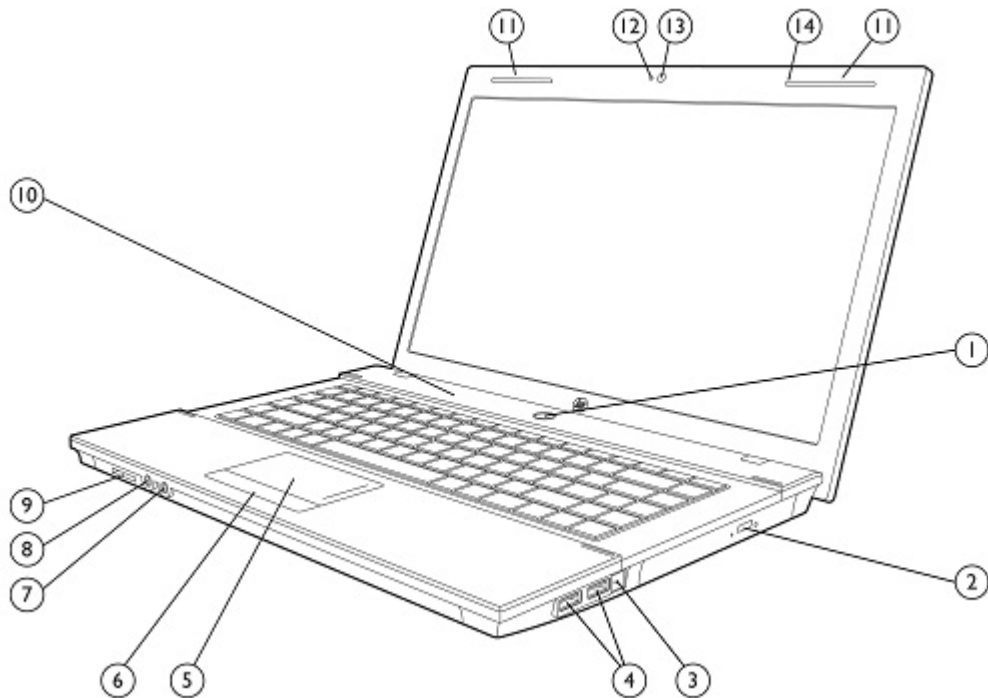
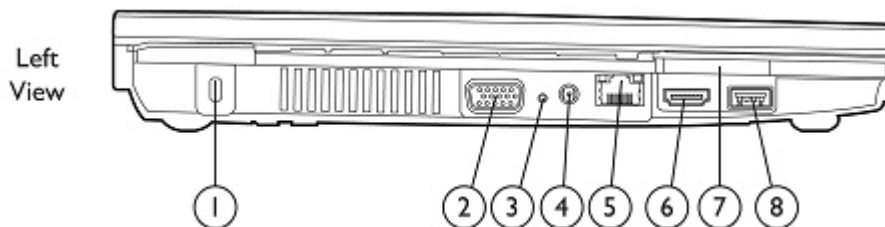


Overview



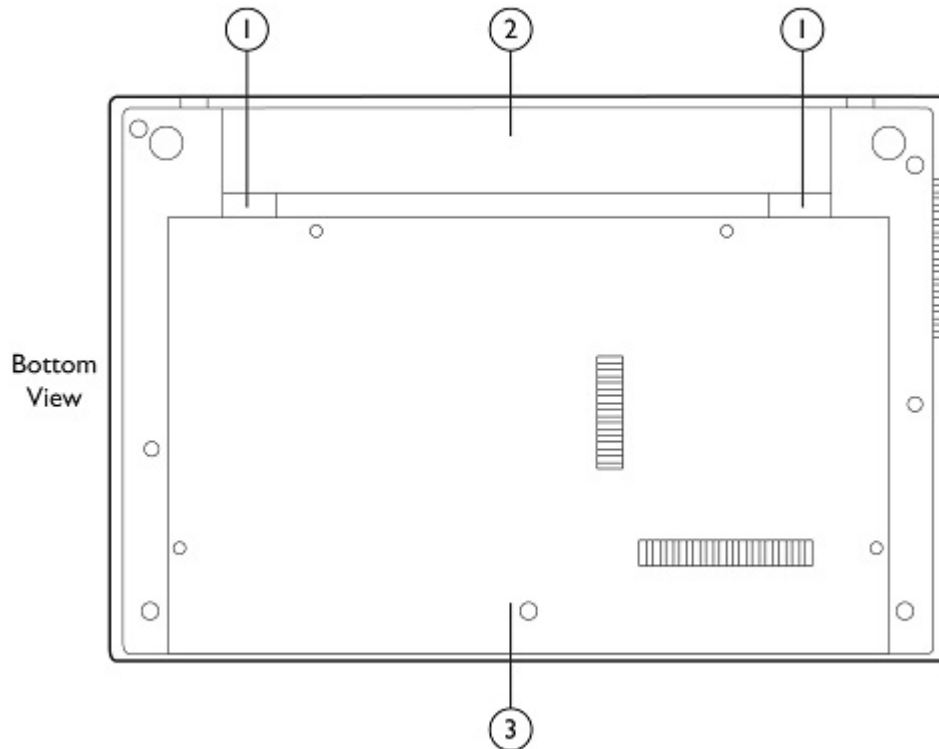
- | | |
|------------------------------------|---|
| 1. Power button with LED indicator | 8. Stereo headphone/line out |
| 2. Optical drive* | 9. Secure Digital (SD) slot |
| 3. Optional RJ-11/modem port | 10. Speaker |
| 4. Two USB 2.0 ports | 11. Dual-band wireless LAN antennas |
| 5. Touchpad with scroll zone | 12. Webcam LED (works with optional webcam) |
| 6. Touchpad button | 13. Optional 2 MP webcam |
| 7. Stereo microphone in | 14. Integrated microphone |

