) USB 2.0 ports
9. Touchpad with scroll zone
10. Optional HP Fingerprint Sensor
11. Touchpad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

### Overview



- 1. Stereo speakers
- 2. Stereo headphone/line out
- 3. Stereo microphone in
- 4. Display release latch
- 5. Power connector
- 6. (2) USB 2.0 ports
- 7. 1394a port
- 8. ExpressCard/54 slot or optional Smart Card Reader
- 9. RJ-45/Ethernet port
- 10. VGA/external monitor connector
- 11. S-Video TV out



### Overview

1. Docking connector
2. WLAN module compartment (select models)
3. Hard drive bay
4. Bluetooth module compartment
5. Secondary battery connector
6. SIM slot for WWAN (select models) – inside battery bay
7. Battery release latch
8. Battery bay

### At A Glance

- Genuine Windows 7 Professional, Genuine Windows XP Professional available through downgrade rights from Windows 7 Professional, Genuine Windows 7 Home Premium, Genuine Windows 7 Home Basic, Genuine Windows Vista Business 32, Genuine Windows Vista Home Basic 32, Genuine Windows XP Professional available through downgrade rights from Windows Vista Business or FreeDOS
- Widescreen 14.1-inch diagonal display with optional BrightView and HP Privacy Filter support
- Intel® Core™2 Duo processor
- Thin, lightweight design starting at 5.31 lb/2.41 kg and 1.28 inch/32.6 mm thin at front
- Upgrade Bay for easy optical drive upgrade or optional second hard drive
- Flexible wireless connectivity options:
  - Integrated HP un2400 EV-DO/HSPA Mobile Broadband Module provides worldwide Gobi mobile Internet technology
  - Integrated 802.11 a/b/g/n draft 2.0 or b/g wireless LAN module
  - Bluetooth® 2.0
- Enhanced security features including HP ProtectTools, HP SpareKey, TPM 1.2;\* optional Smart Card Reader and HP Fingerprint Sensor
- Optional integrated VGA webcam with dual-microphone array
- HP QuickLook 2 for instant access to e-mail, calendar, and contact information
- Up to 500 GB 5400 rpm or 320 GB 7200 rpm user-removable hard drive with HP 3D DriveGuard protection
- Enhanced reliability with magnesium alloy support structure and HP DuraFinish
- Touch-sensitive controls for HP Info Center/HP QuickLook 2, HP Presentation button, wireless on/off, mute, and volume up, volume down
- Media Card Reader
- Up to 8 GB of 800 MHz DDR2 SDRAM supported, dual-channel memory support
- Mobile Intel Graphics Media Accelerator 4500MHD
- Broadcom NetLink Gigabit Ethernet Controller (10/100/1000 NIC)
- Touchpad with scroll zone

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

### Standard Features

#### Processors

Intel Core 2 Duo Processor T9900 (3.06 GHz, 6 MB L2 cache, 1066 MHz FSB)\*  
 Intel Core 2 Duo Processor T9600 (2.80 GHz, 6 MB L2 cache, 1066 MHz FSB)\*  
 Intel Core 2 Duo Processor T9400 (2.53 GHz, 6 MB L2 cache, 1066 MHz FSB)\*  
 Intel Core 2 Duo Processor P8800 (2.66 GHz, 3 MB L2 Cache, 1066 MHz FSB)\*  
 Intel Core 2 Duo Processor P8700 (2.53 GHz, 3 MB L2 cache, 1066 MHz FSB)\*  
 Intel Core 2 Duo Processor P8600 (2.40 GHz, 3 MB L2 cache, 1066 MHz FSB)\*  
 Intel Core 2 Duo Processor P8400 (2.26 GHz, 3 MB L2 cache, 1066 MHz FSB)\*  
 Intel Celeron Dual-Core Processor T3100 (1.9 GHz, 1 MB L2 cache, 800 MHz FSB)\*  
 Intel Celeron Dual-Core Processor T3000 (1.8 GHz, 1 MB L2 cache, 800 MHz FSB)\*  
 Intel Celeron Dual-Core Processor T1700 (1.86 GHz, 1 MB L2 cache, 667 MHz FSB)\*  
 Intel Celeron Dual-Core Processor T1600 (1.66 GHz, 1 MB L2 cache, 667 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 7 Professional\*  
 Genuine Windows XP Professional available through downgrade rights from Windows 7 Professional\*†  
 Genuine Windows 7 Home Premium\*  
 Genuine Windows 7 Home Basic\*  
 Genuine Windows Vista Business\*\*  
 Genuine Windows Vista Home Basic\*\*  
 Genuine Windows XP Professional available through downgrade rights from Windows Vista Business \*\*††  
 Genuine Windows Vista Ultimate  
 Red Flag Linux (China only)  
 FreeDOS

##### Supported

Genuine Windows 7 Professional\*  
 Genuine Windows 7 Enterprise\*  
 Genuine Windows 7 Ultimate\*  
 Genuine Windows Vista Business\*\*  
 Genuine Windows Vista Enterprise\*\*  
 Genuine Windows Vista Ultimate\*\*  
 Genuine Windows XP Professional

##### Certified

SuSE Linux Enterprise Desktop 10

\* System may require upgraded and/or separately purchased hardware and/or a DVD drive to install the Windows 7 software and take full advantage of Windows 7 functionality. See: <http://www.microsoft.com/windows/windows-7/> for details.

\*\* 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>.

### Standard Features

† Windows XP Professional is preinstalled on this system and includes end user rights and media for Windows 7 Professional. You may only use one version at a time. You must back up all data (files, photos, etc.) before uninstalling and installing operating systems to avoid loss of your data.

†† Windows XP Professional is preinstalled on this system and includes end user rights and media for Windows Vista Business. You may only use one version at a time. You must back up all data (files, photos, etc.) before uninstalling and installing operating systems to avoid loss of your data.

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|                |   |
|----------------|---|
| <b>Chipset</b> | Intel GE45 Express Chipset with ICH9M<br><b>NOTE:</b> This chipset is equivalent to the Intel GM45 Express Chipset, with the addition of support for S-video. |
|----------------|---|

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|                 |   |
|-----------------|---|
| <b>Graphics</b> | Mobile Intel Graphics Media Accelerator 4500MHD<br>Microsoft DirectX 10 capable |
|-----------------|---|

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|                |                 |  |
|----------------|-----------------|--|
| <b>Display</b> | <b>Internal</b> | 14.1-inch diagonal WXGA anti-glare (1280 x 800 resolution)<br>14.1-inch diagonal WXGA BrightView (1280 x 800 resolution)<br>14.1-inch diagonal WXGA+ anti-glare (1440 x 900 resolution)<br>HP Privacy Filter support   |
|                | <b>External</b> | Up to 32-bit per pixel color depth<br><b>VGA</b> port supports resolutions up to 2048 x 1536 at 75 Hz, and lower resolutions at up to 100 Hz<br><b>DVI-D</b> (single link) video signal available through DVI port in optional HP Docking Station (sold separately)<br>supports resolutions up to 1600 x 1200 at both full and reduced blanking, and 1920 x 1200 at reduced blanking<br><b>NOTE:</b> Resolutions are dependent upon monitor capability, and resolution and color depth settings. |

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|               |                     |   |
|---------------|---------------------|---|
| <b>Memory</b> | <b>Standard</b>     | 800 MHz DDR2 SDRAM; two slots supporting dual channel memory<br>1024 MB, 2048 MB, or 4096 MB  |
|               | <b>Maximum</b>      | Upgradeable to 8192 MB with 4096 MB SODIMMs in slots 1 and 2  |
|               | <b>Dual-channel</b> | Maximized dual-channel performance requires SODIMMs of the same size and speed in both memory slots.<br><b>NOTE:</b> 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 4 GB or more 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. |

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### Standard Features

#### Communications

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

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

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

#### Wireless Devices

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

**HP un2400 EV-DO/HSPA Mobile Broadband Module** Integrated WWAN module with Gobi global mobile Internet technology that provides worldwide connection to both CDMA (EVDO) and UMTS (HSPA) wireless networks.

**NOTE:** Separately purchased mobile network operator service is required.

Two 850/900/1800/1900/2100 MHz antennas integrated in the top of the display panel support current and future WWAN technologies.

#### All 802.11 integrated wireless LAN options

Wi-Fi Certified\*

Cisco Compatible Extensions support

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

Dual antennas integrated in the display enclosure

#### Intel WiFi Link 5100

Integrated support for 802.11 a, b g, and n draft 2.0\*

Up to 300 mbps data rate

#### Broadcom 4322AGN 802.11a/b/g/draft-n Wi-Fi Adapter

Integrated support for 802.11a, b, g, and n draft 2.0\*

Up to 300 mbps data rate

#### Broadcom 4312G 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

\* The specifications for 802.11n draft 2.0 are draft specifications and are not final. If the final specifications differ from the draft specifications, it may affect the ability of the notebook to communicate with other 802.11n WLAN devices. In countries where n draft 2.0 is not allowed, this capability is not enabled (Intel 802.11a/b/g only).

### Standard Features

#### Keyboard

The 101/102-key compatible keyboard features an industry standard, full-pitch key layout with desktop keyboard features, such as the isolated inverted-T cursor control keys, editing keys, both left and right control and alt keys, and 12 function keys. U.S. and International key layouts are available. Other features include an integrated numeric keypad, hotkeys for instant access to power conservation, brightness, and other features, 19 mm x 19 mm key pitch (center-to-center spacing), 2.5 mm stroke, and comfort-dished keycaps.

