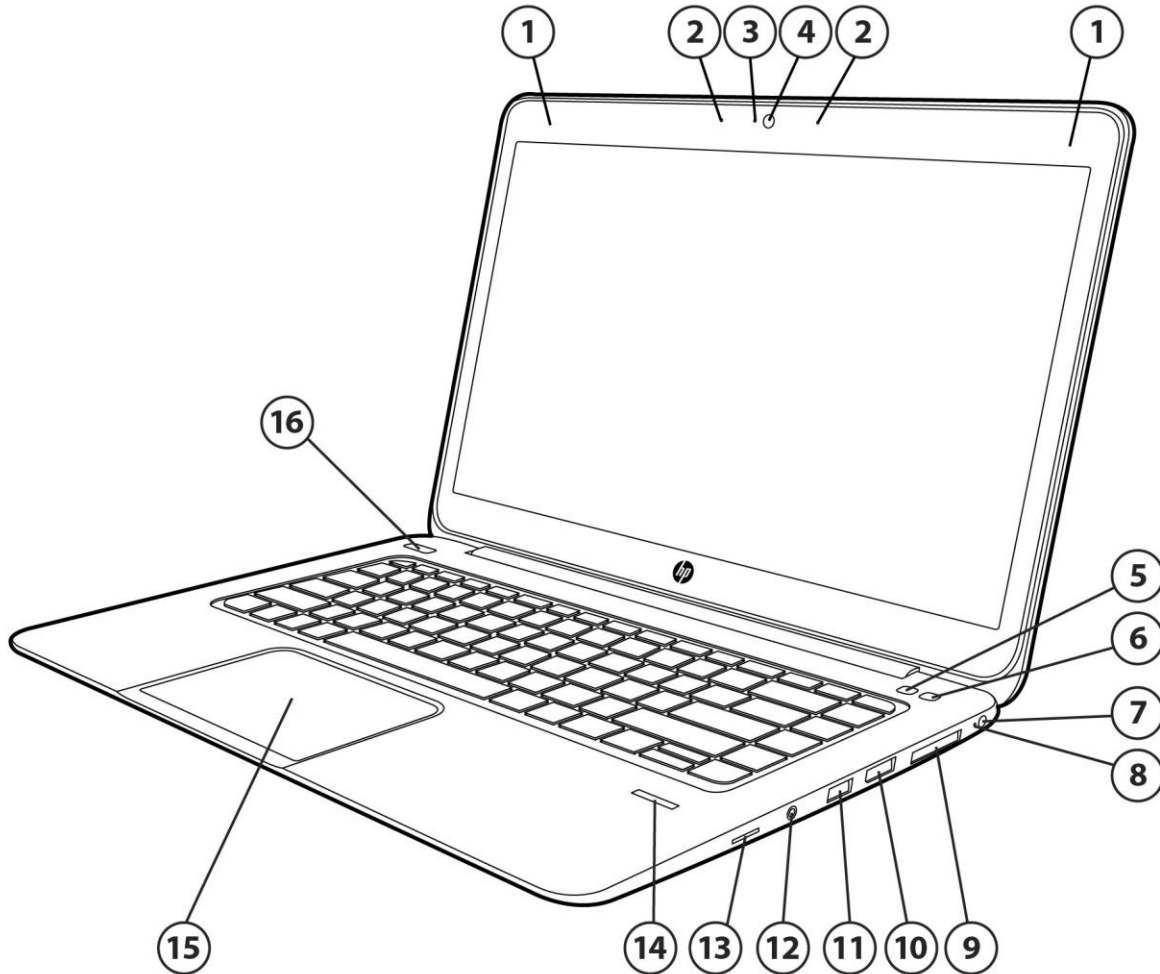


Overview

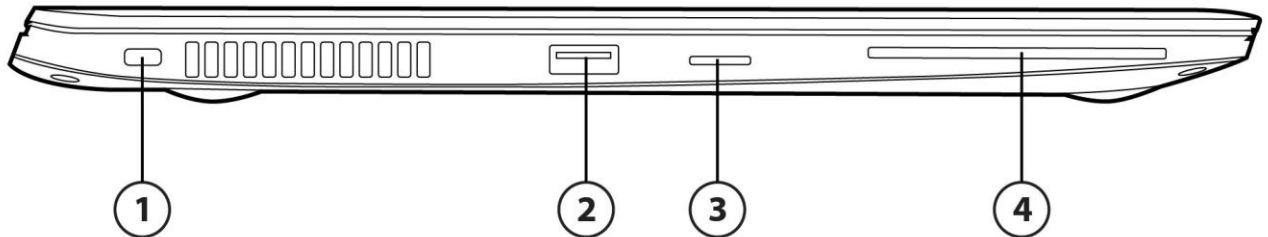
HP EliteBook Folio 1040 G1 Notebook PC



1. WLAN antennas (2)
2. Dual-microphone array
3. Webcam light (only with optional webcam)
4. Optional 720p HD webcam
5. Wireless on/off button with LED indicator
6. Speaker mute button with LED indicator
7. Power connector
8. Power LED indicator RJ-45/Ethernet port
9. Docking connector
10. DisplayPort 1.2
11. USB 3.0 port
12. Headphone/microphone combo
13. Micro-SD card reader
14. Fingerprint reader (select models only)
15. ForcePad
16. Power button

Overview

Left View



1. Security lock
2. USB 3.0 charging port
3. TBD
4. Smart Card Reader

At A Glance

- Windows 8.1 Pro, Windows 8, Windows 7 versions or FreeDOS
- 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 a ForcePad that enables multiple gestures and eliminates the need for repetitive motion and makes navigation easier
- Choice of 4th Generation Intel® Core™ i7 and i5 with Turbo Boost Technology, as well as 4th Generation Intel Core i3 Dual-Core
- Integrated Intel® HD Graphics 4000
- 14.0-inch diagonal HD or HD+* widescreen LED-backlit display
- Choice of 256 GB Solid State Drive, 180 GB Solid State Drive, or 128 GB Solid State Drive
- Optional 32 GB mSATA M.2 Flash Cache module support for Intel Smart Response Technology. (Available only with standard non-SED hard drive).
- Built-in docking for a desktop-like experience
- DisplayPort 1.2 for high resolution support
- HD Audio with DTS Studio Sound™ optimized for high fidelity audio during video conferencing and web-based training
- 6-cell (42 WHr) HP Long Life battery for battery life up to 9 hours
- ForcePad that enables multiple gestures and eliminates the need for repetitive motion and makes navigation easier