* Select models only



- | | |
|-----------------------------------|------------------------|
| 1. Lock slot | 5. RJ-45/Ethernet port |
| 2. VGA/external monitor connector | 6. HDMI port |
| 3. Battery charging LED indicator | 7. ExpressCard/34 slot |
| 4. Power connector | 8. USB 2.0 port |

Overview



1. Battery release latches
2. Battery bay
3. Memory/WLAN/Hard drive compartment

At A Glance

- Genuine Windows 7 versions, Genuine Windows Vista versions, Genuine Windows XP Professional available through downgrade rights from Windows 7 Professional, SUSE Linux, Red Flag Linux (PRC only), or FreeDOS*
- VISION Pro Technology with ATI Mobility Radeon™ HD Graphics
- Durable, stylish design with microfiber pattern in stone color and (available in select countries only) in ruby color
- Full-sized spill-resistant keyboard
- New keyboard function keys on HP 625 for play, rewind, and fast-forward of video and audio files
- HDMI port for connecting to high-resolution displays
- Optional integrated 2 MP webcam, integrated microphone
- Integrated 802.11 b/g/n or b/g wireless LAN module**
- Bluetooth® 3.0+High Speed (HS)**
- Choice of 9-cell or 6-cell battery to customize weight and run-time to your needs
- Widescreen 15.6-inch or 14.0-inch diagonal LED-backlit HD display with 16:9 aspect ratio, BrightView optional

* Operating system options vary by country.

** Select models only

Standard Features (availability may vary by country)

Processors

AMD Phenom Triple-Core Mobile Processor P820 (1.8 GHz, 1.5MB L2 cache)
AMD Turion II Dual-Core Mobile Processor P560 (2.5 GHz, 2MB L2 cache)
AMD Turion II Dual-Core Mobile Processor P540 (2.4 GHz, 2MB L2 cache)
AMD Turion II Dual-Core Mobile Processor P520 (2.3 GHz, 2MB L2 cache)
AMD Athlon II Dual-Core Processor P360 (2.3 GHz, 1MB L2 cache)
AMD Athlon II Dual-Core Processor P340 (2.2 GHz, 1MB L2 cache)
AMD Athlon II Dual-Core Processor P320 (2.1 GHz, 1MB L2 cache)
AMD V Series Processor V160 (2.4 GHz, 512 KB L2 cache)
AMD V Series Processor V140 (2.3 GHz, 512 KB L2 cache)
AMD V Series Processor V120 (2.2 GHz, 512 KB L2 cache)

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

Operating System

Preinstalled

Genuine Windows 7 Professional 64*
Genuine Windows 7 Professional 32*
Genuine Windows 7 Home Premium 64*
Genuine Windows 7 Home Premium 32*
Genuine Windows 7 Home Basic 32*
Genuine Windows 7 Starter 32*
Genuine Windows Vista Home Basic 32**
SUSE Linux Enterprise Desktop 11
Red Flag Linux (PRC only)
FreeDOS

Supported

Genuine Windows 7 Home Premium 64*
Genuine Windows 7 Professional 64*

Certified

SUSE Linux Enterprise Desktop 11

* 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.msp> and <http://www.microsoft.com/windowsvista/getready/capable.msp> for details. Windows Vista Upgrade Advisor can help you determine which features of Windows Vista will run on your computer. To download the tool, visit: <http://www.windowsvista.com/upgradeadvisor>.