#### Touch-sensitive controls

Touch-sensitive controls provide easy access to the following features: HP Info Center, HP QuickLook 2, HP Presentation button, wireless on/off, mute, and volume up, volume down

#### Pointing device

Touchpad with scroll zone, two pick buttons

#### Expansion card slots

##### ExpressCard/54 slot

Supports ExpressCard/54 and ExpressCard/34

or

##### Optional Integrated Smart Card Reader

(replaces ExpressCard/54 slot)

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

##### Media Card Reader

Supports SD (Secure Digital), HC-SD (High Capacity Secure Digital), MultiMedia Card, HS-MultiMedia Card (MultiMedia Card Plus), Sony Memory Stick, Sony Memory Stick Pro, Picture card

Additionally, the following cards are supported via passive adapters (sold separately): Mini-Secure Digital (Mini-SD), Transflash (Micro-SD), Reduced size Multimedia card (RS-MultiMedia Card), Reduced size Dual voltage Multimedia card, MultiMedia Card Mobile Cards, MultiMedia Card Micro Cards, Memory Stick Duo (MS Duo)\*, Memory Stick Duo Pro (MS Duo Pro)\*, Memory Stick M2 Micro

\* 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

|                |                         |   |  |
|----------------|-------------------------|---|--|
| <b>Storage</b> | <b>Hard drives</b>      | 120/160/250/320/500 GB 5400 rpm SMART SATA II<br>160/250/320 GB 7200 rpm SMART SATA II  |  |
|                | <b>NOTE:</b>            | These hard drives are customer removable and will withstand multiple insertion/removal cycles. Up to 10 GB is reserved for the system recovery software.  |  |
|                | <b>HP 3D DriveGuard</b> | The hard drive is mounted directly to the notebook frame, reducing the transmission of shock to the hard drive. Uses three-axis digital motion detection with intelligent sensitivity to help protect the hard drive during normal use from shock and vibration. The digital accelerometer temporarily halts all data transfer and parks the hard drive when abrupt motion is detected. |  |
|                | <b>Upgrade Bay</b>      | Fixed 12.7 mm SATA optical drive  | DVD+/-RW SuperMulti DL LightScribe Drive<br>DVD/CD-RW Combo Drive<br>DVD-ROM Drive |
|                |                         | or  |  |
|                |                         | Second hard drive   | 250 GB 5400 rpm SMART SATA II Hard Drive   |

|                   |                                    |                                     |
|-------------------|------------------------------------|-------------------------------------|
| <b>Interfaces</b> | <b>ExpressCard/54 slot</b>         | One (or optional Smart Card Reader) |
|                   | <b>External monitor</b>            | One (VGA)                           |
|                   | <b>1394a</b>                       | One                                 |
|                   | <b>Stereo microphone in</b>        | One                                 |
|                   | <b>Stereo headphone/line out</b>   | One                                 |
|                   | <b>Power connector</b>             | One                                 |
|                   | <b>RJ-11/modem</b>                 | One                                 |
|                   | <b>RJ-45/Ethernet</b>              | One                                 |
|                   | <b>S-video TV out</b>              | One (Support for NTSC/PAL)          |
|                   | <b>USB 2.0</b>                     | Four                                |
|                   | <b>Docking connector</b>           | One                                 |
|                   | <b>Secondary battery connector</b> | One                                 |



### Standard Features

#### Audio/Visual

High Definition Audio support w/24-bit DAC  
Integrated stereo speakers  
Integrated microphone (dual-microphone array when equipped with optional VGA webcam)  
Touch-sensitive controls for volume up, volume down, and mute  
Stereo headphone/line out  
Stereo microphone in

Optional VGA webcam

- Supports videoconferencing and still image capture
- Up to 30 frames/sec
- Fixed focus lens
- Video capture up to 640x480 pixels
- 16-bit true color (camera sensors output YCrCb format among others)

#### Software

##### Preinstalled software with Windows Vista or Windows XP

HP Recovery Manager (Vista only)  
HP Help and Support Center  
HP QuickLook 2  
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)  
PDF Complete SE  
Intervideo WinDVD – DVD Player  
Roxio Creator Business (for optional DVD+/-RW and DVD/CDRW drives)  
McAfee Total Protection\*  
Synaptics Touchpad Driver  
Microsoft Windows Live Messenger (select models)  
HP Webcam Software (with optional VGA webcam)

##### Additional software available from the web

HP SoftPaq Download Manager  
HP Client Manager Software  
HP Client Management Solutions  
Java Card Security for HP ProtectTools

\* 60 day trial period for McAfee Total Protection for Small Business software. Internet access required to receive updates. First update included. Subscription required for updates thereafter.

#### HP Recovery Manager (Vista only)

Each unit is shipped with HP Recovery Manager. HP Recovery Manager enables fast recovery of the factory preinstalled image if the system becomes corrupted or if important system files are accidentally deleted. Up to 10 GB of the hard drive is reserved for the system recovery software.

### Standard Features

**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
- File Sanitizer for HP ProtectTools
- Set-up Wizard for HP ProtectTools
- Privacy Manager for HP ProtectTools (Chat & Sign)
- Embedded Security for HP ProtectTools
- Java Card Security for HP ProtectTools

### Security

#### Standard Features

HP ProtectTools Security Manager  
Enhanced Pre-Boot Security  
HP SpareKey  
One-Step Logon  
Configuration Control Hardware  
Memory Change Alert  
Ownership Tag  
Setup Password  
Power-On Password  
TPM 1.2 Embedded Security Chip\*  
TPM Enhanced DriveLock\*  
HP Disk Sanitizer  
HP 3D DriveGuard  
Kensington Lock slot  
Support for Computrace / LoJack for Laptops (must be purchased separately)

#### Optional Features

**Smart Card Reader** Compatible with ISO 7816 compliant Smart Cards PC/SC interface support (replaces ExpressCard/54 slot)

**HP Fingerprint Sensor** Enhanced sensor scans the fingerprint to uniquely identify and authenticate a person.

**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>.

### Standard Features

#### Power Supply

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

\*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 or the HP Long Life Battery.

#### Battery

|   |  |
|---|--|
| <b>Primary battery</b>                    | 6-cell (55 WHr) Li-Ion battery<br>6-cell (47 WHr) Li-Ion battery |
| <b>Optional HP Extended Life Battery</b>  | 8-cell (52 WHr) high capacity Li-Ion battery                     |
| <b>Optional HP Ultra-Capacity Battery</b> | 12-cell (95 WHr) high capacity Li-Ion battery                    |

#### Battery Life

|   | <b>6-cell (55 WHr) Primary</b> | <b>6-cell (47 WHr) Primary</b> |
|---|--------------------------------|--------------------------------|
| <b>Primary battery</b>  | Up to 6 hours and 15 minutes   | Up to 5 hours                  |
| <b>Primary battery and optional HP Extended Life Battery</b>  | Up to 12 hours and 30 minutes  | Up to TBD hours                |
| <b>Primary battery and optional HP Ultra-Capacity Battery</b> | Up to 16 hours and 30 minutes  | Up to TBD 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 1 week

#### Power Conservation

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

### Standard Features

#### Docking and Stands

HP 2008 120W Docking Station  
HP 2008 150W Docking Station  
HP 2008 150W Advanced Docking Station  
HP 2008 180W Advanced Docking Station  
HP Mobile Port Replicator  
HP Monitor Stand  
HP Adjustable Notebook Stand  
HP Dual Monitor Stand

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

\* HP/Kensington Cable Lock required (purchased separately)

\*\* HP Advanced Docking Station only

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#### 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. HP Care Pack Services extend service contracts beyond the standard warranties. To choose the right level of service for your HP product, use the HP Care Pack Services Lookup Tool at:

<http://www.hp.com/go/lookuptool>. Additional HP Care Pack Services information by product is available at: <http://www.hp.com/hps/carepack>.

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

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

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### Options

|               |                               |         |
|---------------|-------------------------------|---------|
| <b>Memory</b> | HP 1 GB (DDR2 800 MHz) SODIMM | KT292AA |
|               | HP 2 GB (DDR2 800 MHz) SODIMM | KT293AA |
|               | HP 4 GB (DDR2 800 MHz) SODIMM | KT294AA |

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|                |  |         |
|----------------|--|---------|
| <b>Storage</b> | HP Notebooks USB Diskette Drive                              | DC361B  |
|                | HP Primary SATA 120 GB 7200 rpm Hard Drive                   | AH920AA |
|                | HP Primary SATA 250 GB 5400 rpm Hard Drive                   | AK072AA |
|                | HP Upgrade Bay SATA 250 GB 5400 rpm Hard Drive               | AK868AA |
|                | HP Upgrade Bay SATA DVD+/-RW SuperMulti DL LightScribe Drive | AK869AA |
|                | HP Primary SATA 120 GB 5400 rpm Hard Drive                   | RT080AA |

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|  |   |        |
|--|---|--------|
| <b>MultiBay II Storage</b><br>(9.5-mm) | HP MultiBay II DVD-ROM Drive                | PA849A |
|  | HP MultiBay II DVD+/-RW SuperMulti DL Drive | PA851A |

