Overview

HP EliteBook Folio 9480m Notebook PC
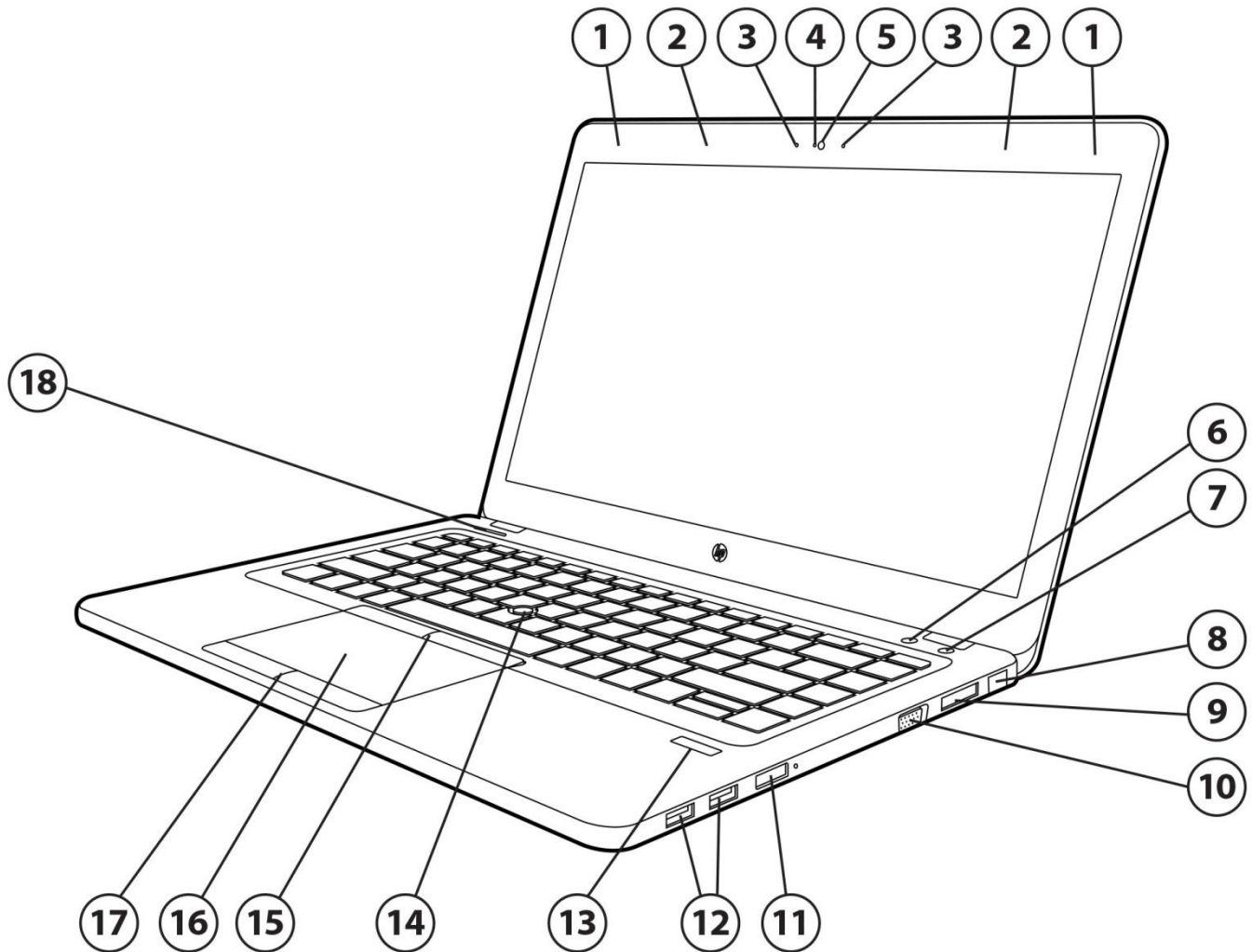

1. WLAN antennas (2)
2. WWAN antennas (2)
3. Dual-microphone array
4. Webcam light (only with optional webcam)
5. Optional 720p HD webcam
6. Wireless on/off button with LED indicator
7. Volume mute button with LED indicator
8. RJ-45/Ethernet port
9. Docking connector
10. VGA/external monitor connector
11. DisplayPort 1.2a
12. (2) USB 3.0 ports
13. HP Fingerprint Reader(optional)
14. Pointstick
15. Pointstick pick buttons
16. Touchpad
17. Touchpad pick buttons
18. Power button

Overview

Left View
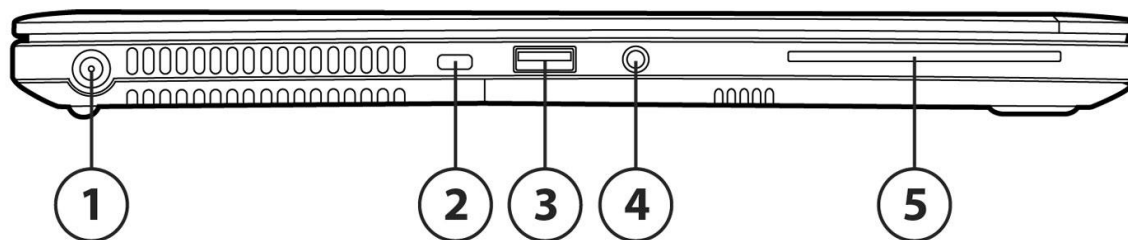
1. Power connector
2. Security lock slot
3. USB 3.0 charging port
4. Headphone/Microphone combo port
5. Smart Card Reader

Overview

AT A GLANCE

- Windows 8.1 Pro 64, Windows 8.1 64, Windows 7 Professional 64 (available through downgrade rights from Windows 8.1 Pro 64), Ubuntu Linux or FreeDOS 2.0
- Magnesium display enclosure, magnesium-reinforced chassis, wear-resistant platinum-colored HP DuraFinish, HP DisplaySafe frame, HP DuraKeys, precision metal-alloy hinges, aluminum keyboard deck, and chemically strengthened glass touchpad
- Ensured durability through MIL-SPEC 810G testing, meeting the military standard Mil-Std-810G for high temperature, low temperature, altitude, humidity, temperature shock, dust, drop, random vibration, and shock, plus an additional 115,000 hours of reliability testing through HP's Total Test Process
- Choice of 4th generation Intel® Core™ i7 and i5 with Turbo Boost Technology
- Integrated Intel® HD Graphics 5000 (Intel® Core™ i7-4650U processor only) or Intel® HD Graphics 4400
- 14.0-inch diagonal HD or HD+ Standard Viewing Angle LED-backlit display
- Choice of 7200 rpm user-removable hard drive (up to 500 GB) with HP 3D DriveGuard, 500 GB 7200 rpm Self Encrypting Hard Drive, 256 GB Self Encrypting Solid State Drive, 240 GB Solid State Drive, 180 GB Solid State Drive, 128 GB Solid State Drive, or 120 GB M.2 Solid State Drive (not available if Flash Cache is selected)
- Optional 32 GB 32GB MLC M.2 module Flash Cache module support for Intel Smart Response Technology. (Not available with SSD, SED).
- Built-in docking available for a desktop-like experience
- DisplayPort for high resolution support
- HD Audio with DTS Studio Sound with Conexant noise reduction software optimized for high fidelity audio during video conferencing and web-based training
- 4-cell (52 WHr) HP Long Life battery and optional 6-cell (60WHr) HP Long Life slice battery for extended battery life
- Battery life up to 29 hours with the primary + secondary battery
- Glass touchpad with chemically etched surface and pointstick
- Integrated Smart Card Reader and optional fingerprint reader for strong security authentication
- Flexible wireless connectivity options:
  - Optional integrated wireless mobile broadband
  - Integrated Intel Dual Band Wireless-AC 7260 802.11ac (2x2) WiFi and Bluetooth 4.0 Combo or Intel Dual Band Wireless-N 7260AN 802.11a/b/g/n (2x2) WiFi and Bluetooth 4.0 Combo
- Low Halogen, ENERGY STAR® qualified (with Microsoft OS) and EPEAT® Gold registered in the U.S. (with Microsoft OS). EPEAT status varies by country- please see epeat.net.

