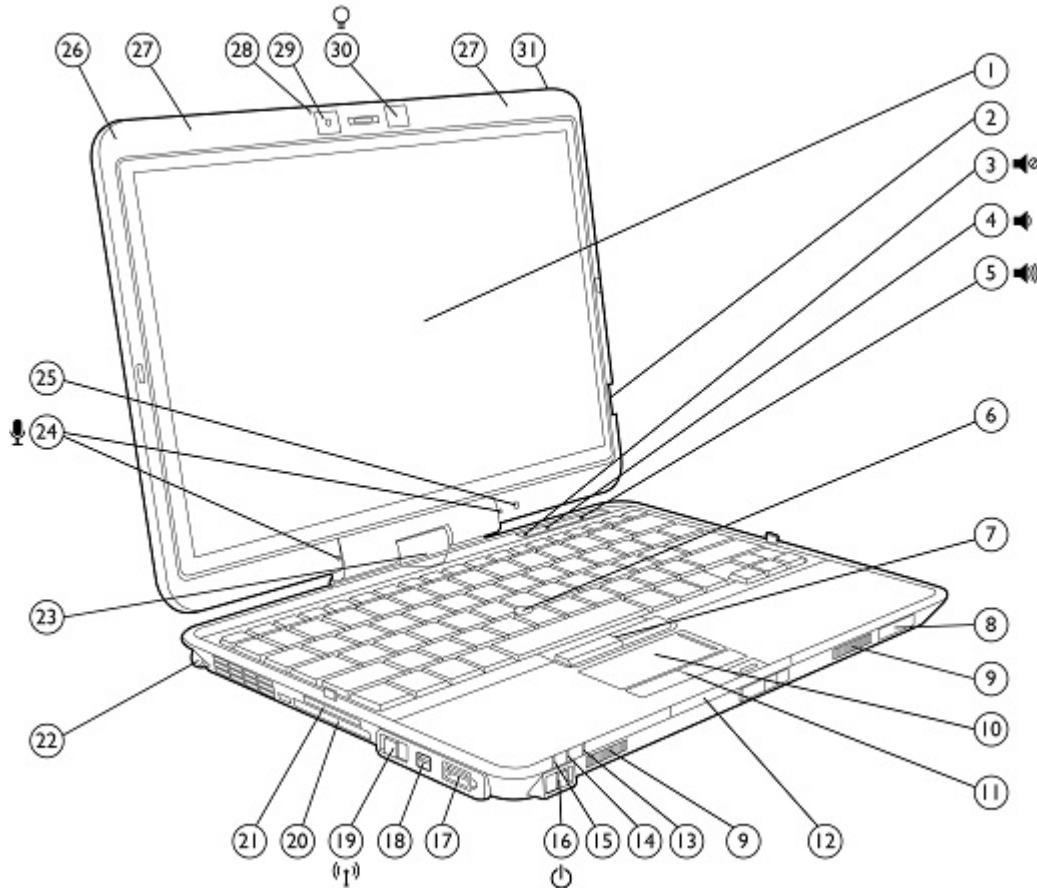


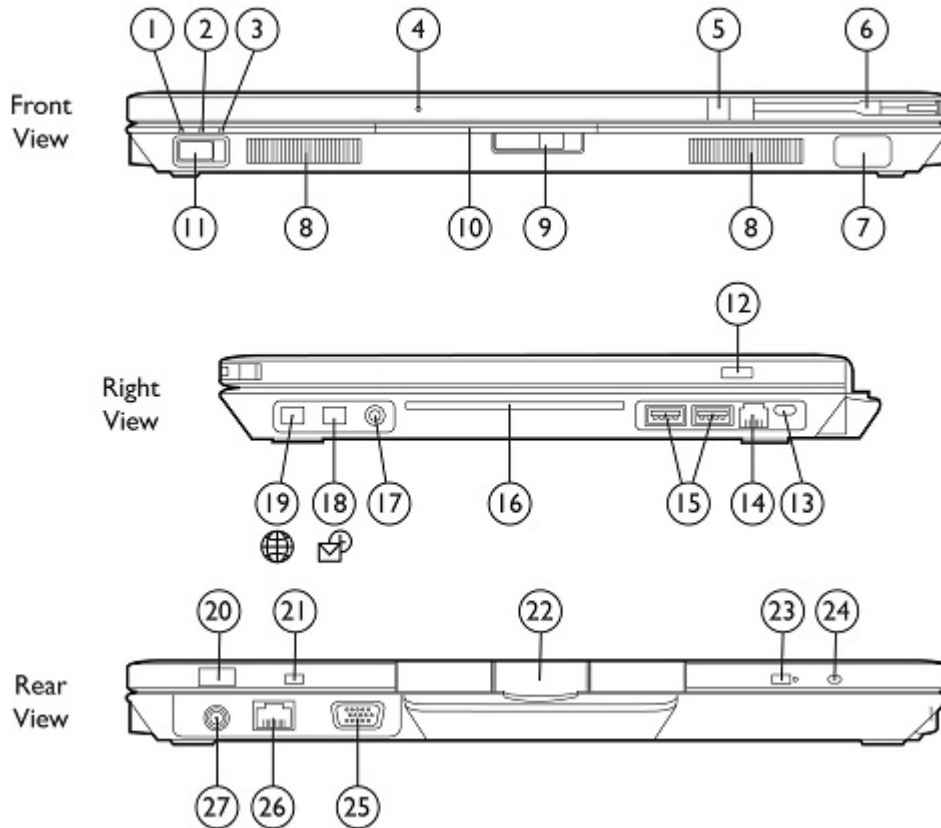
Overview



- | | |
|---|--|
| 1. Optional touch screen | 17. USB 2.0 port (powered) |
| 2. HP Fingerprint Sensor | 18. 1394a port |
| 3. Volume mute button with LED indicator | 19. Wireless on/off with LED indicator |
| 4. Volume down button with LED indicator | 20. ExpressCard/34 slot |
| 5. Volume up button with LED indicator | 21. Secure Digital (SD) slot |
| 6. Pointstick | 22. Pen holder |
| 7. Pointstick buttons | 23. Convertible hinge |
| 8. Bluetooth compartment | 24. Dual-microphone array |
| 9. Stereo speakers | 25. Ambient light sensor |
| 10. Touchpad with scroll zone | 26. Internal WWAN antenna |
| 11. Touchpad buttons | 27. Two internal WLAN antennas |
| 12. Business card slot | 28. Webcam LED indicator |
| 13. Drive activity / HP 3D DriveGuard LED indicator | 29. 2 MP Webcam |
| 14. Battery charging LED indicator | 30. HP Night Light |
| 15. Power/standby LED indicator | 31. External WWAN antenna |
| 16. Power switch | |

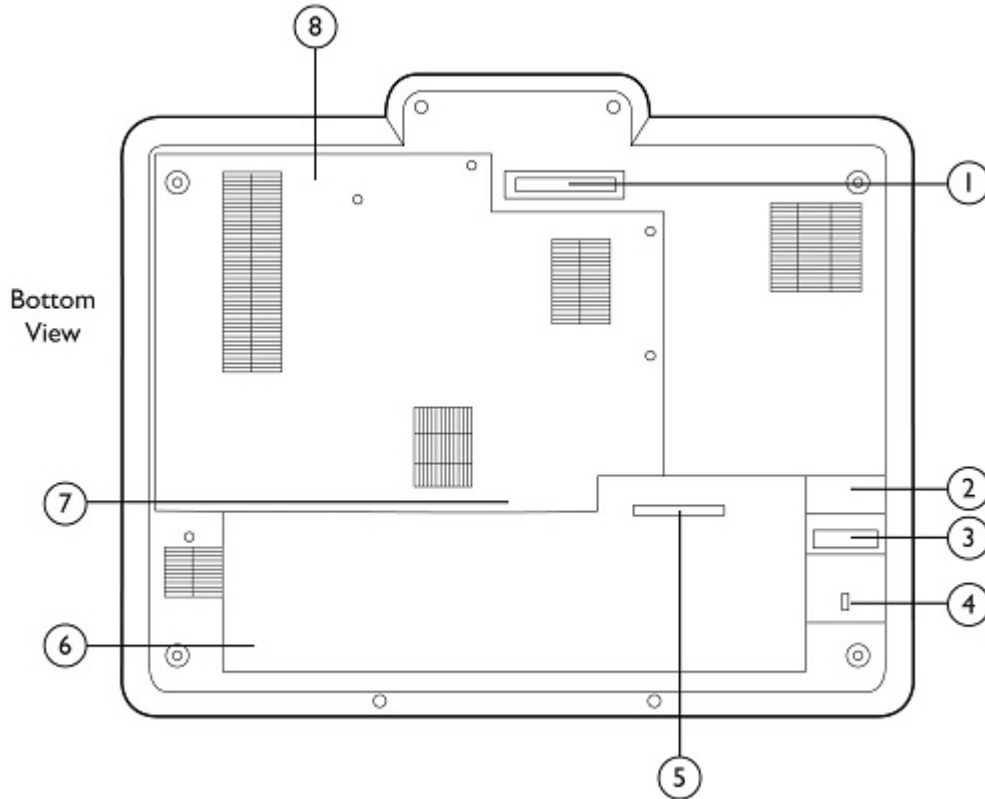


Overview



- | | |
|--|---|