Chipset

AMD M880G chipset

Graphics

ATI Mobility Radeon HD 4200 integrated graphics controller with shared video memory
Microsoft DirectX 10.1 capable

Standard Features (availability may vary by country)

Display	Internal	HP 425: 14.0-inch diagonal LED-backlit HD 16:9 widescreen antiglare (1366 x 768) 14.0-inch diagonal LED-backlit HD 16:9 widescreen BrightView (1366 x 768)
	External	HP 625: 15.6-inch diagonal LED-backlit HD 16:9 widescreen anti-glare (1366 x 768 resolution) 15.6-inch diagonal LED-backlit HD 16:9 widescreen BrightView (1366 x 768 resolution) Up to 32-bit per pixel color depth VGA port supports resolutions up to 1600 x 1200 at 75 Hz, and lower resolutions at up to 100 Hz HDMI 1.3 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.

Memory	Standard	DDR3 SDRAM (1066 MHz/1333 MHz)* Two SODIMM slots supporting dual-channel memory 1024 MB and 2048 MB SODIMMs Standard memory up to 4096 MB
	Maximum Dual-channel	Upgradeable to 8192 MB with optional 4096 MB SODIMMs in slots 1 and 2 Maximized dual-channel performance requires SODIMMs of the same size and speed in both memory slots.

* Maximum memory speed supported by the system is 1066 MHz.

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 Integrated Controller (10/100 NIC) Optional 56K V.92 modem* * 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.
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Standard Features (availability may vary by country)

Wireless Devices

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

All 802.11 integrated wireless LAN options

Wi-Fi certified
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

Broadcom 4313GN 802.11b/g/n WiFi Adapter

Integrated support for 802.11 b, g, and n
Cisco Compatible Extensions support
Up to 72 mbps data rate

Broadcom 4312G 802.11b/g WiFi Adapter

Integrated support for 802.11 b and g
Cisco Compatible Extensions support
Up to 54 mbps data rate

Broadcom 4313GN 802.11b/g/n 1x1

Integrated support for 802.11 b, g, and n
Up to 72.2 mbps data rate

Wi-Fi and Bluetooth 3.0 + HS Combo Adapter

Bluetooth 3.0 + High Speed (HS)
Works with a wide range of Bluetooth devices

HP Integrated Module with Bluetooth 2.1+EDR Wireless Technology

Bluetooth Specification v2.1+EDR compliant
Works with a wide range of Bluetooth devices

* In countries where 802.11n is not allowed, this capability is not enabled.

Keyboard

The 101/102-key compatible keyboard features a spill-resistant, 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. International key layouts are available. Other features include hotkeys for instant access to power conservation, brightness, and other features, 19-mm x 19-mm key pitch (center-to-center spacing), 2.5-mm stroke, comfort-dished keycaps, and bright key legends for improved visibility in low light conditions.

New keyboard hotkeys for play, rewind, and fast-forward of video and audio files.

Pointing device

Touchpad with scroll zone, 1-piece pick button with left and right click functions

Expansion card slots

ExpressCard/34 slot

Supports ExpressCard/34 (34 mm x 75 mm x 5 mm)

Secure Digital slot

Supports SD (Secure Digital), and MultiMediaCard

Standard Features (availability may vary by country)

Storage	Hard drives	160/250/320/500 GB 7200 rpm SMART SATA II 160/250/320/500 GB 5400 rpm SMART SATA II
	NOTE: Up to 15 GB is reserved for the system recovery software.	
	DriveGuard	The hard drive is mounted directly to the notebook frame, reducing the transmission of shock to the hard drive.
	Fixed optical drives	DVD ROM Drive DVD+/-RW SuperMulti DL LightScribe Drive Weight saver
Interfaces	ExpressCard/34 slot	Supports ExpressCard/34
	VGA	One
	HDMI	One
	Stereo microphone in	One
	Stereo headphone/line out	One
	Power connector	One
	RJ-11/modem (optional)	One
	RJ-45/Ethernet	One
	USB 2.0	Three
	LED status indicators	Six
Audio/Visual	HD audio (HP Premier Sound) Integrated microphone Integrated mono speaker Stereo headphone/line out Stereo microphone in	
	Optional 2 MP webcam • Supports videoconferencing and still image capture • Improved quality for video streaming and still image capture (1600x1200 resolution) • Up to 30 frames/sec • Fixed focus lens • 16-bit true color (camera sensor up to UXGA resolution)	

