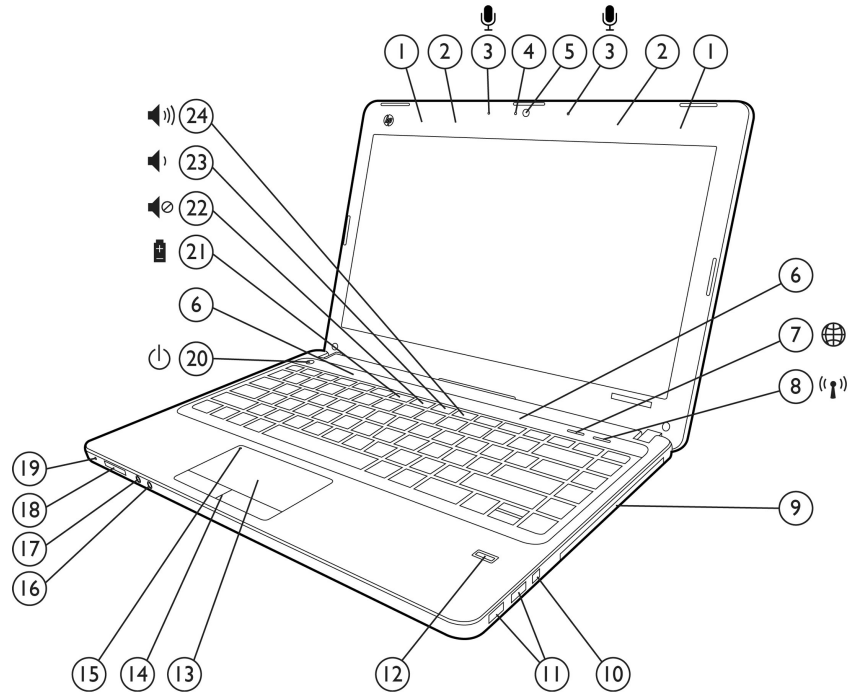


Overview



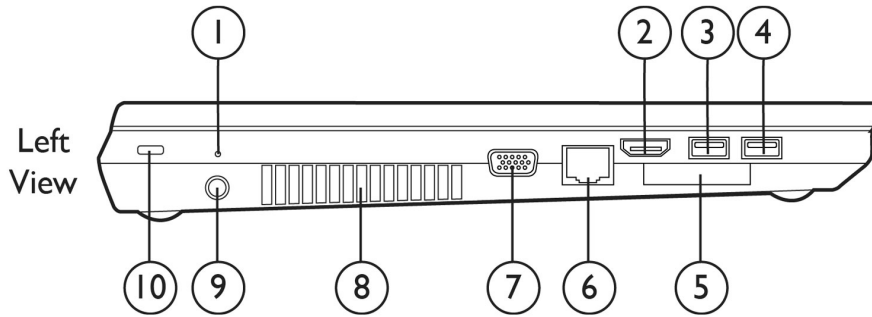
1. WWAN antennas (select models)
2. WLAN antennas
3. Dual-microphone array*
4. Webcam LED indicator (with optional webcam)
5. Optional 720p HD webcam
6. Stereo speakers
7. HP QuickWeb button with LED indicator
8. Wireless on/off button with LED indicator
9. Optical drive (select models)
10. Optional RJ-11/modem port
11. (2) USB 2.0 ports
12. Optional HP Fingerprint Sensor
13. Touchpad
14. Touchpad pick buttons
15. Touchpad on/off button with LED indicator
16. Stereo microphone in
17. Stereo headphone/line out
18. Media Card Reader
19. Hard drive activity LED indicator
20. Power button with LED indicator
21. HP Power Assistant function key
22. Volume mute function key
23. Volume down function key
24. Volume up function key

* Models without optional webcam have single integrated microphone.

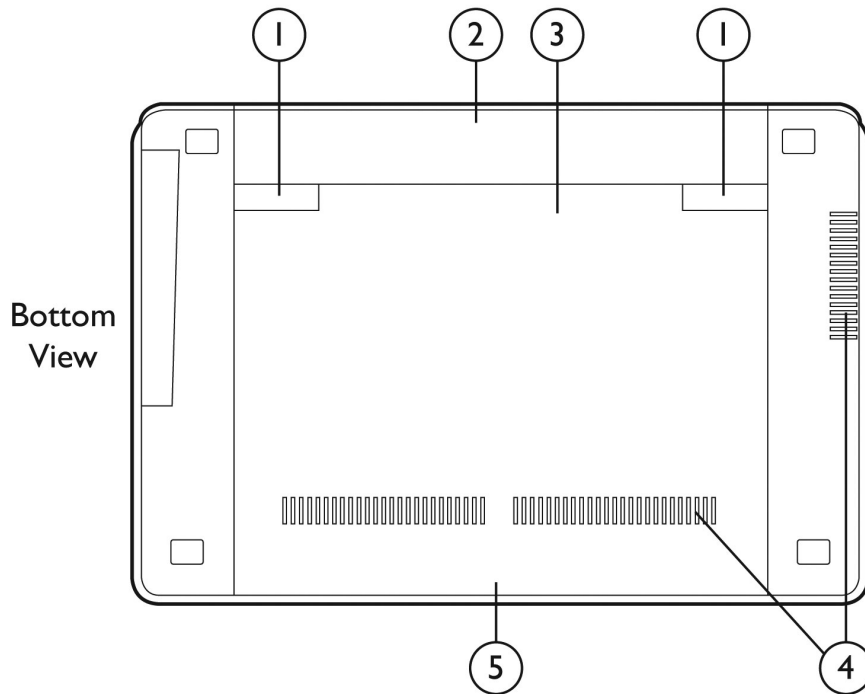
QuickSpecs

HP ProBook 4435s Notebook PC
HP ProBook 4436s Notebook PC
HP ProBook 4535s Notebook PC

Overview



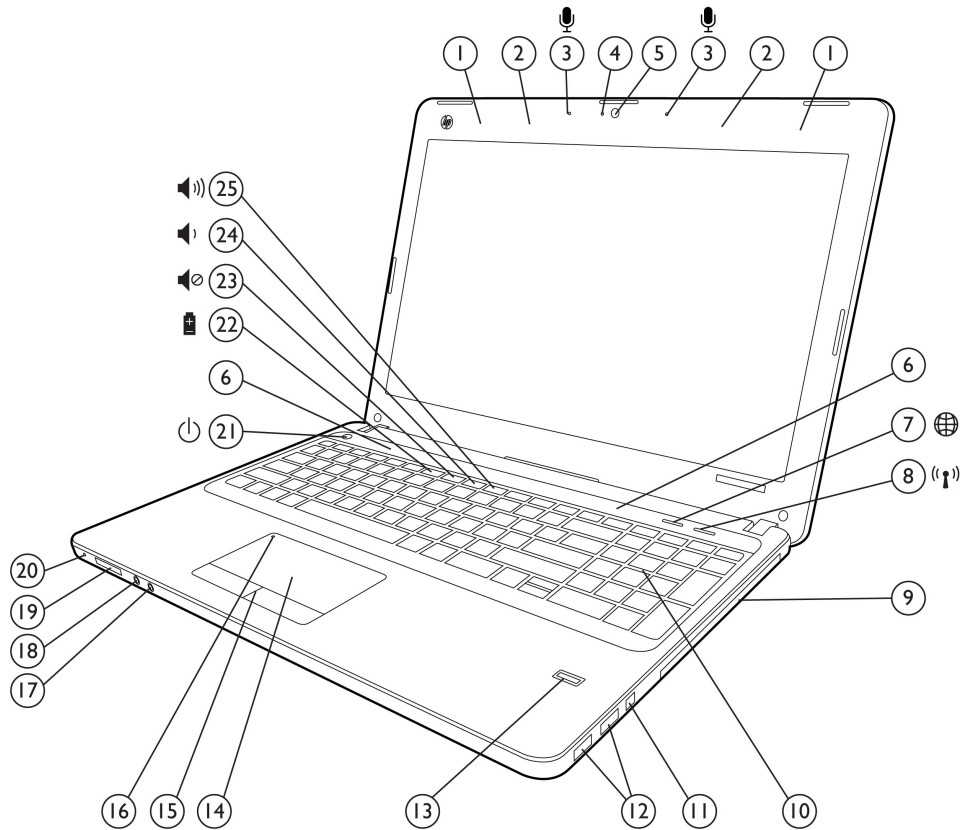
- 1. Battery charging LED indicator
- 2. HDMI 1.4a port
- 3. USB 3.0 port
- 4. USB 2.0 port
- 5. ExpressCard/34 slot
- 6. RJ-45/Ethernet port
- 7. VGA/external monitor connector
- 8. Vent
- 9. Power connector
- 10. Security lock slot



- 1. Battery and access cover release latches
- 2. Battery bay
- 3. SIM card slot (select units, located inside battery bay)
- 4. Vents
- 5. Hard drive bay

Overview

HP ProBook 4535s Notebook PC

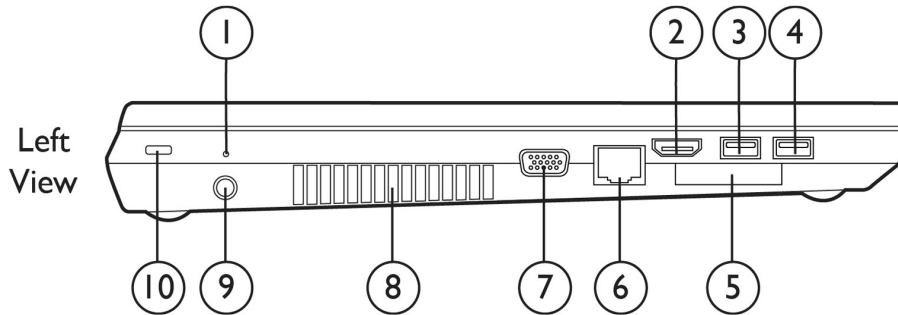


- | | |
|--|---|
| 1. WWAN antennas (select models) | 14. Touchpad |
| 2. WLAN antennas | 15. Touchpad pick buttons |
| 3. Dual-microphone array* | 16. Touchpad on/off button with LED indicator |
| 4. Webcam LED indicator (with optional webcam) | 17. Stereo microphone in |
| 5. Optional 720p HD webcam | 18. Stereo headphone/line out |
| 6. Stereo speakers | 19. Media Card Reader |
| 7. HP QuickWeb button with LED indicator | 20. Hard drive activity LED indicator |
| 8. Wireless on/off button with LED indicator | 21. Power button with LED indicator |
| 9. Optical drive (select models) | 22. HP Power Assistant function key |
| 10. Numeric keypad | 23. Volume mute function key |
| 11. Optional RJ-11/modem port | 24. Volume down function key |
| 12. (2) USB 2.0 ports | 25. Volume up function key |
| 13. Optional HP Fingerprint Sensor | |