- Integrated Smart Card Reader and optional fingerprint reader for strong security authentication
- HP Premier Image with Microsoft Security Essentials and without trialware
- HP BIOSphere with HP Sure Start
- Flexible wireless connectivity options:
 - Optional integrated wireless mobile broadband 3G and 4G/LTE support (no Win 8 support)
 - Integrated Intel® 802.11 a/b/g/n (2x2), Intel® 802.11 a/b/g/n (2x2) with Bluetooth® v4.0 Combo, or Intel® 802.11 a/b/g/n (2x2) AC with Bluetooth® v4.0 Combo
- Low halogen, ENERGY STAR qualified (with Microsoft OS) and EPEAT TBD 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 1040 G1 Notebook PC

OPERATING SYSTEM

Preinstalled

Windows 8.1 Pro 64*
Windows 8.1 64*
Windows 7 Professional (available through downgrade rights from Windows 8.1 Pro)**
Windows 7 Professional 32***
Windows 7 Professional 64***
Windows 7 Home Premium 32***
Windows 7 Home Premium 64***
FreeDOS
SUSE Linux Enterprise

Supported

Windows 8 Pro*
Windows 8 Enterprise*
Windows 7 Enterprise 32***
Windows 7 Enterprise 64***
Windows 7 Ultimate 32***
Windows 7 Ultimate 64***
SUSE Linux Enterprise

Certified

SUSE Linux Enterprise Desktop

* Not all features are available in all editions of Windows 8.1. Systems may require upgraded and/or separately purchased hardware, drivers and/or software to take full advantage of Windows 8.1 functionality. See microsoft.com for details.

** This system is preinstalled with Windows® 7 Pro software and also comes with a license and media for Windows 8 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.

*** Not all features are available in all editions of Windows 7. This system may require upgraded and/or separately purchased hardware to take full advantage of Windows 7 functionality. See microsoft.com/windows/windows-7/ for details.

