Overview
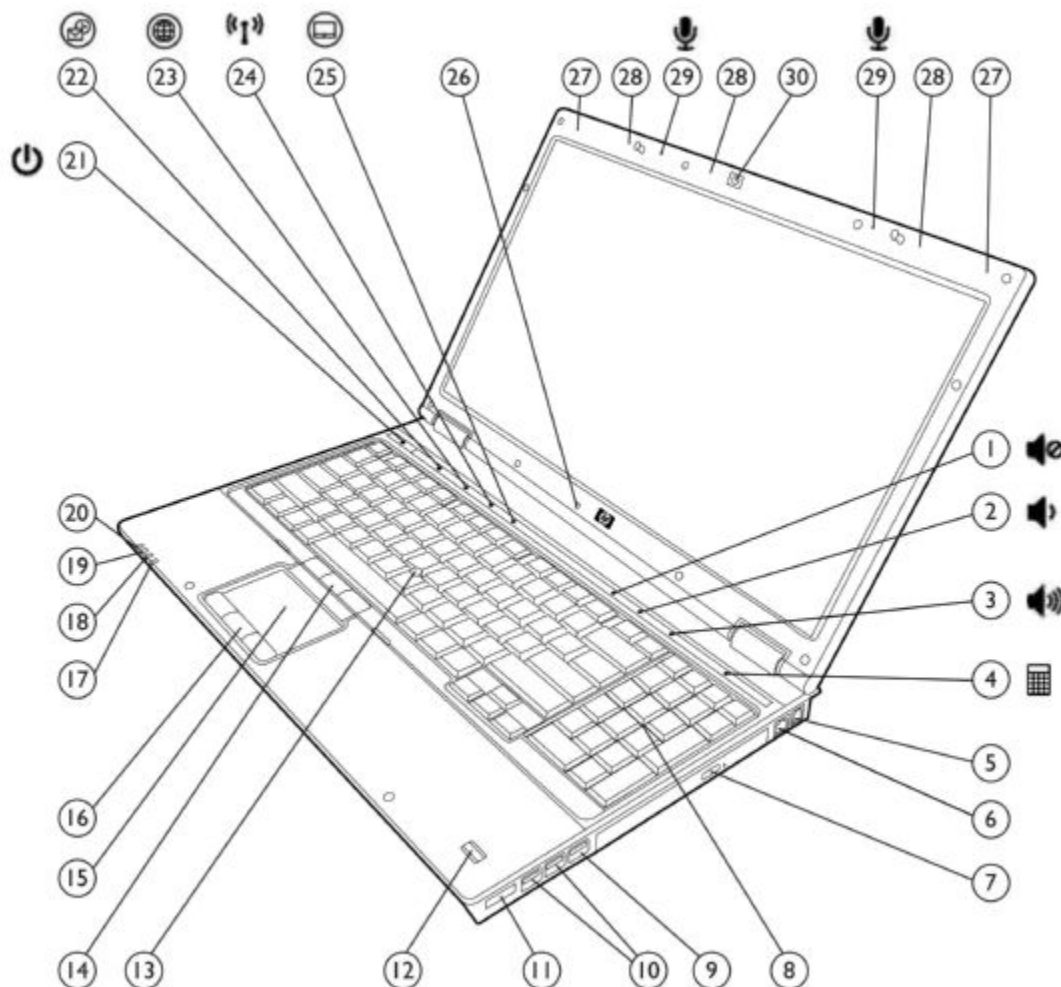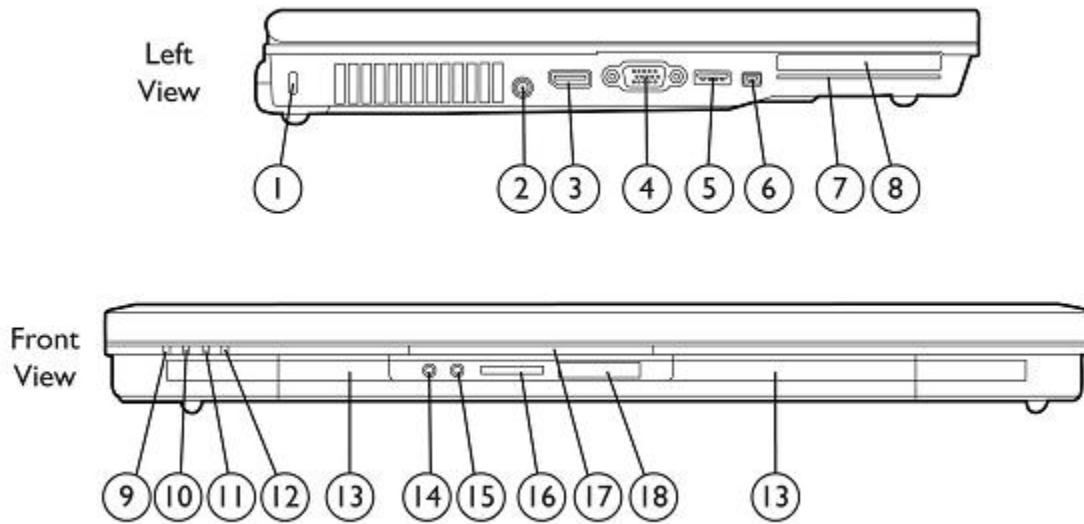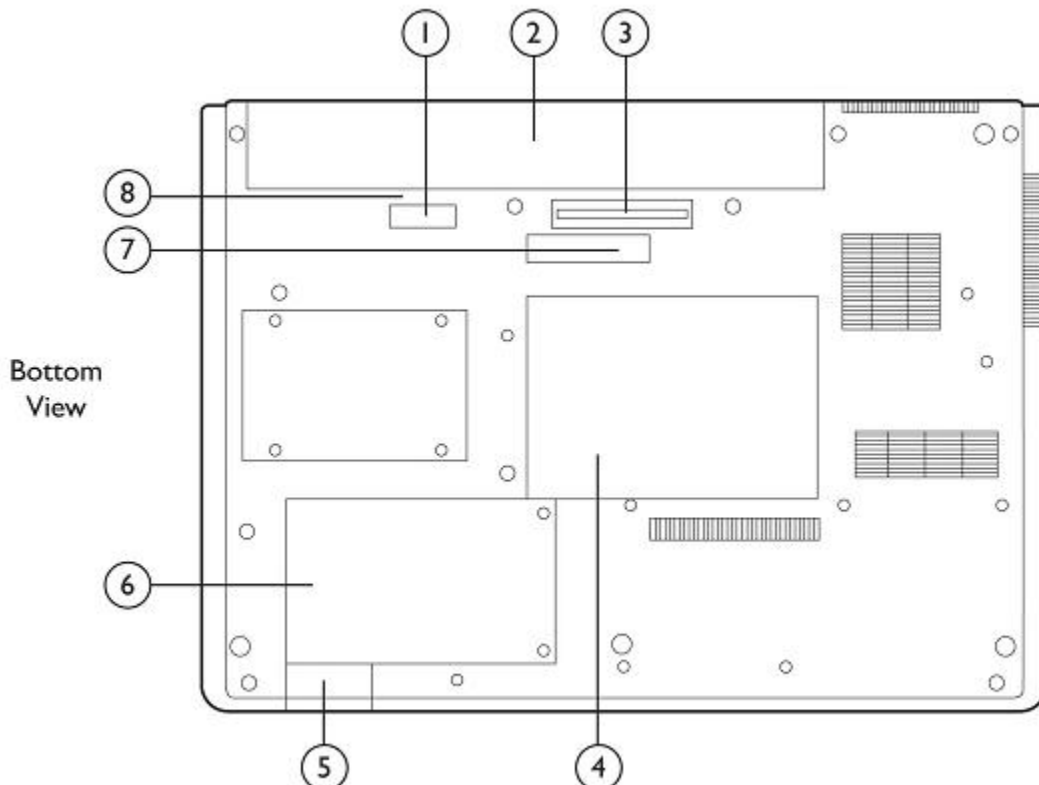