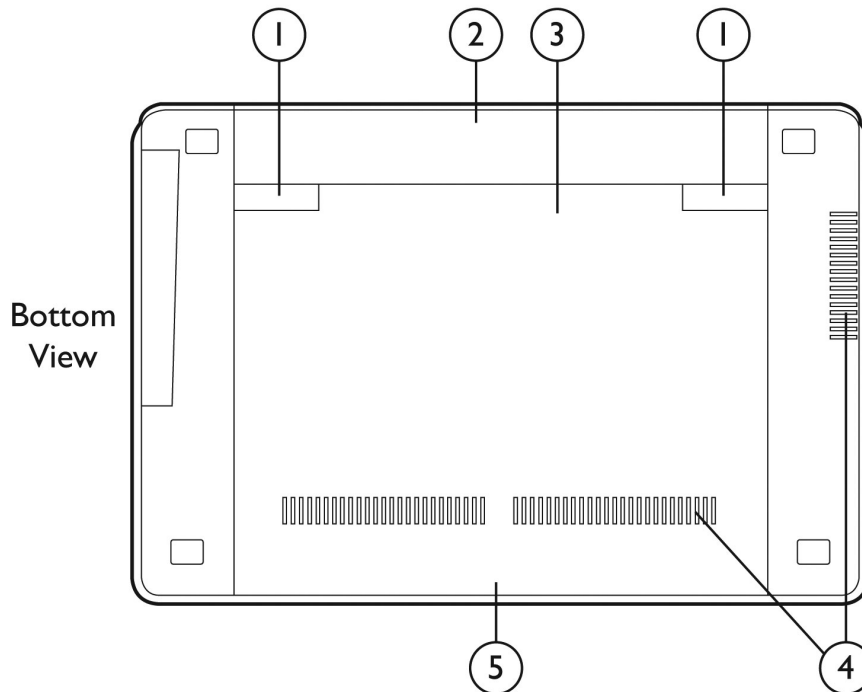
QuickSpecs

HP ProBook 4435s Notebook PC
HP ProBook 4436s Notebook PC
HP ProBook 4535s Notebook PC

Overview



- | | |
|-----------------------------------|-----------------------------------|
| 1. Battery charging LED indicator | 6. RJ-45/Ethernet port |
| 2. HDMI 1.4a port | 7. VGA/external monitor connector |
| 3. USB 3.0 port | 8. Vent |
| 4. USB 2.0 port | 9. Power connector |
| 5. ExpressCard/34 slot | 10. Security lock slot |



- | | |
|---|-------------------|
| 1. Battery and access cover release latches | 4. Vents |
| 2. Battery bay | 5. Hard drive bay |
| 3. SIM card slot (select units, located inside battery bay) | |

Overview

At A Glance

- Genuine Windows 7 versions, SUSE Linux, or FreeDOS
- Thin, lightweight design with metallic gray brushed aluminum finish for durability and style; wear-resistant HP DuraFinish
- Full-sized spill-resistant keyboard; full separate numeric keypad on HP ProBook 4535s
- HP 3D DriveGuard to protect hard drive against impact, bumps or drops
- Larger Touchpad with gestures support, on/off button with LED indicator
- Enhanced security features including HP ProtectTools, HP Face Recognition, optional HP Fingerprint Sensor, and optional HP Privacy Filter
- SRS Premium Sound optimized for high fidelity audio
- HDMI port for connecting to high-resolution displays
- ArcSoft TotalMedia Suite for playing, creating, and editing video and audio files
- Optional HD webcam with dual-microphone array for video conferencing
- Widescreen LED-backlit HD display with 16:9 aspect ratio
HP ProBook 4435s and 4436s: 14.0-inch diagonal HD anti-glare, BrightView optional
HP ProBook 4535s: 15.6-inch diagonal HD anti-glare, BrightView optional
- Accelerated Processing Unit and graphics powered by VISION Technology from AMD
 - Models with integrated graphics (HP 4435s and HP 4535s)
 - Models with discrete graphics (HP 4436s and HP 4535s)
- AMD Radeon™ Dual Graphics to automatically manage how the graphics processor in the AMD APU and the AMD Radeon™ discrete graphics processor are used
- HP QuickWeb for convenient online access without the standard boot-up time
- Flexible wireless connectivity options controlled by HP Connection Manager:
 - Integrated HP Mobile Broadband Module*
 - Integrated 802.11 b/g/n wireless LAN module
 - Integrated 802.11 a/b/g/n or b/g/n with Bluetooth 3.0 High Speed (HS) combo card**
- HP DayStarter for calendar display during startup
- HP Power Assistant to conserve power, increase battery run-time, monitor power needs, report workforce power consumption
- BFR/PVC-free***, ENERGY STAR qualified and EPEAT TBD registered in the U.S. EPEAT status varies by country- please see epeat.net.

* Available only on HP ProBook 4535s with integrated graphics.

** Available on select models.

** This notebook is brominated flame retardant and polyvinyl chloride-free (BFR/PVC-free) on notebooks that are non-WWAN; meeting the evolving definition of 'BFR/PVC-free' as set forth in the "iNEMI Position Statement on the 'Definition of Low-Halogen' Electronics (BFR/CFR/PVC-Free)". Plastic parts contain < 1000 ppm (0.1%) of bromine [if the Br source is from BFRs] and < 1000 ppm (0.1%) of chlorine [if the Cl source is from CFRs or PVC or PVC copolymers]. Power supply and power cords are not BFR/PVC-free. Service parts after purchase may not be BFR/PVC-free.

Standard Features (availability may vary by country)

Accelerated Processing Unit (APU)

VISION Technology from AMD

AMD Quad-Core A6-3400M with Radeon HD 6520G Graphics
(2.3 GHz/1.4 GHz, 4 MB L2 cache, 35W)

AMD Quad-Core A6-3400M with Radeon HD 6540G2 Dual Graphics
(2.3 GHz/1.4 GHz, 4 MB L2 cache, 35W)

AMD Dual-Core A4-3300M with Radeon HD 6480G Graphics
(2.5 GHz/1.9 GHz, 2 MB L2 cache, 35W)

AMD Dual-Core A4-3300M with Radeon HD 6510G2 Dual Graphics
(2.5 GHz/1.9 GHz, 2 MB L2 cache, 35W)

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

Operating System

Preinstalled

Genuine Windows 7 Professional 32*
Genuine Windows 7 Professional 64*
Genuine Windows 7 Home Premium 32*
Genuine Windows 7 Home Premium 64*
Genuine Windows 7 Home Basic 32* (select countries)
Genuine Windows 7 Starter* (select countries and configurations)
SuSE Linux Enterprise Desktop 11
FreeDOS

Supported

Genuine Vista Home Basic
Genuine Windows XP Professional 32

* 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.

Fusion Controller Hub (Chipset)

AMD A70M FCH

NOTE: EMEA can not use Fusion.

Standard Features (availability may vary by country)

Graphics

included with Accelerated Processing Unit (APU)

Models with integrated graphics (HP 4435s and HP 4535s):
AMD Radeon HD 6520G Graphics (with AMD Quad-Core A6-3400M APU)
AMD Radeon HD 6480G Graphics (with AMD Dual-Core A4-3300M APU)

Models with discrete graphics* (HP 4436s and HP 4535s):
AMD Radeon HD 6540G2 Dual Graphics (with AMD Quad-Core A6-3400M APU)
AMD Radeon HD 6510G2 Dual Graphics (with AMD Dual-Core A4-3300M APU)

All discrete configurations come with either 512 MB or 1 GB dedicated DDR3 video memory
Microsoft DirectX 11 (Shader Model 5.0) and OpenGL 4.0 capable

* AMD Radeon™ Dual Graphics automatically manages the graphics processor in the AMD APU and the AMD Radeon™ discrete graphics processor, and can use them both at the same time when the task demands it. The system seamlessly adjusts to a single processor to improve battery life when top performance is no longer required. It requires an AMD "A" series APU plus an AMD Radeon™ discrete graphics configuration and is available with Windows® 7 Professional, Windows Home Premium, and Windows Home Basic. Full enablement of all discrete graphics video and display features may not be supported on all systems (e.g., OpenGL applications will run on the APU).

Display

Internal

HP ProBook 4435s and 4436s:
14.0-inch diagonal LED-backlit HD anti-glare (1366 x 768 resolution)
14.0-inch diagonal LED-backlit HD BrightView (1366 x 768 resolution)

HP ProBook 4535s:
15.6-inch diagonal LED-backlit HD anti-glare (1366 x 768 resolution)
15.6-inch diagonal LED-backlit HD BrightView (1366 x 768 resolution)

External

Optional HP Privacy Filter
Up to 32-bit per pixel color depth
VGA port supports resolutions up to 2048 x 1536 at 75 Hz, and lower resolutions at up to 100 Hz.
HDMI port supports direct connection to high-definition displays with up to 1920 x 1080 resolution and 7-channel audio with one convenient cable (not included).
NOTE: Resolutions are dependent upon monitor capability, and resolution and color depth settings.

Standard Features (availability may vary by country)

| | | |
|---------------|---------------------|--|
| Memory | Standard | DDR3 PC3-10600 SDRAM (1333 MHz) Two SODIMM slots supporting dual-channel memory 1 GB, 2 GB, and 4 GB SODIMMs |
| | Maximum | Upgradeable to 8 GB with 4 GB SODIMMs in slots 1 and 2 |
| | Dual-channel | Maximized dual-channel performance requires SODIMMs of the same size and speed in both memory slots. |

NOTE: Due to the non-industry standard nature of some third-party memory modules, we recommend HP branded memory to ensure compatibility. If you mix memory speeds, the system will perform at the lower memory speed. Full availability of 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.

Communications

Realtek Ethernet (10/100/1000 NIC)*
Optional 56K V.92 modem**

* The term "10/100/1000" or "Gigabit" Ethernet indicates compatibility 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 options featuring support for the latest industry standards.

Mobile Broadband options Mobile Broadband (WWAN) requires a Windows operating system and is available in select countries as a factory configurable feature for the HP ProBook 4535s with integrated graphics only. Two 850/900/1575/1700/1800/1900/2100 MHz antennas integrated in the top of the display panel support current and future WWAN technologies.
NOTE: Separately purchased mobile network operator service is required.

HP hs2340 HSPA+ Mobile Broadband Module (only available in HP ProBook 4535s with integrated graphics) Integrated mobile broadband module that provides connectivity to both HSPA and HSPA+ (UMTS) networks. It also provides standalone, Internet and network assisted GPS functionality for various mapping applications and security applications such as Computrace Pro for HP ProtectTools.

HP un2430 EV-DO/HSPA Mobile Broadband Module (only available in HP ProBook 4535s with integrated graphics) Integrated mobile broadband module with Gobi global mobile Internet technology that provides connectivity to both CDMA (EVDO) and UMTS (HSPA) networks. It also provides GPS functionality for various mapping applications and security applications such as Computrace Pro for HP ProtectTools.