NOTE: See important legal disclosures for all listed specs in their respective features sections.

Features

PRODUCT NAME

HP EliteBook Folio 9480m Notebook PC

OPERATING SYSTEM

Preinstalled   Windows 8.1 Pro 64*
                          Windows 8.1 64*
                          Windows 7 Professional 64 (available through downgrade rights from Windows 8.1 Pro 64)**
                          Ubuntu Linux
                          FreeDOS 2.0

* Not all features are available in all editions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers and/or software to take full advantage of Windows functionality. See http://www.microsoft.com for details.
** This system is preinstalled with Windows® 7 Pro software and also comes with a license and media for Windows 8.1 Pro software. You may only use one version of the Windows software at a time. Switching between versions will require you to uninstall one version and install the other version. You must back up all data (files, photos, etc.) before uninstalling and installing operating systems to avoid loss of your data.

PROCESSOR

Intel® Core™ i7-4650U with Intel HD Graphics 5000 (1.7 GHz, Up to 3.3 GHz with Intel Turbo Boost Technology, 4 MB cache, 2 cores)
Intel® Core™ i7-4600U with Intel HD Graphics 4400 (2.1 GHz, Up to 3.3 GHz with Intel Turbo Boost Technology, 4 MB cache, 2 cores)
Intel® Core™ i5-4310U with Intel HD Graphics 4400 (2 GHz, Up to 3 GHz with Intel Turbo Boost Technology, 3 MB cache, 2 cores)
Intel® Core™ i5-4210U with Intel HD Graphics 4400 (1.7 GHz, Up to 2.7 GHz with Intel Turbo Boost Technology, 3 MB cache, 2 cores)†

* Multi-Core is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. 64-bit computing on Intel® architecture requires a computer system with a processor, chipset, BIOS, operating system, device drivers, and applications enabled for Intel® 64 architecture. Processors will not operate (including 32-bit operation) without an Intel® 64 architecture-enabled BIOS. Performance will vary depending on your hardware and software configurations. Intel's numbering is not a measurement of higher performance.
† Not available with vPro

CHIPSET

Chipset is integrated with processor

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 select processors, an Intel Centrino® Advanced-N or Ultimate-N 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 9.0 (iAMT) 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.

QuickSpecs

Features

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 third- 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 third- party software providers. Compatibility with future "virtual appliances" is yet to be determined.

GRAPHICS

Integrated:
Intel HD Graphics 5000 (Intel® Core™ i7-4650U processor only)
Intel HD Graphics 4400

DISPLAY

Internal
14" diagonal HD* anti-glare, Standard Viewing Angle, LED-backlit (1366 x 768)
14" diagonal HD+* anti-glare, Standard Viewing Angle, LED-backlit (1600 x 900)
External
Up to 32-bit per pixel color depth
DisplayPort 1.2a
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 1920 x 1200 at 60 Hz, and lower resolutions at up to 100 Hz

* HD content required to view HD images.
NOTE: Resolutions are dependent upon monitor capability, and resolution and color depth settings.

FLASH CACHE MODULE

Optional 32GB MLC M.2 module support for Intel Smart Response Technology. (Not available with with SSD, SED).

STORAGE AND DRIVES

Primary Storage Bay
Hard Drives
500GB 7200 rpm SMART IV SATA II
500 GB 7200 rpm SMART SATA II Self Encrypting Drive
HP 3D DriveGuard (Windows only)
The hard drive is mounted directly to the notebook frame, reducing the transmission of shock to the hard drive by parking the hard drive heads due to sudden impact and vibration..
Solid State Drive
SATA 6 Gb/s 128 GB Solid State
SATA 6 Gb/s 180 GB Solid State
SATA 6 Gb/s 240 GB Solid State
SATA 6 Gb/s 256 GB Solid State Self-Encrypting Drive
M.2 Solid State Drive
120 GB M.2 Solid State Drive

NOTE: For hard drives and SSD's, GB=1 billion bytes. TB=1 trillion bytes. Actual formatted capacity is less. Up to 30GB (for Windows 8.1) of system disk is reserved for system recovery software.

Features

> **NOTE**: The EliteBook Folio is available in standard thin and light configurations for customers who value the ultra-thin design but prefer options such as a standalone HDD or require a self-encrypting hard drive. These configurations will not meet Intel's definition of an Ultrabook.

MEMORY

Standard
DDR3L PC3-12800 SDRAM (1600 MHz)
Two SODIMM slots supporting dual-channel memory
Standard memory up to 16384 MB (4 GB, and 8 GB SODIMMs)
Maximum
Upgradeable to 16384 MB with optional 8192 MB SODIMMs in slots 1 and 2
Dual-channel
Maximized dual-channel performance requires SODIMMs of the same size and speed in both memory slots.

> **NOTE:** Due to the non-industry standard nature of some third-party memory modules, we recommend HP branded memory to ensure compatibility. If you mix memory speeds, the system will perform at the lower memory speed. Maximum memory capacities assume Windows 64-bit operating systems. With Windows 32-bit operating systems, memory above 3 GB may not all be available due to system resource requirements.

NETWORKING/COMMUNICATIONS

Wireless
Support for a broad range of secure, integrated wireless LAN and wireless WAN options featuring support for the latest industry standards. Broadband Wireless (WWAN) requires a Windows operating system and is available in select countries. Wireless LAN and integrated Bluetooth are also available (both are factory configurable only) and can be combined with any of the supported wireless WAN options.

Broadband Wireless (WWAN)
HP hs3110 HSPA+ Mobile Broadband*
HP lt4211 LTE/EV-DO/HSPA+ Qualcomm® Gobi™ 4G Mobile Broadband*
HP lt4112 LTE/HSPA+ Qualcomm® Gobi™ 4G Mobile Broadband*
Integrated wireless LAN options
Intel Dual Band Wireless-AC 7260 802.11ac (2x2) WiFi and Bluetooth 4.0 Combo**
Intel Dual Band Wireless-N 7260AN 802.11a/b/g/n (2x2) WiFi and Bluetooth 4.0 Combo**
Communications
Intel I218-LM GbE (10/100/1000 NIC)***
* WWAN is an optional feature, requires factory configuration and requires separately purchased service contract. Check with service provider for coverage and availability in your area. Connection speeds will vary due to location, environment, network conditions, and other factors. 4G LTE not available in all regions.
** Wireless is an optional feature. Wireless access point and internet service required and sold separately. Availability of public wireless access points limited.
*** The term "10/100/1000" or "Gigabit" Ethernet indicates compatibility with IEEE standard 802.3ab for Gigabit Ethernet, and does not connote actual operating speed of 1 Gb/s. For high-speed transmission, connection to a Gigabit Ethernet server and network infrastructure is required.