1. Volume mute button with LED indicator	16. Touchpad buttons (3)
2. Volume down button with LED indicator	17. Drive activity / HP 3D DriveGuard LED indicator
3. Volume up button with LED indicator	18. Battery charging LED indicator
4. Calculator button with LED indicator	19. Power/standby LED indicator
5. RJ-11/modem port	20. Wireless on/off LED indicator
6. RJ-45/Ethernet port	21. Power button with LED indicator
7. Upgrade Bay (optical drive or second hard drive)	22. HP QuickLook 3 button with LED indicator
8. Full numeric keypad	23. HP QuickWeb button with LED indicator
9. USB 2.0 port	24. Wireless on/off button with LED indicator
10. (2) USB 3.0 ports	25. Touchpad on/off button with LED indicator
11. eSATA port	26. Ambient Light Sensor
12. HP Fingerprint Sensor	27. WWAN antennas
13. Pointstick	28. Three WLAN antennas
14. Pointstick buttons (3)	29. Dual-microphone array
15. Touchpad with scroll zone	30. 2 MP Webcam with LED

Overview

1. Kensington Lock slot
2. Power connector
3. DisplayPort
4. VGA/external monitor connector
5. USB 2.0 port
6. 1394a port
7. Integrated Smart Card Reader
8. ExpressCard/54 slot
9. Wireless on/off LED indicator

10. Power/standby LED indicator
11. Battery charging LED indicator
12. Dive activity / HP 3D DriveGuard LED indicator
13. Integrated stereo speakers
14. Stereo headphone/line out
15. Stereo microphone in
16. Media Card Reader
17. Business Card Reader slot
18. Display release latch

Overview

1. Battery release latch
2. Battery bay
3. Docking connector
4. Memory module and WWAN/WLAN module compartment

5. Bluetooth compartment
6. Hard drive bay
7. Secondary battery connector
8. SIM slot for WWAN (select models) - inside battery bay under the battery

At A Glance

- Genuine Windows 7 versions, Genuine Windows Vista versions, Genuine Windows XP Professional available through downgrade rights from Windows 7 Professional, or FreeDOS
- Widescreen 43.2 cm (17.0-inch) diagonal LED-backlit WXGA+, WSXGA+ WVA, or WUXGA WVA display with optional HP DreamColor; Ambient Light Sensor
- Intel® Core™ i7 or Core i5 processor with Intel Turbo Boost Technology
- ATI FirePro M7820 graphics with 1 GB dedicated GDDR5 memory, NVIDIA Quadro FX 3800M or FX2800 graphics with 1 GB dedicated GDDR3 memory
- Industrial, business rugged construction features a full magnesium alloy chassis, magnesium/aluminum display enclosure, metal alloy hinges, gun metal finish; designed to meet the military standard Mil-Std-810G for vibration, dust, humidity, altitude, and high and low temperature operation*
- DisplayPort for external monitors, eSATA port for external storage, two USB 3.0 ports for faster transfer speeds to USB 3.0 peripherals and compatibility with USB 2.0 peripherals, two USB 2.0 ports
- Choice of 7200 rpm user-removable hard drive up to 500 GB with HP 3D DriveGuard protection, or 256 GB Solid State Drive
- Flexible wireless connectivity options:
  - Integrated HP un2420 EV-DO/HSPA Mobile Broadband Module provides worldwide Gobi mobile Internet technology with GPS
  - Integrated Intel Centrino® Ultimate-N / Advanced-N 6000 Series 802.11 a/b/g/n wireless LAN module
  - Bluetooth® v2.1
- Choice of standard 8-cell primary battery or HP Long Life battery, plus optional external batteries - HP Ultra-Capacity Battery, HP Extended Life Battery
- Touch-sensitive controls for HP QuickLook 3 (instant access to email, calendar, contacts and tasks), HP QuickWeb, wireless on/off, touchpad on/off, mute, volume down, volume up, and calculator
- Optional backlit keyboard
- Optional 2 MP Webcam with Business Card Reader Software
- Dual pointing devices (touchpad with scroll zone and gesture support; pointstick)
- Upgrade Bay for easy optical drive upgrade or optional second hard drive for RAID 1 Mirroring or RAID 0 Striping
- ExpressCard/54 slot, Media Card Reader
- Fully ISV certified for workstation reliability and graphics-intense applications
- HP Performance Advisor for optimal configuration, compatibility and performance
- HP Power Tuning Framework to conserve power, increase battery run-time, monitor power needs, report workforce power consumption
- Enhanced security features including integrated Smart Card Reader, HP ProtectTools, Computrace LoJack Pro ready, HP SpareKey, HP Disk Sanitizer, TPM 1.2 ;** HP Fingerprint Sensor
- New central management software for HP ProtectTools to manage the secutiry of multiple notebooks from a single point
- HP SkyRoom full version for professional quality visual collaboration built on HP Video and Image processing engines for hi-fi audio, hi-def video, and hi-performance 3D application sharing