HP lc2010 HSPA Mobile Broadband Module (only available in HP ProBook 4535s with integrated graphics) Integrated mobile broadband module that provides connectivity to UMTS (HSPA) networks.

802.11 integrated Wi-Fi certified*

Standard Features (availability may vary by country)

| | |
|--|--|
| wireless LAN options | 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 |
| Realtek 8188GN 802.11 b/g/n 1x1 WiFi Adapter | Integrated support for 802.11 b, g, and n Up to 150 mbps data rate |
| Ralink 5390GN 802.11 b/g/n 1x1 WiFi Adapter | Integrated support for 802.11 b, g, and n Up to 150 mbps data rate |
| Ralink 3592BC8 802.11 a/b/g/n 2x2 WiFi and Bluetooth 3.0+HS Combo Adapter* | Integrated support for 802.11 a, b, g, and n Up to 300 mbps data rate Bluetooth Specification 3.0 High Speed (HS)* and 2.1 compliant Works with a wide range of Bluetooth devices |
| Atheros 9285GN 802.11 b/g/n 1x1 WiFi and 3011 Bluetooth 3.0+HS Combo Adapter* | Integrated support for 802.11 b, g, and n Up to 150 mbps data rate Bluetooth Specification 3.0 High Speed (HS)* and 2.1 compliant Works with a wide range of Bluetooth devices |
| Realtek 8188BC8 802.11 b/g/n 2x2 WiFi and Bluetooth 3.0+HS Combo Adapter* | Integrated support for 802.11 b, g, and n Up to 150 mbps data rate Bluetooth Specification 3.0 High Speed (HS)* and 2.1 compliant Works with a wide range of Bluetooth devices |

* Bluetooth 3.0+HS support requires a Windows operating system.

Keyboard

The HP spill-resistant keyboard is designed using a thin layer of Mylar film under the keyboard and a drain system that funnels fluid through a hole in the bottom of the notebook. This minimizes the risk of damage to sensitive components underneath. The 101/102-key compatible keyboard features a full-pitch key layout with desktop keyboard features, such as editing keys, both left and right control and alt keys, and function keys. US and International key layouts are available. The HP ProBook 4535s includes a separate numeric keypad.

Launch Buttons and Function Keys

Separate launch buttons provide easy access to wireless on/off and HP QuickWeb. Function keys provide control of features including: standby mode, display brightness, external display, HP Power Assistant, volume mute, volume down, volume up, and media control.

Pointing device

Touchpad with gestures support, on/off button with LED indicator, two-way scroll, two pick buttons

QuickSpecs

HP ProBook 4435s Notebook PC
HP ProBook 4436s Notebook PC
HP ProBook 4535s Notebook PC

Standard Features (availability may vary by country)

| | | |
|-----------------------------|----------------------------|--|
| Expansion card slots | ExpressCard/34 slot | Supports ExpressCard/34 (34 mm x 75 mm x 5 mm) card sizes |
| | Media Card Reader | Supports High Speed SD 3.0 (Secure Digital), MultiMediaCard, Memory Stick, Memory Stick Pro, Memory Stick Pro Duo*, SD Micro, MultiMediaCard Micro |

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

| | | |
|-------------------------|--|---|
| Internal Storage | Hard drives | 250/320/500/750 GB 7200 rpm SMART SATA II 320/640 GB 5400 rpm SMART SATA II |
| | HP 3D DriveGuard (Windows models only) | 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. |

| | | |
|--------------------------|-----------------------------|---|
| Removable Storage | Fixed optical drives | Blu-ray ROM DVD+/-RW SuperMulti DL Drive DVD+/-RW SuperMulti DL Drive DVD-ROM Drive |
| | Weight saver | |

| | | |
|-------------------|----------------------------------|-----|
| Interfaces | VGA | One |
| | HDMI 1.4a | One |
| | Stereo microphone in | One |
| | Stereo headphone/line out | One |
| | Power connector | One |
| | RJ-11/modem (optional) | One |
| | RJ-45/Ethernet | One |
| | USB 3.0 | One |
| USB 2.0 | Three | |



Standard Features (availability may vary by country)

Audio/Visual

SRS Premium Sound™
Integrated stereo speakers
Integrated microphone (dual-microphone array when equipped with optional webcam)
Function keys for volume mute, volume up, volume down; play, rewind, and fast-forward of video and audio files
Stereo headphone/line out
Stereo microphone/line in

Optional 720p HD webcam

- HD format (widescreen)
- Supports videoconferencing and still image capture
- High quality fixed focus lens
- Video capture at various resolutions up to 1280x720 resolution (720p) and up to 30fps
- M-JPEG compression supports higher frame rates for video capture and videoconferencing
- Improved low light sensitivity
- Improved dynamic range

Software

Preinstalled software with Windows Operating System

HP Recovery Manager
HP Support Assistant
HP ProtectTools Security Manager
HP ProtectTools for Central Management
HP Face Recognition
HP Hotkey Support
HP QuickWeb
HP Power Assistant
HP Connection Manager
HP DayStarter
Microsoft Office 2010 preloaded (purchase of a Product Key required to activate a full Office 2010 suite)*
Norton Internet Security 2011**
PDF Complete Special Edition***
ArcSoft Total Media Suite
HP Webcam Software (select models)
Skype
ArcSoft Total Media Suite

Additional software available from the web

HP SoftPaq Download Manager

* Microsoft Office 2010 Preloaded includes reduced functionality versions of Word and Excel. Purchase of Product Key required to activate full Office 2010 suite available at participating resellers/retailers and <http://www.office.com>.

** Norton Internet Security 2011 includes 60 days of complimentary live updates; subscription required for live updates thereafter. Internet access required to receive updates.

*** PDF Complete Special Edition 60 day trial; purchase license afterwards for full functionality.

Standard Features (availability may vary by country)

HP Recovery Manager Models shipped with Windows 7 include 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 20 GB of the hard drive is reserved for the system recovery software.

Security

Standard Features

HP ProtectTools Security Manager (standard modules include)

- Credential Manager
- Computrace* Pro
- Device Access Manager
- Drive Encryption
- Face Recognition (webcam configurations only)
- File Sanitizer
- Privacy Manager

Enhanced Pre-Boot Security

HP SpareKey

One-Step Logon

Security lock slot

Optional Features

HP Fingerprint Sensor

HP Privacy Filter

* The Computrace agent is shipped turned off, and must be activated by customers when they purchase a subscription with terms ranging from one to five years.

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

HP ProtectTools Security Manager with Central Management

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. The ProtectTools modules are available on the hard drive (also downloadable from the web) and can be configured in Software Setup.

HP ProtectTools is centrally manageable with the capability to manage notebooks from a single point. HP ProtectTools is management ready out of the box, in partnership with Digital Persona. Features address requirements that customers expect from a centrally managed security solution such as user provisioning, credential reset, and credential revocation.

HP ProtectTools provides two separate management solutions, targeted at the enterprise and the SMB:

- **Digital Persona Pro AD:** Designed for the enterprise customer. Integrates with Active Directory and gives IT Managers the ability to provision users, create login policies based on passwords, biometrics or smartcards. Management features also include remote credential recovery in case the user forgets the password, loses the smartcard or cannot use the fingerprint reader for any reason. In addition, advanced auditing capabilities are also built in. Digital Persona Pro AD is available now.
- **Digital Persona Pro Workgroup:** Designed for the small business customer. Provides features similar to the Active Directory version, but for workgroups. Workgroup activation is built into HP ProtectTools, and activation of up to 5 seats is completely free.

For more information on Central Management for HP ProtectTools, refer to: <http://www.hp.com/products/security>.

Standard Features (availability may vary by country)

Power Supply

Models with integrated graphics: External 65-watt Smart AC adapter
Models with discrete graphics: External 90-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 the HP 9-cell battery.

Battery

Primary battery

HP 9-cell (93 WHr) Li-Ion battery
HP 6-cell (55 WHr) Li-Ion battery*
HP 6-cell (47 WHr) Li-Ion battery

* The HP Long Life Battery will carry a limited 1-year warranty.

Battery Life

Configurations with integrated graphics

Configurations with discrete graphics

HP ProBook 4435s

9-cell battery 93 WHr

Up to 12 hours and 30 Minutes

Up to 11 hours and 30 Minutes

6-cell battery 55 WHr

Up to 7 hours and 15 Minutes

Up to 7 hours

6-cell battery 47 WHr

Up to 6 hours and 30 Minutes

Up to 6 hours

HP ProBook 4535s

9-cell battery 93 WHr

Up to 11 hours and 15 Minutes

Up to 10 hours and 15 Minutes

6-cell battery 55 WHr

Up to 6 hours and 45 Minutes

Up to 6 hours

6-cell battery 47 WHr

Up to 6 hours

Up to 5 hours and 15 Minutes

NOTE: Battery life will vary depending on the product model, configuration, loaded applications, features, use, wireless functionality and power management settings. The maximum capacity of the battery will naturally decrease with time and usage. See MobileMark07 battery benchmark www.bapco.com/products/mobilemark2007 for additional details.

System Standby Time

Up to 1 week

Power Conservation

Supports enhanced Intel SpeedStep technology (allows Battery Optimized Mode, Maximum Performance Mode, or Automatic mode)

ATI PowerPlay technology

Hibernation

Standby

ACPI compliance

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. 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>

QuickSpecs

HP ProBook 4435s Notebook PC

HP ProBook 4436s Notebook PC

HP ProBook 4535s Notebook PC

Options (availability may vary by country)

NOTE: Options/capabilities listed in the QuickSpecs represent those capabilities available through Base Units or Build to Order configurations. The various product features and capabilities will vary in terms of configurable vs. aftermarket options (AMOs). There may be options and capabilities available through CTO that are not available as AMOs.

| | | |
|---------------|--|-------------|
| Memory | HP 1 GB (DDR3 1333 MHz) SODIMM | AT911AA#xxx |
| | HP 2 GB (DDR3 1333 MHz) SODIMM | AT912AA#xxx |
| | HP 4 GB (DDR3 1333 MHz) SODIMM | AT913AA#xxx |
| | HP 2 GB PC3-12800 (DDR3 1600 MHz) SODIMM | H2P63AA |
| | HP 4 GB PC3-12800 (DDR3 1600 MHz) SODIMM | H2P64AA |

NOTE: 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. Due to system limitations, DDR3-1600 MHz memory will only be supported at DDR3-1333 MHz.