PROCESSOR

4th Generation Intel® Core™ i7-4600U with Intel HD Graphics 4400 (2.1 GHz, 4 MB cache, 2 cores)*

Up to 3.3 GHz with Intel Turbo Boost Technology

4th Generation Intel® Core™ i7-4650U with Intel HD Graphics 5000 (1.7 GHz, 4 MB cache, 2 cores)*

Up to 3.3 GHz with Intel Turbo Boost Technology

4th Generation Intel® Core™ i5-4300U with Intel HD Graphics 4400 (1.9 GHz, 3 MB cache, 2 cores)*

Up to 2.9 GHz with Intel Turbo Boost Technology

4th Generation Intel® Core™ i5-4200U with Intel HD Graphics 4400 (1.6 GHz, 3 MB cache, 2 cores)*

Up to 2.6 GHz with Intel Turbo Boost Technology

† Not available with vPro

* 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.

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

CHIPSET

Mobile Intel® QM87

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

Features

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.

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 4400

Intel® HD Graphics 5000

DISPLAY

Internal

14.0" diagonal eDP, slim, LED-backlit HD+* 16:9 widescreen anti-glare SVA (1600 x 900)

External

Up to 32-bit per pixel color depth (250 nits)

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

Internal

14.0" diagonal eDP, slim, LED-backlit FHD* widescreen anti-glare UWVA (1920 x 1080)

External

Up to 32-bit per pixel color depth (250 nits)

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

* HD content required to view HD images.

NOTE: Resolutions are dependent upon monitor capability, and resolution and color depth settings.

FLASH CACHE MODULE

Optional 32 GB mSATA M.2 Flash cache module support for Intel Smart Response Technology. (Available only with standard non-SED hard drive).

STORAGE AND DRIVES

Features

Primary Storage Bay

Solid State Drive

SATA 6 Gb/s 128 GB* Solid State

SATA 6 Gb/s 180 GB* Solid State

SATA 6 Gb/s 256 GB* Solid State

* For hard drives and solid state drives, GB = 1 billion bytes. Actual formatted capacity is less. Up to 30 GB (for Windows 7) and up to 36 GB (for Windows 8.1) of system disk is reserved for the system recovery software.

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 SDRAM (1600 MHz, 1.3v)

Two SODIMM slots supporting dual-channel memory (one slot plus 4 GB soldered down)

4 GB SODIMMs

Standard memory up to 8192 MB

Maximum

Upgradeable to 8192 MB with optional 4096 MB SODIMM in slot 1 and 4096 MB soldered down

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. With Windows Starter 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.

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 It4111 LTE/EV-DO/SHPA+ Mobile Broadband Module *,**

HP It4112 LTE/HSPA+ Mobile Broadband Module (EMEA only) *,**

HP hs3110 HSPA+ Mobile Broadband Module *

Integrated wireless LAN options

Intel® 802.11 a/b/g/n (2x2)***

Intel® 802.11 a/b/g/n (2x2) with Bluetooth® v4.0 Combo***

Intel® 802.11 a/b/g/n (2x2) AC with Bluetooth® v4.0 Combo***, ****

* WWAN is an optional feature sold separately or as an add on feature. WWAN 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.

** 4G LTE not available on all products, in all regions and requires Windows.

***Wireless access point and Internet service is required and is not included. Availability of public wireless access points limited.

**** The specifications for the 802.11 ac 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 802.11 ac WLAN devices.

Communications

Intel® Clarkville-LM (1218) Gigabit Network connection*

* The term "10/100/1000" or "Gigabit" Ethernet indicates compatibility with IEEE standard 802.3ab for Gigabit Ethernet,

Features

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 located in display
Button for speaker 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

* Sold separately as an optional feature.

** HD content required to view HD images.

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 and a drain system that funnels fluid through a hole in the bottom of the notebook. This minimizes the risk of damage to sensitive components underneath. The 101/102-key compatible keyboard features a full-pitch key layout with desktop keyboard features, such as 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

ForcePad

Buttons and Function Keys

Discrete buttons provide easy access to the following features: wireless on/off, and speaker 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

HP BIOSphere with HP Sure Start*
Buy Office
HP Connection Manager (Win 7)
HP Wireless HotSpot**
HP Mobile Connect (EMEA only)
HP PageLift
HP Recovery Manager
HP Support Assistant
HP ePrint***

* HP Sure Start is only available on the EliteBook 800 series, Workstation ZBook series and HP EliteBook Folio 1040.

** The wireless hotspot application requires an active internet connection and separately purchased data plan. While HP

Features

wireless hotspot is active, on-device applications will continue to work and will use the same data plan as the wireless hotspot. Wireless hotspot data usage may incur additional charges. Check with your service provider for plan details. Requires Windows 8.