* 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 not permitted by law (for example, Russia and China).

Standard Features

Processors	**Intel Quad-Core Processors**	

Intel Quad-Core Processors

Intel Core i7-920XM Processor (2.00 GHz, 8 MB L3 cache)*
  Up to 3.20 GHz with Intel Turbo Boost Technology

Intel Core i7-820QM Processor (1.73 GHz, 8 MB L3 cache)*
  Up to 3.06 GHz with Intel Turbo Boost Technology

Intel Core i7-720QM Processor (1.60 GHz, 6 MB L3 cache)*
  Up to 2.8 GHz with Intel Turbo Boost Technology

Intel Dual-Core Processors

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 XP Professional available through downgrade rights
  from Windows 7 Professional*†
Genuine Windows Vista Business 32**
Genuine Windows Vista Home Basic 32**
FreeDOS

Supported

Genuine Windows Vista Enterprise 32**
Genuine Windows Vista Enterprise 64**
Genuine Windows Vista Business 64**
Genuine Windows XP 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.mspx and http://www.microsoft.com/windowsvista/getready/capable.mspx for details. Windows Vista Upgrade Advisor can help you determine which features of Windows Vista will run on your computer. To download the tool, visit: http://www.windowsvista.com/upgradeadvisor.

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

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® Ultimate-N/Advanced-N 6000 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	ATI FirePro M7820 graphics with 1 GB dedicated GDDR5 video memory
	  Microsoft DirectX 11 (Shader Model 4.1) and OpenGL 3.2 capable
	
	NVIDIA Quadro FX 3800M graphics with 1 GB dedicated GDDR3 video memory
	NVIDIA Quadro FX 2800M graphics with 1 GB dedicated GDDR3 video memory
	  Microsoft DirectX 10.1 (Shader Model 4.1) and OpenGL 3.1 capable

Display	**Internal**	43.2 cm (17.0-inch) diagonal LED-backlit WXGA+ anti-glare
		  (1440 x 900 resolution)
		43.2 cm (17.0-inch) diagonal LED-backlit WSXGA+ wide-viewing angle anti-glare
		  (1680 x 1050 resolution)
		43.2 cm (17.0-inch) diagonal LED-backlit WUXGA wide-viewing angle anti-glare
		  (1920x1200 resolution)
		  (optional HP DreamColor* available May 2010)
		Ambient Light Sensor
		Integrated lid switch
		Optional HP Privacy Filter
		* HP EliteBook 8740w Mobile Workstations with DreamColor technology are not available with HP Mobile Broadband.

	External	Up to 32-bit per pixel color depth **DisplayPort** supports resolutions up to 2560 x 1600, 30-bit color depth at 60 Hz, and full HD (1920 x 1080) monitors, 24-bit color depth at 120 Hz **VGA** port supports resolutions up to 2048 x 1536 at 75 Hz, and lower resolutions at up to 100 Hz **DVI-D** (single link) video signal available through DVI port in optional HP Docking Station (sold separately) supports resolutions up to 1600 x 1200 at both full and reduced blanking, and 1920 x 1200 at reduced blanking **NOTE:** Resolutions are dependent upon monitor capability, and resolution and color depth settings.

Standard Features

Memory	Standard	DDR3 PC3-10600 SDRAM (1333 MHz)* Two or four SODIMM slots supporting dual-channel memory 2048 MB and 4096 MB SODIMMs **NOTE:** Four memory slots only on models with quad-core processor.
	Maximum	Upgradeable to 16384 MB with Intel quad-core processor configuration with four memory slots – (4) 4096 MB SODIMMs. Maximum memory is 8192 MB with Intel dual-core processor configuration with two memory slots – (2) 4096 SODIMMs.
	Dual-channel	Maximized dual-channel performance requires SODIMMs of the same size and speed in both memory channels.

* With some processors, 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. Full availability of 4 GB or more of memory requires a Windows 64-bit operating system or Linux. With Windows 32-bit operating systems, the amount of usable memory is dependent upon your configuration, so that above 3 GB all memory may not be available due to system resource requirements.

Communications	Integrated Intel Gigabit 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.

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 Three antennas integrated in the display enclosure
	Intel Centrino Ultimate-N 6300 (3x3)	Integrated support for 802.11a, b, g, and n 3 transmit, 3 receive antennas Up to 450 mbps data rate

Standard Features

	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
	HP Integrated Module with Bluetooth Wireless Technology	Bluetooth Specification v2.1 compliant Works with a wide range of Bluetooth devices

* HP EliteBook 8740w Mobile Workstations with DreamColor technology are not available with HP Mobile Broadband.

** 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. U.S. and International key layouts are available. Includes a full numeric keypad, hotkeys for instant access to power conservation, brightness, and other features. It has 19.05 x 19.05 mm key pitch (center-to-center spacing) and 3.0 mm stroke.

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.

Optional backlit keyboard available May 2010.