| | | |
|----------------|------------------------------|---------|
| Storage | HP 250 GB Pocket Media Drive | FE477AA |
| | HP Mobile USB DVD | XQ543AA |
| | HP Mobile USB DVDRW | BU516AA |

| | | |
|--------------|--|-------------|
| Power | HP 90W Smart AC Adapter | ED495AA#xxx |
| | HP 90W Smart AC/Auto/Air Combo Adapter | AJ652AA#xxx |
| | HP 90W Smart Auto/Truck Adapter | ED493AA |
| | HP 65W Slim Adapter | AX727AA#xxx |
| | HP 90W Slim Adapter | BT796AA#xxx |

| | | |
|-----------------------|------------------------------------|---------|
| Carrying Cases | HP Basic Carrying Case | AJ078AA |
| | HP Business Nylon Case | BP848AA |
| | HP Professional Slim Top Load Case | AY530AA |

| | | |
|-----------------|-------------------------------------|-------------|
| Security | HP Notebook Combo Lock | AY475AA#xxx |
| | HP Keyed Cable Lock | BV411AA |
| | HP 14.0-inch Display Privacy Filter | AU100AA#xxx |
| | HP 15.6-inch Display Privacy Filter | AU103AA#xxx |

| | | |
|-----------------------------|--|-------------|
| Input/Output Devices | HP USB Optical Travel Mouse | RH304AA |
| | HP USB/PS2 Optical 2-Button Scroll Mouse | DC369AA |
| | HP USB Keyboard & Mouse Bundle | RC465AA#xxx |



Technical Specifications

| | | |
|--|----------------------------------|---|
| System Unit | Dimensions (HxWxD) | <p>HP ProBook 4435s and 4436s: 1.10in (at front) x 13.35in x 9.27 in 2.80 cm (at front) x 33.92 cm x 23.55 cm</p> <p>HP ProBook 4535s: 1.13 in (at front) x 14.76 in x 10.09 in 2.87 cm (at front) x 37.50 cm x 25.62 cm</p> |
| | Weight | <p>HP ProBook 4435s and 4436s: Starting at 4.57 lb (2.07 kg) without optical drive or 4.85 lb (2.20 kg) with optical drive</p> <p>HP ProBook 4535s: Starting at 5.14 lb (2.33 kg) without optical drive or 5.45 lb (2.47 kg) with optical drive</p> |
| <p>NOTE: Height varies depending upon where on the notebook the measurement is made. Weight varies by configuration and components.</p> | | |
| Stand-Alone Power Requirements (AC Power) | Nominal Operating Voltage | 18.5 V |
| | Average Operating Power | with integrated graphics: TBD W with discrete graphics: TBD W |
| | Max Operating Power | < 90 W or < 65W |
| Temperature | Operating* | 32° to 95° F (0° to 35° C) (not writing optical) 41° to 95° F (5° to 35° C) (writing optical) |
| | Non-operating | -4° to 140° F (-20° to 60° C) |
| Relative Humidity | Operating | 10% to 90%, non-condensing |
| | Non-operating | 5% to 95%, 101.6° F (38.7° C) maximum wet bulb temperature |
| Shock | Operating | 125 G, 2 ms, half-sine |
| | Non-operating | 200 G, 2 ms, half-sine |
| Random Vibration | Operating | 0.75 grms |
| | Non-operating | 1.50 grms |
| Altitude (unpressurized) | Operating | -50 to 10,000 ft (-15.24 to 3,048 m) |
| | Non-operating | -50 to 40,000 ft (-15.24 to 12,192 m) |
| Planned Industry Standard Certifications | UL | Yes |
| | CSA | Yes |
| | FCC Compliance | Yes |
| | ENERGY STAR® | Select models* |
| | EPEAT | Registered TBD in United States** |
| | ICES | Yes |
| | Australia / NZ A-Tick Compliance | Yes |

Technical Specifications

| | |
|-----------------------|-----|
| CCC | Yes |
| Japan VCCI Compliance | Yes |
| KCC | Yes |
| BSMI | Yes |
| CE Marking Compliance | Yes |

* At temperatures above 86° F (30° C), the Intel Core i3-2310M Processor may not run at maximum clock speed.

** Configurations of the HP Probook 4436s and HP ProBook 4535s that are ENERGY STAR qualified are identified as HP ProBook 4436s ENERGY STAR and HP ProBook 4535s ENERGY STAR on HP websites and on www.energystar.gov.

*** EPEAT registration varies by country. See www.epeat.net for registration status by country. EPEAT status listed above applies to U.S.

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

Audio **SRS Premium Sound**

| | | |
|-----------------|--|---|
| Hardware | Implementation | IDT 92HD87 High Definition CODEC |
| | Touch-Sensitive Volume Controls | Volume up, volume down, and mute |
| | Full Duplex | Yes |
| | Microphone In | Stereo |
| | Headphone/Line Out | Stereo |
| | Integrated Microphone | Yes, dual digital microphone array when equipped with optional webcam |

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

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

Technical Specifications

Power

| | | | |
|--------------------------------------|---|--|---|
| HP 90W Smart AC Adapter | Dimensions | 5.00 x 1.97 x 1.1 in (12.7 x 5.0 x 2.9 cm) | |
| | Weight | 0.82 lb (370 g) | |
| | Input | 100 to 240 VAC | |
| | | Input Efficiency | 87% min at 115 VAC |
| | | Input frequency range | 47 to 63 Hz |
| | | Input AC current | 1.5 A at 90 VAC, 0.75 A at 180 VAC PFC Version 2.4 A at 90 VAC, 1.2 A at 180 VAC NON PFC Version |
| | Output | Output power | 90W |
| | | DC output | 19.0V |
| | | Hold-up time | 5 msec at 115 VAC input |
| | | Output current limit | <11A, Over voltage protection- 29V max automatic shutdown |
| | Connector | 3 pin/grounded, mates with interchangeable cords | |
| | Environmental Design | Operating temperature | 32° to 104° F (0° to 40° C) |
| | | Non-operating (storage) temperature | -4° to 149° F (-20° to 65° C) |
| | | Altitude | 0 to 10,000 ft (0 to 3,048 m) |
| | | Humidity | 20% to 80% |
| | Storage Humidity | 10% to 90% | |
| EMI and Safety Certifications | CE Mark - full compliance with LVD and EMC directives; Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE; MTBF- over 200,000 hours at 25°C ambient condition. | | |

| | | | |
|--------------------------------|-----------------------------|--|---|
| HP 65W Smart AC Adapter | Dimensions | 4.17 x 1.85 x 1.1 in (10.6 x 4.7 x 2.8 cm) | |
| | Weight | 0.62 lb (280 g) | |
| | Input | 100 to 240 VAC | |
| | | Input Efficiency | 87% min at 115 VAC |
| | | Input frequency range | 47 to 63 Hz |
| | | Input AC current | 1.7 A at 90 VAC, 0.85 A at 180 VAC |
| | Output | Output power | 65W |
| | | DC output | 18.5V |
| | | Hold-up time | 5 msec at 115 VAC input |
| | | Output current limit | <11A, Over voltage protection- 29V max automatic shutdown |
| | Connector | 3 pin/grounded, mates with interchangeable cords | |
| | Environmental Design | Operating temperature | 32° to 104° F (0° to 40° C) |
| | | Non-operating (storage) temperature | -4° to 149° F (-20° to 65° C) |

Technical Specifications

| | |
|------------------|-------------------------------|
| Altitude | 0 to 10,000 ft (0 to 3,048 m) |
| Humidity | 20% to 80% |
| Storage Humidity | 10% to 90% |

EMI and Safety Certifications

CE Mark - full compliance with LVD and EMC directives; Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE; MTBF - over 200,000 hours at 25°C ambient condition.

9-Cell (93 WHr) Lithium-Ion battery

Dimensions (H x W x L)

0.8 x 2.9 x 8.3 in (2.0 x 7.3 x 21.0 cm)

Weight

1.07 lb (0.488 kg)

Cells/Type

9-cell Lithium-Ion

Energy

Watt-hour Capacity 93 WHr

Temperature

Operating (Charging) 32° to 113° F (0° to 45° C)

Operating (Discharging) 14° to 140° F (-10° to 60° C)

Non-operating -4° to 140° F (-20° to 60° C)

Battery Re-Charge Time

System in OFF mode or Standby 3 to 4 hours

System ON 4 to 6 hours (depending on system power consumption)

6-Cell (55 WHr) Lithium-Ion battery

Dimensions (H x W x L)

0.8 x 1.8 x 8.0in (2.0 x 4.7 x 20.5cm)

Weight (max)

.70lb, (.313kg)

Cells/Type

Lithium-Ion

Energy

Voltage 10.8V

Amp-hour capacity 5.1Ah

Watt-hour capacity 55Wh

Temperature

Operating (Charging) 32° to 113° F (0° to 45° C)

Operating (Discharging) 14° to 122° F (-10° to 50° C)

Non-operating -4° to 122° F (-20° to 50° C)

Battery Re-Charge Time

System in OFF or Standby Mode 2.5 hours

System ON 3 to 5 hours

Fuel Gauge LED

No

Warranty

1 year

Optional Travel Battery Available

Yes

Technical Specifications

| | | | |
|--|-------------------------------|--|-------------------------------|
| 6-Cell (47 WHr) Lithium-Ion battery | Dimensions (H x W x L) | 0.8 x 1.8 x 10.4 in (2 x 4.5 x 26.5cm) | |
| | Weight (max) | .70lb, (.312kg) | |
| | Cells/Type | Lithium-Ion | |
| | Energy | Voltage | 10.8V |
| | | Amp-hour capacity | 4.4Ah |
| | | Watt-hour capacity | 47Wh |
| | Temperature | Operating (Charging) | 32° to 113° F (0° to 45° C) |
| | | Operating (Discharging) | 14° to 122° F (-10° to 50° C) |
| | | Non-operating | -4° to 122° F (-20° to 50° C) |
| | Battery Re-Charge Time | System in OFF or Standby Mode | 2.5 hours |
| System ON | | 3 to 5 hours | |
| Fuel Gauge LED | No | | |
| Warranty | 1 year | | |
| Optional Travel Battery Available | No | | |

Displays

| | | | |
|---|---|----------------------------------|------------|
| 15.6-inch LED HD (1366 x 768) anti-glare | Dimensions (W x H) | 13.54 x 7.59 in (34.4 x 19.4 cm) | |
| | Diagonal Size | 15.6 in (39.6cm) | |
| | Surface Treatment | Anti-glare | |
| | Contrast Ratio | 400:1 (min) | |
| | Refresh Rate | 60 Hz | |
| | Brightness | 210 nit (typical) | |
| | Pixel Resolution | Pitch | 0.252 mm |
| | | Format | 1366 x 768 |
| | | Configuration | RGB Stripe |
| | Backlight | LED | |
| PPI | 101 ppi | | |
| Viewing Angle | ±30° Horizontal, ±10° Vertical (minimum) 30/30/20/10 (Left/Right/Down/Up) (minimum) or 45/45/35/25 (Left/Right/Down/Up) (typical) | | |