**NOTE:** Requires HP Advanced Docking Station or HP External MultiBay II

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|                            |                                       |             |
|----------------------------|---------------------------------------|-------------|
| <b>Expansion Solutions</b> | HP 2008 120W Docking Station          | KP080AA#ABA |
|                            | HP 2008 150W Docking Station          | KQ751AA#ABA |
|                            | HP 2008 150W Advanced Docking Station | KP081AA#ABA |
|                            | HP 2008 180W Advanced Docking Station | KQ752AA#ABA |
|                            | HP Mobile Port Replicator             | AK155AA     |
|                            | HP Monitor Stand                      | PA507A      |
|                            | HP Adjustable Notebook Stand          | PA508A      |
|                            | HP Dual-Monitor Stand                 | AK084AA     |
|                            | HP External MultiBay II               | PA509A#ABA  |

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|                       |                       |             |
|-----------------------|-----------------------|-------------|
| <b>Communications</b> | Intel® WiFi Link 5300 | KM591AA#ABA |
|-----------------------|-----------------------|-------------|

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### Options

|  |                                   |             |
|--|-----------------------------------|-------------|
| <b>Power</b>                           | HP 1-Bay Battery Charging Station | RW635AA#ABA |
|  | HP 5-Bay Battery Charging Station | RW636AA#ABA |
|  | HP Battery Adapter Kit            | KV829AA     |
|  | HP 90W Smart AC Adapter           | ED495AA#ABA |
|  | HP 90W Smart Combo Adapter        | AJ652AA#ABA |
|  | HP 6-Cell Li-Ion Primary Battery  | KU531AA     |
|  | HP 8-Cell Extended Life Battery   | PB993A      |
|  | HP 12-Cell Ultra-Capacity Battery | EJ092AA     |
|  | HP Extended Life Battery          | AJ359AA     |
|  | HP Long Life Battery              | AU213AA     |
|  | HP 90W Smart Auto Adapter         | ED493AA     |
| HP 65W AC/Auto/Air Combo Smart Adapter | ED993AA#ABA                       |             |

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|                       |                           |         |
|-----------------------|---------------------------|---------|
| <b>Carrying Cases</b> | HP Basic Carrying Case    | AJ078AA |
|                       | HP Value Nylon Case       | RR314AA |
|                       | HP Universal Nylon Case   | RR315AA |
|                       | HP Executive Leather Case | RR316AA |
|                       | HP Deluxe Nylon Backpack  | RR317AA |
|                       | HP Deluxe Roller Case     | GD405AA |

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|                 |   |         |
|-----------------|---|---------|
| <b>Security</b> | HP ExpressCard Smart Card Reader with Java Card | AJ451AA |
|                 | HP ProtectTools Java Card – 10 units            | EL348AA |
|                 | HP/Kensington MicroSaver Security Lock          | PC766A  |
|                 | HP 14.1" Display Privacy Filter                 | AJ357AA |

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|                             |  |             |
|-----------------------------|--|-------------|
| <b>Input/Output Devices</b> | 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     |

### Memory

800 MHz DDR2 SDRAM

Two DIMM slots supporting dual-channel memory

DIMM sizes supported: 1024 MB, 2048 MB, and 4096 MB

#### Standard Memory

- 1024 MB (1024 MB x 1)
- 2048 MB (2048 MB x 1 or 1024 MB x 2)
- 3072 MB (2048 MB 1024 MB)
- 4096 MB (2048 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   |
| 2048 MB | 2048 MB | Empty   |
| 2048 MB | 1024 MB | 1024 MB |
| 3072 MB | 2048 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 4 GB or more 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 1 GB (DDR2 800 MHz) SODIMM

KT292AA

HP 2 GB (DDR2 800 MHz) SODIMM

KT293AA

HP 4 GB (DDR2 800 MHz) SODIMM

KT294AA

### Storage

#### Upgrade Bay Drive Support

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|  | Quantity Supported | Drive Bay   |
|--|--------------------|-------------|
| DVD+/-RW SuperMulti DL LightScribe Drive | One                | Upgrade Bay |
| DVD/CD-RW Combo Drive                    | One                | Upgrade Bay |
| DVD-ROM Drive                            | One                | Upgrade Bay |
| 250 GB 5400 rpm SMART SATA II Hard Drive | One                | Upgrade Bay |

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#### Internal Storage Device

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|  | Quantity Supported | Drive Bay                |
|--|--------------------|--------------------------|
| <b>Hard Drives</b>                       |                    |                          |
| 500 GB 5400 rpm SMART SATA II Hard Drive | One                | Dedicated hard drive bay |
| 320 GB 5400 rpm SMART SATA II Hard Drive | One                | Dedicated hard drive bay |
| 250 GB 5400 rpm SMART SATA II Hard Drive | One                | Dedicated hard drive bay |
| 160 GB 5400 rpm SMART SATA II Hard Drive | One                | Dedicated hard drive bay |
| 120 GB 5400 rpm SMART SATA II Hard Drive | One                | Dedicated hard drive bay |
| 320 GB 7200 rpm SMART SATA II Hard Drive | One                | Dedicated hard drive bay |
| 250 GB 7200 rpm SMART SATA II Hard Drive | One                | Dedicated hard drive bay |
| 160 GB 7200 rpm SMART SATA II Hard Drive | One                | Dedicated hard drive bay |



### Technical Specifications

|                    |   |  |
|--------------------|---|--|
| <b>System Unit</b> | <b>Dimensions (HxWxD)</b>   | 1.28 in (at front) x 13.18 in x 9.56 in<br>32.6 mm (at front) x 334.8 mm x 242.8 mm  |
|                    | <b>Weight</b>   | Starting at 5.31 lb (2.41 kg)  |
|                    | <b>NOTE:</b> Height varies depending upon where on the notebook the measurement is made. Weight varies by configuration and components. Weight includes 6-cell battery, hard drive, and optical drive. Weight varies by configuration and components. |  |
|                    | <b>Stand-Alone Power Requirements (AC Power)</b>  | Nominal Operating Voltage 18.5 V<br>Average Operating Power 20.0 W<br>Max Operating Power < 90 W   |
|                    | <b>Temperature</b>  | Operating 32° to 95° F (0° to 35° C) (not writing optical)<br>41° to 95° F (5° to 35° C) (writing optical)<br>Non-operating -4° to 140° F (-20° to 60° C)  |
|                    | <b>Relative Humidity</b>  | Operating 10% to 90%, non-condensing<br>Non-operating 5% to 95%, 101.6° F (38.7° C) maximum wet bulb temperature   |
|                    | <b>Shock</b>  | Operating 125 G, 2 ms, half-sine<br>Non-operating 200 G, 2 ms, half-sine   |
|                    | <b>Random Vibration</b>   | Operating 0.75 grms<br>Non-operating 1.50 grms   |
|                    | <b>Altitude (unpressurized)</b>   | Operating -50 to 10,000 ft (-15.24 to 3,048 m)<br>Non-operating -50 to 40,000 ft (-15.24 to 12,192 m)  |
|                    | <b>Industry Standard Certifications</b>   | UL Yes<br>CSA Yes<br>FCC Compliance Yes<br>ENERGY STAR® Yes, with Intel Core 2 Duo processor*<br>EPEAT Gold**<br>ICES Yes<br>GS Yes<br>Australia / NZ A-Tick Compliance Yes<br>CCC Yes<br>Japan VCCI Compliance Yes<br>MIC Yes<br>BSMI Yes<br>CE Marking Compliance Yes<br>BNCI or BELUS Yes<br>CIT Yes<br>GOST Yes<br>Saudi Arabian Compliance (ICCP) Yes<br>SABS Yes |

### Technical Specifications

UKRSERTCOMPUTER Yes

\* Configurations of the HP Compaq 6530b that are ENERGY STAR qualified are identified as HP Compaq 6530b ENERGY STAR on HP websites and on [www.energystar.gov](http://www.energystar.gov).

\*\* EPEAT registration varies by country. See [www.epeat.net](http://www.epeat.net) for registration status by country. EPEAT status listed above applies to U.S.

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

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|                                      |  |  |   |
|--------------------------------------|--|--|---|
| <b>HP 65W Smart AC Adapter</b>       | <b>Dimensions</b>  | 4.17 x 1.85 x 1.1 in (10.6 x 4.7 x 2.8 cm)       |   |
|                                      | <b>Weight</b>  | 0.62 lb (280 g)                                  |   |
|                                      | <b>Input</b>   | 100 to 240 VAC                                   |   |
|                                      |  | Input Efficiency                                 | 83% min at 115 VAC  |
|                                      |  | Input frequency range                            | 47 to 63 Hz   |
|                                      | <b>Output</b>  | Input AC current                                 | 1.7 A at 90 VAC, 0.85 A at 180 VAC                        |
|                                      |  | Output power 65W                                 | 65W   |
|                                      |  | DC output  | 18.5V   |
|                                      |  | Hold-up time                                     | 5 msec at 115 VAC input                                   |
|                                      |  | Output current limit                             | 5 msec at 115 VAC input                                   |
|                                      |  | Output current limit                             | <11A, Over voltage protection- 29V max automatic shutdown |
|                                      | <b>Connector</b>   | 3 pin/grounded, mates with interchangeable cords |   |
|                                      | <b>Environmental Design</b>  | 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%  |
| <b>EMI and Safety Certifications</b> | 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. |  |   |

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### Technical Specifications