| 1. Power/standby LED indicator | 15. USB 2.0 ports (2) |
| 2. Battery charging LED indicator | 16. Smart Card reader |
| 3. Drive activity / HP 3D DriveGuard LED indicator | 17. Combo headphone/mic jack |
| 4. Webcam LED indicator | 18. QuickLook 3 button |
| 5. External WWAN antenna button | 19. QuickWeb button |
| 6. External WWAN antenna | 20. Jog dial |
| 7. Bluetooth compartment | 21. Esc button |
| 8. Stereo speakers | 22. Convertible Hinge |
| 9. Display release latch | 23. Rotate button |
| 10. Business Card slot | 24. Windows security button (ctl-alt-del) |
| 11. Power switch | 25. VGA/external monitor connector |
| 12. HP Fingerprint Sensor | 26. RJ-45/Ethernet port |
| 13. Kensington Lock slot | 27. Power connector |
| 14. RJ-11/modem port | |

Overview



- | | |
|-------------------------------------|---|
| 1. Docking connector | 5. Battery charge level indicator |
| 2. Battery release latch | 6. Battery bay |
| 3. Secondary battery connector | 7. SIM card slot (select units, located inside battery bay) |
| 4. Secondary battery connector door | 8. Hard drive, memory, WLAN, WWAN module compartment |