Touch-sensitive controls

Touch-sensitive controls provide easy access to the following features: HP QuickLook 3, HP QuickWeb, wireless on/off, touchpad on/off, volume mute, volume down, volume up, and calculator button.

Dual Pointing devices

Touchpad with scroll zone and gesture support, three pick buttons
Pointstick with three additional pointstick buttons

Expansion card slots		
	ExpressCard/54 slot	Supports ExpressCard/54
	Integrated Smart Card Reader	Compatible with ISO 7816 compliant Smart Cards PC/SC interface support
	Media Card Reader	Supports SD (Secure Digital), MMC (MultiMedia Card), Memory Stick, Memory Stick Pro, Memory Stick Duo*, xD-Picture card

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

Standard Features

Internal Storage	**Hard Drives**	250/320/500 GB 7200 rpm SMART SATA II
		NOTE: These 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 (Windows only)	The hard drive is mounted directly to the notebook frame, reducing the transmission of shock to the hard drive. Uses three-axis digital motion detection with intelligent sensitivity to help protect the hard drive during normal use from shock and vibration. The digital accelerometer temporarily halts all data transfer and parks the hard drive when abrupt motion is detected.
	Solid State Drives	256 GB Solid State Drive

Upgrade Bay	**Fixed 12.7 mm SATA optical drive**	Blu-ray R/RE DVD+/-RW SuperMulti DL Drive Blu-ray ROM DVD+/-RW SuperMulti DL LightScribe Drive DVD+/-RW SuperMulti DL LightScribe Drive DVD-ROM Drive
	or	
	Second hard drive*	500 GB 7200 rpm SMART SATA II Hard Drive
	* For RAID configurations, both hard drive capacities must be equal.	

Interfaces	**ExpressCard/54 slot**	One
	Smart Card Reader	One
	External monitor	Two – (1) DisplayPort, (1) VGA
	Media Card Reader	One
	1394a	One
	Stereo microphone in	One
	Stereo headphone/line out	One
	Power connector	One
	RJ-11/modem	One
	RJ-45/Ethernet	One
	USB 2.0	Two
	USB 3.0	Two (for USB 2.0 and USB 3.0 peripherals)
	eSATA	One
	Docking connector	One
	Secondary battery connector	One

Standard Features

Audio/Visual
High definition audio
Integrated stereo speakers
Integrated dual-microphone array
Touch-sensitive controls for volume up, volume down, and mute
Stereo headphone/line out
Stereo microphone/line in

Optional 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)

HP SkyRoom full version for professional quality visual collaboration built on HP Video and Image processing engines for hi-fi audio, hi-def video, and hi-performance 3D application sharing

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 Power Assistant
HP Connection Manager
HP Wireless Assistant
HP SkyRoom
Microsoft Office Professional 2007 60-day Convertible Trial
McAfee Total Protection*
PDF Complete SE
Roxio Creator Business 10 (select models)
InterVideo WinDVD (select models)
Synaptics Touchpad Driver
HP Webcam Software
WinZip 12

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.

Standard Features

Planned Workstation ISV Certifications	**MCAD** (Mechanical CAD/Architectural Engineering and Construction)	AutoDesk AutoCAD AutoDesk Inventor AutoDesk Revit AutoDesk AliasStudio AutoDesk Map 3D AutoDesk Civil 3D Bentley InRoads XM Bentley Microstation Bentley Navigator CEI CoCreate OneSpace Dassault Systemes CATIA V5 ICEM Surf Intelligent Light MSC Software MSC.Patran MSC Software SimXpert PTC Pro/ENGINEER Wildfire SensAble Siemans PLMS NX Siemans PLMS NX I-deas Siemans PLMS Solid Edge Siemans PLMS TeamCenter Visualization Solidworks
	DCC (Digital Content Creation)	Adobe Premiere Adobe After effects Adobe Encore Adobe Photoshop AutoDesk 3DS MAX/Combustion AutoDesk Maya Avid Xpress Pro Avid Media Composer SoftImage XSI
	GIS (Geographic Information Systems)	ESRI ArcGIS
	Oil and Gas	Landmark R5000 Paradigm EPOS, GoCAD Schlumberger / GeoFrame Schlumberger Petrel SeismicMicro Technology

HP Performance Tuning Framework	HP Performance Tuning Framework (PTF) enables optimal configuration of HP Mobile Workstations delivering stability and best performance. HP PTF will guide your system setup allowing a "custom" configuration that best matches the workstation to user requirements.

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.

Standard Features

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	
	Optional Features	**HP Privacy Filter**	Narrows viewing area so that screen data is visible only to persons directly in front of the monitor.
		Computrace LoJack Pro Premium for HP ProtectTools with GPS Tracking**	Subscription based security solution providing the ability to track, initiate physical recovery, conduct asset management, and perform remote data delete by utilizing GPS technology. GPS functionality requires HP un2420 EV-DO/HSPA Mobile Broadband Module.

* 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.

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. On the HP EliteBook 8740w, 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. A fee-based solution that 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

Standard Features

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 200-watt Slim Smart AC adapter
	External 230-watt Slim Smart AC adapter (available only with Intel Core XM Processor, NVIDIA Quadro FX 3800M graphics, and HP DreamColor display option)
	Power cord included is 1.8 meter (6-foot).
	Total length including external AC adapter is 3.66 meter (12 feet).
	HP Fast Charge*
	*HP Fast Charge recharges your battery up to 90% within 90 minutes when the system is off. HP Fast Charge does not apply to the HP Ultra-Capacity Battery.

Battery	**Primary battery**	HP 8-cell 73 WHr Li-Ion Primary Battery
		HP Long Life 8-cell 68 WHr Li-Ion Primary Battery
	Optional secondary battery	HP Extended Life Battery (8-cell 52 WHr)
		HP Ultra-Capacity Battery (12-cell 95 WHr)

Battery Life		**HP 8-cell 73 WHr Primary**	**HP Long Life 8-cell 68 WHr Primary**
	Primary battery only	Up to 3 hours and 30 minutes	Up to 3 hours and 15 minutes
	Primary battery and optional HP Extended Life Battery	Up to 6 hours	**
	Primary battery and optional HP Ultra-Capacity Battery	Up to 8 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.