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

|  |  |   |  |  |
|--|--|---|--|--|
| <b>Optional HP Extended Life Battery</b> | <b>Dimensions (H x W x L)</b>  | 1.0 x 3.9 x 8.7 in (2.5 x 10.0 x 22.0 cm) |  |  |
|  | <b>Weight</b>  | 1.00 lb (0.455 kg)                        |  |  |
|  | <b>Cells/Type</b>  | 8-cell Li-Ion                             |  |  |
|  | <b>Energy</b>  | Watt-hour Capacity                        | 52 WHr   |  |
|  | <b>Temperature</b>   | 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)                                      |  |
|  | <b>Battery Re-Charge Time</b>  | 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 |  |
| <b>Fuel Gauge</b>                        | When pressed, LEDs light indicating level of charge remaining on battery |   |  |  |

|                                       |                               |  |  |  |
|---------------------------------------|-------------------------------|--|--|--|
| <b>6-Cell (55 WHr) Li-Ion battery</b> | <b>Dimensions (H x W x L)</b> | 0.8 x 2.1 x 8.0 in (2.0 x 5.3 x 20.3 cm) |  |  |
|                                       | <b>Weight</b>                 | 0.737 lb (0.335 kg)                      |  |  |
|                                       | <b>Cells/Type</b>             | 6-cell Li-Ion                            |  |  |
|                                       | <b>Energy</b>                 | Watt-hour Capacity                       | 55 WHr   |  |
|                                       | <b>Temperature</b>            | 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)                                      |  |
|                                       | <b>Battery Re-Charge Time</b> | 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

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|                                       |                               |  |  |
|---------------------------------------|-------------------------------|--|--|
| <b>6-Cell (47 WHr) Li-Ion battery</b> | <b>Dimensions (H x W x L)</b> | 0.8 x 2.1 x 8.0 in (2.0 x 5.3 x 20.3 cm)   |  |
|                                       | <b>Weight</b>                 | 0.715 lb (0.325 kg)  |  |
|                                       | <b>Cells/Type</b>             | 6-cell Li-Ion  |  |
|                                       | <b>Energy</b>                 | Watt-hour Capacity   | 47 WHr   |
|                                       | <b>Temperature</b>            | 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)                        |
|                                       | <b>Battery Re-Charge Time</b> | 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 |  |

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### Displays

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|                                  |                            |   |            |
|----------------------------------|----------------------------|---|------------|
| <b>14.1-inch WXGA anti-glare</b> | <b>Active Area (W x H)</b> | 11.9 x 7.5 in (30.3 x 19.0 cm)  |            |
|                                  | <b>Diagonal Size</b>       | 14.1 in (35.7 cm)   |            |
|                                  | <b>Surface Treatment</b>   | Anti-glare  |            |
|                                  | <b>Number of Colors</b>    | Up to 16M   |            |
|                                  | <b>Contrast Ratio</b>      | 300:1 (typical)   |            |
|                                  | <b>Refresh Rate</b>        | 60 Hz   |            |
|                                  | <b>Brightness</b>          | 200 nit (typical)   |            |
|                                  | <b>Pixel Resolution</b>    | <b>Pitch</b>  | 0.237 mm   |
|                                  |                            | <b>Format</b>   | 1280 x 800 |
|                                  |                            | <b>Configuration</b>  | RGB Stripe |
|                                  | <b>Backlight</b>           | CCFL  |            |
|                                  | <b>PPI</b>                 | 107   |            |
|                                  | <b>Viewing Angle</b>       | ±30° Horizontal, ±10° Vertical (minimum)<br>30/30/20/10 (Left/Right/Down/Up) (minimum) or<br>45/45/35/25 (Left/Right/Down/Up) (typical) |            |

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### Technical Specifications

|                                      |                            |   |
|--------------------------------------|----------------------------|---|
| <b>14.1-inch WXGA<br/>BrightView</b> | <b>Active Area (W x H)</b> | 11.9 x 7.5 in (30.3 x 19.0 cm)  |
|                                      | <b>Diagonal Size</b>       | 14.1 in (35.7 cm)   |
|                                      | <b>Surface Treatment</b>   | BrightView  |
|                                      | <b>Number of Colors</b>    | Up to 16M   |
|                                      | <b>Contrast Ratio</b>      | 300:1 (typical)   |
|                                      | <b>Refresh Rate</b>        | 60 Hz   |
|                                      | <b>Brightness</b>          | 200 nit (typical)   |
|                                      | <b>Pixel Resolution</b>    | <b>Pitch</b> 0.237 mm   |
|                                      |                            | <b>Format</b> 1280 x 800  |
|                                      |                            | <b>Configuration</b> RGB Stripe   |
|                                      | <b>Backlight</b>           | CCFL  |
|                                      | <b>PPI</b>                 | 107   |
|                                      | <b>Viewing Angle</b>       | ±30° Horizontal, ±10° Vertical (minimum)<br>30/30/20/10 (Left/Right/Down/Up) (minimum) or<br>45/45/35/25 (Left/Right/Down/Up) (typical) |

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|  |                            |   |
|--|----------------------------|---|
| <b>14.1-inch WXGA+ anti-<br/>glare</b> | <b>Active Area (W x H)</b> | 11.9 x 7.5 in (30.3 x 19.0 cm)  |
|  | <b>Diagonal Size</b>       | 14.1 in (35.7 cm)   |
|  | <b>Surface Treatment</b>   | Anti-glare  |
|  | <b>Number of Colors</b>    | Up to 16M   |
|  | <b>Contrast Ratio</b>      | 300:1 (typical)   |
|  | <b>Refresh Rate</b>        | 60 Hz   |
|  | <b>Brightness</b>          | 200 nit (typical)   |
|  | <b>Pixel Resolution</b>    | <b>Pitch</b> 0.210 mm   |
|  |                            | <b>Format</b> 1440 x 900  |
|  |                            | <b>Configuration</b> RGB Stripe   |
|  | <b>Backlight</b>           | CCFL  |
|  | <b>PPI</b>                 | 121   |
|  | <b>Viewing Angle</b>       | ±30° Horizontal, ±10° Vertical (minimum)<br>30/30/20/10 (Left/Right/Down/Up) (minimum) or<br>45/45/35/25 (Left/Right/Down/Up) (typical) |

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### Hard Drives

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### Technical Specifications

|  |  |  |        |
|--|--|--|--------|
| <b>320 GB 7200 rpm SATA<br/>Hard Drive</b> | <b>Drive Weight</b>  | 0.25 lb (115 g)  |        |
|  | <b>Capacity</b>  | 320 GB   |        |
|  | <b>Height</b>  | 0.37 in (9.5 mm)   |        |
|  | <b>Width</b>   | 2.75 in (70 mm)  |        |
|  | <b>Interface</b>   | ATA-8, SATA 2.6, 3.0 Gb/s, NCQ                           |        |
|  | <b>Transfer Rate</b>                                       | <b>Synchronous</b> (maximum) 100 MB/s (Drive Capability) |        |
|  | <b>Seek Time</b><br>(typical reads, including<br>settling) | <b>Single Track</b>                                      | 1.5 ms |
|  |  | <b>Average</b>   | 11 ms  |
|  |  | <b>Maximum</b>   | 22 ms  |
|  | <b>Rotational Speed</b>                                    | 7200 rpm   |        |
|  | <b>Logical Blocks</b>                                      | 625,142,448  |        |
|  | <b>Operating Temperature</b>                               | 32° to 140° F (0° to 60° C) [case temp]                  |        |
|  | <b>Features</b>  | ATA Security   |        |

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|  |  |  |        |
|--|--|--|--------|
| <b>250 GB 7200 rpm SATA<br/>Hard Drive</b> | <b>Drive Weight</b>  | 0.25 lb (115 g)  |        |
|  | <b>Capacity</b>  | 250 GB   |        |
|  | <b>Height</b>  | 0.37 in (9.5 mm)   |        |
|  | <b>Width</b>   | 2.75 in (70 mm)  |        |
|  | <b>Interface</b>   | ATA-8, SATA 2.6, 3.0 Gb/s, NCQ                           |        |
|  | <b>Transfer Rate</b>                                       | <b>Synchronous</b> (maximum) 100 MB/s (Drive Capability) |        |
|  | <b>Seek Time</b><br>(typical reads, including<br>settling) | <b>Single Track</b>                                      | 1.5 ms |
|  |  | <b>Average</b>   | 11 ms  |
|  |  | <b>Maximum</b>   | 22 ms  |
|  | <b>Rotational Speed</b>                                    | 7200 rpm   |        |
|  | <b>Logical Blocks</b>                                      | 488,397,168  |        |
|  | <b>Operating Temperature</b>                               | 32° to 140° F (0° to 60° C) [case temp]                  |        |
|  | <b>Features</b>  | ATA Security   |        |

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### Technical Specifications

|  |  |  |        |
|--|--|--|--------|
| <b>160 GB 7200 rpm SATA<br/>Hard Drive</b> | <b>Drive Weight</b>  | 0.25 lb (115 g)  |        |
|  | <b>Capacity</b>  | 160 GB   |        |
|  | <b>Height</b>  | 0.37 in (9.5 mm)   |        |
|  | <b>Width</b>   | 2.75 in (70 mm)  |        |
|  | <b>Interface</b>   | ATA-8, SATA 2.6, 3.0 Gb/s, NCQ                           |        |
|  | <b>Transfer Rate</b>                                       | <b>Synchronous</b> (maximum) 100 MB/s (Drive Capability) |        |
|  | <b>Seek Time</b><br>(typical reads, including<br>settling) | <b>Single Track</b>                                      | 1.5 ms |
|  |  | <b>Average</b>   | 11 ms  |
|  |  | <b>Maximum</b>   | 22 ms  |
|  | <b>Rotational Speed</b>                                    | 7200 rpm   |        |
|  | <b>Logical Blocks</b>                                      | 312,581,808  |        |
|  | <b>Operating Temperature</b>                               | 32° to 140° F (0° to 60° C) [case temp]                  |        |
|  | <b>Features</b>  | ATA Security   |        |