At A Glance

- Genuine Windows 7 Professional Edition, Genuine Windows Vista Business, or FreeDOS
- Convertible tablet design starting at 3.80 lb/1.72 kg and 1.25-inch/31.7 mm thin
- Full magnesium alloy chassis, chemically-strengthened glass over display, HP DuraKeys and HP DuraFinish
- Designed to meet the military standard Mil-Std-810G for vibration, dust, humidity, altitude, and high temperature operation*
- Spill-resistant keyboard with drains
- 12.1-inch diagonal LED-backlit WXGA ultra wide-viewing angle display with chemically-strengthened glass top cover, Digitizer, optional two finger multi-touch screen with gesture support, Ambient Light Sensor, and optional Outdoor Viewable panel
- Intel HD Graphics, DDR3 system memory
- New HP 2740 Ultra-Slim Expansion Base with DisplayPort and eSATA port
- HP QuickLook 3 (instant access to email, calendar, contacts and tasks), HP QuickWeb
- Touch-sensitive controls for mute, volume down, and volume up
- Flexible wireless connectivity options:
 - Integrated HP un2420 EV-DO/HSPA Mobile Broadband Module provides worldwide Gobi mobile Internet technology with GPS
 - Integrated Intel Centrino® Advanced-N 6200 802.11 a/b/g/n or Broadcom 802.11a/b/g/n or b/g wireless LAN module
 - Bluetooth® v2.1



Overview

- Intel® Core™ i7 or Core i5 processor with Intel Turbo Boost Technology
- Up to 250-GB 5400 rpm, user-removable hard drive protected by HP 3D DriveGuard, or up to 160 GB Solid State Drive
- Enhanced security features including HP ProtectTools, Drive Encryption, integrated Smart Card Reader, HP SpareKey, Computrace BIOS support, HP Fingerprint Sensor, TPM 1.2 Embedded Security Chip**
- New central management software for HP ProtectTools to manage the security of multiple notebooks from a single point
- Choice of standard 6-cell primary battery with fuel gauge or HP Long Life battery, plus optional external HP 2700 Ultra-Slim Battery
- HP Power Assistant to conserve power, increase battery run-time, monitor power needs, report workforce power consumption
- Dual pointing devices (touchpad and pointstick) and jog dial
- Supports multi-touch screen gestures
- Integrated 2 MP webcam with Business Card Reader software
- HP Night Light
- ExpressCard/34 slot
- Secure Digital (SD) slot

* Testing was not intended to demonstrate fitness for DOD contracts requirements or for military use. Test results are not a guarantee of future performance under these test conditions.

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



Standard Features

Processors

Intel Standard Voltage Processor, soldered

Intel Core i7-620M Processor (2.66 GHz, 4 MB L3 cache)*

Up to 3.33 GHz with Intel Turbo Boost Technology

Intel Core i5-540M Processor (2.53 GHz, 3 MB L3 cache)*

Up to 3.06 GHz with Intel Turbo Boost Technology

Intel Core i5-520M Processor (2.4 GHz, 3 MB L3 cache)*

Up to 2.93 GHz with Intel Turbo Boost Technology

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

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

Operating System

Preinstalled

Genuine Windows 7 Professional Edition 32*

Genuine Windows 7 Professional Edition 64*

Genuine Windows Vista Business 32**

FreeDOS

Supported

Genuine Windows Vista Enterprise 32**

Genuine Windows Vista Enterprise 64**

Genuine Windows 7 Home Premium Edition*

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

Chipset

Mobile Intel QM57 Express Chipset



Standard Features

Intel Core i5 with vPro/Core i7 with vPro technology capable

Intel Core i5 with vPro and Core i7 with vPro technology is a selectable feature that is available on units configured with an Intel Centrino® Advanced-N 6200 series WLAN module and a preinstalled Windows operating system. It provides advances in remote manageability, security, energy efficient performance, and wireless connectivity. Intel Active Management Technology (AMT) offers built-in manageability and proactive security for networked notebook PCs, even when they are powered off* or when the operating system is inoperable. It can help identify threats before they reach the network, isolate infected systems, and update PCs regardless of their power state.

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

NOTE: Some functionality of Intel Core i5 with vPro/Core i7 with vPro technology, such as Intel Active Management technology and Intel Virtualization technology, requires additional 3rd party software in order to run. Availability of future "virtual appliances" applications for Intel Core i5 with vPro/Core i7 with vPro technology is dependent on 3rd party software providers. Compatibility with future "virtual appliances" is yet to be determined.

Graphics

Intel HD Graphics
Microsoft DirectX 10 (Shader 4.0) and OpenGL 2.1 capable

Display

Internal 12.1-inch diagonal LED-backlit WXGA ultra wide viewing angle anti-glare (1280 x 800)
Digitizer only or Digitizer and Multi-touch
Optional Outdoor View*
Ambient light sensor

External Up to 32-bit per pixel color depth
VGA port supports resolutions up to 2048 x 1536 at 75 Hz, and lower resolutions at up to 100 Hz
NOTE: Resolutions are dependent upon monitor capability, and resolution and color depth settings.

* Outdoor View is an option available only with both Digitizer and Multi-touch that provides enhanced viewing:

- 12% increase in front of screen display brightness with no loss of battery life
- Up to 235% increase in contrast, resulting in better viewability, at wide viewing angles
- 25% less specular reflections in bright light
- 91% less diffuse reflections in bright light
- 67% more contrast in bright sunlight

NOTE: This data is based on typical measurements by the display manufacturer. Actual measurements may vary from panel to panel.



Standard Features

Memory	Standard	DDR3 PC3-10600 SDRAM (1333 MHz)* Two SODIMM slots supporting dual-channel memory 1024 MB, 2048 MB and 4096 MB SODIMMs
	Maximum Dual-channel	Upgradeable to 8192 MB with 4096 MB SODIMMs in slots 1 and 2 Maximized dual-channel performance requires SODIMMs of the same size and speed in both memory slots.