*** Requires an Internet connection to HP web-enabled printer and HP ePrint account registration (for a list of eligible printers, supported documents and image types and other HP ePrint details, see www.hp.com/go/eprintcenter). Requires optional broadband module. Broadband use requires separately purchased service contract. Check with service provider for coverage and availability in your area. Separately purchased data plans or usage fees may apply. Print times and connection speeds may vary.

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 30 GB (for Windows 7) and up to 36 GB (for Windows 8.1) of system disk is reserved for the system recovery software.

Security

Standard

HP Trust Circles Standard (Available in Fall 2013)*

HP Client Security

TPM 1.2 Embedded Security Chip

Integrated Smart Card Reader

HP Fingerprint Sensor (100%)

Full Volume Encryption

Security Lock Slot

Microsoft Security Essentials

* HP Trust Circles Standard, when included, allows up to 5 Trust Circles with up to 5 contacts in each Trust Circle. Optional Trust Circles Professional required for unrestricted number of Trust Circles and members contacts. Trust Circles Reader is available to allow a contact to participate in an invited Trust Circle. Requires Windows.

For more information on HP security solutions refer to: hp.com/go/security

POWER

Power Supply

45W Smart AC Adapter

65W Smart EM AC Adapter

65W Slim Smart AC Adapter

Power cord included is TBD-foot (TBD meter).

Total length including external AC adapter is TBD feet (TBD meter).

Primary Battery

HP 6-Cell (42Whr) polymer long life battery

Battery Life*

Up to TBD hours

System Standby Time

Up to TBD weeks

*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 bapco.com/products/mobilemark2007 for additional details.

Power Conservation

Hibernation

Standby

ACPI compliance

Features

ENVIRONMENTAL

ENERGY STAR TBD qualified (with Microsoft OS)
Low Halogen (does not cover adapters and power cords)
IT ECO Declaration
EPEAT® TBD in the U.S. See 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

Starting at 3.3 lbs (1.49 kg) (Weight will vary by configuration.)

Dimensions (w x d x h)

13.31 x 9.19 x 0.63 in

33.8 x 23.35 x 1.59 cm

NOTE: Weight varies by configuration and components. Weight includes 6-cell battery, solid state drive, and 4 GB memory. Weight varies by configuration and components.

PORTS/SLOTS

Ports

DisplayPort – One (v1.2)

Headphone/Microphone combo port – One

Power Connector – One

Docking Connector – One

USB 3.0 – One

USB 3.0 charging port – One

Digital Media Slots

Micro-SD card reader supports SD, SDHC, SDXC

SERVICE AND SUPPORT

HP Services offers limited 3 year and 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). Optional* HP Care Pack Services** are extended service contracts which go beyond your standard warranties. For more details visit: hp.com/go/lookuptool.

*Sold separately or as an optional feature.

** Service levels and response times for HP Care Packs may vary depending on your geographic location. Service starts on date of hardware purchase. Restrictions and limitations apply. Consult the HP Customer Support Center for details. <http://h20000.www2.hp.com/bizsupport/TechSupport/ProductRoot.jsp>

NOTE: Service levels and response times for HP Care Packs may vary depending on your geographic location. Service starts on date of hardware purchase. Restrictions and limitations apply. For details, visit: hp.com/go/cpc

Technical Specifications

SYSTEM UNIT

Stand-Alone Power Requirements (AC Power)	Nominal Operating Voltage	18.5 V					
	Average Operating Power		<table border="0"> <tr> <td>Windows 7 (32-bit)</td> <td>Windows 7 (64-bit)</td> </tr> <tr> <td>TBD W</td> <td>TBD W</td> </tr> </table>	Windows 7 (32-bit)	Windows 7 (64-bit)	TBD W	TBD W
Windows 7 (32-bit)	Windows 7 (64-bit)						
TBD W	TBD W						
	Max Operating Power	< 65 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®	TBD models (Microsoft OS)*					
	EPEAT®	Registered TBD 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 1040 G1 that are ENERGY STAR qualified are identified as HP EliteBook Folio 1040 G1 ENERGY STAR on HP websites and on energystar.gov.