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|  |  |  |       |
|--|--|--|-------|
| <b>500 GB 5400 rpm SATA<br/>Hard Drive</b> | <b>Drive Weight</b>  | 0.22 lb (101 g)  |       |
|  | <b>Capacity</b>  | 500 GB   |       |
|  | <b>Height</b>  | 0.37 in (9.5 mm)   |       |
|  | <b>Width</b>   | 2.75 in (70 mm)  |       |
|  | <b>Interface</b>   | ATA-8, SATA 2.6, 3.0 Gb/s, NCQ                           |       |
|  | <b>Transfer Rate</b>                                       | <b>Synchronous</b> (maximum) 100 MB/s (Drive Capability) |       |
|  | <b>Seek Time</b><br>(typical reads, including<br>settling) | <b>Single Track</b>                                      | 3 ms  |
|  |  | <b>Average</b>   | 13 ms |
|  |  | <b>Maximum</b>   | 24 ms |
|  | <b>Rotational Speed</b>                                    | 5400 rpm   |       |
|  | <b>Logical Blocks</b>                                      | 976,773,168  |       |
|  | <b>Operating Temperature</b>                               | 32° to 140° F (0° to 60° C) [case temp]                  |       |
|  | <b>Features</b>  | ATA Security   |       |

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### Technical Specifications

|  |  |  |       |
|--|--|--|-------|
| <b>320 GB 5400 rpm SATA<br/>Hard Drive</b> | <b>Drive Weight</b>  | 0.22 lb (101 g)  |       |
|  | <b>Capacity</b>  | 320 GB   |       |
|  | <b>Height</b>  | 0.37 in (9.5 mm)   |       |
|  | <b>Width</b>   | 2.75 in (70 mm)  |       |
|  | <b>Interface</b>   | ATA-8, SATA 2.6, 3.0 Gb/s, NCQ                           |       |
|  | <b>Transfer Rate</b>                                       | <b>Synchronous</b> (maximum) 100 MB/s (Drive Capability) |       |
|  | <b>Seek Time</b><br>(typical reads, including<br>settling) | <b>Single Track</b>                                      | 3 ms  |
|  |  | <b>Average</b>   | 13 ms |
|  |  | <b>Maximum</b>   | 24 ms |
|  | <b>Rotational Speed</b>                                    | 5400 rpm   |       |
|  | <b>Logical Blocks</b>                                      | 625,142,448  |       |
|  | <b>Operating Temperature</b>                               | 32° to 140° F (0° to 60° C) [case temp]                  |       |
|  | <b>Features</b>  | ATA Security   |       |

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|  |  |  |       |
|--|--|--|-------|
| <b>250 GB 5400 rpm SATA<br/>Hard Drive</b> | <b>Drive Weight</b>  | 0.22 lb (101 g)  |       |
|  | <b>Capacity</b>  | 250 GB   |       |
|  | <b>Height</b>  | 0.37 in (9.5 mm)   |       |
|  | <b>Width</b>   | 2.75 in (70 mm)  |       |
|  | <b>Interface</b>   | ATA-8, SATA 2.6, 3.0 Gb/s, NCQ                           |       |
|  | <b>Transfer Rate</b>                                       | <b>Synchronous</b> (maximum) 100 MB/s (Drive Capability) |       |
|  | <b>Seek Time</b><br>(typical reads, including<br>settling) | <b>Single Track</b>                                      | 3 ms  |
|  |  | <b>Average</b>   | 13 ms |
|  |  | <b>Maximum</b>   | 24 ms |
|  | <b>Rotational Speed</b>                                    | 5400 rpm   |       |
|  | <b>Logical Blocks</b>                                      | 488,397,168  |       |
|  | <b>Operating Temperature</b>                               | 32° to 140° F (0° to 60° C) [case temp]                  |       |
|  | <b>Features</b>  | ATA Security   |       |

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### Technical Specifications

|  |  |  |       |
|--|--|--|-------|
| <b>160 GB 5400 rpm SATA<br/>Hard Drive</b> | <b>Drive Weight</b>  | 0.22 lb (101 g)  |       |
|  | <b>Capacity</b>  | 160 GB   |       |
|  | <b>Height</b>  | 0.37 in (9.5 mm)   |       |
|  | <b>Width</b>   | 2.75 in (70 mm)  |       |
|  | <b>Interface</b>   | ATA-8, SATA 2.6, 3.0 Gb/s, NCQ                           |       |
|  | <b>Transfer Rate</b>                                       | <b>Synchronous</b> (maximum) 100 MB/s (Drive Capability) |       |
|  | <b>Seek Time</b><br>(typical reads, including<br>settling) | <b>Single Track</b>                                      | 3 ms  |
|  |  | <b>Average</b>   | 13 ms |
|  |  | <b>Maximum</b>   | 24 ms |
|  | <b>Rotational Speed</b>                                    | 5400 rpm   |       |
|  | <b>Logical Blocks</b>                                      | 312,581,808  |       |
|  | <b>Operating Temperature</b>                               | 32° to 140° F (0° to 60° C) [case temp]                  |       |
|  | <b>Features</b>  | ATA Security   |       |

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|  |  |  |       |
|--|--|--|-------|
| <b>120 GB 5400 rpm SATA<br/>Hard Drive</b> | <b>Drive Weight</b>  | 0.22 lb (101 g)  |       |
|  | <b>Capacity</b>  | 120 GB   |       |
|  | <b>Height</b>  | 0.37 in (9.5 mm)   |       |
|  | <b>Width</b>   | 2.75 in (70 mm)  |       |
|  | <b>Interface</b>   | ATA-8, SATA 2.6, 3.0 Gb/s, NCQ                           |       |
|  | <b>Transfer Rate</b>                                       | <b>Synchronous</b> (maximum) 100 MB/s (Drive Capability) |       |
|  | <b>Seek Time</b><br>(typical reads, including<br>settling) | <b>Single Track</b>                                      | 3 ms  |
|  |  | <b>Average</b>   | 13 ms |
|  |  | <b>Maximum</b>   | 24 ms |
|  | <b>Rotational Speed</b>                                    | 5400 rpm   |       |
|  | <b>Logical Blocks</b>                                      | 234,441,648  |       |
|  | <b>Operating Temperature</b>                               | 32° to 140° F (0° to 60° C) [case temp]                  |       |
|  | <b>Features</b>  | ATA Security   |       |

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### Removable Storage Drives

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### Technical Specifications

|                      |                                  |  |   |
|----------------------|----------------------------------|--|---|
| <b>DVD-ROM Drive</b> | <b>Access Times</b>              | Random   | <116 ms CD (typical)<br><125 ms DVD (typical) |
|                      | <b>Max Data Transfer Rate</b>    | 24X CD-ROM   | Up to 3,600 KB/s                              |
|                      |                                  | 8X-DVD   | Up to 10,800 KB/s                             |
|                      | <b>Transfer Mode</b>             | UDMA Mode 5  |   |
|                      | <b>Interface</b>                 | Gen 1 SATA   |   |
|                      | <b>Supported Media (read)</b>    | 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 |   |
|                      | <b>Supported Media (write)</b>   | None   |   |
|                      | <b>Max Media Capacity (read)</b> | 4.7 GB   |   |
|                      | <b>Transport</b>                 | Tray Loading   |   |

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|                                   |                                |   |   |
|-----------------------------------|--------------------------------|---|---|
| <b>DVD/CD-RW Combo Drive</b>      | <b>Access Times</b>            | Random  | <110 ms CD (typical)<br><130 ms DVD (typical) |
|                                   | <b>Max Data Transfer Rate</b>  | 24X CD-ROM  | Up to 3,600 KB/s                              |
|                                   |                                | 8X DVD  | Up to 10,800 KB/s                             |
|                                   |                                | 24X CD-R  | Up to 3,600 KB/s                              |
|                                   |                                | 24X CD-RW   | Up to 3,600 KB/s                              |
|                                   | <b>Transfer Mode</b>           | UDMA Mode 5   |   |
|                                   | <b>Interface</b>               | Gen 1 SATA  |   |
|                                   | <b>Supported Media (read)</b>  | 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 |   |
|                                   | <b>Supported Media (write)</b> | CD-R, CD-RW   |   |
| <b>Max Media Capacity (read)</b>  | 8.5 GB                         |   |   |
| <b>Max Media Capacity (write)</b> | 700 MB                         |   |   |
| <b>Transport</b>                  | Tray loading                   |   |   |