* Memory bus runs at a maximum of 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. Availability of 4 GB or more of memory requires Windows Vista Business 64-bit or Linux. With Windows 32-bit operating systems, memory above 3 GB may not all be available due to system resource requirements.

Communications	Integrated Intel Gigabit Ethernet (10/100/1000 NIC)* 56K V.92 modem** * The term "10/100/1000" or "Gigabit" Ethernet indicates compliance with IEEE standard 802.3ab for Gigabit Ethernet, and does not connote actual operating speed of 1 Gb/s. For high-speed transmission, connection to a Gigabit Ethernet server and network infrastructure is required. ** Designed for downloads from 56K modem compliant sources. Maximum achievable download transmission rates currently do not reach 56 KB/s, and will vary with line conditions. Modem availability is subject to country regulatory approval.
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Wireless Devices	Support for a broad range of secure, integrated wireless LAN and wireless WAN options featuring support for the latest industry standards. Mobile Broadband (WWAN) requires a Windows operating system and is available in select countries as a standard, factory configurable feature or as an option to be added later. Integrated Bluetooth is also available (factory configurable only) and can be combined with any of the supported wireless LAN and wireless WAN options.
HP un2420 EV-DO/HSPA Mobile Broadband Module	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 LoJack Pro Premium for HP ProtectTools. NOTE: Separately purchased mobile network operator service is required. Two 850/900/1575/1800/1900/2100 MHz antennas integrated in the top of the display panel support current and future WWAN technologies.
All 802.11 integrated wireless LAN options	Wi-Fi CERTIFIED* Cisco Compatible Extensions support Wired Equivalent Privacy (WEP) support up to 128-bit keys Wi-Fi Protected Access (WPA) and WPA2 support 802.1x authentication support, including EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, and LEAP Advanced Encryption Standard (AES) support Two antennas integrated in the display enclosure
Intel Centrino Advanced-N 6200 (2x2)	Integrated support for 802.11a, b, g, and n* 2 transmit, 2 receive antennas Up to 300 mbps data rate



Standard Features

Broadcom 4322AGN 802.11a/b/g/n Wi-Fi Adapter	Integrated support for 802.11a, b, g, and n Up to 300 mbps data rate
Broadcom 4312G 802.11b/g WiFi Adapter	Integrated support for 802.11 b and g Up to 54 mbps data rate
HP Integrated Module with Bluetooth Wireless Technology	Bluetooth Specification v2.1 compliant Works with a wide range of Bluetooth devices

* In countries where 802.11n is not allowed, this capability is not enabled (802.11a/b/g only).

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 an industry standard, full-pitch key layout with desktop keyboard features, such as the isolated inverted-T cursor control keys, editing keys, both left and right control and alt keys, and 12 function keys. US and International key layouts are available. Other features include an integrated numeric keypad, hotkeys for instant access to power conservation, brightness, and other features, 19-mm x 19-mm key pitch (center-to-center spacing), 2.0-mm stroke, and comfort-dished keycaps.

HP DuraKeys is a clear coating applied over the notebook keyboard that helps protect the finish and the printed characters on the keys. HP DuraFinish helps protect the finish on the keyboard deck, graphics, and icons from normal wear and tear.

HP Night Light shines directly on keyboard for low-light conditions.

Touch-sensitive controls

Touch-sensitive controls provide easy access to the following features: volume mute, volume down, volume up.

Pointing device

Dual pointing (Touchpad with scroll zone and Pointstick, each with two pick buttons)
Digital Eraser Pen with tether and clip
Multi-touch screen gestures

Expansion card slots

ExpressCard/34 slot	Supports ExpressCard/34
Integrated Smart Card Reader	Compatible with ISO 7816 compliant Smart Cards PC/SC interface support
Secure Digital slot	Supports SD (Secure Digital), MMC (MultiMedia Card)



Standard Features

Storage	Hard Drives	160/250 GB 5400 rpm 1.8-inch SMART SATA II Hard Drive
		NOTE: Hard drives are customer removable and will withstand multiple insertion/removal cycles. Up to 15 GB is reserved for the system recovery software.
	HP 3D DriveGuard	The hard drive is mounted to the notebook frame, reducing the transmission of shock away from the hard drive. Uses three-axis digital motion detection with intelligent sensitivity to help protect the hard drive during normal use from shock and vibration. The digital accelerometer temporarily halts all data transfer and parks the hard drive when abrupt motion is detected.
	Solid State Drives	80/160 GB 1.8-inch Solid State Drive
	External Optical Drives	Via optional HP 2740 Ultra-Slim Expansion Base: 9.5mm DVD+/-RW SuperMulti Drive Via optional HP External USB CD/DVD R/RW Drive

Interfaces	ExpressCard/34 slot	Supports ExpressCard/34
	Smart Card Reader	One
	External monitor	One – VGA
	1394a	One
	Combo headphone/mic jack	One
	Power connector	One
	RJ-11/modem	One
	RJ-45/Ethernet	One
	USB 2.0	Three (including one powered USB 2.0 port)
	Docking connector	For HP 2740 Ultra-Slim Expansion Base
	Secondary battery connector	For HP 2700 Ultra-Slim Battery
	LED status indicators	Ten

Audio/Visual	HD audio (HP Premier Sound) w/24-bit DAC
	Integrated stereo speakers
	Integrated dual-microphone array
	Touch-sensitive controls for volume up, volume down, and mute
	Combo headphone/mic jack