AUDIO/MULTIMEDIA

Audio
HD Audio with DTS Studio Sound™
Integrated stereo speakers
Integrated dual-microphone array

Features

Button for volume mute; function keys for volume up and down
Headphone/Microphone combo port

Webcam
Optional 720p HD webcam

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

KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

Keyboard
The HP spill-resistant, backlit keyboard is designed using a thin layer of Mylar film under the keyboard. This minimizes the risk of damage to sensitive components underneath. The 101/102-key compatible keyboard features a full-pitch key layout with desktop keyboard features, such as the isolated inverted-T cursor control keys, editing keys, both left and right control and alt keys, 12 function keys, and 19.05 x 19.05 mm key pitch (center-to-center spacing). U.S. and International key layouts are available. Other features include hot keys for instant access to power conservation and brightness.
Pointing Devices
Glass Touchpad (with chemically etched surface) with on/off button, two finger scrolling, pinch zoom, rotating and three-finger flick gestures, two pick buttons
Pointstick with two additional pointstick buttons (for a total of four)
Buttons and Function Keys
Discrete buttons provide easy access to the following features: wireless on/off, and volume mute. Function keys provide control of the following features: sleep mode, external display switching, volume down, volume up, microphone mute, backlit keyboard, and display brightness.

SOFTWARE AND SECURITY

Preinstalled Software with Windows Operating System
Foxit Phantom PDF Express
HP Support Assistant[1]
HP Software Setup
HP Softpaq Download Manager
HP Setup
HP ePrint Driver[2]
HP 3D Driveguard (for hard drive only)[3]
Intel WiDi Software[4]
CyberLink Power2Go
CyberLink PowerDVD
Absolute Persistence[5]
HP File Sanitizer[6] and HP Secure Erase
HP Client Security[7]
Microsoft Security Essentials[8]

[1]HP Support Assistant: internet access required.

Features

[2]ePrint requires an Internet connection to HP web-enabled printer. HP ePrint account registration required. For a list of eligible printers, supported documents and image types, and for complete details, see www.hp.com/eprint

[3] HP 3D Drive Guard requires Windows.

[4]WiDi: Intel® Wireless Display requires a separate Wireless Display receiver with a USB port and an HDTV or monitor with HDMI input.

[5]BIOS Absolute Persistence module is shipped turned off, and will be activated when customers purchase and activate a subscription. Service may be limited. Check with Absolute for availability outside the U.S. The optional subscription service of Absolute Recovery Guarantee is a limited warranty. Certain conditions apply. For full details visit: http://www.absolute.com/company/legal/agreements/computrace-agreement. If Data Delete is utilized, the Recovery Guarantee payment is null and void. In order to use the Data Delete service, customers must first sign a Pre-Authorization Agreement and either create a PIN or purchase one or more RSA SecurID tokens from Absolute Software.

[6]File Sanitizer is for the use cases outlined in the DOD 5220.22-M Supplement. Does not support Solid State Drives (SSDs). Initial setup required. Web history deleted only in Internet Explorer and Firefox browsers and must be user enabled.

[7] HP Client Security requires Windows.

[8]Microsoft Security Essentials on Windows 7 only. Internet access required.

NOTE: 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 16GB (for Windows 7) of system and up to 30 GB (for Windows 8) disk is reserved for system recovery software.Support in Windows Operating System only.

Security

Standard
Absolute Data Protect (Win 8.1 only)
Absolute Persistence Module
Device Access Manager with Just In Time Authentication
HP File Sanitizer
HP Client Security/HP Secure Erase
HP SpareKey
Microsoft Security Essentials
Microsoft Defender (Win 8.1 only)
Security lock slot
Common Criteria Certified TPM 1.2 Embedded Security Chip
Integrated smart card reader (active);
HP Drive Encryption
HP SureStart

Optional
HP Fingerprint Reader

NOTE: Computrace agent is shipped turned off, and must be activated by customers when they purchase a subscription. Subscriptions can be purchased for terms ranging from one to five years. Service is limited, check with Absolute for availability outside the U.S.

POWER

Power Supply
Models with integrated graphics with dual-core processor:
 45 W Smart AC adapter
 45 W Smart AC adapter 2-prong (Japan only)
65W Smart EM AC Adapter

Features

Power cord included is 1.8m (+/- 0.1m) or 1.0 m (+/- 0.1m). In Japan, only the only 1.0 m power cord (2-prong) is available with 45W 2-prong adapter)

Primary Battery
HP 4-cell Lithium-Ion Long Life Battery (52 WHr)

Slice Battery (Optional)
HP 6-cell Lithium-Ion Long Life Battery (60 WHr)

Battery Life

4-cell (52 WHr) Primary	Up 13 hours 15 minutes*
4-cell (52 WHr) Primary and 6-cell (60 WHr) Slice	Up 29 hours **

*Windows 7 battery life will vary depending on various factors including 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 www.bapco.com for additional details.

**Requires separately purchased slice battery. Windows 7 battery life will vary depending on various factors including 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 www.bapco.com for additional details

System Standby Time
Deep sleep enabled: with main battery – TBD weeks TBD days

Power Conservation
Hibernation
Standby
ACPI compliance

ENVIRONMENTAL

ENERGY STAR qualified (with Microsoft OS)
Low Halogen (does not cover adapters and power cords)
IT ECO Declaration
EPEAT® registered where applicable. EPEAT registration varies by country. See www.epeat.net for registration status by country.

NOTE: 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.

WEIGHTS & DIMENSIONS

Weight

Lightest possible configuration (HD Panel, 4-cell (52Whr) Battery, mSATA 256GB SSD, 2GB RAM, no FPR, no camera, no WWAN, Intel Taylor Peak WLAN.
Lightest Weight Configurations (across panel, battery and ODD options, if applicable)

	4-cell (52Whr)	6-cell (60Whr)
Non-Touch	3.56lb/1.61kg	4.54lb/2.06kg

QuickSpecs

Features

Dimensions (w x d x h)
13.3 x 9.09 x 0.75 in
33.8 x 23.1 x 1.895 cm

NOTE: Weight varies by configuration and components. Weight includes No FPR, 1 SODIMM, M.2 120GB SSD, no camera, no WWAN, Intel WLAN. Weight varies by configuration and components.

PORTS/SLOTS

Ports
VGA – One
DisplayPort 1.2a with Multi-Stream Transport (MST) support – One (v1.2a)
Headphone/Microphone combo port – One
Power Connector – One
Secondary Battery Connector – One
Docking Connector – One
RJ-45 (Ethernet) – One
USB 3.0 – Two
USB 3.0 charging port – One

Digital Media Slots
1 SD slot (supported media include: SD, SDHC, SDXC)

SERVICE AND SUPPORT

HP Services offers limited 3-yearand 1 year warranty options depending on country;
1-year limited warranty on primary battery; 3-year limited warranty on HP Long Life Battery (only available with 3-year platform warranty). On-site service is also available. Optional HP Care Pack Services are extended service contracts that go 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: www.hp.com/go/cpc.