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### Technical Specifications

|   |   |  |   |
|---|---|--|---|
| <b>DVD+/-RW SuperMulti DL LightScribe Drive</b> | <b>Access Times</b>   | Random   | <175 ms CD (typical)<br><230 ms DVD (typical) |
|   | <b>Max Data Transfer Rate</b>                                   | 24X CD-ROM   | Up to 3,600 KB/s                              |
|   |   | 8X DVD   | Up to 10,800 KB/s                             |
|   |   | 24X CD-R   | Up to 3,600 KB/s                              |
|   |   | 16X CD-RW  | Up to 2,400 KB/s                              |
|   |   | 8X DVD+R   | Up to 10,800 KB/s                             |
|   |   | 4X DVD+RW  | Up to 5,400 KB/s                              |
|   |   | 8X DVD-R   | Up to 10,800 KB/s                             |
|   |   | 4X DVD-RW  | Up to 5,400 KB/s                              |
|   |   | 2.4X DVD+R(9)  | Up to 2,700 KB/s                              |
|   |   | 5X DVD-RAM   | Up to 6,750 KB/s                              |
|   | <b>Transfer Mode</b>  | UDMA Mode 5  |   |
|   | <b>Interface</b>  | Gen 1 SATA   |   |
|   | <b>Supported Media (read)</b>                                   | 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 |   |
| <b>Supported Media (write)</b>                  | CD-R, CD-RW, DVD+R, DVD+RW, DVD-R, DVD-RW, DVD-RAM, LightScribe |  |   |
| <b>Max Media Capacity (read)</b>                | 8.5 GB  |  |   |
| <b>Max Media Capacity (write)</b>               | 8.5 GB  |  |   |
| <b>Transport</b>                                | Tray Loading  |  |   |

### Security

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

### Audio

### Technical Specifications

|                 |  |   |
|-----------------|--|---|
| <b>Hardware</b> | <b>Implementation</b>                  | ADI1981HD High Definition CODEC                               |
|                 | <b>Touch-Sensitive Volume Controls</b> | Volume up, volume down, and mute                              |
|                 | <b>Full Duplex</b>                     | Yes   |
|                 | <b>Microphone In</b>                   | Stereo  |
|                 | <b>Headphone/Line Out</b>              | Stereo  |
|                 | <b>Integrated Microphone</b>           | Yes, dual-microphone array when equipped with optional webcam |

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

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|                                   |                     |         |
|-----------------------------------|---------------------|---------|
| <b>Integrated Stereo Speakers</b> | <b>Power Rating</b> | 2 Watts |
|                                   | <b>Impedance</b>    | 4 Ohms  |

### Communications

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|  |                             |  |  |
|--|-----------------------------|--|--|
| <b>Integrated Broadcom NetLink Gigabit Ethernet</b><br>(10/100/1000 NIC)<br>BCM5787M | <b>Ethernet Features</b>    | 10 Mbit/s operation (10BASE-T; IEEE 802.3i; IEEE 802.3 clauses 13-14)<br>100 Mbit/s operation (100BASE-TX; IEEE 802.3u; IEEE 802.3 clauses 21-30)<br>1000 Mbit/s operation (1000BASE-T; IEEE 802.3z and 802.3ab; IEEE 802.3 clauses 34-42)<br>Auto-Negotiation (Automatic Speed Selection)<br>Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/s<br>IEEE 802.1p QoS (Quality of Service) Support<br>IEEE 802.3x Flow Control (IEEE 802.3 clauses 31-32; configurable) |  |
|  | <b>Power Management</b>     | ACPI compliant -- multiple power modes<br>Situation-sensitive features reduce power consumption  |  |
|  | <b>Performance Features</b> | TCP/IP/UDP Checksum Offload (configurable)   |  |
|  | <b>Manageability</b>        | Wake-on-LAN from standby and hibernation (Magic Packet and Microsoft Wake-Up Frame); Wake-on-LAN from off (Magic Packet only)<br>PXE 2.1 Remote Boot<br>Statistics Gathering (SNMP MIB II, Ethernet-like MIB, Ethernet MIB (802.3x, clause 30))<br>Comprehensive diagnostic and configuration software suite   |  |
|  | <b>Interface</b>            | PCI Express x1   |  |
|  |                             |  |  |
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|  |                             |  |  |
|  |                             |  |  |

### Technical Specifications

**NIC Device Driver Name** Broadcom NetLink Gigabit Ethernet

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

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### Technical Specifications

|   |   |   |
|---|---|---|
| <b>HP un2400<br/>EV-DO/HSPA Mobile<br/>Broadband Module</b> | <b>Technology/Operating Bands</b>   | GSM/GPRS/EDGE: 850MHz(Cell), 900MHz(EGSM), 1800MHz(DCS), 1900MHz (PCS)<br>UMTS/WCDMA with receive diversity: 2100MHz (UTRA FDD Band I), 1900MHz (UTRA FDD Band II), 850MHz (UTRA FDD Band V)<br>1xEVDO/1xRTT with receive diversity: 850MHz (Band Class0-Cell), 1900MHz (Band Class1-PCS) |
|   | <b>Wireless Protocol Standards</b>  | GSM/GPRS/EDGE: Class B, Multi-slot operation, coding schemes CS1 – CS4 and MSC1 – MSC9.<br>UMTS/WCDMA: Release 99 and Release 5<br>CDMA: 1xEVDO Release 0 and Release A, IS-95A, IS-95B, IS-2000  |
|   | <b>Wireless Parametric Standards</b>                                      | Meets or exceeds TIA/EIA IS-98-D  |
|   | <b>Maximum Data Rates</b>   | UMTS (HSPA) – 7.2 Mbps (Download), 2.0Mbps (Upload)<br>CDMA (EVDO Release A) – 3.1 Mbps (Download), 1.8Mbps (Upload)  |
|   | <b>Maximum Output Power</b>   | GSM/GPRS/EDGE: 32dBm (+/-1)<br>WCDMA: 24dBm (+/-1)<br>CDMA: 24dBm (+/-1)  |
|   | <b>Maximum Power Consumption</b>  | 2500mA (peak); 1000mA (average)   |
|   | <b>Power Consumption, Sleep Mode</b>                                      | 5 mA  |
|   | <b>Power Management</b>   | USB selective suspend<br>Integrated notebook wireless button  |
|   | <b>Antenna Type</b>   | Dual high efficiency 5 band antennae with spatial diversity, mounted in the display enclosure   |
|   | <b>Form Factor</b>  | PCI-Express MiniCard  |
|   | <b>Weight</b>   | 11.5 g  |
|   | <b>Dimensions</b> (Length x Width x Thickness)                            | 2.01 x 1.18 x 0.18 in (51 x 30 x 4.5 mm)  |
|   | <b>Voltage, Operating</b>   | 3.3v +/- 10%  |
|   | <b>Temperature, Operating</b> (from TIA/EIA/IS-98-D)                      | -22° to 140° F (-30° to 60° C) (full RF performance)<br>-22° to 167° F (-30° to 75° C) (reduced RF performance)   |
|   | <b>Temperature, Non-operating, 96 hours</b> (from MIL-STD 202 Method 108) | -40° to 185° F (-40° to 85° C)  |
|   | <b>Humidity, Non-operating</b>  | 85% relative humidity for 48 hours @ 185° F (85° C) (non-condensing)  |
|   | <b>Configuration Utilities</b>  | HP Connection Manager   |
|   | <b>LED Activity</b>   | LED Off – Radio Off;<br>Solid LED On – Radio On   |

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|                             |                               |   |
|-----------------------------|-------------------------------|---|
| <b>Intel WiFi Link 5100</b> | <b>Wireless LAN Standards</b> | IEEE 802.11a<br>IEEE 802.11b<br>IEEE 802.11g<br>IEEE 802.11n (draft 2.0)* |
|-----------------------------|-------------------------------|---|

### Technical Specifications

\* The specifications for 802.11n draft 2.0 are draft specifications and are not final. If the final specifications differ from the draft specifications, it may affect the ability of the notebook to communicate with other 802.11n WLAN devices. In countries where n draft 2.0 is not allowed, this capability is not enabled.

|   |  |
|---|--|
| <b>Interoperability</b>   | <p>Wi-Fi certified (802.11abg only)</p> <p>Cisco Compatible Extensions Program compliant (802.11abg only) with Microsoft Windows Vista and XP (details at: <a href="http://www.hp.com/go/notebooks/WLAN">http://www.hp.com/go/notebooks/WLAN</a>)</p> <p>Tested with wireless access points from several major manufacturers (details at: <a href="http://www.hp.com/go/notebooks/WLAN/draft-n">http://www.hp.com/go/notebooks/WLAN/draft-n</a>)</p> |
| <b>Frequency Band</b>   | 2.4 GHz and 5 GHz  |
| <b>Antenna Structure</b>  | 1 transmit; 2 receive (1x2)  |
| <b>Data Rates</b>   | <p>802.11b: 1, 2, 5.5, 11 Mbps</p> <p>802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps</p> <p>802.11n (draft): 66 possible data rates, ranging from 6 Mbps to 300 Mbps, depending on the combination of Bandwidth, Modulation Coding Scheme, and Guard Interval used, as defined in IEEE 802.11n (draft) specification</p>   |
| <b>Modulation</b>   | <p>Direct Sequence Spread Spectrum</p> <p>DBPSK, DQPSK, CCK, OFDM, BPSK, QPSK, 16-QAM, 64-QAM</p>  |
| <b>Security<sup>1</sup></b>   | <p>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.</p> <p>Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program Version 4) with Microsoft Windows Vista and XP only.</p>                 |
| <b>Sub-channels</b>   | Multinational support with frequency bands and channels compliant to local regulations.  |
| <b>Media Access Protocol</b>  | CSMA/CA (Collision Avoidance) with ACK   |
| <b>Network Architecture Models</b>                                    | <p>Ad-hoc (Peer to Peer)</p> <p>Infrastructure (Access Point Required)</p>   |
| <b>Roaming</b>  | IEEE 802.11 compliant roaming between access points  |
| <b>Output Power (for CCK)<sup>2</sup></b>                             | 15 dBm   |
| <b>Output Power (for OFDM; power varies by data rate)<sup>2</sup></b> | 15 dBm   |
| <b>Power Consumption</b>  | <p>Transmit: 2.3 Watts (average, with one spatial streams)</p> <p>Receive: 1.9 Watts (average with two receive chains)</p> <p>Idle mode<sup>3</sup>: 30 mW (average)</p> <p>Radio off: 20 mW (max)</p>   |
| <b>Power Management</b>   | <p>ACPI compliant power management</p> <p>802.11 compliant power saving mode</p>   |
| <b>Receiver Sensitivity<sup>4</sup></b>                               | 300 Mbps: -68 dBm, 54 Mbps: -74 dBm, 6 Mbps: -90 dBm   |
| <b>Antenna Connections</b>  | 3 U.FL type connectors, 50 ohm nominal impedance   |
| <b>Range</b>  | <p>802.11 a – Typical                      600 feet – Outdoor Open Area</p> <p>(@6 Mbps)                                      150 feet – Indoor, Office environment</p>  |