Integrated 2 MP Webcam with Business Card Reader Software

- Supports videoconferencing and still image capture
- Large image sensor for excellent color matching and good low light sensitivity
- Up to 30 frames/sec
- AutoMacro focus lens
- Video capture at VGA, 1.3 Mpixel, and 2 Mpixel resolutions
- 16-bit true color (camera sensors output YCrCb format among others)



Standard Features

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) HP ProtectTools Security Manager HP QuickLaunch Buttons Software HP QuickLook 3 HP QuickWeb HP DayStarter HP Power Assistant HP Connection Manager HP Wireless Assistant McAfee Total Protection* PDF Complete Special Edition** Roxio Creator Business 10 (select models) InterVideo WinDVD (select models) Synaptics Touchpad Driver HP Webcam Software WinZip 12 (trial version)
Additional software available from the web	HP SoftPaq Download Manager HP Client Manager Software HP Client Management Solutions

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

** 60 day trial; purchase license afterwards for full functionality.

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 ProtectTools Security Manager
HP Fingerprint Sensor
Integrated Smart Card Reader
Enhanced Pre-Boot Security
HP SpareKey
One-Step Logon
Setup Password
DriveLock Password
TPM 1.2 Embedded Security Chip*
TPM Enhanced DriveLock*
HP Disk Sanitizer
Kensington Lock slot
Support for Computrace** LoJack Pro for HP ProtectTools

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

** 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/go/security>.



Standard Features

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

- Credential Manager for HP ProtectTools
- Device Access Manager for HP ProtectTools
- Drive Encryption for HP ProtectTools
- File Sanitizer for HP ProtectTools
- Privacy Manager for HP ProtectTools (Chat & Sign)
- Embedded Security for HP ProtectTools
- Computrace LoJack Pro for HP ProtectTools

HP ProtectTools is now centrally manageable with the capability to manage notebooks from a single point. Security is management ready out of the box, in partnership with Digital Persona. New 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.

Power Supply

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

*HP Fast Charge recharges your battery up to 90% within 90 minutes when the system is off. Fast Charge does not apply to the optional HP 2700 Ultra-Slim Battery or the HP Long Life Battery.

Battery

Primary Battery

HP 6-cell 44 WHr Li-Ion Primary Battery with fuel gauge LEDs
HP Long Life 6-cell 39 WHr Li-Ion Primary Battery



Standard Features

Battery Life

HP 6-cell (44 WHr) Up to 5 hours
with optional Up to 11 hours
HP 2700 Ultra-Slim Battery

HP Long Life 6-cell (39 WHr) Up to 5 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 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)

Intel Display Power Saving technology
Hibernation
Standby
ACPI compliance

Docking (optional)

HP 2740 Ultra-Slim Expansion Base with 9.5mm DVD +/-RW SuperMulti Drive

This optional expansion base includes connectors for (3) USB 2.0 ports, eSATA port, DisplayPort, VGA, RJ-45 Ethernet pass thru, Stereo microphone in, stereo headphone out, and DC-in.

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 and digital eraser pen. 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

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
Storage	HP Notebooks USB Diskette Drive	DC361B
	HP USB 250 GB Pocket Media Drive	FE477AA
	HP External USB Drive CD/DVD R/RW	FS943AA
Expansion Solutions	HP 2740 Ultra-Slim Expansion Base	WA995UT
	HP USB 2.0 Docking Station	FQ834AA
	HP Essential USB 2.0 Port Replicator	AQ731AA
Communications	HP un2420 EVDO/HSPA Mobile Broadband Module	WD301AA
Power	HP 2700 Ultra-Slim Battery	RX932AA
	HP 65W Smart AC Adapter	ED494AA
	HP 90W Smart AC Adapter	ED493AA
	HP 90W Smart AC/Auto/Air Combo Adapter	AJ652AA#xxx
	HP 6-Cell Li-Ion Primary Battery	AH547AA
	HP 1-bay Battery Charging Station	RW635AA#xxx
	HP 5-bay Battery Charging Station	RW636AA#ABA
	Battery Adapter Kit	RW641AA
	Travel Adapter	AU155AA#xxx
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 Basic Messenger Carrying Case	AP355AA
	Merlot Slip Case	AU095AA
	HP Professional Series Carrying Case	AT886AA
	HP Professional Series Backpack	AT887AA
	HP Professional Series Messenger	AT888AA
	HP Professional Series Lady's Case	AT889AA
HP Professional Series Slip Case	AT890AA	



Options

HP Elite Series Lady's Case	AT891AA
HP Professional Series Quick Case	AT892AA

Security

HP/Kensington MicroSaver Security Lock	PC766A
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Input/Output Devices

HP Tablet PC Tether/Eraser Pen	PL800A
HP USB Keyboard & Mouse Bundle	RC465AA#xxx
HP USB Optical Travel Mouse	RH304AA
HP Wireless Mouse	AR085AA
HP BT Headset	AR084AA
HP Mobile Audio Speakers	FS944AA
HP Mobile Productivity Bundle	AQ729AA
HP Mobile Bluetooth Presenter Mouse	GK872AA



Memory

DDR3 PC3-10600 SDRAM (1333 MHz)*
Two SODIMM slots supporting dual-channel memory
SODIMM sizes supported: 1024 MB, 2048 MB and 4096 MB

- Standard Memory**
- 2048 MB (2048 MB x 1)
 - 3072 MB (2048 MB + 1024 MB)
 - 4096 MB (4096 MB x 1)
 - 4096 MB (2048 MB x 2)
 - 6144 MB (4096 MB + 2048 MB)
 - 8192 MB (4096 MB x 2)

Optional Memory Upgrades Support for up to 8192 MB of memory with the installation of optional DDR3 SDRAM memory kits. Both memory slots are user accessible. Please refer to the Hardware and Software Guide for installation procedures. Maximized dual-channel performance requires SODIMMs of the same size and speed in both memory slots.