NOTE: Certain restrictions and exclusions apply. Consult the HP Customer Support Center for details.
http://h20000.www2.hp.com/bizsupport/TechSupport/ProductRoot.jsp

NOTE: Battery, hard drive assembly, memory modules wireless modules, wireless WAN modules, and keyboard are part of HP Self Repair Program allowing customers the fastest service under either warranty or service contract

QuickSpecs

Technical Specifications

SYSTEM UNIT

Stand-Alone Power Requirements (AC Power)	**Nominal Operating Voltage**	19.5 V
	Average Operating Power	5.23 W
	Max Operating Power	< 45 W
Temperature	**Operating**	32° to 95° F (0° to 35° C) (not 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**	40 G, 2 ms, half-sine
	Non-operating	200 G, 2 ms, half-sine
Random Vibration	**Operating**	0.75 grms
	Non-operating	1.50 grms
Altitude (unpressurized)	**Operating**	-50 to 10,000 ft (-15.24 to 3,048 m)
	Non-operating	-50 to 40,000 ft (-15.24 to 12,192 m)
Planned Industry Standard Certifications	**UL**	Yes
	CSA	Yes
	FCC Compliance	Yes
	ENERGY STAR®	Select models (Microsoft OS)*
	EPEAT	Registered Gold in United States**
	ICES	Yes
	Australia / NZ A-Tick Compliance	Yes
	CCC	Yes
	Japan VCCI Compliance	Yes
	KC	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 Folio 9480m that are ENERGY STAR qualified are identified as HP EliteBook Folio ENERGY STAR on HP websites and on www.energystar.gov.
** EPEAT registration varies by country. See www.epeat.net for registration status by country.
EPEAT status listed above applies to U.S.

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

DISPLAYS

14.0-inch LED HD (1366 x 768) anti-glare	**Dimensions** (W x H)	12.74 x 7.56 in (32.4 x 19.2 cm)
	Diagonal Size	14.0 in (35.6cm)
	Surface Treatment	Anti-glare
	Contrast Ratio	400:1 (typical)
	Refresh Rate	60 Hz

QuickSpecs

Technical Specifications

	Brightness	200 nit (typical)	
	Pixel Resolution	**Pitch**	0.227 mm
		Format	1366 x 768
		Configuration	RGB Stripe
	Backlight	LED	
	PPI	112 ppi	
	Viewing Angle	±30° Horizontal, ±10° Vertical (minimum) 30/30/20/10 (Left/Right/Down/Up) (minimum) or 45/45/35/25 (Left/Right/Down/Up) (typical)	
14.0-inch LED HD+ (1600 x 900) anti-glare	**Dimensions** (W x H)	12.64 x 8.11 in (32.1 x 20.6 cm)	
	Diagonal Size	14.0 in (35.6cm)	
	Surface Treatment	Anti-glare	
	Contrast Ratio	300	
	Refresh Rate	60 Hz	
	Brightness	250 nit (typical)	
	Pixel Resolution	**Pitch**	0.1935 mm
		Format	1600 x 900
		Configuration	RGB Stripe
	Backlight	LED	
	PPI	131 ppi	
	Viewing Angle	±30° Horizontal, ±10° Vertical (minimum) 30/30/20/10 (Left/Right/Down/Up) (minimum) or 45/45/35/25 (Left/Right/Down/Up) (typical)	

STORAGE AND DRIVES

Internal Storage
NOTE: The EliteBook Folio is available in standard thin and light configurations for customers who value the ultra-thin design but prefer options such as a standalone HDD or require a self-encrypting hard drive. These configurations will not meet Intel's definition of an Ultrabook.

500 GB 7200 rpm SATA Hard Drive	**Drive Weight**	0.21 lbs (95g)	
	Capacity	500 GB	
	Height	0.276 in (7 mm)	
	Width	2.75 in (70 mm)	
	Interface	ATA-8, SATA 2.6, 3.0 Gb/s, NCQ	
	Transfer Rate	**Synchronous** (maximum)	300 MB/s (Drive Capability)
	S.M.A.R.T	**IV**	
		Single Track	1.5 ms

Technical Specifications

	Seek Time (typical reads, including settling)	**Average**	11 ms
		Maximum	22 ms
	Rotational Speed	7200 rpm	
	Logical Blocks	976,773,168	
	Operating Temperature	32° to 140° F (0° to 60° C) [case temp]	
	Features	ATA Security	

500 GB 7200 rpm SMART SATA II Self Encrypting Hard Drive	**Drive Weight**	0.21 lbs (95g)	
	Capacity	500 GB	
	Height	0.276 in (7 mm)	
	Width	2.50 in (63.5 mm)	
	Interface	ATA-8, SATA 2.6, 3.0 Gb/s	
	Transfer Rate	**Synchronous** (maximum)	300 MB/s (Drive Capability)
	Seek Time (typical reads, including settling)	**Single Track**	1 ms
		Average	12 ms
		Maximum	20 ms
	Cache	16 MB	
	Rotational Speed	7200 rpm	
	Logical Blocks	976,773,168	
	Operating Temperature	32° to 140° F (0° to 60° C) [case temp]	
	Features	ATA Security	

SATA 6 Gb/s 256 GB, 2.5-inch SATA SED Solid State Drive	**Drive Weight**	73 Grams	
	Capacity	256 GB	
	Height	0.276 in (7 mm)	
	Width	2.76 in (70 mm)	
	Interface	SATA Gen 3 (6 Gb/s)	
	Performance	**Maximum Sequential Read** Up to 460 MB/s	**Maximum Sequential Write** Up to 260 MB/s
	Logical Blocks	500,118,192	
	Operating Temperature	32° to 158°F (0° to 70°C) [case temp]	
	Features	ATA Security; ATA-8 compliant; SATA 3.0; DIPM; TRIM	

SATA 6 Gb/s 240 GB, 2.5-inch Solid State Drive	**Drive Weight**	78 Grams	
	Capacity	240 GB	
	Height	0.276 in (7 mm)	
	Width	2.76 in (70 mm)	
	Interface	SATA 3 (6 Gb/s)	

Technical Specifications

	Performance	Maximum Sequential Read	Maximum Sequential Write
		550 MB/s	520 MB/s
	Logical Blocks	468,862,128	
	Operating Temperature	32° to 158°F (0° to 70°C) [case temp]	
	Features	ATA Security; ATA-8, SATA 3.0; DIPM; TRIM	

SATA 6 Gb/s 180 GB, 2.5-inch Solid State Drive	**Drive Weight**	78 Grams	
	Capacity	180 GB	
	Height	0.276 in (7 mm)	
	Width	2.76 in (70 mm)	
	Interface	SATA 3 (6 Gb/s)	
	Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
		550 MB/s	520 MB/s
	Logical Blocks	351,651,888	
	Operating Temperature	32° to 158°F (0° to 70°C) [case temp]	
	Features	ATA Security; ATA-8, SATA 3.0; DIPM; TRIM	

SATA 6 Gb/s 128 GB, 2.5-inch Solid State Drive	**Drive Weight**	73 Grams	
	Capacity	128 GB	
	Height	0.276 in (7 mm)	
	Width	2.76 in (70 mm)	
	Interface	SATA 3 (6 Gb/s)	
	Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
		415 MB/s	175 MB/s
	Logical Blocks	250,069,680	
	Operating Temperature	32° to 158°F (0° to 70°C) [case temp]	
	Features	ATA Security; ATA-8; SATA 3.0 DIPM; TRIM	

120 GB* M.2 Solid State Drive	**Drive Weight**	< 10 Grams	
	Capacity	120 GB	
	Height	0.276 in (22 mm)	
	Width	2.76 in (42 mm)	
	Interface	SATA 3 (6 Gb/s)	
	Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
		540 MB/s	480 MB/s
	Logical Blocks	234,441,648	
	Operating Temperature	32° to 158°F (0° to 70°C) [case temp]	
	Features	ATA Security; ATA-8; SATA 3.0; TRIM	

Technical Specifications

* For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 30GB (for Windows 8) of system disk is reserved for system recovery software.