** This configuration not tested for battery life.

System Standby Time	Up to 2 weeks

Power Conservation	Supports enhanced Intel SpeedStep technology (allows Battery Optimized Mode, Maximum Performance Mode, or Automatic mode)
	NVIDIA PowerMizer 7.0 technology
	ATI PowerXpress technology
	Hibernation
	Standby
	ACPI compliance

Standard Features

Docking and Stands　　HP Docking Station
HP Advanced Docking Station
HP USB 2.0 Docking Station
HP Essential USB 2.0 Port Replicator
HP Dual Hinge Notebook Stand
HP Display and Notebook Stand
HP Adjustable Display Stand
HP Adjustable Dual Display Stand

Service and Support　　3 years carry-in; pick-up and return in some countries (upgrades available, sold separately) 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

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

Storage	HP Upgrade Bay SATA DVD+/-RW SuperMulti DL LightScribe Drive	AK869AA
	HP External USB Drive CD/DVD R/RW	FS943AA
	HP Upgrade Bay SATA 500 GB 7200 rpm Hard Drive	AU097AA
	HP Primary SATA 500 GB 7200 rpm Hard Drive	AU098AA
	HP Primary SATA 320 GB 7200 rpm Hard Drive	AS282AA

Expansion Solutions	HP Docking Station	VB043AA
	HP Advanced Workstation Docking Station	NZ223AA
	HP Dual Hinge Notebook Stand	AW661AA
	HP Display and Notebook Stand	AW662AA
	HP Adjustable Display Stand	AW663AA
	HP Adjustable Dual Display Stand	AW664AA

Communications	HP un2420 EVDO/HSPA Mobile Broadband Module	WD301AA

Power	HP 230W Smart Adapter	AT895AA
	90W Smart AC/Auto/Air Combo Adapter	AJ652AA
	HP Smart 65W Travel AC Adapter	AU155AA
	90W Smart AC Adapter	ED495AA
	HP 8500/8700 Series 8-Cell Primary Battery	KU533AA
	HP Extended Life Battery	AJ359AA

Carrying Cases	HP Deluxe Roller Case	GD405AA
	HP Basic Backpack	AM863AA
	HP Basic Messenger	AP355AA
	HP Basic Carrying Case	AJ078AA
	HP Professional Series Carrying Case	AT886AA
	HP Professional Series Backpack	AT887AA
	HP Executive Learther Case	RR316AA
	HP Professional Series Designer Tote	AT889AA
	HP Professional Series Slip Case	AT890AA
	HP Elite Series Designer Tote	AT891AA
	HP Elite Leather Messenger	AX676AA
	HP Elite Slim Top Load Case	AX680AA
	HP Professional Slim Top Load Case	AY530AA

Security	HP/Kensington MicroSaver Security Lock	PC766A
	HP ExpressCard Smart Card Reader	AJ451AA
	HP Compaq Notebook Cable Lock	AY475AA

Options

Input/Output Devices	HP USB Optical Travel Mouse	RH304AA
	HP Mobile Audio Speakers	FS944AA
	HP Mobile Bluetooth Presenter Mouse	GK872AA
	HP Notebook Companion Projector	AX325AA
	HP DreamColor Advanced Profiling Solution	KZ300AA

Memory

DDR3 PC3-10600 SDRAM (1333 MHz)*
Two or four SODIMM slots supporting dual-channel memory
SODIMM sizes supported: 2048 MB and 4096 MB
NOTE: Four memory slots only on models with quad-core processor.

Standard Memory	● 2048 MB (2048 MB x 1)
	● 4096 MB (4096 MB x 1)
	● 4096 MB (2048 MB x 2)
	● 8192 MB (4096 MB x 2)
	● 8192 MB (2048 MB x 4)**
	● 12288 MB (4096 MB x 2 + 2048 MB x 2)**
	● 16384 MB (4096 MB x 4)**

Optional Memory Upgrades Support for up to 16384 MB** of memory with the installation of optional DDR3 SDRAM memory kits. All 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 channels.

	Channel A		Channel B	
Up to	**Slot 1**	**Slot 2**	**Slot 3**	**Slot 4**
2048 MB	2048 MB		Empty	
4096 MB	4096 MB		Empty	
4096 MB	2048 MB		2048 MB	
8192 MB	4096 MB		4096 MB	
8192 MB**	2048 MB	2048 MB	2048 MB	2048 MB
12288 MB**	4096 MB	2048 MB	4096 MB	2048 MB
16384 MB**	4096 MB	4096 MB	4096 MB	4096 MB

* With some processors, memory bus runs at a maximum of 1066 MHz.
** Requires quad-core processor configuration with four memory slots.

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

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

Storage

Upgrade Bay Drive Support

	Quantity Supported	Drive Bay
Blu-ray R/RE DVD+/-RW SuperMulti DL Drive	One	Upgrade Bay
Blu-ray ROM DVD+/-RW SuperMulti DL LightScribe Drive	One	Upgrade Bay
DVD+/-RW SuperMulti DL LightScribe Drive	One	Upgrade Bay
DVD-ROM Drive	One	Upgrade Bay
500 GB 7200 rpm SMART SATA II Hard Drive	One	Upgrade Bay

Internal Storage Device

	Quantity Supported	Drive Bay
Hard Drives		
500 GB 7200 rpm SMART SATA II Hard Drive	One	Dedicated hard drive bay
320 GB 7200 rpm SMART SATA II Hard Drive	One	Dedicated hard drive bay
250 GB 7200 rpm SMART SATA II Hard Drive	One	Dedicated hard drive bay
Solid State Drive		
256 GB Solid State Drive	One	Dedicated hard drive bay

QuickSpecs

Technical Specifications

System Unit		
Dimensions (HxWxD)	36.5 mm (at front) x 397.5 mm x 285.5 mm 1.4 in (at front) x 15.6 in x 11.2 in	
Weight	Starting at 3.57 kg (7.8 lb)	

NOTE: Height varies depending upon where on the notebook the measurement is made. Weight varies by configuration and components. Weight includes hard drive, optical drive, and wireless.