Technical Specifications

| | | |
|---|---------------------------|---|
| 15.6-inch LED HD (1366 x 768) BrightView | Dimensions (W x H) | 13.54 x 7.59 in (34.4 x 19.4 cm) |
| | Diagonal Size | 15.6 in (39.6cm) |
| | Surface Treatment | BrightView (glossy) |
| | Contrast Ratio | 500:1 (typical) |
| | Refresh Rate | 60 Hz |
| | Brightness | 200 nit (typical) |
| | Pixel Resolution | Pitch 0.252 mm |
| | | Format 1366 x 768 |
| | | Configuration RGB Stripe |
| | Backlight | LED |
| | PPI | 101 ppi |
| | Viewing Angle | ±30° Horizontal, ±10° Vertical (minimum) 30/30/20/10 (Left/Right/Down/Up) (minimum) or 45/45/35/25 (Left/Right/Down/Up) (typical) |

| | | |
|---|----------------------------|---|
| 14.0-inch LED HD (1366 x 768) anti-glare | Active Area (W x H) | 12.74 x 7.56 in (32.4 x 19.2 cm) |
| | Diagonal Size | 14.0 in (35.6cm) |
| | Surface Treatment | Anti-glare |
| | Contrast Ratio | 400:1 (typical) |
| | Refresh Rate | 60 Hz |
| | Brightness | 200 nit (typical) |
| | Pixel Resolution | Pitch 0.227 mm |
| | | Format 1366 x 768 |
| | | Configuration RGB Stripe |
| | Backlight | LED |
| | PPI | 112 ppi |
| | Viewing Angle | ±30° Horizontal, ±10° Vertical (minimum) 30/30/20/10 (Left/Right/Down/Up) (minimum) or 45/45/35/25 (Left/Right/Down/Up) (typical) |

Technical Specifications

| | | | |
|---|---|----------------------------------|------------|
| 14.0-inch LED HD (1366 x 768) BrightView | Active Area (W x H) | 12.16 x 6.85 in (30.9 x 17.4 cm) | |
| | Diagonal Size | 14.0 in (35.6cm) | |
| | Surface Treatment | BrightView (glossy) | |
| | Contrast Ratio | 500:1 (typical) | |
| | Refresh Rate | 60 Hz | |
| | Brightness | 200 nit (typical) | |
| | Pixel Resolution | Pitch | 0.227 mm |
| | | Format | 1366 x 768 |
| | | Configuration | RGB Stripe |
| | Backlight | LED | |
| PPI | 112 ppi | | |
| Viewing Angle | ±30° Horizontal, ±10° Vertical (minimum) 30/30/20/10 (Left/Right/Down/Up) (minimum) or 45/45/35/25 (Left/Right/Down/Up) (typical) | | |

Internal Storage

| | | | |
|--|---|--------------------------------|-----------------------------|
| 750 GB 7200 rpm SATA Hard Drive | Drive Weight | 0.25 lbs (115g) | |
| | Capacity | 750 GB | |
| | Height | 0.37 in (9.5 mm) | |
| | Width | 2.75 in (70 mm) | |
| | Interface | ATA-8, SATA 2.6, 3.0 Gb/s, NCQ | |
| | Transfer Rate | Synchronous (maximum) | 300 MB/s (Drive Capability) |
| | Seek Time (typical reads, including settling) | Single Track | 1.5 ms |
| | | Average | 11 ms |
| | | Maximum | 22 ms |
| | Rotational Speed | 7200 rpm | |
| Logical Blocks | 1,465,149,168 | | |
| Operating Temperature | 32° to 140° F (0° to 60° C) [case temp] | | |
| Features | ATA Security | | |

QuickSpecs

HP ProBook 4435s Notebook PC

HP ProBook 4436s Notebook PC

HP ProBook 4535s Notebook PC

Technical Specifications

500 GB 7200 rpm SATA Hard Drive

| | |
|---|--|
| Drive Weight | 0.25 lbs (115g) |
| Capacity | 500 GB |
| Height | 0.37 in (9.5 mm) |
| Width | 2.75 in (70 mm) |
| Interface | ATA-8, SATA 2.6, 3.0 Gb/s, NCQ |
| Transfer Rate | Synchronous (maximum) 300 MB/s (Drive Capability) |
| Seek Time (typical reads, including settling) | Single Track 1.5 ms |
| | Average 11 ms |
| | Maximum 22 ms |
| Rotational Speed | 7200 rpm |
| Logical Blocks | 976,773,168 |
| Operating Temperature | 32° to 140° F (0° to 60° C) [case temp] |
| Features | ATA Security |

320 GB 7200 rpm SATA Hard Drive

| | |
|---|--|
| Drive Weight | 0.25 lbs (115 g) |
| Capacity | 320 GB |
| Height | 0.37 in (9.5 mm) |
| Width | 2.75 in (70 mm) |
| Interface | ATA-8, SATA 2.6, 3.0 Gb/s, NCQ |
| Transfer Rate | Synchronous (maximum) 300 MB/s (Drive Capability) |
| Seek Time (typical reads, including settling) | Single Track 1.5 ms |
| | Average 11 ms |
| | Maximum 22 ms |
| Rotational Speed | 7200 rpm |
| Logical Blocks | 625,142,448 |
| Operating Temperature | 32° to 140° F (0° to 60° C) [case temp] |
| Features | ATA Security |



Technical Specifications

| | | | |
|--|--|--|--------|
| 250 GB 7200 rpm SATA Hard Drive | Drive Weight | 0.25 lbs (115g) | |
| | Capacity | 250 GB | |
| | Height | 0.37 in (9.5 mm) | |
| | Width | 2.75 in (70 mm) | |
| | Interface | ATA-8, SATA 2.6, 3.0 Gb/s, NCQ | |
| | Transfer Rate | Synchronous (maximum) 300 MB/s (Drive Capability) | |
| | Seek Time (typical reads, including settling) | Single Track | 1.5 ms |
| | | Average | 11 ms |
| | | Maximum | 22 ms |
| | Rotational Speed | 7200 rpm | |
| | Logical Blocks | 488,397,168 | |
| | Operating Temperature | 32° to 140° F (0° to 60° C) [case temp] | |
| | Features | ATA Security | |

| | | | |
|--|--|--|-------|
| 750 GB 5400 rpm SATA Hard Drive | Drive Weight | 0.27 lb (125 g) or 0.22 lb (101 g) | |
| | Capacity | 750 GB | |
| | Height | 0.50 in (12.7 mm) or 0.37 in (9.5 mm) | |
| | Width | 2.75 in (70 mm) | |
| | Interface | ATA-8, SATA 2.6, 3.0 Gb/s, NCQ | |
| | Transfer Rate | Synchronous (maximum) 300 MB/s (Drive Capability) | |
| | Seek Time (typical reads, including settling) | Single Track | 3 ms |
| | | Average | 13 ms |
| | | Maximum | 24 ms |
| | Rotational Speed | 5400 rpm | |
| | Logical Blocks | 1,465,149,168 | |
| | Operating Temperature | 32° to 140° F (0° to 60° C) [case temp] | |
| | Features | ATA Security | |

Technical Specifications

| | | | |
|--|--|--|-------|
| 640 GB 5400 rpm SATA Hard Drive | Drive Weight | 0.22 lb (101 g) | |
| | Capacity | 640 GB | |
| | Height | 0.37 in (9.5 mm) | |
| | Width | 2.75 in (70 mm) | |
| | Interface | ATA-8, SATA 2.6, 3.0 Gb/s, NCQ | |
| | Transfer Rate | Synchronous (maximum) 300 MB/s (Drive Capability) | |
| | Seek Time (typical reads, including settling) | Single Track | 3 ms |
| | | Average | 13 ms |
| | | Maximum | 24 ms |
| | Rotational Speed | 5400 rpm | |
| | Logical Blocks | 1,250,263,728 | |
| | Operating Temperature | 32° to 140° F (0° to 60° C) [case temp] | |
| | Features | ATA Security | |

| | | | |
|--|--|--|-------|
| 320 GB 5400 rpm SATA Hard Drive | Drive Weight | 0.22 lb (101 g) | |
| | Capacity | 320 GB | |
| | Height | 0.37 in (9.5 mm) | |
| | Width | 2.75 in (70 mm) | |
| | Interface | ATA-8, SATA 2.6, 3.0 Gb/s, NCQ | |
| | Transfer Rate | Synchronous (maximum) 300 MB/s (Drive Capability) | |
| | Seek Time (typical reads, including settling) | Single Track | 3 ms |
| | | Average | 13ms |
| | | Maximum | 24 ms |
| | Rotational Speed | 5400 rpm | |
| | Logical Blocks | 625,142,448 | |
| | Operating Temperature | 32° to 140° F (0° to 60° C) [case temp] | |
| | Features | ATA Security | |

Optical Drives

Technical Specifications

| | | | | |
|-------------------------------------|-----------------------------------|--|---|--|
| DVD-ROM Drive | Access Times | Random | < 140 ms CD (typical) < 160 ms DVD (typical) | |
| | Max Data Transfer Rate | 24X CD-ROM 8X-DVD | | |
| | Transfer Mode | UDMA Mode 5 | | |
| | Interface | Gen 1 SATA | | |
| | Supported Media (read) | CD-DA, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW, DVD-RAM | | |
| | Supported Media (write) | None | | |
| | Max Media Capacity (read) | 8.5GB | | |
| | Transport | Tray Loading | | |
| <hr/> | | | | |
| DVD+/-RW SuperMulti DL Drive | Access Times | Random | <140ms CD (typical) < 160 ms DVD (typical) | |
| | Max Data Transfer Rate | 24X CD-ROM 8X DVD 24X CD-R 24X CD-RW 8X DVD+R 8X DVD+RW 8X DVD-R 6X DVD-RW 6X - DVD+R Dual Layer 6X - DVD-R Dual Layer 5X DVD-RAM | | |
| | Transfer Mode | UDMA Mode 5 | | |
| | Interface | Gen 1 SATA | | |
| | Supported Media (read) | CD-DA, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW, DVD-RAM | | |
| | Supported Media (write) | CD-R, CD-RW, DVD+R, DVD+RW, DVD-R, DVD-RW, DVD-RAM, DVD+R DL, DVD-R DL | | |
| | Max Media Capacity (read) | 8.5 GB | | |
| | Max Media Capacity (write) | 8.5 GB | | |
| | Transport | Tray Loading | | |
| | <hr/> | | | |

Technical Specifications

| | | | |
|---|-----------------------------------|---|---|
| Blu-ray ROM DVD+/-RW SuperMulti DL Drive | Access Times | Random | <190 ms CD-ROM (typical) < 180ms DVD-ROM (typical) <230 ms BD-ROM (typical) |
| | Max Data Transfer Rate | 24X CD-ROM 8X DVD-ROM 24X CD-R 16X CD-RW 8X DVD+R 8X DVD+RW 8X DVD-R 6X DVD-RW 4X - DVD+R Dual Layer 4X - DVD-R Dual Layer 5X DVD-RAM 6X BD-ROM | |
| | Transfer Mode | UDMA Mode 5 | |
| | Interface | Gen 1 SATA | |
| | Supported Media (read) | CD-DA, , CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW. DVD-RAM, BD-ROM, BD-R, BD-RE | |
| | Supported Media (write) | CD-R, CD-RW, DVD+R, DVD+R DL, DVD+RW, DVD-R, DVD-R DL, DVD-RW, DVD-RAM | |
| | Max Media Capacity (read) | 50.0 GB | |
| | Max Media Capacity (write) | 8.5GB | |
| | Transport | Tray Loading | |