Up to	Slot 1	Slot 2
3072 MB	2048 MB	1024 MB
4096 MB	2048 MB	2048 MB
4096 MB	4096 MB	empty
6144 MB	4096 MB	2048 MB
8192 MB	4096 MB	4096 MB

* Memory bus runs at a maximum of 1066 MHz.

NOTE: This chart does not represent all possible memory configurations. Due to the non-industry standard nature of some third-party memory modules, we strongly recommend using only HP branded memory modules to ensure compatibility. If you mix memory speeds, the system will perform at the lower memory speed. Availability of 4 GB or more of memory requires Windows Vista Business 64-bit or Linux. With Windows 32-bit operating systems, memory above 3 GB may not all be available due to system resource requirements.

Memory Upgrades	HP 1 GB (DDR3 1333 MHz) SODIMM	AT911AA
	HP 2 GB (DDR3 1333 MHz) SODIMM	AT912AA
	HP 4 GB (DDR3 1333 MHz) SODIMM	AT913AA



Storage

Internal Storage Device

Hard Drives (1.8-inch SMART SATA II)

160 GB 5400 rpm

250 GB 5400 rpm

- or -

Solid State Drive (1.8-inch)

80 GB Solid State Drive

160 GB Solid State Drive

Quantity Supported

One

One

One

Drive Bay

Dedicated hard drive bay

Dedicated hard drive bay

Dedicated hard drive bay

Optical Drive Support

External Optical Drives

9.5mm DVD+/-RW SuperMulti Drive

CD/DVD R/RW Drive

Quantity Supported

One

One

Optional Expansion Unit

HP 2740 Ultra-Slim Expansion Base

HP External USB CD/DVD R/RW Drive



Technical Specifications

System Unit	Dimensions (HxWxD)	1.25 in (at front) x 11.42 in x 8.35 in 31.7 mm (at front) x 290 mm x 212 mm
	Weight	Starting from 3.80 lb (1.72 kg) With optional HP 2700 Ultra-Slim Battery from 5.03 lb (2.28 kg)
	HP Ultra-Slim Battery Weight	1.24 lb (0.56 kg)
NOTE: Height varies depending upon where on the tablet the measurement is made. Starting weight includes 6-cell battery, hard drive, 2 GB memory, 802.11 wireless communications module. Weight varies by configuration and components.		
Stand-Alone Power Requirements (AC Power)	Nominal Operating Voltage	18.5 V
	Average Operating Power	12.5 W
	Max Operating Power	< 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 Silver in United States**
	ICES	Yes
	GS	Yes
	Australia / NZ A-Tick Compliance	Yes
	CCC	Yes
	Japan VCCI Compliance	Yes
	KCC	Yes
	BSMI	Yes
	CE Marking Compliance	Yes
	BNCI or BELUS	Yes
CIT	Yes	
GOST	Yes	



Technical Specifications

Saudi Arabian Compliance (ICCP)	Yes
SABS	Yes
UKRSERTCOMPUTER	Yes

* Configurations of the HP EliteBook 2740p that are ENERGY STAR qualified are identified as HP EliteBook 2740p ENERGY STAR on HP websites and on www.energystar.gov.

** EPEAT Silver Registered in U.S. EPEAT registration varies by country. See www.epeat.net for registration status by country.

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

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)
	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.

Displays



Technical Specifications

12.1-inch LED-backlit WXGA UWVA, anti-glare with Digitizer	Active Area (W x H)	10.3 x 6.4 in (26.1 x 16.3 cm)	
	Diagonal Size	12.1 in (30.7 cm)	
	Surface Treatment	Anti-glare	
	Contrast Ratio	400:1 (typical)	
	Refresh Rate	60 Hz	
	Brightness	200 nit (typical)	
	Pixel Resolution	Pitch	0.204 mm
		Format	1280 x 800
		Configuration	RGB Stripe
	Backlight	LED	
PPI	125		
Viewing Angle	±75° Horizontal, ±75° Vertical (minimum)		

12.1-inch LED-backlit WXGA UWVA, anti-glare with Digitizer and Outdoor View	Active Area (W x H)	10.3 x 6.4 in (26.1 x 16.3 cm)	
	Diagonal Size	12.1 in (30.7 cm)	
	Surface Treatment	Anti-glare	
	Contrast Ratio	400:1 (typical)	
	Refresh Rate	60 Hz	
	Brightness	200 nit (typical)	
	Pixel Resolution	Pitch	0.204 mm
		Format	1280 x 800
		Configuration	RGB Stripe
	Backlight	LED	
PPI	125		
Viewing Angle	±75° Horizontal, ±75° Vertical (minimum) ±80° Horizontal, ±80° Vertical (typical)		

Internal Storage



Technical Specifications

250 GB 5400 rpm
1.8" SATA Hard Drive

Drive Weight	0.13 lbs (62 g)
Capacity	250 GB
Height	0.31 in (8 mm)
Width	2.12 in (54 mm)
Interface	ATA-8, SATA 2.6, 3.0 Gb/s
Transfer Rate	Synchronous (maximum) 150 MB/s (Drive Capacity)
Seek Time (typical reads, including settling)	Single Track 3ms
	Average 15ms
	Maximum 26ms
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
1.8" SATA Hard Drive