Stand-Alone Power Requirements (AC Power)	Nominal Operating Voltage	18.5 V
	Average Operating Power	35.5 W
	Max Operating Power	< 90 W or < 120 W or < 150 W
Temperature	Operating	0° to 35° C (32° to 95° F) (not writing optical)
		5° to 35° C (41° to 95° F) (writing optical)
	Non-operating	–20° to 60° C (–4° to 140° F)
Relative Humidity	Operating	10% to 90%, non-condensing
	Non-operating	5% to 95%, 38.7° C (101.6° F) 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	–15.24 to 3,048 m (–50 to 10,000 ft)
	Non-operating	–15.24 to 12,192 m (–50 to 40,000 ft)
Industry Standard Certifications	UL	Yes
	CSA	Yes
	FCC Compliance	Yes
	ENERGY STAR®	Select models*
	EPEAT	Registered TBD 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
	Saudi Arabian Compliance (ICCP)	Yes
	SABS	Yes
	UKRSERTCOMPUTER	Yes

* Configurations of the HP EliteBook 8740w that are ENERGY STAR qualified are identified as

Technical Specifications

HP EliteBook 8740w ENERGY STAR on HP websites and on www.energystar.gov.

** EPEAT TBD 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 230W Slim Smart AC Adapter			
	Dimensions	20.0 x 10.0 x 4.0 cm (7.87 x 3.94 x 1.57 in)	
	Weight	1300 g (2.87 lb)	
	Input	100 to 240 VAC	
		Input Efficiency	87% min at 115 VAC
		Input frequency range	47 to 63 Hz
		Input AC current	3.5 A at 90 VAC, 1.75 A at 180 VAC
	Output	Output power	230W
		DC output	19.5V
		Hold-up time	5 msec at 115 VAC input
		Output current limit	<18A, Over voltage protection- 29V max automatic shutdown
	Connector	3 pin/grounded, mates with interchangeable cords	
	Environmental Design	Operating temperature	0° to 35° C (32° to 104° F)
		Non-operating (storage) temperature	-20° to 65° C (-4° to 149° F)
		Altitude	0 to 3,048 m (0 to 10,000 ft)
		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- IEC950, EN60950, UL1950, Class 1, SELV; Agency approvals- C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCIB, NOM-1 NYCE; MTBF- over 200,000 hours at 25°C ambient condition.	

HP 200W Slim Smart AC Adapter			
	Dimensions	17.0 x 8.5 x 3.5 cm (6.69 x 3.35 x 1.38 in)	
	Weight	920 g (2.03 lb)	
	Input	100 to 240 VAC	
		Input Efficiency	87% min at 115 VAC
		Input frequency range	47 to 63 Hz
		Input AC current	2.9 A at 90 VAC, 1.45 A at 180 VAC
	Output	Output power	200W
		DC output	19.5V
		Hold-up time	5 msec at 115 VAC input
		Output current limit	<16A, Over voltage protection- 29V max automatic shutdown
	Connector	3 pin/grounded, mates with interchangeable cords	
	Environmental Design	Operating temperature	0° to 35° C (32° to 104° F)
		Non-operating (storage) temperature	-20° to 65° C (-4° to 149° F)
		Altitude	0 to 3,048 m (0 to 10,000 ft)
		Humidity	20% to 80%

Technical Specifications

	Storage Humidity 10% to 90%
EMI and Safety Certifications	CE Mark- full compliance with LVD and EMC directives; Worldwide safety standards- IEC950, EN60950, UL1950, Class 1, SELV; Agency approvals- C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCIB, NOM-1 NYCE; MTBF- over 200,000 hours at 25°C ambient condition.

Displays

43.2 cm (17.0-inch) WXGA+ anti-glare

Active Area (W x H)	36.7 x 22.9 cm (14.5 x 9.0 in)
Diagonal Size	43.2 cm (17.0 in)
Surface Treatment	Anti-glare
Contrast Ratio	400:1 typical
Refresh Rate	60 Hz
Brightness	200 nit typical
Pixel Resolution	Pitch 0.255 mm
	Format 1440 x 900
	Configuration RGB Stripe
Backlight	LED
PPI	100
Viewing Angle	±60° Horizontal, ±50° Vertical (minimum) or ±70° Horizontal, ±60° Vertical (typical)

43.2 cm (17.0-inch) WSXGA+ wide-viewing angle, anti-glare

Active Area (W x H)	36.7 x 22.9 cm (14.5 x 9.0 in)
Diagonal Size	43.2 cm (17.0 in)
Surface Treatment	Anti-glare
Contrast Ratio	400:1 (typical)
Refresh Rate	60 Hz
Brightness	200 nit typical
Pixel Resolution	Pitch 0.21825 mm
	Format 1680 x 1050
	Configuration RGB Stripe
Backlight	LED
PPI	117
Viewing Angle	±60° Horizontal, ±50° Vertical (minimum) or ±70° Horizontal, ±60° Vertical (typical)

Technical Specifications

43.2 cm (17.0-inch) WUXGA wide-viewing angle, anti-glare			
Active Area (W x H)	36.7 x 22.9 cm (14.5 x 9.0 in)		
Diagonal Size	43.2 cm (17.0 in)		
Surface Treatment	Anti-glare		
Contrast Ratio	400:1 typical		
Refresh Rate	60 Hz		
Brightness	200 nit typical		
Pixel Resolution	**Pitch**	0.191 mm	
	Format	1920 x 1200	
	Configuration	RGB Stripe	
Backlight	LED		
PPI	133		
Viewing Angle	±65° Horizontal, ±55° Vertical (typical)		