Security

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

Technical Specifications

Communications

| | |
|--|---|
| V.92 56K Data/Fax Modem Form Factor | MDC 1.5 Daughtercard |
| Power Management Support | APM Revision 1.2, ACPI |
| Approvals/Certifications | UL, CSA, NEMKO, CCIB, Industry Canada, FCC Part 68, CTR21, FCC Part 15 Class B, Canadian ICES-003 Class B, C.I.S.P.R.22, Australian ACA, CE Mark, Other Countries |
| Data Mode Capabilities | V.92 data V.8bis V.80 V44, V.42bis, MNP5 (Compression) V.42 (LAPM, MNP2-4) (Error Correction) Optional symbol rates: 2800, 3429 Asymmetric Symbol rates Synchronous primary channel data signaling rates: 3600, 31200 Automatic rate re-negotiation V.34 V.32bis V.32 V.23 V.22bis V.22 V.21 Bell 212A Bell 103J |
| Fax Mode Capabilities | TIA/EIA-578-B (Class 1) T.30, T.4 (Group 3) V.17 V.29 V.27ter V.21 Channel 2 T.31 |
| Command Set | V.250 (Partial) TIA-602 Identification: +GMI, +GMM, +GMR Port control: +IPR, +ICF, +IFC, +ILRR Modulation: +MS, +MR, +MA Error control: +ES, +ER, +EB, +ESR, +ETBM Data compression: +DS, +DR V.251 |

Technical Specifications

| | | |
|---|---|---|
| HP un2430 EV-DO/HSPA Mobile Broadband Module | Technology/Operating Bands | GSM/GPRS/EDGE: 850MHz(Cell), 900MHz(EGSM), 1800MHz(DCS), 1900MHz (PCS) UMTS/WCDMA with receive diversity: 2100MHz (UTRA FDD Band I), 1900MHz (UTRA FDD Band II), AWS (UTRA FDD Band IV), 900MHz(UTRA FDD Band VIII), 850MHz (UTRA FDD Band V) 1xEVDO/1xRTT with receive diversity: 850MHz (Band Class0-Cell), 1900MHz (Band Class1-PCS) |
| | Wireless Protocol Standards | GSM/GPRS/EDGE: Class A, Multi-slot class 10 operation, coding schemes CS1 - CS4 and MSC1 - MSC9. UMTS/WCDMA: Release 99 and Release 6 CDMA: 1xEVDO Release 0 and Release A, IS-95A, IS-95B, IS-856, IS-2000 |
| | Wireless Parametric Standards | Meets or exceeds TIA/EIA IS-98-D |
| | Maximum Data Rates | UMTS (HSPA) - 14.4 Mbps (Download), 5.76Mbps (Upload) CDMA (EVDO Release A) - 3.1 Mbps (Download), 1.8Mbps (Upload) |
| | GPS | Standalone GPS enabled gpsOneXTRATM™ |
| | GPS Bands | L1 - 1575.42 MHz |
| | Maximum Output Power | GSM/GPRS/EDGE: 32dBm (+/-1) WCDMA: 24dBm (+0.7/-2.3) CDMA: 24dBm (+0.7/-2) |
| | Maximum Power Consumption | 2750mA (peak); 1100mA (average) |
| | Power Consumption, Idle Not Connected | 20 mA |
| | Power Management | USB selective suspend Integrated notebook wireless button |
| | Antenna Type | Dual high efficiency 5 band antennae with spatial diversity, mounted in the display enclosure |
| | Form Factor | PCI-Express MiniCard, USB 2.0 interface |
| | Weight | 11.5 g |
| | Dimensions (Length x Width x Thickness) | 2.01 x 1.18 x 0.18 in (51 x 30 x 5 mm) |
| | Voltage, Operating | 3.3v +/- 10% |
| | Temperature, Operating (from TIA/EIA/IS-98-D) | -22° to 158° F (-30° to 70° C) (full RF performance) -22° to 167° F (-30° to 75° C) (reduced RF performance) |
| | Temperature, Non-operating, 96 hours (from MIL-STD 202 Method 108) | -40° to 185° F (-40° to 85° C) |
| | Humidity, Non-operating | 95% relative humidity for 48 hours @ 185° F (85° C) (non-condensing) |
| | Configuration Utilities | HP Connection Manager |
| | LED Activity | LED Off - Radio Off; Solid LED On - Radio On |

Technical Specifications

| | | |
|--|---|---|
| HP hs2340 HSPA+ Mobile Broadband Module | Technology/Operating Bands | GSM/GPRS/EDGE: 850MHz(Cell), 900MHz(EGSM), 1800MHz(DCS), 1900MHz (PCS) UMTS/WCDMA with receive diversity: 2100MHz (UTRA FDD Band I), 1900Mhz (UTRA FDD Band II), 900Mhz(UTRA FDD Band VIII), 850 MHz (UTRA FDD Band V) |
| | Wireless Protocol Standards | GSM/GPRS/EDGE: Class B, Multi-slot class 10 operation, coding schemes CS1 - CS4 and MSC1 - MSC9. UMTS/WCDMA: Release 99 and Release 7 Advanced Receiver Type 3i |
| | Wireless Parametric Standards | Complies with 3GPP specifications |
| | Maximum Data Rates | UMTS (HSPA) - 21 Mbps (Download), 5.76Mbps (Upload) |
| | GPS | Standalone, A-GPS (Internet- and Network assisted) |
| | GPS Bands | 1575.42 MHz (± 1.023 MHz) |
| | Maximum Output Power | GSM/EDGE GSM850 & GSM900 bands GPRS: +33 dBm ± 2 dBm (class 4) EGPRS: +27 dBm ± 3 dBm (class E2) DCS1800 & PCS1900 bands GPRS: +30 dBm ± 2 dBm (class 1) EGPRS: +26 dBm +4 / -3 dBm (class E2) |
| | Maximum Power Consumption | UMTS UTRA FDD Bands +24 dBm +4 / -3 dBm (class 3) 2000mA (peak); 600mA (average) |
| | Power Consumption, Sleep Mode | 5 mA |
| | Power Management | USB selective suspend Integrated notebook wireless button |
| | Antenna Type | Dual high efficiency 5 band antennae with spatial diversity, mounted in the display enclosure |
| | Form Factor | PCI-Express MiniCard, USB 2.0 interface |
| | Weight | < 12 g |
| | Dimensions (Length x Width x Thickness) | 2.01 x 1.18 x 0.18 in (51 x 30 x 5 mm) |
| | Voltage, Operating | 3.3v +/- 9% |
| | Temperature, Operating | 14° to 149° F (-10° to 65° C) (full RF performance) 14° to 167° F (-10° to 75° C) (reduced RF performance) |
| | Temperature, Non-operating, 96 hours (from MIL-STD 202 Method 108) | -22° to 185° F (-30° to 85° C) |
| | Humidity, Non-operating | 85% relative humidity for 48 hours @ 185° F (85° C) (non-condensing) |
| | Configuration Utilities | HP Connection Manager |

Technical Specifications

LED Activity LED Off - Radio Off;
 Solid LED On - Radio On

| | | |
|--|---|--|
| HP Ic2010 Mobile Broadband Module | Technology/Operating Bands | GSM/GPRS/EDGE: 850MHz(Cell), 900MHz(EGSM), 1800MHz(DCS), 1900MHz (PCS) UMTS/WCDMA with receive diversity: 2100MHz (UTRA FDD Band I), 900MHz(UTRA FDD Band VIII) |
| | Wireless Protocol Standards | GSM/GPRS/EDGE: Class B, Multi-slot class 10 operation, coding schemes CS1 - CS4 and MSC1 - MSC9. UMTS/WCDMA: Release 99 and Release 6 |
| | Wireless Parametric Standards | Complies with 3GPP specifications |
| | Maximum Data Rates | UMTS (HSPA) - 7.2 Mbps (Download), 2.0Mbps (Upload) |
| | GPS | n/a |
| | GPS Bands | |
| | Maximum Output Power | GSM/GPRS/EDGE: 32dBm (+/-1) WCDMA: 23dBm (+/-1) |
| | Maximum Power Consumption | 2000mA (peak); 600mA (average) |
| | Power Consumption, Sleep Mode | 5 mA |
| | Power Management | USB selective suspend Integrated notebook wireless button |
| | Antenna Type | Dual high efficiency 5 band antennae with spatial diversity, mounted in the display enclosure |
| | Form Factor | PCI-Express MiniCard, USB 2.0 interface |
| | Weight | < 10 g |
| | Dimensions (Length x Width x Thickness) | 2.01 x 1.18 x 0.18 in (51 x 30 x 5 mm) |
| | Voltage, Operating | 3.3v +/- 10% |
| | Temperature, Operating | 14° to 149° F (-10° to 65° C) (full RF performance) 14° to 167° F (-10° to 75° C) (reduced RF performance) |
| | Temperature, Non-operating, 96 hours (from MIL-STD 202 Method 108) | -22° to 185° F (-30° to 85° C) |
| | Humidity, Non-operating | 85% relative humidity for 48 hours @ 185° F (85° C) (non-condensing) |
| | Configuration Utilities | HP Connection Manager |
| | LED Activity | LED Off - Radio Off; Solid LED On - Radio On |

| | |
|---|--------------|
| Intel Centrino Advanced-N Wireless LAN Standards | IEEE 802.11a |
| 6230 WiFi and Bluetooth Combo Adapter | IEEE 802.11b |
| | IEEE 802.11g |



Technical Specifications

| | |
|--|---|
| | IEEE 802.11n |
| Interoperability | Wi-Fi certified Cisco Compatible Extensions Program compliant with Microsoft Windows Vista and XP (details at: http://www.hp.com/go/notebooks/WLAN) |
| Frequency Band | 2.4 GHz and 5GHz |
| Data Rates | 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: 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 specification |
| Modulation | Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM, BPSK, QPSK, 16-QAM, 64-QAM |
| Security¹ | Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated AES, 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, LEAP, EAP-FAST. Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program Version 4) with Microsoft Windows Vista and XP only. |
| Sub-channels | Multinational support with frequency bands and channels compliant to local regulations. |
| Media Access Protocol | CSMA/CA (Collision Avoidance) with ACK |
| Network Architecture Models | Ad-hoc (Peer to Peer) Infrastructure (Access Point Required) |
| Roaming | IEEE 802.11 compliant roaming between access points |
| Output Power (for CCK and OFDM) ² | 17 dBm , nominal |
| Output Power (for OFDM; power varies by data rate) ² | 15 dBm , nominal |
| Power Consumption | Idle associated: 250 mW Idle unassociated: 150 mW Transmit: 2.0 W (max) Receive: 2.0 W (max) |
| Power Management | ACPI compliant power management 802.11 compliant power saving mode |
| Receiver Sensitivity³ | 54 Mbps: -71 dBm, 11 Mbps: -85 dBm , 1 Mbps: -95 dBm |
| Antenna type | High efficiency dual band antenna with spatial diversity, mounted in the display enclosure |
| Form Factor | PCI-Express Half-MiniCard |
| Weight | 0.013 lb (6 g) |
| Dimensions | 0.19 x 1.06 x 1.18 in (4.75 x 26.8 x 30 mm) |
| Operating Voltage | 3.3v +/- 10% |
| Temperature | Operating 14° to 149° F (-10° to 65° C) Non-operating -40° to 176° F (-40° to 80° C) |