Standard Features (availability may vary by country)

Software

Preinstalled Software with Windows Operating System

HP Recovery Manager (available with Windows 7 or Vista only)
HP Support Assistant (available with Windows 7 or Vista only)
Antivirus software (may vary by country)*
Microsoft Office 2010 preloaded (purchase of a Product
Key required to activate a full Office 2010 suite)**
HP Webcam Software (select models)
HP Wireless Assistant
Corel Office productivity suite 60-day trial
Roxio Creator Business (select models)

* Internet access required. May be Norton or McAfee antivirus software. First 60 days included.
Subscription required for live updates afterwards.

** 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>.

HP Recovery Manager

Models shipped with Windows 7 or Windows Vista 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 15 GB of the hard drive is reserved for the system recovery
software.

Security

Standard Features

HP Spare Key
HP Disk Sanitizer
Setup Password
DriveLock
Lock Slot
Support for Computrace / LoJack for Laptops (must be purchased separately)

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

Power Supply

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

* 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

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

Standard Features (availability may vary by country)

Battery Life

**Primary 9-cell
(93 WHr) battery**

HP 425

Up to 8 hours

HP 625

Up to 8 hours and 15 minutes

**Primary 6-cell
(47 WHr) battery**

Up to 4 hours

Up to 4 hours

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 <http://www.bapco.com/products/mobilemark2007> for additional details.

System Standby Time

Up to 1 week

Power Conservation

Hibernation
Standby
ACPI compliance

Service and Support

HP Services offers limited 1-year 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>

Options (availability may vary by country)

Memory	HP 1 GB (DDR3 1333 MHz) SODIMM	AT911AA
	HP 2 GB (DDR3 1333 MHz) SODIMM	AT912AA
	HP 4 GB (DDR3 1333 MHz) SODIMM	AT913AA
	* Memory speed is processor dependent.	
Other Storage	HP 250 GB USB Pocket Media Hard Drive	FE477AA
	HP External USB CD/DVD R/RW Drive	FS943AA
Expansion	HP USB 2.0 Docking Station	FQ834AA
	HP Essential USB 2.0 Port Replicator	AQ731AA
	HP Dual Hinge Notebook Stand	AW661AA
	HP Display & Notebook Stand	AW662AA
	HP Adjustable Display Stand	AW663AA
	HP Adjustable Dual Display Stand	AW664AA
	HP Basic Adjustable Stand	AL549AA
	Compaq LAN and USB Travel Hub	BM869AA
Power	65W Smart AC Adapter	ED494AA
	90W Smart AC Adapter	ED495AA
	90W Smart Combo Adapter	AJ652AA
	HP 65W Smart Travel Adapter	AU155AA
	HP 65W Slim Adapter	AX727AA
	Primary 6-cell Battery pack	TBD
Carrying Cases	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
	HP Basic Backpack	AM863AA
	HP Merlot Slipcase	AU095AA
	HP Basic Messenger Carrying Case	AP355AA
	HP Professional Series Carrying Case	AT886AA
	HP Professional Series Backpack	AT887AA
	HP Professional Series Messenger	AT888AA
	HP Professional Series Designer Tote	AT889AA
	HP Professional Series Slip Case	AT890AA

Options (availability may vary by country)

HP Elite Series Designer Tote	AT891AA
HP Elite Series Quick Case	AT892AA

Security

HP Compaq Notebook Combo Lock	AY475AA
HP Privacy Filter For 14.0 in	AU100AA
HP Privacy Filter For 15.6 in	AU103AA

Input/Output Devices

HP Bluetooth Stereo Headphones	AR084AA
HP Mobile Audio Speakers	FS944AA
HP PS/2 Keyboard & Optical Mouse Bundle	RC464AA#xxx
HP USB Keyboard & Mouse Bundle	RC465AA#xxx
HP Wireless Optical Mouse	AR085AA
HP USB-P/S2 Optical Mouse	DC369A
HP Mobile Productivity Bundle	AQ729AA
HP Special Edition Optical Mouse	AU094AA#xxx
HP USB Optical Travel mouse	RH304AA
HP Promo USB Graphics Adapter	NL571AT
HP Digital Premium Stereo Headset	KJ270AA
HP Premium Autofocus Webcam	KQ245AA
HP Migration Cable for Windows 7	AY493AA
HP Notebook Multi-Purpose Cleaning Kit	BL528AA#ABA
HP Notebook Projection Companion	AX325AA