Internal Storage

500 GB 7200 rpm SATA Hard Drive			
Drive Weight	115g (0.25 lbs)		
Capacity	500 GB		
Height	9.5 mm (0.37 in)		
Width	70 mm (2.75 in)		
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	0° to 60° C (32° to 140° F) [case temp]		
Features	ATA Security		

320 GB 7200 rpm SATA Hard Drive			
Drive Weight	115g (0.25 lbs)		
Capacity	250 GB		
Height	9.5 mm (0.37 in)		
Width	70 mm (2.75 in)		
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	0° to 60° C (32° to 140° F) [case temp]		
Features	ATA Security		

Technical Specifications

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

256 GB 2.5-Inch SATA Solid State Drive	**Weight**	80.1 Grams	
	Capacity	256 GB	
	Height	9.5 mm (0.37 in)	
	Width	70 mm (2.75 in)	
	Interface	SATA	
	Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
		220 MB/s	200 MB/s
	Logical Blocks	500,118,192	
	Operating Temperature	0° to 70°C (32° to 158°F) [case temp]	
	Features	ATA Security; ATA-7;SATA 2.6; DIPM	

Optical Drives

DVD-ROM Drive	**Access Times**	Random	< 140 ms 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
	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	

Technical Specifications

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	

Blu-ray R/RE DVD+/-RW SuperMulti DL Drive	**Access Times**	Random	<180 ms CD-ROM (typical)
			<180 ms DVD-ROM (typical)
			<230 ms BD-ROM (typical)
	Max Data Transfer Rate	24X CD-ROM	Up to 3,600 KB/s
		8X DVD-ROM	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
		6X DVD+RW	Up to 8,100 KB/s
		8X DVD-R	Up to 10,800 KB/s
		6X DVD-RW	Up to 8,100 KB/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
		2X BD-ROM	Up to 9,000 KB/s
		2X BD-R	Up to 9,000 KB/s
		2X BD-RE	Up to 9,000 KB/s
	Transfer Mode	UDMA Mode 5	
	Interface	Gen 1 SATA	

Technical Specifications

Supported Media (read)	CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW. DVD-RAM, BD-ROM, BD-R, BD-RE		
Supported Media (write)	CD-R, CD-RW, DVD+R, DVD+R(9), DVD+RW, DVD-R, DVD-R(9), DVD-RW, DVD-RAM, BD-R, BD-RE		
Max Media Capacity (read)	50.0 GB		
Max Media Capacity (write)	50.0 GB		
Transport	Tray Loading		

Blu-ray ROM DVD+/-RW SuperMulti DL LightScribe Drive	**Access Times**	Random	<190 ms CD-ROM (typical)
			< 190ms DVD-ROM (typical)
			<230 ms BD-ROM (typical)
	Max Data Transfer Rate	24X CD-ROM	Up to 3600KB/s
		8X DVD-ROM	Up to 10800 KB/s
		16X CD-R	Up to 1,200KB/s
		10X CD-RW	Up to 1500 KB/s
		8X DVD+R	Up to 10800 KB/s
		8X DVD+RW	Up to 10,800KB/s
		8X DVD-R	Up to 10800 KB/s
		6X DVD-RW	Up to 8,100 KB/s
		4X - DVD+R Dual Layer	
		4X - DVD-R Dual Layer	Up to 5400 KB/s
		5X DVD-RAM	Up to 6750 KB/s
		4X BD-ROM	Up to 18,000KB/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, BD-ROM, BD-R, BD-RE	
	Supported Media (write)	CD-R, CD-RW, DVD+R, DVD+R(9), DVD+RW, DVD-R, DVD-R(9), DVD-RW, DVD-RAM, LightScribe	
	Max Media Capacity (read)	50.0 GB	
	Max Media Capacity (write)	8.5GB	
	Transport	Tray Loading	

Security

QuickSpecs

Technical Specifications

HP Fingerprint Sensor	**Mobile Voltage Operation**	3.0V-3.6V Single Supply
	Operating Temperature	0° - 70°C (32° - 158°F)
	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 CODEC
	Touch-Sensitive Volume Controls	Volume up, volume down, and mute
	Full Duplex	Yes
	Microphone In	Stereo
	Headphone/Line Out	Stereo
	Integrated Microphone	Yes, dual-microphone array when equipped with optional webcam

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

Integrated Stereo Speakers	**Power Rating**	2 Watts
	Impedance	4 Ohms

Communications

Technical Specifications

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

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

Technical Specifications

	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
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)	51 x 30 x 5 mm (2.01 x 1.18 x 0.18 in)
	Voltage, Operating	3.3v +/- 10%
	Temperature, Operating (from TIA/EIA/IS-98-D)	-30° to 60° C (-22° to 140° F) (full RF performance) -30° to 75° C (-22° to 167° F) (reduced RF performance)

Technical Specifications

	Temperature, Non-operating, 96 hours (from MIL-STD 202 Method 108)	-40° to 85° C (-40° to 185° F)
	Humidity, Non-operating	85% relative humidity for 48 hours @ 85° C (185° F) (non-condensing)
	Configuration Utilities	HP Connection Manager
	LED Activity	LED Off - Radio Off; Solid LED On - Radio On

Intel Centrino Ultimate-N 6300	**Wireless LAN Standards**	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n* * In countries where 802.11n is not allowed, this capability is not enabled.
	Interoperability	Wi-Fi certified (802.11bgn only) Cisco Compatible Extensions Program compliant (802.11bgn only) with Microsoft Windows Vista and XP (details at: http://www.hp.com/go/notebooks/WLAN)
	Frequency Band	2.4 GHz and 5GHz
	Antenna Structure	3 transmit; 3 receive (3x3)
	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: many possible data rates, ranging from 6 Mbps to 450 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
	Security[1]	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 Access Points
	Output Power (for CCK and OFDM)[2]	17 dBm max