Technical Specifications

| | | |
|--|---|---|
| Humidity | Operating | 10% to 90% (non-condensing) |
| | Non-operating | 5% to 95% (non-condensing) |
| Altitude | Operating | 0 to 10,000 ft (3,048 m) |
| | Non-operating | 0 to 50,000 ft (15,240 m) |
| Configuration Utility⁴ | Microsoft Windows XP Choice of Configuration Utility: | |
| | <ul style="list-style-type: none"> ● Microsoft Windows XP Wireless Network Connection Manager ● Broadcom Wireless Configuration Utility (required for Cisco Compatible Extensions support) | |
| | Microsoft Windows Vista | |
| | <ul style="list-style-type: none"> ● Microsoft Windows Vista Wireless Network Connection Manager ● Broadcom IHV extensions for Windows Vista available to support Cisco Compatible Extensions. | |
| LED Activity | LED Off - Radio OFF; Solid LED On - Radio ON | |
| | <ol style="list-style-type: none"> 1. Check latest software/driver release for updates on supported security features. 2. Maximum output power may vary by country according to local regulations. 3. 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. | |
| Bluetooth 2.1 and 3.0 Wireless Technology | Bluetooth Specification | 2.1+EDR and 3.0+HS Compliant |
| | Dimensions | 1.18 x 0.26 x 0.13 in (30 x 6.5 x 3.25 mm) |
| | Frequency Band | 2402 to 2480 MHz |
| | Number of Available Channels | 79 (1 MHz) available channels |
| | Data Rates and Throughput | 3 Mbps data rate; throughput up to 2.17 Mbps Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric or 1306.9 kbps symmetric |
| | Transmit Power | Max 5.5 dBm (Bluetooth Class I) |
| | Receiver Sensitivity | Better than -80 dBm at 0.1 % raw bit error rate |
| | Power Consumption | Average 165mW Sleep <1 mW |
| | Antenna | Internally integrated within module |
| | Range | Up 33 ft (10 m) |
| | Electrical Interface | USB 2.0 compliant Microsoft Windows Plug and Play compliant |
| | Bluetooth Software Supported | Broadcom Bluetooth for Windows Microsoft Windows Bluetooth Software |
| | Link Topology | Point to Point, Multipoint Pico Nets up to 7 slaves |

Technical Specifications

| | |
|-------------------------------------|--|
| Security | Full support of Bluetooth Security Provisions |
| Power Management | Microsoft Windows ACPI, and USB Bus Support Self configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff |
| Certifications | All necessary regulatory approvals for supported countries, including: FCC (47 CFR) Part 15C, Section 15.247 & 15.249 ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark |
| Temperature | Operating -4° to 158° F (-20° to 70° C) Non-operating -40° to 176° F (-40° to 80° C) |
| Humidity | Operating 10% to 90% Non-operating 5% to 95% |
| Altitude | Operating 15,000 ft (4,572 m) Non-operating 40,000 ft (12,192 m) |
| Bluetooth Profiles Supported | Serial Port Profile (SPP) ¹ Service Discovery Application Profile (SDAP) Dial-Up Networking (DUN) ^{1,2} Generic Object Exchange Profile (GOEP) ^{1,2} Object Push Profile (OPP) ^{1,2} File Transfer Profile (FTP) Synchronization Profile (SYNC) Hard Copy Cable Replacement (HCRP) ^{1,2} Personal Area Networking Profile (PAN) ^{1,2} Human Interface Device Profile (HID) ^{1,2,3} FAX Profile (FAX) Basic Imaging Profile (BIP) ² Headset Profile (HSP) Hands Free Profile (HFP) Advanced Audio Distribution Profile (A2DP) |

1. indicates the profile is supported by Microsoft Windows XP SP2

2. indicates the profile is part of Windows Vista

**Atheros 9285GN
802.11b/g/n + BT 3.0 HS
Combo Adapter**

| | |
|-------------------------------|--|
| Wireless LAN Standards | IEEE 802.11b IEEE 802.11g IEEE 802.11n |
| Interoperability | Wi-Fi certified |
| Frequency Band | 2.4 GHz |

Technical Specifications

| | |
|--|---|
| Data Rates | 802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: many 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 specification |
| Modulation | Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM, BPSK, QPSK, 16-QAM, 64-QAM |
| Security¹ | Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated AES, 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, LEAP, EAP-FAST. |
| Sub-channels | Multinational support with frequency bands and channels compliant to local regulations. |
| Media Access Protocol | CSMA/CA (Collision Avoidance) with ACK |
| Network Architecture Models | Ad-hoc (Peer to Peer) Infrastructure (Access Point Required) |
| Roaming | IEEE 802.11 compliant roaming between access points |
| Output Power (for CCK and OFDM) ² | 17 dBm, nominal |
| Output Power (for OFDM; power varies by data rate) ² | 15 dBm, nominal |
| Power Consumption | Transmit: 1.5 W (max) Receive: 1.0 W (max) Associated to Access Point, Idle: 300 mW nominal Wireless Button Off: 75 mW nominal |
| Power Management | ACPI compliant power management 802.11 compliant power saving mode |
| Receiver Sensitivity³ | 54 Mbps: -75 dBm, 11 Mbps: -88 dBm, 1 Mbps: -93 dBm |
| Antenna type | High efficiency antenna with spatial diversity, mounted in the display enclosure |
| Form Factor | PCI-Express Half-MiniCard |
| Weight | 0.013 lb (6 g) |
| Dimensions | 0.19 x 1.06 x 1.18 in (4.75 x 26.8 x 30 mm) |
| Operating Voltage | 3.3v +/- 9% |
| Temperature | Operating 14° to 149° F (-10° to 65° C) Non-operating -40° to 176° F (-40° to 80° C) |
| Humidity | Operating 10% to 90% (non-condensing) Non-operating 5% to 95% (non-condensing) |
| Altitude | Operating 0 to 10,000 ft (3,048 m) Non-operating 0 to 50,000 ft (15,240 m) |
| 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).

Technical Specifications

| | | |
|---|--|---|
| Ralink 3592BC8 802.11a/b/g/n 2x2 WiFi and Bluetooth 3.0+HS Combo Adapter | Wireless LAN Standards | IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n |
| | Interoperability | Wi-Fi certified Cisco Compatible Extensions Program compliant with Microsoft Windows Vista and XP (details at: http://www.hp.com/go/notebooks/WLAN) |
| | Frequency Band | 2.4 GHz and 5GHz |
| | Data Rates | 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: 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 specification |
| | Modulation | Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM, BPSK, QPSK, 16-QAM, 64-QAM |
| | Security¹ | Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated AES, 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, LEAP, EAP-FAST. Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program Version 4) with Microsoft Windows Vista and XP only. |
| | Sub-channels | Multinational support with frequency bands and channels compliant to local regulations. |
| | Media Access Protocol | CSMA/CA (Collision Avoidance) with ACK |
| | Network Architecture Models | Ad-hoc (Peer to Peer) Infrastructure (Access Point Required) |
| | Roaming | IEEE 802.11 compliant roaming between access points |
| | Output Power (for CCK and OFDM) ² | 17 dBm , nominal |
| | Output Power (for OFDM; power varies by data rate) ² | 15 dBm , nominal |
| | Power Consumption | Idle associated: 250 mW Idle unassociated: 150 mW Transmit: 2.0 W (max) Receive: 2.0 W (max) |
| | Power Management | ACPI compliant power management 802.11 compliant power saving mode |
| | Receiver Sensitivity³ | 54 Mbps: -71 dBm, 11 Mbps: -85 dBm , 1 Mbps: -95 dBm |
| | Antenna type | High efficiency dual band antenna with spatial diversity, mounted in the display enclosure |
| | Form Factor | PCI-Express Half-MiniCard |
| | Weight | 0.013 lb (6 g) |

Technical Specifications

| | |
|--|---|
| Dimensions | 0.19 x 1.06 x 1.18 in (4.75 x 26.8 x 30 mm) |
| Operating Voltage | 3.3v +/- 10% |
| Temperature | Operating 14° to 149° F (-10° to 65° C) Non-operating -40° to 176° F (-40° to 80° C) |
| Humidity | Operating 10% to 90% (non-condensing) Non-operating 5% to 95% (non-condensing) |
| Altitude | Operating 0 to 10,000 ft (3,048 m) Non-operating 0 to 50,000 ft (15,240 m) |
| Configuration Utility⁴ | Microsoft Windows XP Choice of Configuration Utility: <ul style="list-style-type: none">• Microsoft Windows XP Wireless Network Connection Manager• Broadcom Wireless Configuration Utility (required for Cisco Compatible Extensions support) Microsoft Windows Vista <ul style="list-style-type: none">• Microsoft Windows Vista Wireless Network Connection Manager• Broadcom IHV extensions for Windows Vista available to support Cisco Compatible Extensions. |
| LED Activity | LED Off - Radio OFF; Solid LED On - Radio ON <ol style="list-style-type: none">1. Check latest software/driver release for updates on supported security features.2. Maximum output power may vary by country according to local regulations.3. 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. |
| Bluetooth 2.1 and 3.0 Wireless Technology | Bluetooth Specification 2.1+EDR and 3.0+HS Compliant Dimensions 1.18 x 0.26 x 0.13 in (30 x 6.5 x 3.25 mm) Frequency Band 2402 to 2480 MHz Number of Available Channels 79 (1 MHz) available channels Data Rates and Throughput 3 Mbps data rate; throughput up to 2.17 Mbps Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric or 1306.9 kbps symmetric Transmit Power -6 dBm to 4 dBm (Bluetooth Class II) Receiver Sensitivity Better than -80 dBm at 0.1 % raw bit error rate Power Consumption Peak (Tx) 175 mW Peak (Rx) 160 mW Sleep <1 mW Antenna Internally integrated within module Range Up 33 ft (10 m) |