Drive Weight	0.13 lbs (62 g)
Capacity	160 GB
Height	0.31 in (8 mm)
Width	2.12 in (54 mm)
Interface	ATA-8, SATA 2.6, 1.5 Gb/s
Transfer Rate	Synchronous (maximum) 150 MB/s (Drive Capacity)
Seek Time (typical reads, including settling)	Single Track 3ms
	Average 15ms
	Maximum 26ms
Rotational Speed	5400 rpm
Logical Blocks	312,581,808
Operating Temperature	32° to 140° F (0° to 60° C) [case temp]
Features	ATA Security

160 GB
1.8-inch SATA Solid State Drive

Weight	0.08 lbs (35 g)
Capacity	160 GB
Height	0.19 in (5 mm)
Width	2.12 in (54 mm)
Interface	ATA-7 / SATA 2.6
Performance	Maximum Sequential Read 250 MB/s
	Maximum Sequential Write 70 MB/s
Logical Blocks	312,581,808
Operating Temperature	32° to 158°F (32° to 70°C) [case temp]
Features	ATA Security



Technical Specifications

80 GB	Weight	0.08 lbs (35 g)	
1.8-inch SATA Solid State Drive	Capacity	80 GB	
	Height	0.19 in (5 mm)	
	Width	2.12 in (54 mm)	
	Interface	ATA-7 / SATA 2.6	
	Performance	Maximum Sequential Read	Maximum Sequential Write
		250 MB/s	70 MB/s
	Logical Blocks	156,301,488	
	Operating Temperature	32° to 158°F (32° to 70°C) [case temp]	
	Features	ATA Security	

Optical Drives

DVD+/-RW SuperMulti DL Drive	Access Times	Random	< 150 ms CD (typical) < 145 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
		4X DVD+R Dual Layer	Up to 5,400 KB/s
		8X DVD+RW	Up to 10,800 KB/s
		8X DVD-R	Up to 10,800 KB/s
		4X DVD-R Dual Layer	Up to 5,400 KB/s
		6X DVD-RW	Up to 8,100 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		
Max Media Capacity (read)	8.5 GB		
Max Media Capacity (write)	8.5 GB		
Transport	Tray Loading		



Technical Specifications

Security

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

Audio

Hardware	Implementation	IDT 92HD75B High Definition audio
	Function Key Volume Controls	Volume up, volume down, and mute
	Full Duplex	Yes
	Combo headphone/microphone jack	

Device Used	Operation
Stereo Headphone	Headphone works. Integrated microphone works.
External PC Microphone	External microphone does not work. Integrated microphone works.
Combo headphone / microphone without "Answer" button	Headphone and microphone in headset work as advertised.
Combo headphone / microphone with "Answer" button	Headphone and microphone in headset work initially whenever headset is plugged in; integrated microphone in PC is disabled. If "answer" button in pushed, microphone in headset is disabled, integrated microphone in PC is enabled.

Integrated Stereo Microphones	Yes
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Technical Specifications

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

Internal Stereo Speakers	Power Rating	2.0 Watts
	Impedance	4 Ohms

Communications

Integrated Intel Gigabit Network Connection (10/100/1000 NIC)	Ethernet Features	10 Mbit/s operation (10BASE-T; IEEE 802.3i; IEEE 802.3 clauses 13-14) 100 Mbit/s operation (100BASE-TX; IEEE 802.3u; IEEE 802.3 clauses 21-30) 1000 Mbit/s operation (1000BASE-T; IEEE 802.3z and 802.3ab; IEEE 802.3 clauses 34-42) Auto-Negotiation (Automatic Speed Selection) Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/s IEEE 802.1p QoS (Quality of Service) Support IEEE 802.3x Flow Control (IEEE 802.3 clauses 31-32; configurable)	
	Power Management	ACPI compliant -- multiple power modes Situation-sensitive features reduce power consumption	
	Performance Features	TCP/IP/UDP Checksum Offload (configurable)	
	Manageability	Wake-on-LAN from standby and hibernation (Magic Packet and Microsoft Wake-Up Frame); Wake-on-LAN from off (Magic Packet only) PXE 2.1 Remote Boot Statistics Gathering (SNMP MIB II, Ethernet-like MIB, Ethernet MIB (802.3x, clause 30)) Comprehensive diagnostic and configuration software suite Intel Advanced Management Technology 6.0 (iAMT)	
	Interface	PCI Express x1 based, SMBUS dedicated connection with Intel® 5 Series Chipset	
	NIC Device Driver Name	Intel 82577 Gigabit Network Connection	



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



Technical Specifications

HP un2420 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), 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 B, Multi-slot 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-2000
	Wireless Parametric Standards	Meets or exceeds TIA/EIA IS-98-D
	Maximum Data Rates	UMTS (HSPA) - 7.2 Mbps (Download), 2.0Mbps (Upload) CDMA (EVDO Release A) - 3.1 Mbps (Download), 1.8Mbps (Upload)
	GPS	Standalone GPS enabled
	GPS Bands	L1 - 1575.42 MHz
	Maximum Output Power	GSM/GPRS/EDGE: 32dBm (+/-1) WCDMA: 24dBm (+/-1) CDMA: 24dBm (+/-1)
	Maximum Power Consumption	2500mA (peak); 1000mA (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	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 140° F (-30° to 60° 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	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 6200	Wireless LAN Standards	IEEE 802.11a IEEE 802.11b
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Technical Specifications