### Technical Specifications

|  |   |  |
|--|---|--|
|  | 802.11 b – Typical (@1 Mbps)  | 1200 feet – Outdoor Open Area<br>300 feet – Indoor, Office environment |
|  | 802.11 g – Typical (@1 Mbps)  | 1200 feet – Outdoor Open Area<br>300 feet – Indoor, Office environment |
| <b>Form Factor</b>                       | PCI-Express MiniCard  |  |
| <b>Weight</b>                            | 0.013 lb (6 g)  |  |
| <b>Dimensions</b>                        | 0.19 x 1.2 x 2.0 in (4.75 x 29.85 x 50.8 mm)  |  |
| <b>Operating Voltage</b>                 | 3.3V +/- 9%, 1.5V +/- 5%  |  |
| <b>Temperature</b>                       | Operating   | 32° to 176° F (0° to 80° C)  |
|  | Non-operating   | -40° to 176° F (-40° to 80° C)   |
| <b>Humidity</b>                          | Operating   | 10% to 90% (non-condensing)  |
|  | Non-operating   | 5% to 90% (non-condensing)   |
| <b>Altitude</b>                          | Operating   | 0 to 10,000 ft (3,048 m)   |
|  | Non-operating   | 0 to 50,000 ft (15,240 m)  |
| <b>Configuration Utility<sup>5</sup></b> | Microsoft Windows XP<br>Choice of Configuration Utility: <ul style="list-style-type: none"><li>● Microsoft Windows XP Wireless Network Connection Manager</li><li>● Intel PROSet for Microsoft Windows XP (required for Cisco Compatible Extensions support)</li></ul> Microsoft Windows Vista <ul style="list-style-type: none"><li>● Microsoft Windows Vista Wireless Network Connection Manager.</li><li>● Intel IHV extensions for Windows Vista available to support Cisco Compatible Extensions.</li></ul>  |  |
| <b>LED Activity</b>                      | LED Off – Radio OFF; Solid LED On – Radio ON <ol style="list-style-type: none"><li>1. Check latest software/driver release for updates on supported security features.</li><li>2. Maximum output power may vary by country according to local regulations.</li><li>3. In Power Save Polling mode and on battery power.</li><li>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).</li><li>5. WLAN supplier's client utility is required for Cisco Compatible Extensions support with Microsoft Windows XP. WLAN may also be compatible with certain third-party software supplicants. WLAN supplier IHV extensions required for Cisco Compatible Extensions support for Microsoft Windows Vista.</li></ol> |  |

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**Broadcom 4312G  
802.11b/g WiFi Adapter**

|                               |   |
|-------------------------------|---|
| <b>Wireless LAN Standards</b> | IEEE 802.11b<br>IEEE 802.11g  |
| <b>Interoperability</b>       | Wi-Fi certified (802.11abg only)<br>Cisco Compatible Extensions Program compliant (802.11abg only) with Microsoft Windows Vista and XP (details at: <a href="http://www.hp.com/go/notebooks/WLAN">http://www.hp.com/go/notebooks/WLAN</a> )<br>Tested with wireless access points from several major manufacturers (details at: <a href="http://www.hp.com/go/notebooks/WLAN/draft-n">http://www.hp.com/go/notebooks/WLAN/draft-n</a> ) |
| <b>Frequency Band</b>         | 2.4 GHz   |



### Technical Specifications

|   |   |  |
|---|---|--|
| <b>Data Rates</b>   | 802.11b: 1, 2, 5.5, 11 Mbps<br>802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps   |  |
| <b>Modulation</b>   | Direct Sequence Spread Spectrum<br>DBPSK, DQPSK, CCK, OFDM  |  |
| <b>Security<sup>1</sup></b>   | 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.  |  |
| <b>Sub-channels</b>   | Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program Version 4) with Microsoft Windows Vista and XP only. |  |
| <b>Media Access Protocol</b>  | Multinational support with frequency bands and channels compliant to local regulations.   |  |
| <b>Network Architecture Models</b>                                    | CSMA/CA (Collision Avoidance) with ACK<br>Ad-hoc (Peer to Peer)<br>Infrastructure (Access Point Required)   |  |
| <b>Roaming</b>  | IEEE 802.11 compliant roaming between access points   |  |
| <b>Output Power (for CCK)<sup>2</sup></b>                             | 17 dBm  |  |
| <b>Output Power (for OFDM; power varies by data rate)<sup>2</sup></b> | 15 dBm  |  |
| <b>Power Consumption</b>  | Idle associated: 250 mW<br>Idle unassociated: 150 mW<br>Transmit: 2.0 W (max)<br>Receive: 2.0 W (max)   |  |
| <b>Power Management</b>   | ACPI compliant power management<br>802.11 compliant power saving mode   |  |
| <b>Receiver Sensitivity<sup>3</sup></b>                               | 54 Mbps: -71 dBm, 11 Mbps: -85 dBm, 1 Mbps: -95 dBm   |  |
| <b>Antenna type</b>   | High efficiency dual band antenna with spatial diversity, mounted in the display enclosure  |  |
| <b>Range</b>  | 802.11 b – Typical (@1 Mbps)  | 1200 feet – Outdoor Open Area<br>300 feet – Indoor, Office environment |
|   | 802.11 g – Typical (@1 Mbps)  | 1200 feet – Outdoor Open Area<br>300 feet – Indoor, Office environment |
| <b>Form Factor</b>  | PCI-Express MiniCard  |  |
| <b>Weight</b>   | 0.026 lb (12 g)   |  |
| <b>Dimensions</b>   | 0.19 x 1.2 x 2.0 in (4.75 x 29.85 x 50.8 mm)  |  |
| <b>Operating Voltage</b>  | 3.3v +/- 10%  |  |
| <b>Temperature</b>  | Operating   | 14° to 149° F (–10° to 65° C)  |
|   | Non-operating   | –40° to 176° F (–40° to 80° C)   |
| <b>Humidity</b>   | Operating   | 10% to 90% (non-condensing)  |
|   | Non-operating   | 5% to 95% (non-condensing)   |
| <b>Altitude</b>   | Operating   | 0 to 10,000 ft (3,048 m)   |
|   | Non-operating   | 0 to 50,000 ft (15,240 m)  |
| <b>Configuration Utility<sup>4</sup></b>                              | Microsoft Windows XP<br>Choice of Configuration Utility:  |  |

### Technical Specifications

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

#### Microsoft Windows Vista

- Microsoft Windows Vista Wireless Network Connection Manager
- Broadcom IHV extensions for Windows Vista available to support Cisco Compatible Extensions.

#### LED Activity

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

1. Check latest software/driver release for updates on supported security features.
2. Maximum output power may vary by country according to local regulations.
3. 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).
4. WLAN supplier's client utility is required for Cisco Compatible Extensions support with Microsoft Windows XP. WLAN may also be compatible with certain third-party software supplicants. WLAN supplier IHV extensions required for Cisco Compatible Extensions support for Microsoft Windows Vista.

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|  |                               |   |
|--|-------------------------------|---|
| <b>Broadcom 4322AGN<br/>802.11a/b/g/draft-n WiFi<br/>Adapter</b> | <b>Wireless LAN Standards</b> | IEEE 802.11a<br>IEEE 802.11b<br>IEEE 802.11g<br>IEEE 802.11n (draft 2.0)  |
|  | <b>Interoperability</b>       | Wi-Fi certified (802.11abg only)<br>Cisco Compatible Extensions Program compliant (802.11abg only) with Microsoft Windows Vista and XP (details at: <a href="http://www.hp.com/go/notebooks/WLAN">http://www.hp.com/go/notebooks/WLAN</a> )<br>Tested with wireless access points from several major manufacturers (details at: <a href="http://www.hp.com/go/notebooks/WLAN/draft-n">http://www.hp.com/go/notebooks/WLAN/draft-n</a> ) |
|  | <b>Frequency Band</b>         | 2.4 GHz and 5 GHz   |
|  | <b>Data Rates</b>             | 802.11b: 1, 2, 5.5, 11 Mbps<br>802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps<br>802.11n (draft): 6, 6.5, 9, 12, 13, 13.5, 18, 19.5, 24, 26, 27, 36, 39, 40.5, 48, 52, 54, 58.5, 65, 78, 81, 104, 108, 117, 121.5, 130, 135, 162, 216, 243, 270, 300 Mbps   |
|  | <b>Frequency Support</b>      | 20 MHz: 2.4 GHz and 5 GHz bands<br>40 MHz: 2.4 GHz and 5 GHz band   |
|  | <b>Modulation</b>             | Direct Sequence Spread Spectrum<br>DBPSK, DQPSK, CCK, OFDM, BPSK, QPSK, 16-QAM, 64-QAM  |
|  | <b>Security<sup>1</sup></b>   | 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.<br><br>Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program Version 4) with Microsoft Windows Vista and XP only.   |