**EPEAT® TBD in the U.S. See epeat.net for registration status by country.

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

Technical Specifications

DISPLAYS

14" diagonal LED-backlit HD+ anti-glare SVA flat (1600 x 900)	Outline Dimensions (W x H x D)	12.6 x 8.09 x 0.14 in (32.09 x 20.56 x 0.36 cm)		
	Active Area	12.19 x 6.86 in (30.96 x 17.415 cm)		
	Weight	0.72 lb (325 g) (max)		
	Diagonal Size	14.0 in (35.6cm)		
	Surface Treatment	Anti-glare		
	Contrast Ratio	300:1 (min)		
	Refresh Rate	60 Hz		
	Brightness	250 nit (typical)		
	Pixel Resolution	Format	1600 x 900 (HD+)	
		Configuration	RGB Stripe	
		Interface	eDP 1.2 (1 lane)	
		LCD Mode	TN	
		PPI	131 ppi	
	Viewing Angle	SVA 40/40/15/30 (Left/Right/Down/Up)		
14" diagonal LED-backlit FHD anti-glare UWVA slim (1920 x 1080)	Outline Dimensions (W x H x D)	12.6 x 8.09 x 0.12 in (32.09 x 20.56 x 0.3 cm)		
	Active Area	12.18 x 6.85 in (30.93 x 17.4 cm)		
	Weight	0.75 lb (340 g) (max)		
	Diagonal Size	14.0 in (35.6cm)		
	Touch enabled	Yes		
	Surface Treatment	Anti-glare		
	Contrast Ratio	600:1 (min)		
	Refresh Rate	60 Hz		
	Brightness	300 nit (typical)		
	Pixel Resolution	Format	1920 x 1080 (FHD)	
		Configuration	RGB Stripe	
		Interface	eDP 1.3+PSR (2 lane)	
		LCD Mode	IPS/FFS/VA	
	PPI	157 ppi		
	Viewing Angle	UWVA 85/85/85/85 (Left/Right/Down/Up)		

STORAGE AND DRIVES

Internal Storage

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.

128 GB* M.2 Solid State Drive	Drive Weight	10 grams		
	Capacity	128 GB		
	Height	0.091 in (2.3 mm)		
	Width	0.87 in (22 mm)		
	Interface	SATA 3 (6 Gb/s)		
	Performance	Maximum Sequential Read	Maximum Sequential Write	
		Up to 500 MB/s	Up to 250 MB/s	
	Logical Blocks	250,069,680		

Technical Specifications

180 GB* M.2 Solid State Drive	Operating Temperature	32° to 158°F (0° to 70°C) [case temp]		
	Features	ATA Security; ATA-8; SATA 3.0; DIPM; TRIM		
	Drive Weight	10 grams		
	Capacity	180 GB		
	Height	0.091 in (2.3 mm)		
	Width	0.87 in (22 mm)		
	Interface	SATA Gen 3 (6 Gb/s)		
	Performance	Maximum Sequential Read	Maximum Sequential Write	
		Up to 520 MB/s	Up to 490 MB/s	
		Logical Blocks	351,651,888	
256 GB* M.2 Solid State Drive	Operating Temperature	32° to 158°F (0° to 70°C) [case temp]		
	Features	ATA Security; ATA-8, SATA 3.0; DIPM; TRIM		
	Drive Weight	10 grams		
	Capacity	256 GB		
	Height	0.091 in (2.3 mm)		
	Width	0.87 in (22 mm)		
	Interface	SATA Gen 3 (6 Gb/s)		
	Performance	Maximum Sequential Read	Maximum Sequential Write	
		Up to 500 MB/s	Up to 350 MB/s	
		Logical Blocks	500,118,192	
Operating Temperature	32° to 158°F (0° to 70°C) [case temp]			
	Features			
	ATA Security; ATA-8, SATA 3.0; DIPM; TRIM			

* For solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and 30 GB (for Windows 8.1) of system disk is reserved for the system recovery software.

SECURITY

HP Fingerprint Reader	Mobile Voltage Operation	3.0V-3.6V	
	Operating Temperature	14° - 167°F (-10° - 75°C)	
	Current Consumption Image	36 mA peak	
	Low Latency Wait for Finger	950 uA	
	Capture Rate	3000. lines/sec	
	ESD Resistance	IEC 61000-4-2 4B (±15KV)	
	Detection Matrix	200*1 (plus another secondary line) 508 dpi 12*3 mm sensor area	
	Smart Card Reader	Smart card standard	PC/SC 2.0 for Windows smart card standard
		Dimensions (L x W x H)	0.41x 0.08 x 0.32 in (10.5 x 2 x 8.2 mm)
		Smart Card support	ISO 7816 Class A and AB smart cards
Smart Card Interface		Smart Card Interface with T = 0 and T = 1 support Support I2C memory card, SLE4418, SLE4428, SLE4432, SLE4442, SLE4436, SLE5536, SLE6636, AT88SC1608, AT45D041 card and AT45DB041 card via external EEPROM	
Operating systems		No driver is required for this device. Native support is provided by the	