SECURITY

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

NETWORKING/COMMUNICATIONS

Intel I218LM Gigabit Network Connection	**Connector**	RJ-45
	System Interface	Integrated on PCA
	Controller	Intel I218LM GbE platform LAN connect networking controller
	Memory	24 KB FIFO packet buffer memory
	Data rates supported	10/100/1000 Mbps
	IEEE Compliance	802.1P 802.1Q 802.2 802.3 802.3ab 802.3az 802.3u
	Bus architecture	PCI Express and SMBus
	Data transfer mode	PCIe-based interface for active state operation (S0 state) and SMBus for host and management traffic (Sx low power state)
	Power requirement	Requires 3.3V and 0.9V or just 3.3V with integrated regulators Power consumption 0.733 Watts
	Boot ROM support	Yes
	Network transfer mode	Full-duplex Half-duplex (not supported for the 1000BASE-T transceiver)
	Network transfer rate	10BASE-T (half-duplex) 10 Mbps 10BASE-T (full-duplex) 20 Mbps 100BASE-TX (half-duplex) 100 Mbps 100BASE-TX (full-duplex) 200 Mbps 1000BASE-T (full-duplex) 2000 Mbps
	Environmental	Operating Temperature: 0° to 85° C Operating Humidity: 60% RH

Technical Specifications

	Management	WOL, auto MDI crossover, PXE, Muti-port teaming, RSS, Advanced cable diagnostic.
	Alerting	ASF 2.0 support; iAMT 9.0 support
HP hs3110HSPA+ Mobile Broadband* Module	**Technology/Operating bands**	Modes: WCDMA/HSDPA/HSUPA/HSPA+/AWS/GSM/EDGE/GPRS Penta-band WCDMA/HSDPA/HSUPA/HSPA+/AWS: 850/900/1900/2100/AWS MHz GSM/GPRS/EDGE: 850/900/1800/1900 MHz
	Wireless protocol standards	GSM/GPRS/EDGE: Class B, Multi-slot class 33, coding schemes CS1 - CS4 and MSC1 - MSC9. UMTS/WCDMA: Release 99 and Release 7 Advanced Receiver Type 3i
	GPS	GPS Standalone, A-GPS: L1 (Internet- and Network assisted)
	Wireless parametric standards	Complies with 3GPP specifications
	Maximum data rates	GPRS/EDGE: Multi-slot Class 33, Class B WCDMA PS: UL (384 kbps) / DL (384 kbps) UL/DL HSPA: UL (5.76 Mbps)/ DL (7.2 Mbps) UL/DL HSPA+: UL (5.76 Mbps)/ DL (21Mbps)
	Maximum output power	WCDMA/HSPA/HSPA+ 2100/1900/900/850/AWS MHz: +24dBm (Power Class 3) GPRS 1900/1800 MHz: +30dBm (Power Class 1) GPRS 900/850 MHz: +33dBm (Power Class 4) EDGE 1900/1800 MHz: +26dBm (Power Class E2) EDGE 900/850 MHz: +27dBm (Power Class E2)
	Maximum power consumption	2500mA (peak); 600mA (average)
	Power consumption, sleep mode	3.6 mA
	Power management	USB selective suspend, Connected Standby Integrated notebook wireless button
	Antenna type	Dual high efficiency 5 band antennae with spatial diversity, mounted in the display enclosure
	Form Factor	M.2 Socket 2, USB 2.0 interface high speed
	Weight	<6 g
	Dimensions (Length x Width x Thickness)	2.01 x 1.18 x 0.18 in (42 x 30 x 2.3 mm)
	SIM card supply voltage	1.8 V/3.0 V UICC (SIM/UICC/USIM)
	Voltage, Operating	3.135V~4.4V (3.3 V recommended)
	Temperature, operating	14° to 131° F (-10° to 55° C) (Normal operation) -4° to 158° F (-20° to 70° C) (Extended operation)
	Temperature, storage	-40° to 185° F (-40° to 85° C)
	Humidity	5% to 95%
	Configuration utilities	HP Connection Manager
	LED activity	LED Off - Radio Off; Solid LED On - Radio On

Technical Specifications

*Mobile Broadband is an optional feature and requires factory configuration. Use requires separately purchased service contract. Check with service provider for coverage and availability in your area. Connection speeds will vary due to location, environment, network conditions, and other factors. 4G LTE not available on all products, and in all regions.

HP lt4112 LTE/HSPA+ Gobi™ 4G Module*	**Technology/Operating bands**	LTE FDD all bands with diversity: 2100 MHz (Band I), 1900 MHz (Band II), 1800 MHz (Band III), 850 MHz (Band V), 2600 MHz (Band VII), 900 MHz (Band VIII), 800 MHz (Band XX, DD800) WCDMA/HSDPA/HSUPA/HSPA+ all bands with diversity: 2100 MHz (Band I), 1900 MHz (Band II), 800 MHz (Band V), 900 MHz (Band VIII) GSM/GPRS/EDGE: 1900 MHz (Band II), 1800 MHz (Band III), 850 MHz (Band V), 900 MHz (Band VIII)
	Wireless protocol standards	3GPP Release 8 LTE Specification WCDMA R99, 3GPP Release 5, 6 and 7 UMTS Specification
	Wireless parametric standards	Complies with 3GPP specifications Release 8 for LTE
	Maximum data rates	LTE (Category 3): 100 Mbps (Download), 50Mbps (Upload) DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload) HSPA+: 21.6 Mbps (Download), 5.76 Mbps (Upload) EDGE: 236.8 kbps (Download), 236.8 kbps (Upload) GPRS: 85.6 kbps(Download), 85.6 kbps (Upload)
	GPS	Standalone
	GPS bands	1575.42 MHz (± 1.023 MHz), GLONASS 1596–1607MHz
	Maximum output power	LTE: +23 dBm (+/- 2 dBm) WCDMA: +23.5 dBm (+/- 1 dBm) GPRS Band II, III: +29.5 dBm (+/- 1 dBm) GPRS Band V, VIII: +32.5 dBm (+/- 1 dBm) EGPRS Band II, III: +26.5 dBM (+/-1.5 dBm) EGPRS Band V, VIII: +27.5 dBM (+/-1.5 dBm)
	Maximum power consumption	LTE: 1,200 mA (peak); <900 mA (average) WCDMA: 1,100 mA (peak); <800 mA (average) EGPRS: 2,800 mA (peak); <700 mA (average)
	Power consumption, sleep mode	3 mA
	Power management	USB selective suspend, Integrated notebook wireless button
	Antenna type	Dual high efficiency multi-band antennae with spatial diversity
	Form Factor	M.2, USB 2.0 interface
	Weight	6 g
	Dimensions (Length x Width x Thickness)	42 mm × 30 mm × 2.3 mm
	Voltage, Operating	3.135 V to 4.4 V (3.3 V +1.1V/-0.165V)
	Temperature, operating (from TIA/EIA/IS-98-D)	14° to 131° F (−10° to 55° C)
	Temperature, non-operating, 96 hours (from MIL-STD 202 Method 108)	−40° to 185° F (−40° to 85° C)

Technical Specifications

Humidity, non-operating	95% relative humidity for 48 hours @ 185° F (85° C) (non-condensing)
LED activity	LED Off - Radio Off; Solid LED On - Radio On

** Mobile Broadband is an optional feature and requires factory configuration. Use requires separately purchased service contract. Check with service provider for coverage and availability in your area. Connection speeds will vary due to location, environment, network conditions, and other factors. 4G LTE not available on all products, and in all regions.