Technical Specifications

System Unit	Dimensions (HxWxD)	HP 425: 1.06 (at front) x 13.23 x 8.98 in 27 (at front) x 336 x 228 mm
		HP 625: 1.09 (at front) x 14.64 x 9.83 in 27.5 (at front) x 371.8 x 249.6 mm
Weight		HP 425: Starting at 5.0 lb (2.26 kg)
		HP 625: Starting at 5.5 lb (2.49 kg)
NOTE: Height varies depending upon where on the notebook the measurement is made. Weight varies by configuration and components. Weight includes 6-cell battery, hard drive, 1 GB memory, and optical drive. Weight varies by configuration and components.		
Stand-Alone Power Requirements (AC Power)	Nominal Operating Voltage	18.5 V
	Average Operating Power	Integrated graphics: 17.28 W Discrete graphics: 19.83 W
	Max Operating Power	< 65 W
Temperature	Operating	32° to 95° F (0° to 35° C) (not writing optical) 41° to 95° F (5° to 35° C) (writing optical)
	Non-operating	–4° to 140° F (–20° to 60° C)
Relative Humidity	Operating	10% to 90%, non-condensing
	Non-operating	5% to 95%, 101.6° F (38.7° C) maximum wet bulb temperature
Shock	Operating	125 G, 2 ms, half-sine
	Non-operating	200 G, 2 ms, half-sine
Random Vibration	Operating	0.75 grms
	Non-operating	1.50 grms
Altitude (unpressurized)	Operating	–50 to 10,000 ft (–15.24 to 3,048 m)
	Non-operating	–50 to 40,000 ft (–15.24 to 12,192 m)
Industry Standard Certifications	UL	Yes
	CSA	Yes
	FCC Compliance	Yes
	ENERGY STAR®	Select models*
	EPEAT	Registered TBD in United States**
	ICES	Yes
	Australia / NZ A-Tick Compliance	Yes
	CCC	Yes
	Japan VCCI Compliance	Yes
	KCC	Yes
	BSMI	Yes

Technical Specifications

CE Marking Compliance	Yes
BNCI or BELUS	Yes
CIT	Yes
GOST	Yes
Saudi Arabian Compliance (ICCP)	Yes
SABS	Yes
UKRSERTCOMPUTER	Yes

* Configurations of the HP 425 and HP 625 that are ENERGY STAR qualified are identified as HP 425 ENERGY STAR and HP 625 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.

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

HP 65W 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	83% min at 115 VAC
		Input frequency range	47 to 63 Hz
	Output	Input AC current	1.7 A at 90 VAC, 0.85 A at 180 VAC
		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)
		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.	

NOTE: Unless otherwise noted, temperature limits listed in the following component specifications relate to the internal temperatures of these components and not to the environment in which the PC is operating.

Technical Specifications

9-Cell (93 WHr) Lithium-Ion battery	Dimensions (HxWxL)	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 (47 WHr) Lithium-Ion battery	Dimensions (HxWxL)	0.8 x 2.1 x 8.0 in (2.0 x 5.3 x 20.3 cm)	
	Weight	0.659 lb (0.299 kg)	
	Cells/Type	6-cell Lithium-Ion	
	Energy	Watt-hour Capacity	47 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	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		

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)	

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)		

Technical Specifications

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)	

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

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) 150 MB/s (Drive Capability)
	Seek Time (typical reads, including settling)	Single Track 1.5ms
		Average 11ms
		Maximum 22ms
	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 (115g)
	Capacity	250 GB
	Height	0.37 in (9.5 mm) or on some models 0.28 in (7 mm)
	Width	2.75 in (70 mm)
	Interface	ATA-8, SATA 2.6, 3.0 Gb/s, NCQ
	Transfer Rate	Synchronous (maximum) 150 MB/s (Drive Capability)
	Seek Time (typical reads, including settling)	Single Track 1.5ms
		Average 11ms
		Maximum 22ms
	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) or on some models 0.28 in (7 mm)
	Width	2.75 in (70 mm)
	Interface	ATA-8, SATA 2.6, 3.0 Gb/s, NCQ
	Transfer Rate	Synchronous (maximum) 150 MB/s (Drive Capability)
	Seek Time (typical reads, including settling)	Single Track 1.5ms
		Average 11ms
		Maximum 22ms
	Rotational Speed	7200 rpm
	Logical Blocks	488,397,168
	Operating Temperature	32° to 140° F (0° to 60° C) [case temp]
	Features	ATA Security