Technical Specifications

	operating system.	
Power	Normal Mode	<p>With card present, before being suspended: 40.9 mA</p> <p>Without card present, before being suspended: 33.16 mA</p> <p>After being suspended with smart card present: 380 μA</p> <p>After being suspended without smart card present: 380 μA</p>
	Power Saving Mode	<p>With card present, before being suspended: 40.6 mA</p> <p>Without card present: 380 μA</p> <p>After being suspended with smart card present: 380 μA</p>
Features	<ul style="list-style-type: none"> • Support single slot • Support T0, T1 protocol • Support I2C memory card, SLE4418, SLE4428, SLE4432, SLE4442, SLE4436, • SLE5536, SLE6636, AT88SC1608, AT45D041 card and AT45DB041 card via external EEPROM • Support ISO7816 Class A, B and C (5V/3V/1.8V) card • Implemented as an USB full speed device with bulk transfer endpoint, Mass • Storage endpoint • Built-in PLL for USB and Smart Card clocks requirement • Support EEPROM for USB descriptors customization (PID/VID/iManufacturer/iProduct/Serial Number), Direct Web Page Link, and accessing memory card module. • EEPROM programmable via USB interface • Support software update for memory card module • Support Direct Web Page Link via configuration in external EEPROM • Support short APDU and extended APDU • Compatible with Microsoft USB-CCID driver • Support remote wake up through inserting card/removing card • Support USB selective suspend • Support Power Saving Mode (Using one pin to select between Normal/PWR Saving Mode) • Support card power over current protection mechanism • Built in resonator. • Support USB LPM (Link Power Management) features. • Embedded clock source. 	

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

Technical Specifications

	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
Management	WOL, auto MDI crossover, PXE, Multi-port teaming, RSS, Advanced cable diagnostic.
Alerting	ASF 2.0 support; iAMT 9.0 support
HP hs3110/3114 HSPA+ 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

Technical Specifications

	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
HP It4111 LTE/EV-DO/HSPA+ 4G WWAN*	Technology/Operating Bands
	LTE FDD all bands with diversity: 1900 MHz (Band II) ¹ , 1700/2100MHz (Band IV (AWS), 850 MHz (Band V), 700MHz (Band XIII), 700MHz (Band XVII), 1900MHz G Block (Band XXV) WCDMA/HSDPA/HSUPA/HSPA+: all bands with diversity: 2100 MHz (Band I), 1900 MHz (Band II) , AWS 1700/2100MHz (Band IV), 850 MHz (Band V), 800 MHz (Band VIII) GSM/GPRS/EDGE: 1900 MHz, 1800 MHz , 850 MHz , 900 MHz CDMA: Cellular 800MHz (BC0), PCS 1900MHz (BC1)
	Wireless Protocol Standards
	3GPP Release 8 LTE Specification WCDMA R99, 3GPP Release 5, 6 and 7 UMTS Specification EVDO Release 0 and Release A
	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, A-GPS, GPS XTRA
	GPS Bands
	1575.42 MHz (± 1.023 MHz), GLONASS 1596-1607MHz
	Maximum Output Power
	LTE: +23 dBm (+/- 1 dBm) WCDMA: +23 dBm (+/- 1 dBm) GSM850/900, GMSK: +32dBm (+/- 1dBm) GSM850/900, 8PSK: +27dBm (+/- 1dBm) DCS1800 / PCS 1900, GMSK: +29dBm (+/- 1dBm) DCS1800 / PCS 1900, 8PSK: +26dBm (+/- 1dBm) CDMA: +24dBm (+/- 1dBm)
	Maximum Power Consumption
	LTE: 1,200 mA (peak); <900 mA (average) WCDMA: 1,100 mA (peak); <800 mA (average) EGPRS: 2,500 mA (peak); <700 mA (average)
	Power Consumption, Sleep Mode
	2 mA
	Power Management
	USB selective suspend, Integrated notebook wireless button
	Antenna Type
	Dual high efficiency multi-band antennae with spatial diversity