### Technical Specifications

|   |   |  |
|---|---|--|
| <b>Sub-channels</b>   | Multinational support with frequency bands and channels compliant to local regulations.   |  |
| <b>Media Access Protocol</b>  | CSMA/CA (Collision Avoidance) with ACK  |  |
| <b>Network Architecture Models</b>                                    | Ad-hoc (Peer to Peer)<br>Infrastructure (Access Point Required)   |  |
| <b>Roaming</b>  | IEEE 802.11 compliant roaming between access points   |  |
| <b>Output Power (for CCK)<sup>2</sup></b>                             | 17 dBm  |  |
| <b>Output Power (for OFDM; power varies by data rate)<sup>2</sup></b> | 15 dBm  |  |
| <b>Power Consumption</b>  | Idle associated: 250 mW<br>Idle unassociated: 150 mW<br>Transmit/Receive 20 MHz channel: 2.0 W (max)<br>Transmit/Receive 40 MHz channel: 2.0 W (max)  |  |
| <b>Power Management</b>   | ACPI compliant power management<br>802.11 compliant power saving mode   |  |
| <b>Receiver Sensitivity<sup>3</sup></b>                               | 270 Mbps: -66dBm, 162 Mbps: -72 dBm, 54 Mbps: -72 dBm, 11 Mbps: -85 dBm<br>, 1 Mbps: -94 dBm  |  |
| <b>Antenna type</b>   | High efficiency dual band antenna with spatial diversity, mounted in the display enclosure  |  |
| <b>Range</b>  | 802.11 a – Typical (@6 Mbps)  | 600 feet – Outdoor Open Area<br>150 feet – Indoor, Office environment  |
|   | 802.11 b – Typical (@1 Mbps)  | 1200 feet – Outdoor Open Area<br>300 feet – Indoor, Office environment |
|   | 802.11 g – Typical (@1 Mbps)  | 1200 feet – Outdoor Open Area<br>300 feet – Indoor, Office environment |
| <b>Form Factor</b>  | PCI-Express MiniCard  |  |
| <b>Weight</b>   | 0.026 lb (12 g)   |  |
| <b>Dimensions</b>   | 0.19 x 1.2 x 2.0 in (4.75 x 29.85 x 50.8 mm)  |  |
| <b>Operating Voltage</b>  | 3.3v +/- 10%  |  |
| <b>Temperature</b>  | Operating   | 14° to 149° F (–10° to 65° C)  |
|   | Non-operating   | –40° to 176° F (–40° to 80° C)   |
| <b>Humidity</b>   | Operating   | 10% to 90% (non-condensing)  |
|   | Non-operating   | 5% to 95% (non-condensing)   |
| <b>Altitude</b>   | Operating   | 0 to 10,000 ft (3,048 m)   |
|   | Non-operating   | 0 to 50,000 ft (15,240 m)  |
| <b>Configuration Utility<sup>4</sup></b>                              | Microsoft Windows XP<br>Choice of Configuration Utility: <ul style="list-style-type: none"> <li>● Microsoft Windows XP Wireless Network Connection Manager</li> <li>● Broadcom Wireless Configuration Utility (required for Cisco Compatible Extensions support)</li> </ul> Microsoft Windows Vista <ul style="list-style-type: none"> <li>● Microsoft Windows Vista Wireless Network Connection Manager</li> <li>● Broadcom IHV extensions for Windows Vista available to support Cisco</li> </ul> |  |

### Technical Specifications

Compatible Extensions.

#### LED Activity

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

1. Check latest software/driver release for updates on supported security features.
2. Maximum output power may vary by country according to local regulations.
3. 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).
4. WLAN supplier's client utility is required for Cisco Compatible Extensions support with Microsoft Windows XP. WLAN may also be compatible with certain third-party software suppliers. WLAN supplier IHV extensions required for Cisco Compatible Extensions support for Microsoft Windows Vista.

#### HP Integrated Module with Bluetooth Wireless Technology

|                                     |   |
|-------------------------------------|---|
| <b>Bluetooth Specification</b>      | 2.0 Compliant   |
| <b>Dimensions</b>                   | 1.02 x 0.55 x 0.22 in (26 x 14 x 5.7 mm)  |
| <b>Frequency Band</b>               | 2402 to 2480 MHz  |
| <b>Number of Available Channels</b> | 79 (1 MHz) available channels   |
| <b>Data Rates and Throughput</b>    | 3 Mbps data rate; throughput up to 2.17 Mbps<br>Synchronous Connection Oriented links up to 3, 64 kbps, voice channels<br>Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric or 1306.9 kbps symmetric |
| <b>Transmit Power</b>               | -6 dBm to 4 dBm (Bluetooth Class II)  |
| <b>Receiver Sensitivity</b>         | Better than -80 dBm at 0.1 % raw bit error rate   |
| <b>Power Consumption</b>            | Peak (Tx) 264 mW<br>Peak (Rx) 231 mW<br>Sleep <1 mW   |
| <b>Antenna</b>                      | Internally integrated within module   |
| <b>Range</b>                        | Up 33 ft (10 m)   |
| <b>Electrical Interface</b>         | USB 2.0 compliant<br>Microsoft Windows Plug and Play compliant  |
| <b>Bluetooth Software Supported</b> | Broadcom Bluetooth for Windows<br>Microsoft Windows XP Bluetooth Software   |
| <b>Link Topology</b>                | Point to Point, Multipoint Pico Nets up to 7 slaves   |
| <b>Security</b>                     | Full support of Bluetooth Security Provisions   |
| <b>Power Management</b>             | Microsoft Windows ACPI, and USB Bus Support<br>Self configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff  |
| <b>Certifications</b>               | All necessary regulatory approvals for supported countries, including:<br>FCC (47 CFR) Part 15C, Section 15.247 & 15.249<br>ETS 300 328, ETS 300 826<br>Low Voltage Directive IEC950<br>UL, CSA, and CE Mark            |

### Technical Specifications

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

### Eco 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
- Taiwan Green Mark
- IT ECO declaration
- EPEAT – GOLD

#### System Configuration

The configuration used for the Energy Consumption and Declared Noise Emissions data for the Convertible Mini tower Desktop model is based on a "Typically Configured Notebook"

|                                    |           |           |           |
|------------------------------------|-----------|-----------|-----------|
| <b>Energy Consumption</b>          | 115 VAC   | 230 VAC   | 100 VAC   |
| Normal Operation                   | 9.2 W     | 10.4 W    | 9 W       |
| Sleep (Energy Star low power mode) | 1.61 W    | 1.61 W    | 1.58 W    |
| Off                                | 0.68 W    | 0.77 W    | 0.71 W    |
| <b>Heat Dissipation*</b>           | 115 VAC   | 230 VAC   | 100 VAC   |
| Normal Operation                   | 31 BTU/hr | 36 BTU/hr | 31 BTU/hr |
| Sleep                              | 6 BTU/hr  | 6 BTU/hr  | 5 BTU/hr  |

### Technical Specifications

Off

2 BTU/hr

3 BTU/hr

2 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<br>(LWAd, bels) | Sound Pressure<br>(LpAm, decibels) |
|-----------|-----------------------------|------------------------------------|
| Idle      | 3.2                         | 28                                 |
| Operation | 3.3                         | 29                                 |

#### Batteries

This product complies with ISO standards:

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

Batteries used in the product do not contain:

- Mercury greater than 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  
High capacity Lithium-Ion battery

#### 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.

This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986).

This product is in compliance with the IEEE 1680 (EPEAT) standard at the GOLD level, see: [www.epeat.net](http://www.epeat.net)

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.)

### Technical Specifications

This product is greater than 96.1% recycle-able when properly disposed of at end of life.

#### Packaging Materials

- External:
  - CANON bags – several layers 15 g
- Internal:
  - EPE-Expanded Polyethylene 80 g
  - Corrugated Carton & Cardboard & misc. 685 g
- The CANON bags – several layers packaging material is made from 100% recycled content.
- The EPE-Expanded Polyethylene packaging material is made from 100% recycled content.
- The Corrugated carton & Cardboard & misc packaging materials contains 100% recycled content.

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

- Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials.
- Eliminate the use of ozone-depleting substances (ODS) in packaging materials.
- Design packaging materials for ease of disassembly.
- Maximize the use of post-consumer recycled content materials in packaging materials.
- Use readily recyclable packaging materials such as paper and corrugated materials.
- Reduce size and weight of packages to improve transportation fuel efficiency.
- Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.

#### Material Usage

This product does not contain any of the following substances in excess of regulatory limits (for reference of these limits please refer to the HP General Specification of the Environment

([http://www.hp.com/hpinfo/globalcitizenship/environment/supplychain/gen\\_specifications.html](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

### Technical Specifications

- 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)

Nickel finishes that release greater than 0.5 micro-grams/cm<sup>2</sup>/week, measured according to EN 1811:1998, are not used on any product surface designed to be frequently handled or touched by users.

#### End-of-life Management and Recycling

Hewlett-Packard offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: <http://www.hp.com/go/reuse-recycle> or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: <http://www.hp.com/go/recyclers>. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

#### 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>

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