HP lt4211 LTE/EV-DO/HSPA+ 4G WWAN*	**Technology/Operating bands**	LTE: 1900 (Band 2)/1700 (Band 4)/850 (Band 5)/700 (Band 13), 700 (Band 17), 1900 (Band 25) MHz HSPA+: 2100 (Band 1)/1900 (Band 2)/1700 (Band 4)/850 (Band 5), 800 (Band 8) MHz E-GPRS: 1900 (Band 2)/1800 (Band 3)/850 (Band 5)/900 (Band 8) MHz EV-DO: 800 (BC0)/1900 (BC1) MHz
	Wireless protocol standards	3GPP Release 9 LTE Specification WCDMA R99, 3GPP Release 5, 6 and 7 UMTS Specification E-GPRS: Class B, Multi-slot class 33, coding schemes CS1 - CS4 and MSC1 - MSC9 EVDO Release 0 and Release A
	GPS	Standalone
	GPS bands	1575.42 MHz, GLONASS 1602 MHz
	Maximum data rates	LTE (Category 3): 100 Mbps (Download), 50Mbps (Upload) DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload) HSPA+: 21.6 Mbps (Download), 5.76 Mbps (Upload) WCDMA PS: 384 kbs (Download), 384 kbs (Upload) WCDMA CS: 64 kbs (Download), 64 kbs (Upload) E-GPRS: 236.8 kbps (Download), 236.8 kbps (Upload) GPRS: 85.6 kbps(Download), 85.6 kbps (Upload) EV-DO Rev.B: 14.7 Mbps (Download), 5.4 Mbps (Upload) EV-DO Rev.A: 3.1 Mbps (Download), 1.8 Mbps (Upload)
	Maximum output power	LTE: +23 dBm (+1/- 2 dBm) HSPA+: +24 dBm (+1/- 2 dBm) E-GPRS Band 1800/1900: +25 dBM (+/-1 dBm) E-GPRS Band 850/900: +26 dBM (+/-1 dBm) GPRS 1800/1900 : +30 dBm (+1/-2 dBm) GPRS 850/900: +32 dBm (+/- 1 dBm) EV-DO: +24 dBM (+/-1 dBm)
	Maximum power consumption	LTE: 1,200 mA (peak); <900 mA (average) HSPA+: 1,100 mA (peak); <800 mA (average) E-GPRS: 2,800 mA (peak); <500 mA (average) EV-DO: 1000 mA (peak); <700 mA (average)
	Form Factor	M.2, 3042-S3 Key B
	Weight	6 g
	Dimensions (Length x Width x Thickness)	1.65 x 1.18 x 0.09 in (42 x 30 x 2.3 mm)

Technical Specifications

* Mobile Broadband is an optional feature and requires factory configuration. Connection requires wireless data service contract, network support, and is not available in all areas. Contact service provider to determine the coverage area and availability. Connection speeds will vary due to location, environment, network conditions, and other factors.

Intel Dual Band Wireless-N 7260 802.11 a/b/g/n (2x2) WiFi + Bluetooth 4.0 Combo Adaptor*, **	**Wireless LAN Standards**	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n	
	Interoperability	Wi-Fi certified Cisco Compatible Extensions Program compliant with Microsoft Windows 7, Windows Vista and XP (details at: http://www.hp.com/go/notebooks/WLAN)	
	Frequency Band	802.11b/g/n	2.402 - 2.482 GHz
		802.11a/n	4.9 - 4.95 GHz (Japan) 5.15 - 5.25 GHz 5.25 - 5.35 GHz 5.47 - 5.725 GHz 5.825 - 5.850 GHz
	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: card will support rates for NSS=1 and NSS=2 for RX and TX for 20 and 40 MHz channels. Short and long guard interval shall be supported.	
	Modulation	Direct Sequence Spread Spectrum CCK, BPSK, QPSK, 16-QAM, 64-QAM	
	Security[1]	• IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only • AES-CCMP: 128 bit in hardware • 802.1x authentication • WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES. • WPA2 certification • IEEE 802.11i • Cisco Certified Extensions, all versions through V5 • WAPI • FIPS 140-2	
	Sub-channels	Multinational support with frequency bands and channels compliant to local regulations.	
	Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)	
	Roaming	IEEE 802.11 compliant roaming between band Access Points	
	Output Power[2]	• 2.4G: +13.5dBm minimum • 5G: +12dBm minimum	
	Power Consumption	Transmit: 2.0 Watts Receive: 1.6 Watts	

Technical Specifications

Idle mode[3]: 250 mW (WLAN Associated)
Idle mode: 100 mW (WLAN unassociated)
Radio off: 75 mW

Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Receiver Sensitivity[4]	802.11g:-90 dBm (6 Mbps), -89 dBm (9 Mbps), -87 dBm (12 Mbps), -85 dBm (18 Mbps), -82 dBm (24 Mbps), -79 dBm (36 Mbps), -76 dBm (48 Mbps), -74 dBm (54 Mbps) 802.11b:-95 dBm (1 Mbps), -93 dBm (2 Mbps), -91 dBm (5.5 Mbps), -88 dBm (11 Mbps) 802.11g:-90 dBm (6 Mbps), -89 dBm (9 Mbps), -87 dBm (12 Mbps), -85 dBm (18 Mbps), -82 dBm (24 Mbps), -79 dBm (36 Mbps), -76 dBm (48 Mbps), -74 dBm (54 Mbps) 802.11n:-69 dBm (150 Mbps), -66 dBm (300 Mbps)
Antenna Connections	2 U.FL type connectors (output impedance of 50 ± 2 ohms)
Form Factor	PCI-Express Half-MiniCard
Dimensions	0.12 x 1.06 x 1.18 in (3.1 x 26.8 x 30.0 mm)
Weight	TBD
Operating Voltage	3.3v +/- 9%
Temperature	Operating	14° to 158° F (-10° to 70° 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. 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 4.0+EDR Wireless Technology

Bluetooth Specification	4.0+EDR Compliant
Dimensions	1.18 x 0.26 x 0.13 in (30 x 6.5 x 3.25 mm)
Frequency Band	2402 to 2480 MHz
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

Technical Specifications

Transmit Power	-1.5 dBm to 4 dBm (Bluetooth Class II)
Receiver Sensitivity	Better than -20 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 to 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
Bluetooth Profiles Supported	Serial Port Profile (SPP)[1] Service Discovery Application Profile (SDAP) Dial-Up Networking (DUN)[1,2] Generic Object Exchange Profile (GOEP)[1,2] Object Push Profile (OPP)[1,2] File Transfer Profile (FTP) Synchronization Profile (SYNC) Hard Copy Cable Replacement (HCRP)[1,2] Personal Area Networking Profile (PAN)[1,2] Human Interface Device Profile (HID)[1,2] FAX Profile (FAX) Basic Imaging Profile (BIP)[2] Headset Profile (HSP) Hands Free Profile (HFP) Advanced Audio Distribution Profile (A2DP)

1. indicates the profile is supported by Microsoft Windows XP SP2
2. indicates the profile is part of Windows Vista
* Wireless access point and internet service required. Availability of public wireless access points limited.
** Wifi + Bluetooth combo is an optional feature.