Technical Specifications

Form Factor	M.2, 3042-S3 Key B
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)	-13° to 140° F (-25° to 60° C)
Temperature, non-operating, 96 hours (from MIL-STD 202 Method 108)	-40° to 185° F (-40° to 85° C)
Humidity, Non-operating	95% relative humidity for 48 hours @ 185° F (85° C) (non-condensing)
LED Activity	LED Off - Radio Off; Solid LED On - Radio On
<p>¹ 1900 MHz (Band II) and 850 MHz (Band V) not supported at launch but support planned in a future firmware update.</p> <p>* 4G LTE not available on all products, in all regions and requires Windows. WWAN 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.</p>	
HP Lt4112 LTE/HSPA+ Gobi 4G Module*	<p>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)</p> <p>Wireless Protocol Standards 3GPP Release 8 LTE Specification WCDMA R99, 3GPP Release 5, 6 and 7 UMTS Specification</p> <p>Wireless Parametric Standards Complies with 3GPP specifications Release 8 for LTE</p> <p>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)</p> <p>GPS Standalone</p> <p>GPS Bands 1575.42 MHz (± 1.023 MHz), GLONASS 1596-1607MHz</p> <p>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)</p> <p>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)</p> <p>Power Consumption, Sleep Mode 3 mA</p> <p>Power Management USB selective suspend, Integrated notebook wireless button</p> <p>Antenna Type Dual high efficiency multi-band antennae with spatial diversity</p> <p>Form Factor M.2, USB 2.0 interface</p>

Technical Specifications

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)												
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												
* 4G LTE not available on all products, in all regions and requires Windows. WWAN 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.													
Intel Dual Band Wireless-N 7260NB 802.11 a/b/g/n (2x2) WiFi Adapter*	<p>Wireless LAN Standards IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n</p> <p>Interoperability Wi-Fi certified</p> <p>Cisco Compatible Extensions Program compliant with Microsoft Windows 7, Windows Vista and XP (details at: hp.com/go/notebooks/WLAN)</p> <p>Frequency Band</p> <table border="0"> <tr> <td>802.11b/g/n</td> <td>2.402 - 2.482 GHz</td> </tr> <tr> <td>802.11a/n</td> <td>4.9 - 4.95 GHz (Japan)</td> </tr> <tr> <td></td> <td>5.15 - 5.25 GHz</td> </tr> <tr> <td></td> <td>5.25 - 5.35 GHz</td> </tr> <tr> <td></td> <td>5.47 - 5.725 GHz</td> </tr> <tr> <td></td> <td>5.825 - 5.850 GHz</td> </tr> </table> <p>Antenna Structure 2 transmit; 2 receive (2x2)</p> <p>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.</p> <p>Modulation Direct Sequence Spread Spectrum CCK, BPSK, QPSK, 16-QAM, 64-QAM</p> <p>Security¹</p> <ul style="list-style-type: none"> • 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 <p>Sub-channels Multinational support with frequency bands and channels compliant to local regulations.</p> <p>Network Architecture Models Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)</p>	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
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												

Technical Specifications

Roaming	IEEE 802.11 compliant roaming between band Access Points	
Output Power²	<ul style="list-style-type: none"> • 2.4G: +13.5dBm minimum • 5G: +12dBm minimum 	
Power Consumption	Transmit: 2.0 Watts Receive: 1.6 Watts 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 Sensitivity⁴	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	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 Amber - Radio OFF; Solid LED On - Radio ON	
	<ol style="list-style-type: none"> 1. Check latest software/driver release for updates on supported security features. 2. Maximum output power may vary by country according to local regulations. 3. 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. 	
	* Wireless access point and internet service required. Availability of public wireless access points limited.	
Intel Dual Band Wireless-N 7260AN 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

Technical Specifications

	Cisco Compatible Extensions Program compliant with Microsoft Windows 7, Windows Vista and XP (details at: 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	
Security¹	<ul style="list-style-type: none"> • 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 	
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 Power²	<ul style="list-style-type: none"> • 2.4G: +13.5dBm minimum • 5G: +12dBm minimum 	
Power Consumption	Transmit: 2.0 Watts Receive: 1.6 Watts 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 Sensitivity⁴	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)	

Technical Specifications

	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	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
	<ol style="list-style-type: none"> 1. Check latest software/driver release for updates on supported security features. 2. Maximum output power may vary by country according to local regulations. 3. 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
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,

Technical Specifications

Certifications	including Standby, Hold, Park, and Sniff 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.
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
	Frequency Band 802.11b/g/n <ul style="list-style-type: none"> • 2.402 - 2.482 GHz 802.11a/n <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • 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)