160 GB 7200 rpm SATA Hard Drive	Drive Weight	0.25 lb (115 g)
	Capacity	160 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) 150 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	312,581,808
	Operating Temperature	32° to 140° F (0° to 60° C) [case temp]
	Features	ATA Security

Technical Specifications

500 GB 5400 rpm SATA Hard Drive	Drive Weight	0.22 lb (101 g)
	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) 150 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	976,773,168
	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) 150 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	625,142,448
	Operating Temperature	32° to 140° F (0° to 60° C) [case temp]
	Features	ATA Security

Technical Specifications

250 GB 5400 rpm SATA Hard Drive	Drive Weight	0.22 lb (101 g)
	Capacity	250 GB
	Height	0.37 in (9.5 mm)
	Width	2.75 in (70 mm)
	Interface	ATA-8, SATA 2.6, 3.0 Gb/s, NCQ
	Transfer Rate	Synchronous (maximum) 150 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	488,397,168
	Operating Temperature	32° to 140° F (0° to 60° C) [case temp]
	Features	ATA Security

160 GB 5400 rpm SATA Hard Drive	Drive Weight	0.22 lb (101 g)
	Capacity	160 GB
	Height	0.37 in (9.5 mm)
	Width	2.75 in (70 mm)
	Interface	ATA-8, SATA 2.6, 3.0 Gb/s, NCQ
	Transfer Rate	Synchronous (maximum) 150 MB/s (Drive Capability)
	Seek Time (typical reads, including settling)	Single Track 3 ms
		Average 13ms
		Maximum 24 ms
	Rotational Speed	5400 rpm
	Logical Blocks	312,581,808
	Operating Temperature	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	Up to 3,600 KB/s Up to 10,800 KB/s
	Transfer Mode	UDMA Mode 5	
	Interface	Gen 1 SATA	
	Supported Media (read)	CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW, DVD-RAM	
	Supported Media (write)	None	
	Max Media Capacity (read)	8.5GB	
	Transport	Tray Loading	

DVD+/-RW SuperMulti DL LightScribe Drive	Access Times	Random	< 150ms CD (typical) < 160 ms DVD (typical)
	Max Data Transfer Rate	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
		8X DVD+RW	Up to 10,800 KB/s
		8X DVD-R	Up to 10,800 KB/s
		6X DVD-RW	Up to 8100KB/s
		4X - DVD+R Dual Layer	Up to 5,400 KB/s
		4X - DVD-R Dual Layer	Up to 5,400 KB/s
		5X DVD-RAM	Up to 6,750 KB/s
	Transfer Mode	UDMA Mode 5	
	Interface	Gen 1 SATA	
	Supported Media (read)	CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW, DVD-RAM	
	Supported Media (write)	CD-R, CD-RW, DVD+R, DVD+RW, DVD-R, DVD-RW, DVD-RAM, LightScribe	
	Max Media Capacity (read)	8.5 GB	
	Max Media Capacity (write)	8.5 GB	
	Transport	Tray Loading	

Technical Specifications

Audio

Hardware	Implementation	IDT 92HD88 High Definition audio
	Volume Controls	Up, down, and mute function keys
	Full Duplex	Yes
	Microphone In	Stereo
	Headphone/Line Out	Stereo
	Integrated Microphone	Yes

Audio Output Quality	Frequency Response	10 Hz ~ 30 KHz
	Signal to Noise Ratio	>95 db
	Total Harmonic Distortion	>83 dBr
	Noise Floor	-110 dB
	Play/Record Sampling Rate(s)	Up to 192 KHz
	DAC	24 bits
	ADC	24 bits

Internal Mono Speaker	Power Rating	2 W
	Impedance	8 ohms

Communications

Ralink RT3090BC4 802.11b/g/n WiFi and Bluetooth 3.0 HS Combo Adapter	Wireless LAN Standards	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
	Data Rates	802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: 15, 30, 45, 60, 90, 120, 135, 150 Mbps
	Modulation	Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM
	Security¹	Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated AES, 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, LEAP, EAP-FAST.
		Support for Cisco Security Features (proven compatibility with Cisco Aironet

Technical Specifications

	infrastructure products through the Cisco Compatible Extensions Program Version 4) with Microsoft Windows 7, Windows Vista and XP.	
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	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 Sensitivity ³	54 Mbps: -71 dBm, 11 Mbps: -81 dBm , 1 Mbps: -90 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	0.22 x 1.06 x 1.18 in (4.1 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 Utility ⁴	Microsoft Windows XP Choice of Configuration Utility: ● Microsoft Windows XP Wireless Network Connection Manager ● Microsoft Windows Vista & Windows 7 Wireless Network Connection Manager	
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). 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.		