Intel Dual Band Wireless-AC 7260 802.11 ac (2x2) WiFi + BT 4.0 combo Adapter*, **	**Wireless LAN Standards**	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac
	Interoperability	Wi-Fi certified

Technical Specifications

Frequency Band	802.11b/g/n 2.402 - 2.482 GHz 802.11a/n 4.9 - 4.95 GHz (Japan) 5.15 - 5.25 GHz 5.25 - 5.35 GHz 5.47 - 5.725 GHz 5.825 - 5.850 GHz 2.402 - 2.482 GHz
Data Rates	802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz) 802.11ac : MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, and 80MHz)
Modulation	Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM
Security[1]	IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only AES-CCMP: 128 bit in hardware 802.1x authentication WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES. WPA2 certification IEEE 802.11i Cisco Certified Extensions, all versions through CCX4 and CCX Lite WAPI FIPS 140-2
Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
Roaming	IEEE 802.11 compliant roaming between access points
Output Power[2]	2.4G: +13.5dBm minimum 5G: +12dBm minimum Maximum output power must be able to achieve modular regulatory certification with notebooks that have antennas >20cm from the user and peak gain of +3dBi at 2.4GHz and +4dBi at 5GHz
Power Consumption	Transmit: 2.0 W (max) Receive: 1.6 W (max) Idle mode (PSP): 250 mW (WLAN Associated) Idle mode: 100 mW (WLAN unassociated) Radio disabled: 75 mW
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Receiver Sensitivity[3]	802.11b:-95 dBm (1 Mbps), -93 dBm (2 Mbps), -91 dBm (5.5 Mbps), -88 dBm (11 Mbps) 802.11a/g:-90 dBm (6 Mbps), -89 dBm (9 Mbps), -87 dBm (12 Mbps), -85 dBm (18 Mbps), -82 dBm (24 Mbps), -79 dBm (36 Mbps), -76 dBm (48 Mbps), -74 dBm (54 Mbps) 802.11n:-69 dBm (72.2 Mbps), -66 dBm (300 Mbps)
Antenna type	High efficiency antenna with spatial diversity, mounted in the display enclosure

QuickSpecs

Technical Specifications

	Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth communications	
Form Factor	PCI-Express Half-MiniCard	
Dimensions	0.19 x 1.06 x 1.18 in (4.75 x 26.8 x 30 mm)	
Weight	3.1g	
Operating Voltage	3.3v +/- 9%	
Temperature	Operating	14° to 158° F (-10° to 70° 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 (CKK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).
Bluetooth Specification

V4.0 High Speed, V2.1+EDR, backwards compatible with V1.1, 1.2 and 2.0

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) 330 mW Peak (Rx) 230 mW Sleep <17 mW
Antenna	Internally integrated within module
Range	Up to 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

QuickSpecs

Technical Specifications

		Low Voltage Directive IEC950
		UL, CSA, and CE Mark
	Bluetooth Profiles Supported	Generic Access Profile (GAP)
		Service Discovery Application Profile (SDAP)
		Serial Port Profile (SPP)
		Dial_Up Networking Profile (DUN)
		Generic Object Exchange Profile (GOEP)
		Object Push Profile (OPP)
		File Transfer Profile (FTP)
		Synchronization Profile (SYNC)
		Hard Copy Cable Replacement (HCRP)
		Personal Area Networking Profile (PAN)
		Human Interface Device Profile (HID)
		Generic Audio/Video Distribution Profile (GAVDP)
		Advanced Audio/Video Distribution Profile (A2DP)
		FAX Profile (FAX)
		Basic Imaging Profile (BIP)
		Headset Profile (HSP)
		Hands Free Profile (HFP)
		Basic Printing Profile (BPP)
		VDP (Video Distribution Profile)
		AVRCP (Audio Video Remote Control Profile)

* Wireless access point and internet service required. Availability of public wireless access points limited. The specifications for the 802.11ac WLAN are draft specifications and are not final. If the final specifications differ from the draft specifications, it may affect the ability of the notebook to communicate with other 802.11ac WLAN devices
** Bluetooth sold separately or as an optional feature.

AUDIO/MULTIMEDIA - DTS SOUND+

Hardware	**Implementation**	Realtek ALC3227-CG
	Function Key Volume Controls	Volume up, volume down, and mute
	Full Duplex	Yes
	Microphone In	Stereo
	Headphone/Line Out	Stereo
	Integrated Microphone	Yes, dual digital microphone array
Audio Output Quality	**Frequency Response**	10 Hz – .454*Fs
	Signal to Noise Ratio	95 dB (DAC), 88dB (ADC)
	Total Harmonic Distortion	0.01%
	Play/Record Sampling Rate(s)	44.1k/48k/96k/192kHz
	DAC	16, 20 or 24-bit
	ADC	16, 20 or 24-bit

Technical Specifications

Integrated Stereo Speakers	Power Rating	2 Watts
	Impedance	4 Ohms

POWER

HP 45W Smart AC Adapter	Dimensions	3.78 x 1.95 x 0.88 in (9.6 x 4.95 x 2.24 cm)	
	Input	90 to 265 VAC	
		Input Efficiency	87% min at 115 VAC
		Input frequency range	47 to 63 Hz
		Input AC current	1.4 A at 90 VAC and maximum load
	Output	Output power	45W
		DC output	19.5V
		Hold-up time	5 msec at 115 VAC input
		Output current limit	<8A, Over voltage protection- 29V max automatic shutdown
	Connector	3 pin/grounded, mates with interchangeable cords	
	Environmental Design	Operating temperature	32° to 95° F (0° to 35° C)
		Non-operating (storage) temperature	-4° to 121° F (-20° to 85° C)
		Altitude	0 to 16,405 ft (0 to 5,000 m)
		Humidity	0% to 95%
		Storage Humidity	0% to 95%
	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; Reliability - failure rate of less than 0.1% annually within the first three years of operation.	
HP 65W EM Smart AC Adapter	Dimensions	126.0 x 50.0 x 30.0 mm	
	Weight	300 g	
	Input	90 to 265 VAC	
		Input Efficiency	87% min at 115 VAC
		Input frequency range	47 to 63 Hz
		Input AC current	1.7 A at 90 VAC
	Output	**Output power**	65W
		DC output	19.5V
		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 95° F (0° to 35° C)

QuickSpecs

HP EliteBook Folio 9480m Notebook PC

Technical Specifications

Non-operating (storage) temperature	-4° to 185° F (-20° to 85° C)	
Altitude	0 to 10,000 ft (0 to 3,048 m)	
Humidity	20% to 95%	
Storage Humidity	10% to 95%	
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℃ ambient condition	

HP 4-cell Lithium-Ion Long Life Battery (52 WHr)		
Dimensions (H x W x L)	0.31 x 5.25 x 8.15in (0.8 x 13.3 x 20.7cm)	
Weight (max)	0.74 lb (0.335kg)	
Cells/Type	4-cell Lithium-Ion	
Energy	Voltage	14.8V
	Amp-hour capacity	3.515Ah
	Watt-hour capacity	52Wh
Temperature	Operating (Charging)	32° to 113° F (0° to 45° C)
	Operating (Discharging)	14° to 122° F(-10° to 50° C)
	Non-operating	-4° to 122° F (-20° to 50° C)
Battery Re-Charge Time	System in OFF or Standby Mode	2.5 hours
	System ON	3 to 5 hours
Fuel Gauge LED	No	
Optional Travel Battery Available	No	