Technical Specifications

| | |
|-------------------------------------|--|
| Electrical Interface | USB 2.0 compliant Microsoft Windows Plug and Play compliant |
| Bluetooth Software Supported | Broadcom Bluetooth for Windows Microsoft Windows Bluetooth Software |
| Link Topology | Point to Point, Multipoint Pico Nets up to 7 slaves |
| Security | Full support of Bluetooth Security Provisions |
| Power Management | Microsoft Windows ACPI, and USB Bus Support Self configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff |
| Certifications | All necessary regulatory approvals for supported countries, including: FCC (47 CFR) Part 15C, Section 15.247 & 15.249 ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark |
| Temperature | Operating -4° to 158° F (-20° to 70° C) Non-operating -40° to 176° F (-40° to 80° C) |
| Humidity | Operating 10% to 90% Non-operating 5% to 95% |
| Altitude | Operating 15,000 ft (4,572 m) Non-operating 40,000 ft (12,192 m) |
| Bluetooth Profiles Supported | Serial Port Profile (SPP) ¹ Service Discovery Application Profile (SDAP) Dial-Up Networking (DUN) ^{1,2} Generic Object Exchange Profile (GOEP) ^{1,2} Object Push Profile (OPP) ^{1,2} File Transfer Profile (FTP) Synchronization Profile (SYNC) Hard Copy Cable Replacement (HCRP) ^{1,2} Personal Area Networking Profile (PAN) ^{1,2} Human Interface Device Profile (HID) ^{1,2,3} FAX Profile (FAX) Basic Imaging Profile (BIP) ² Headset Profile (HSP) Hands Free Profile (HFP) Advanced Audio Distribution Profile (A2DP) |

1. indicates the profile is supported by Microsoft Windows XP SP2
2. indicates the profile is part of Windows Vista

Realtek 8188GN
802.11b/g/n 1x1 WiFi
Adapter

| | |
|-------------------------------|--|
| Wireless LAN Standards | IEEE 802.11b IEEE 802.11g IEEE 802.11n |
| Interoperability | Wi-Fi certified |

Technical Specifications

| | |
|---|---|
| Frequency Band | 2.4 GHz |
| Data Rates | 802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: many possible data rates, ranging from 6 Mbps to 150 Mbps, depending on the combination of Bandwidth, Modulation Coding Scheme, and Guard Interval used, as defined in IEEE 802.11n specification |
| Modulation | Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM, BPSK, QPSK, 16-QAM, 64-QAM |
| Security¹ | Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated AES, 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, LEAP, EAP-FAST. |
| Sub-channels | Multinational support with frequency bands and channels compliant to local regulations. |
| Media Access Protocol | CSMA/CA (Collision Avoidance) with ACK |
| Network Architecture Models | Ad-hoc (Peer to Peer) Infrastructure (Access Point Required) |
| Roaming | IEEE 802.11 compliant roaming between access points |
| Output Power (for CCK)² | 17 dBm, nominal |
| Output Power (for OFDM; power varies by data rate)² | 15 dBm, nominal |
| Power Consumption | Transmit: 1.5 W (max) Receive: 1.0 W (max) Associated to Access Point, Idle: 152 mW nominal Wireless Button Off: 33 mW nominal |
| Power Management | ACPI compliant power management 802.11 compliant power saving mode |
| Receiver Sensitivity³ | 54 Mbps: -73 dBm, 11 Mbps: -82 dBm, 1 Mbps: -93 dBm, MCS7_HT20: -69dBm, MCS7_HT40: -67dBm |
| Antenna type | High efficiency antenna with spatial diversity, mounted in the display enclosure |
| Form Factor | PCI-Express Half-MiniCard |
| Weight | 0.007 lb (3 g) |
| Dimensions | 0.14 x 1.06 x 1.18 in (3.5 x 26.8 x 30 mm) |
| Operating Voltage | 3.3v +/- 9% |
| Temperature | Operating 14° to 149° F (-10° to 65° C) Non-operating -40° to 176° F (-40° to 80° C) |
| Humidity | Operating 10% to 90% (non-condensing) Non-operating 5% to 95% (non-condensing) |
| Altitude | Operating 0 to 10,000 ft (3,048 m) Non-operating 0 to 50,000 ft (15,240 m) |
| 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/n \(OFDM modulation\).](#)

Technical Specifications

Environmental Data **Eco-Label Certifications** This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks:

- US ENERGY STAR®
- IT ECO declaration
- EPEAT - Gold where HP registers commercial notebook products. See <http://www.epeat.net> for registration status in your country.

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"

HP ProBook 4435s Notebook PC

| Energy Consumption | 115 VAC | 230 VAC | 100 VAC |
|------------------------------------|---------|---------|---------|
| Normal Operation | 8.16 W | 9.31 W | 8.16 W |
| Sleep (Energy Star low power mode) | 0.91 W | 0.97 W | 0.91 W |
| Off | 0.45 W | 0.5 W | 0.45 W |

| Heat Dissipation* | 115 VAC | 230 VAC | 100 VAC |
|-------------------|-----------|-----------|-----------|
| Normal Operation | 28 BTU/hr | 32 BTU/hr | 28 BTU/hr |
| Sleep | 3 BTU/hr | 3 BTU/hr | 3 BTU/hr |
| Off | 2 BTU/hr | 2 BTU/hr | 2 BTU/hr |

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

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

| System Fan Off | Sound Power (LWAd, bels) | Sound Pressure (LpAm, decibels) |
|-------------------------------|-----------------------------|------------------------------------|
| Idle | 3.3 | 26.4 |
| Fixed Disk (random writes) | 3.3 | 26.4 |

System fan is usually off except when charging the battery

Batteries This battery(s) in this product comply with EU Directive 2006/66/EC

Batteries used in the product do not contain:

- Mercury greater the 5ppm by weight
- Cadmium greater than 10ppm by weight

The battery type and chemistry used in the product is:

CR2032 (coin cell), Li-ion

6-cell high capacity Lithium-Ion battery (optional 8 cell available)

Technical Specifications

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

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

This product contains 0% post consumer recycled plastic (by wt.)

This product is greater than 94.4% recycle-able when properly disposed of at end of life.

Packaging Materials

- External:
 - Corrugated carton – 500 g
- Internal:
 - Polyethylene low density – 15 g
 - Molded Pulp – 180 g
 - CANON bags – several layers – 5 g
- The Corrugated carton packaging material is made from 80% recycled content.
- The Polyethylene low density packaging material is made from 60% recycled content.
- The Molded Pulp packaging material is made from 60% recycled content.
- The CANON bags – several layers packaging material is made from 60% 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.

Technical Specifications

- Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.

HP ProBook 4436s Notebook PC

| Energy Consumption | 115 VAC | 230 VAC | 100 VAC |
|------------------------------------|---------|---------|---------|
| Normal Operation | 9.59 W | 9.73 W | 8.67 W |
| Sleep (Energy Star low power mode) | 0.92 W | 1.04 W | 0.92 W |
| Off | 0.45 W | 0.55 W | 0.45 W |

| Heat Dissipation* | 115 VAC | 230 VAC | 100 VAC |
|-------------------|-----------|-----------|-----------|
| Normal Operation | 33 BTU/hr | 33 BTU/hr | 30 BTU/hr |
| Sleep | 3 BTU/hr | 4 BTU/hr | 3 BTU/hr |
| Off | 2 BTU/hr | 2 BTU/hr | 2 BTU/hr |

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

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

| System Fan Off | Sound Power (LWAd, bels) | Sound Pressure (LpAm, decibels) |
|-------------------------------|-----------------------------|------------------------------------|
| Idle | 3.3 | 26.4 |
| Fixed Disk (random writes) | 3.3 | 26.8 |

System fan is usually off except when charging the battery

Batteries This battery(s) in this product comply with EU Directive 2006/66/EC

Batteries used in the product do not contain:

- Mercury greater than 5ppm by weight
- Cadmium greater than 10ppm by weight

The battery type and chemistry used in the product is:
CR2032 (coin cell), Li-ion
6-cell high capacity Lithium-Ion battery (optional 8 cell available)

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

Technical Specifications

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

This product contains 0% post consumer recycled plastic (by wt.)

This product is greater than 94.4% recycle-able when properly disposed of at end of life.

Packaging Materials

- External:
 - Corrugated carton – 500 g
- Internal:
 - Polyethylene low density – 15 g
 - Molded Pulp – 180 g
 - CANON bags – several layers – 5 g
- The Corrugated carton packaging material is made from 80% recycled content.
- The Polyethylene low density packaging material is made from 60% recycled content.
- The Molded Pulp packaging material is made from 60% recycled content.
- The CANON bags – several layers packaging material is made from 60% 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.

Technical Specifications

HP ProBook 4535s Notebook PC

| Energy Consumption | 115 VAC | 230 VAC | 100 VAC |
|------------------------------------|---------|---------|---------|
| Normal Operation | 7.85 W | 8.11 W | 7.48 W |
| Sleep (Energy Star low power mode) | 0.89 W | 1.04 W | 0.92 W |
| Off | 0.43 W | 0.55 W | 0.46 W |

| Heat Dissipation* | 115 VAC | 230 VAC | 100 VAC |
|-------------------|-----------|-----------|-----------|
| Normal Operation | 27 BTU/hr | 28 BTU/hr | 25 BTU/hr |
| Sleep | 3 BTU/hr | 3 BTU/hr | 3 BTU/hr |
| Off | 1 BTU/hr | 2 BTU/hr | 1 BTU/hr |

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

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

| System Fan Off | Sound Power (LWAd, bels) | Sound Pressure (LpAm, decibels) |
|-------------------------------|-----------------------------|------------------------------------|
| Idle | 3.4 | 25.4 |
| Fixed Disk (random writes) | 3.4 | 25.9 |

System fan is usually off except when charging the battery

Batteries This battery(s) in this product comply with EU Directive 2006/66/EC

Batteries used in the product do not contain:

- Mercury greater the 5ppm by weight
- Cadmium greater than 10ppm by weight

The battery type and chemistry used in the product is:
 CR2032 (coin cell), Li-ion
 6-cell high capacity Lithium-Ion battery (optional 8 cell available)

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

Plastics parts weighing over 25 grams used in the product are marked per ISO

Technical Specifications

11469 and ISO1043.

This product contains 0% post consumer recycled plastic (by wt.)

This product is greater than 95.1% recycle-able when properly disposed of at end of life.

Packaging Materials

- External:
 - Corrugated 115 g
 - Corrugated carton 455 g
 - CANON bags - several layers 5 g
- Internal:
 - Polyethylene low density 15 g
 - Molded Pulp 190 g
- The Corrugated packaging material is made from 80% recycled content.
- The Corrugated carton packaging material is made from 80% recycled content.
- The CANON bags - several layers packaging material is made from 80% recycled content.
- The Polyethylene low density packaging material is made from 60% recycled content.
- The Molded Pulp packaging material is made from 60% 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):

- Asbestos
- Certain Azo Colorants
- Certain Brominated Flame Retardants - may not be used as flame

Technical Specifications

- retardants in plastics
- Cadmium
- Chlorinated Hydrocarbons
- Chlorinated Paraffins
- Formaldehyde
- Halogenated Diphenyl Methanes
- Lead carbonates and sulfates
- Lead and Lead compounds
- Mercuric Oxide Batteries
- 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 µgrams/cm²/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>

Technical Specifications

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