Technical Specifications

Bluetooth 3.0 + HS Wireless Technology	Bluetooth Specification	BT 3.0 + HS
	Dimensions	0.22 x 1.06 x 1.18 in (4.1 x 26.8 x 30 mm)
	Frequency Band	2402 to 2480 MHz
	Number of Available Channels	79 (1 MHz) available channels
	Data Rates and Throughput	BT 2.1 + EDR 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	BT 3.0 + HS Throughput up to 25 Mbps -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) 350 mW Peak (Rx) 250 mW Sleep <1 mW
	Antenna	Internally integrated within module
	Range	Up 33 ft (10 m)
	Electrical Interface	USB 2.0 compliant Microsoft Windows Plug and Play compliant
	Bluetooth Software Supported	Motorola Bluetooth Profiles and Stack
	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}

Technical Specifications

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

Integrated Realtek RTL8153EH 10/100 NIC

Ethernet Features

10 Mbit/s operation (10BASE-T; IEEE 802.3i; IEEE 802.3 clauses 13-14)
100 Mbit/s operation (100BASE-TX; IEEE 802.3u; IEEE 802.3 clauses 21-30)
Auto-Negotiation (Automatic Speed Selection)
Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/s
IEEE 802.1p QoS (Quality of Service) Support
IEEE 802.1q VLAN support
IEEE 802.3x Flow Control (IEEE 802.3 clauses 31-32; configurable)

Power Management

ACPI compliant - multiple power modes
Situation-sensitive features reduce power consumption
Advanced link down power saving for reducing link down power consumption

Performance Features

TCP/IP/UDP Checksum Offload (configurable)
Large send offload and Giant send offload
Receiving Side Scaling

Manageability

Wake-on-LAN from standby and hibernation (Magic Packet and Microsoft Wake-Up Frame); Wake-on-LAN from off (Magic Packet only)
PXE 2.1 Remote Boot
Statistics Gathering (SNMP MIB II, Ethernet-like MIB, Ethernet MIB (802.3x, clause 30))
Comprehensive diagnostic and configuration software suite
Virtual Cable Doctor for Ethernet cable status

Interface

PCI Express 1.1 x1 to fully support ASPM L0s/L1 and CLKREQ

NIC Device Driver Name

Realtek PCIe FE Ethernet Family Controller

Technical Specifications

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

Broadcom 4313GN 802.11b/g/n WiFi Adapter	Wireless LAN Standards	IEEE 802.11b IEEE 802.11g IEEE 802.11n
	Interoperability	Wi-Fi certified Cisco Compatible Extensions Program compliant with Microsoft Win7, Vista and XP (details at: http://www.hp.com/go/notebooks/WLAN)

Technical Specifications

Frequency Band	2.4 GHz
Data Rates	802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: 6.5, 7.2, 13, 14.4, 19.5, 21.7, 26, 28.9, 39, 43.3, 52, 57.8, 58.5, 65, 72.2Mbps
Frequency Support	20 MHz: 2.4 GHz bands
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)²	17 dBm , nominal
Output Power (for OFDM; power varies by data rate)²	15 dBm , nominal
Power Consumption	Idle associated: 250 mW avg (CLKREQ enabled) Idle unassociated: 425 mW avg Transmit/Receive 20 MHz channel: 5.5 W (max)
Power Management	ACPI compliant power management 802.11 compliant power saving mode
Receiver Sensitivity³	72.2 Mbps: -71dBm
Antenna type	High efficiency dual band antenna with spatial diversity, usually 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)
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.](#)

Technical Specifications

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 and Win7.

Broadcom 4312G 802.11b/g WiFi Adapter	Wireless LAN Standards	IEEE 802.11b IEEE 802.11g
	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
	Data Rates	802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
	Modulation	Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM
	Security¹	Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated AES, 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, LEAP, EAP-FAST. Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program Version 4) 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)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)
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.		