HP 6-cell Lithium-Ion Long Life Slice Battery (60 WHr)		
Dimensions (H x W x L)	0.28 x 12.6 x 8.39in (0.7 x 32 x 21.3 cm)	
Weight (max)	1.72 lb (0.78 kg)	
Cells/Type	6-cell Lithium-Ion	
Energy	Voltage	11.4V
	Amp-hour capacity	5.4Ah
	Watt-hour capacity	60Wh
Temperature	Operating (Charging)	32° to 113° F (0° to 45° C)
	Operating (Discharging)	14° to 122° F(-10° to 50° C)
	Non-operating	-4° to 122° F (-20° to 50° C)
Battery Re-Charge Time	System in OFF or Standby Mode	3.5 to 5 hours
	System ON	4 to 7 hours
Fuel Gauge LED	No	

Technical Specifications

Optional Travel Battery Available   No

ENVIRONMENTAL

Eco-Label Certifications & declarations	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:		
	• IT ECO declaration • US ENERGY STAR® • EPEAT <Gold> registered in the United States. See http://www.epeat.net for registration status in your country.		
System Configuration	The configuration used for the Energy Consumption and Declared Noise Emissions data for the Notebook model is based on a "Typically Configured Notebook".		
Energy Consumption (in accordance with US ENERGY STAR® test method)	**115VAC, 60Hz**	**230VAC, 50Hz**	**100VAC, 60Hz**
Normal Operation (Short idle)	9.41 W	9.77 W	9.59 W
Normal Operation (Long idle)	5.32 W	5.51 W	5.4 W
Sleep	0.88 W	0.86 W	0.9 W
Off	0.44 W	0.44 W	0.45 W
	Note: Energy efficiency data listed is for an ENERGY STAR® compliant product if offered within the model family. HP computers marked with the ENERGY STAR® Logo are compliant with the applicable U.S. Environmental Protection Agency (EPA) ENERGY STAR® specifications for computers. If a model family does not offer ENERGY STAR® compliant configurations, then energy efficiency data listed is for a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system.		
Heat Dissipation*	**115VAC, 60Hz**	**230VAC, 50Hz**	**100VAC, 60Hz**

Technical Specifications

Normal Operation (Short idle)	32 BTU/hr	33 BTU/hr	33 BTU/hr
Normal Operation (Long idle)	18 BTU/hr	19 BTU/hr	18 BTU/hr
Sleep	3 BTU/hr	3 BTU/hr	3 BTU/hr
Off	2 BTU/hr	2 BTU/hr	2 BTU/hr
	*NOTE: 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)	Sound Power (L_{WAd}, bels)		Sound Pressure (L_{pAm}, decibels)
Typically Configured – Idle	2.7		21
Fixed Disk – Random writes	3		23
Longevity and Upgrading	This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the product may include: • 3 USB ports • 1 PC card slot (type I/II) • 1 ExpressCard/54 slot • 1 IEEE 1394 Port • 2 SODIMM memory slots • Optional expansion base docking station • 1 multi-bay II storage port • Interchangeable HDD?? <edit list of features as required> Spare parts are available throughout the warranty period and or for up to "5" years after the end of production.		

Batteries	This battery(s) in this product comply with EU Directive 2006/66/EC
	
	Batteries used in the product do not contain:
	    Mercury greater the1ppm by weight
	    Cadmium greater than 20ppm by weight		

Technical Specifications

	Battery size: CR2032 (coin cell) Battery type: Lithium Battery size: 6-cell high capacity Lithium-Ion battery (optional 8 cell available) Battery type:		
Additional Information	• This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC. • This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive – 2002/96/EC. • This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986). • This product is in compliance with the IEEE 1680 (EPEAT) standard at the <gold> level, see www.epeat.net • Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043. • This product contains 0% post-consumer recycled plastic (by wt.) • This product is 96.8% recycle-able when properly disposed of at end of life.		
Packaging Materials	**External:**	PAPER/Corrugated	549 g
	Internal:	PLASTIC/EPE (Expanded Polyethylene)	54.9 g
		PLASTIC/Polyethylene low density	26 g
	The plastic packaging material contains at least 50% recycled content.		
	The corrugated paper packaging materials contains at least70% recycled content.		
Material Usage	This product does not contain any of the following substances in excess of regulatory limits (refer to the HP General Specification for the Environment at http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/gse.pdf): • 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 • 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.		

Technical Specifications

	• Radioactive Substances • Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)
Packaging Usage	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.
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
	Eco-label certifications
	      http://www8.hp.com/us/en/hp-information/environment/ecolabels.html
	 ISO 14001 certificates:
	
	      http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC_GBU_Product_Design_ISO_14K_Certificate.pdf
	
	      and
	
	      http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf

MATERIAL USAGE

Technical Specifications

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

- Asbestos
- Certain Azo Colorants
- Certain Brominated Flame Retardants - may not be used as flame retardants in plastics
- Cadmium
- Chlorinated Hydrocarbons
- Chlorinated Paraffins
- Formaldehyde
- Halogenated Diphenyl Methanes
- Lead carbonates and sulfates
- Lead and Lead compounds
- Mercuric Oxide Batteries
- Ozone Depleting Substances
- Polybrominated Biphenyls (PBBs)
- Polybrominated Biphenyl Ethers (PBBEs)
- Polybrominated Biphenyl Oxides (PBBOs)
- Polychlorinated Biphenyl (PCB)
- Polychlorinated Terphenyls (PCT)
- Polyvinyl Chloride (PVC) - except for wires and cables, and certain retail packaging has been voluntarily removed from most applications.
- Radioactive Substances
- Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)
- Nickel finishes that release greater than 0.5 µgrams/cm²/week, measured according to EN 1811:1998, are not used on any product surface designed to be frequently handled or touched by users.

END-OF-LIFE MANAGEMENT AND RECYCLING

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

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

Technical Specifications

ISO 14001 certificates:

http://www.hp.com/hpinfo/globalcitizenship/environment/operations/envmanagement.html

Country of Origin

China

Options and Accessories (sold separately and availability may vary by country)

Type	Description	Part #
Cases	HP Business Slim Top Load (up to 14.1" x .75" thick)	H5M91AA
	HP Essential Backpack (up to 15.6")	H1D24AA
	HP Essential Top Load (up to 15.6)	H2W17AA#xxx
	HP Business Backpack (up to 17.3")	H5M90AA
Docking	HP 2013 UltraSlim Docking Station	D9Y32AA
Batteries	HP BA06 XL Long Life Battery (Slice)	H4Q48AA
Security	HP Docking Station Cable Lock	AU656AA#XXX
	HP UltraSLim Keyed Cable Lock	H4D73AA
Monitors	HP EliteDisplay E231 23-inch LED Backlit Monitor	C9V75AA

Options and Accessories (sold separately and availability may vary by country)

Summary of Changes

Date of change:	Version History:		Description of change:
June 13, 2014	From May'14 to June'13	Added Removed	Systems Unit Specs Footnote for SureStart
June 18, 2014	From June 13 To June 18	Added	Battery life and disclaimers
June 26, 2014	From v3 to v4	Changed	Options names
July 2, 2014	From v4 to v5	Changed	Weights, ports
July 14, 2014	From v5 to v6	Changed	Environmental data