Technical Specifications

Power Consumption	Transmit: 2.4 Watts (max, with three spatial streams) Receive: 1.4 Watts (max with three 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 Sensitivity[4]	54 Mbps: -76 dBm, 6 Mbps: -92 dBm	
Antenna Connections	3 U.FL type connectors, 50 ohm nominal impedance	
Form Factor	PCI-Express Half-MiniCard	
Weight	3.4 g (0.0075 lb)	
Dimensions	3.1 x 26.8 x 30.0 mm (0.12 x 1.06 x 1.18 in)	
Operating Voltage	3.3V +/- 9%	
Temperature	Operating Non-operating	0° to 80° C (32° to 176° F) -40° to 80° C (-40° to 176° F)
Humidity	Operating Non-operating	10% to 90% (non-condensing) 5% to 90% (non-condensing)
Altitude	Operating Non-operating	3,048 m (0 to 10,000 ft) 15,240 m (0 to 50,000 ft)
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.

Intel Centrino Advanced-N 6200	**Wireless LAN Standards**	IEEE 802.11a IEEE 802.11b 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
	Security[1]	Authentication: WPA and WPA2, 802.1x (EAP_TLS, TTLS, PEAP, LEAP, EAP-FAST)

Technical Specifications

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 Sensitivity[4]	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%
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.

HP Integrated Module with Bluetooth 2.1 Wireless Technology	**Bluetooth Specification**	2.1 Compliant
	Dimensions	30 x 6.5 x 3.25 mm (1.18 x 0.26 x 0.13 in)
	Frequency Band	2402 to 2480 MHz
	Number of Available Channels	79 (1 MHz) available channels

Technical Specifications

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 10 m (33 ft)	
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	-20° to 70° C (-4° to 158° F)
	Non-operating	-40° to 80° C (-40° to 176° F)
Humidity	Operating	10% to 90%
	Non-operating	5% to 95%
Altitude	Operating	4,572 m (15,000 ft)
	Non-operating	12,192 m (40,000 ft)
Bluetooth Profiles Supported	Serial Port Profile (SPP)[1]	
	Service Discovery Applicaton Profile (SDAP)	
	Dial-Up Networking (DUN)[1,2]	
	Generic Object Exchange Profile (GOEP)[1,2]	
	Object Push Profile (OPP)[1,2]	
	File Transfer Profile (FTP)	
	Synchronization Profile (SYNC)	
	Hard Copy Cable Replacement (HCRP)[1,2]	
	Personal Area Networking Profile (PAN)[1,2]	
	Human Interface Device Profile (HID)[1,2,3]	
	FAX Profile (FAX)	
	Basic Imaging Profile (BIP)[2]	
	Headset Profile (HSP)	
	Hands Free Profile (HFP)	
	Advanced Audio Distribution Profile (A2DP)	

Technical Specifications

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

- US Energy Star
- IT ECO declaration
- EPEAT - Gold where HP registers commercial desktop products. See http://www.epeat.net for registration status in your country.

Energy Consumption	115 VAC	230 VAC	100 VAC
Normal Operation	28.16 W	29.19 W	28.19 W
Sleep (Energy Star low power mode)	1.08 W	1.15 W	1.09 W
Off	0.80 W	0.84 W	0.80 W

Heat Dissipation*	115 VAC	230 VAC	100 VAC
Normal Operation	96 BTU/hr	100 BTU/hr	96 BTU/hr
Sleep	4 BTU/hr	4 BTU/hr	4 BTU/hr
Off	3 BTU/hr	3 BTU/hr	3 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	32.2
Fixed Disk (random writes)	3.5	32.3

System fan is usually off except when charging the battery

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

Batteries used in the product do not contain:

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

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

Additional information — This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2002/95/EC.

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

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

This product is in compliance with the IEEE 1680 (EPEAT) standard at

Technical Specifications

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 745 g
  - Cardboard & misc 120 g
- Internal:
  - Polyethylene low density foam 15 g
  - EPE-Expanded Polyethylene 75 g
- The Corrugated carton packaging material is made from 70~80% recycled content.
- The Cardboard & misc packaging material is made from 70~80% recycled content.
- The Polyethylene low density foam packaging material is made from 0% recycled content.
- The EPE-Expanded Polyethylene packaging material is made from 0% recycled content.

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

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

Material Usage

This product does not contain any of the following substances in excess of regulatory limits (for reference of these limits please refer to the HP General Specification of the Environment: (http://www.hp.com/hpinfo/globalcitizenship/environment/supplychain/gen_specifications.html):

- Asbestos
- Certain Azo Colorants
- Certain Brominated Flame Retardants - may not be used as flame retardants in plastics
- Cadmium
- Chlorinated Hydrocarbons
- Chlorinated Paraffins
- Formaldehyde
- Halogenated Diphenyl Methanes

Technical Specifications

- Lead carbonates and sulfates
- Lead and Lead compounds
- Mercuric Oxide Batteries
- Nickel - finishes must not be used on the external surface designed to be frequently handled or carried by the user.
- Ozone Depleting Substances
- Polybrominated Biphenyls (PBBs)
- Polybrominated Biphenyl Ethers (PBBEs)
- Polybrominated Biphenyl Oxides (PBBOs)
- Polychlorinated Biphenyl (PCB)
- Polychlorinated Terphenyls (PCT)
- Polyvinyl Chloride (PVC) - except for wires and cables, and certain retail packaging has been voluntarily removed from most applications.
- Radioactive Substances
- Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)

End-of-life Management and Recycling	Hewlett-Packard offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: http://www.hp.com/go/reuse-recycle or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/recyclers. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.
Hewlett-Packard Corporate Environmental Information	For more information about HP's commitment to the environment: Global Citizenship Report http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html Environment website http://www.hp.com/environment Eco-label certifications http://www.hp.com/hpinfo/globalcitizenship/environment/productdesign/ecolabels.html ISO 14001 certificates: http://www.hp.com/hpinfo/globalcitizenship/environment/operations/envmanagement.html