	IEEE 802.11g IEEE 802.11n*
	* In countries where 802.11n is not allowed, this capability is not enabled.
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
Antenna Structure	2 transmit; 2 receive (2x2)
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	Authentication: WPA and WPA2, 802.1x (EAP_TLS, TTLS, PEAP, LEAP, EAP-FAST) Authentication Protocols: PAP, CHAP, TLS, GTC, MS-CHAP, MS-CHAPv2 Encryption: 64 and 128-bit WEP, AES-CCMP, CKIP, TKIP 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 2.4GHz band Access Points
Output Power (for CCK and OFDM)²	17 dBm max
Power Consumption	Transmit: 2.3 Watts (max, with two spatial streams) Receive: 1 Watt (max with two spatial streams) Idle mode ³ : 35 mW (average) Radio off: 20 mW (max)
Power Management	ACPI compliant power management 802.11 compliant power saving mode
Receiver Sensitivity⁴	54 Mbps: -76 dBm, 6 Mbps: -92 dBm
Antenna Connections	2 U.FL type connectors, 50 ohm nominal impedance
Form Factor	PCI-Express Half-MiniCard
Weight	0.0075 lb (3.4 g)
Dimensions	0.12 x 1.06 x 1.18 in (3.1 x 26.8 x 30.0 mm)
Operating Voltage	3.3V +/- 9%



Technical Specifications

Temperature	Operating	32° to 176° F (0° to 80° C)
	Non-operating	-40° to 176° F (-40° to 80° C)
Humidity	Operating	10% to 90% (non-condensing)
	Non-operating	5% to 90% (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. In Power Save Polling mode and on battery power.
4. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CCK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).
5. WLAN supplier's client utility is required for Cisco Compatible Extensions support 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 4322AGN 802.11a/b/g/n WiFi Adapter	Wireless LAN Standards	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n*
	Interoperability	Wi-Fi certified (802.11abg only) Cisco Compatible Extensions Program compliant (802.11abg only) with Microsoft Windows Vista and XP (details at: http://www.hp.com/go/notebooks/WLAN)
	Frequency Band	2.4 GHz and 5 GHz
	Data Rates	802.11b: 1, 2, 5.5, 11 Mbps 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: 6, 6.5, 9, 12, 13, 13.5, 18, 19.5, 24, 26, 27, 36, 39, 40.5, 48, 52, 54, 58.5, 65, 78, 81, 104, 108, 117, 121.5, 130, 135, 162, 216, 243, 270, 300 Mbps
	Frequency Support	20 MHz: 2.4 GHz and 5 GHz bands 40 MHz: 2.4 GHz and 5 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)



Technical Specifications

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/Receive 20 MHz channel: 2.0 W (max) Transmit/Receive 40 MHz channel: 2.0 W (max)
Power Management	ACPI compliant power management 802.11 compliant power saving mode
Receiver Sensitivity ³	270 Mbps: -61dBm, , 54 Mbps: -72 dBm, 11 Mbps: -85 dBm , 1 Mbps: -92 dBm
Antenna Connections	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)
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 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



Technical Specifications

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 Connections	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)
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.



Technical Specifications

HP Integrated Module with Bluetooth 2.1 Wireless Technology	Bluetooth Specification	2.1 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) 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)



Technical Specifications

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

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 - Silver where HP registers commercial desktop products. See <http://www.epeat.net> for registration status in your country.

Energy Consumption	115 VAC	230 VAC	100 VAC
Normal Operation	9.47 W	10.1 W	10.4 W
Sleep (Energy Star low power mode)	0.99 W	1.19 W	1 W
Off	0.34 W	0.46 W	0.35 W
Heat Dissipation*	115 VAC	230 VAC	100 VAC
Normal Operation	32 BTU/hr	35 BTU/hr	36 BTU/hr
Sleep	3 BTU/hr	4 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	2.5	17.1
Fixed Disk (random writes)	2.5	16.9

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:



Technical Specifications

Additional information

- 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 Silver 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 280 g
 - Corrugated Carton 236 g
- Internal:
 - Polyethylene low density 13 g
- The Corrugated packaging material is made from 100% recycled content.
- The Corrugated Carton packaging material is made from 80% recycled content.
- The Polyethylene low density packaging material is made from 100% recycled content.

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

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



Technical Specifications

Material Usage

- Reduce size and weight of packages to improve transportation fuel efficiency.
- Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.

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

(http://www.hp.com/hpinfo/globalcitizenship/environment/supplychain/gen_specifications.html):

- Asbestos
- Certain Azo Colorants
- Certain Brominated Flame Retardants - may not be used as flame retardants in plastics
- Cadmium
- Chlorinated Hydrocarbons
- Chlorinated Paraffins
- Formaldehyde
- Halogenated Diphenyl Methanes
- Lead carbonates and sulfates
- Lead and Lead compounds
- Mercuric Oxide Batteries
- Ozone Depleting Substances
- Polybrominated Biphenyls (PBBs)
- Polybrominated Biphenyl Ethers (PBBEs)
- Polybrominated Biphenyl Oxides (PBBOs)
- Polychlorinated Biphenyl (PCB)
- Polychlorinated Terphenyls (PCT)
- Polyvinyl Chloride (PVC) - except for wires and cables, and certain retail packaging has been voluntarily removed from most applications.
- Radioactive Substances
- Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)

Nickel finishes that release greater than 0.5 micro-grams/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>



Technical Specifications

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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