Broadcom 4313GN 802.11b/g/n 1x1 WiFi and Bluetooth 3.0 + High Speed (HS) Combo Adapter	Wireless LAN Standards	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
	Data Rates	802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: 72.2 Mbps
	Modulation	Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM, 64 QAM
	Security¹	Supports 64- and 128-bit WEP, TKIP, WPA, WPA2, WAPI, 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)²	20.5 dBm, nominal

Technical Specifications

Output Power (for OFDM; power varies by data rate) ²	15.5 dBm, nominal	
Power Consumption	Idle associated: 175 mW Idle unassociated: 53 mW Transmit: 1.462 W (max) Receive: 1.056 W (max)	
Power Management	ACPI compliant power management 802.11 compliant power saving mode	
Receiver Sensitivity ³	54 Mbps: -76 dBm, 11 Mbps: -90 dBm , 1 Mbps: -98 dBm	
Antenna type	High efficiency single 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)
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).	
Bluetooth Specification	2.1 Compliant 3.0 + High Speed (HS)	
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	BT 2.1 + EDR 3 Mbps data rate; throughput up to 2.17 Mbps	
	BT 3.0 + HS 24Mbps data rate; throughput up to 12~15Mbps	
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) 214.5 mW Peak (Rx) 105.6 mW Sleep 1.452 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 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} FAX Profile (FAX) Basic Imaging Profile (BIP) ² Headset Profile (HSP) Hands Free Profile (HFP) Advanced Audio Distribution Profile (A2DP) ³	

¹ indicates the profile is supported by Microsoft Windows XP SP2

² indicates the profile is part of Windows Vista

HP Integrated Module with Bluetooth 2.1+EDR Wireless Technology

Bluetooth Specification	2.1+EDR 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



Technical Specifications

Number of Available Channels	79 (1 MHz) available channels	
Data Rates and Throughput	3 Mbps data rate; throughput up to 2.17 Mbps Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric or 1306.9 kbps symmetric	
Transmit Power	-6 dBm to 4 dBm (Bluetooth Class II)	
Receiver Sensitivity	Better than -80 dBm at 0.1 % raw bit error rate	
Power Consumption	Peak (Tx) 264 mW Peak (Rx) 231 mW Sleep <1 mW	
Antenna	Internally integrated within module	
Range	Up 33 ft (10 m)	
Electrical Interface	USB 2.0 compliant Microsoft Windows Plug and Play compliant	
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}	

Technical Specifications

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

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 425 Notebook PC and HP 625 Notebook PC

Energy Consumption

	115 VAC	230 VAC	100 VAC
Normal Operation	13.05 W	13.21 W	12.79 W
Sleep (Energy Star low power mode)	0.73 W	0.83 W	0.71 W
Off	0.36 W	0.43 W	0.34 W

Heat Dissipation*

	115 VAC	230 VAC	100 VAC
Normal Operation	45 BTU/hr	45 BTU/hr	44 BTU/hr
Sleep	2 BTU/hr	3 BTU/hr	2 BTU/hr
Off	1 BTU/hr	1 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	3.5	28
Fixed Disk (random writes)	3.8	33

System fan is usually off except when charging the battery

Batteries

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

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Additional information

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)

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 95% recycle-able when properly disposed of at end of life.

Packaging Materials

- External:
 - Corrugated Carton 360 g
 - Cardboard & Misc 365 g
- Internal:
 - Polyethylene low density 15 g
 - EPE - Expanded Polyethylene 80 g
- The Corrugated Carton packaging material is made from 75% recycled content.
- The Cardboard & Misc packaging material is made from 75% recycled content.
- The Polyethylene low density packaging material is made from 75% recycled content.
- The EPE - Expanded Polyethylene packaging material is made from 75% 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

Technical Specifications

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Additional information

- 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.

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 95% recycle-able when properly disposed of at end of life.

Packaging Materials

- External:
 - Corrugated Carton 635 g
 - Corrugated 140 g
- Internal:
 - Polyethylene low density 15 g
 - EPS (Expanded polystyrene) 50 g
- The Corrugated Carton packaging material is made from 75% recycled content.
- The Polyethylene low density packaging material is made from 75% recycled content.
- The EPS (Expanded polystyrene) packaging material is made from 75% recycled content.

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

Technical Specifications

- 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.

HP 425 Notebook PC and HP 625 Notebook PC

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 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.

Technical Specifications

Hewlett-Packard Corporate Environmental Information

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.

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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