Technical Specifications

Modulation	Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM
Security¹	<ul style="list-style-type: none"> • 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
Network Architecture Models	Network Architecture Models
Roaming	IEEE 802.11 compliant roaming between access points
Output Power²	<ul style="list-style-type: none"> • 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 Sensitivity³	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 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

Technical Specifications

1. Check latest software/driver release for updates on supported security features.
 2. Maximum output power may vary by country according to local regulations.
- 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 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)

Technical Specifications

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**

AUDIO/MULTIMEDIA - DTS SOUND+

Hardware	Implementation	IDT 92HD91	
	Function Key	Volume up, volume down, and mute	
	Volume Controls		
	Full Duplex	Yes	
	Microphone In	Stereo	
	Headphone/Line Out	Stereo	
	Integrated Microphone	Yes, dual digital microphone array when equipped with optional webcam	
	Audio Output Quality	Frequency Response	20 Hz - 20 kHz
		Signal to Noise Ratio	>85 dB
		Total Harmonic Distortion	0.01%
Noise Floor		-110 dB	
Play/Record Sampling Rate(s)		8 kHz - 48kHz	
DAC		16, 20 or 24-bit	
ADC		16 or 20-bit	
Integrated Stereo Speakers	Power Rating	2 Watts	
	Impedance	4 Ohms	

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	Input	90 to 265 VAC	
		Input Efficiency	87% min at 115 VAC	
		Input frequency range	47 to 63 Hz	
	Output	Input AC current	1.4 A at 90 VAC and maximum load	
		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			

Technical Specifications

		- 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	4.98 x 1.97 x 1.18 in (12.65 x 5.0 x 3.0 cm)	
	Weight	0.62 lb (290 g) max	
	Input		90 to 265 VAC
		Input Efficiency	87% min at 115 VAC
	Output	Input frequency range	47 to 63 Hz
		Input AC current	1.7 A at 90 VAC
		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)
		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°C ambient condition.		
HP 65W Smart AC Adapter	Dimensions	4.17 x 1.85 x 1.1 in (10.6 x 4.7 x 2.8 cm)	
	Weight	0.62 lb (280 g)	
	Input		100 to 240 VAC
		Input Efficiency	87% min at 115 VAC
	Output	Input frequency range	47 to 63 Hz
		Input AC current	1.7 A at 90 VAC, 0.85 A at 180 VAC
		Output power	65W
		DC output	18.5V
		Hold-up time	5 msec at 115 VAC input
		Output current limit	<11A, Over voltage protection- 29V max automatic shutdown
		Connector	3 pin/grounded, mates with interchangeable cords
	Environmental Design	Operating temperature	32° to 104° F (0° to 40° C)
		Non-operating (storage) temperature	-4° to 149° F (-20° to 65° C)
Altitude		0 to 10,000 ft (0 to 3,048 m)	
Humidity		20% to 80%	
Storage Humidity		10% to 90%	
EMI and Safety Certifications	CE Mark - full compliance with LVD and EMC directives; Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals		

Technical Specifications

- C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE; MTBF - over 200,000 hours at 25°C ambient condition.

COUNTRY OF ORIGIN

TBD

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)	H2T13AA
	HP Professional Slim Top Load Case	H4J91AA
	HP Professional Series Backpack	H4J93AA
	HP Deluxe 4 Wheel Roller	XW576AA
Docking	HP Display and Notebook Stand	AW662AA
	HP Dual Hinge Notebook Stand	AW661AA
	HP Adjustable Dual Display Stand	AW664AA
	HP UltraSlim Side Docking Station	TBD#xxx
	HP 2005pr USB 2.0 Port Replicator	H1L07AA#xxx
	HP 3005pr USB 3.0 Port Replicator	H1L08AA#xxx
Input/Output – Mice	HP 2.4 GHz Wireless Optical Mobile Mouse	LX732AA
	HP Wireless Mobile Mouse	H2L63AA
	USB Keyboard & Mouse Bundle	RC465AA#xxx
	HP Stylish USB Keyboard and Mouse	H4B80AA
Adapters	HP Smart 65W Travel AC Adapter	AU155AA#xxx
	HP 65W Slim Adapter	AX727AA#xxx
	HP 90W Smart AC/Auto/Air Combo Adapter	AJ652AA#xxx
Storage - External Storage	HP Mobile USB DVDRW	A2U57AA
Batteries	HP BT04XL Long Life Notebook Battery	H4Q47AA
	HP BA06XL Long Life Notebook Battery	H4Q48AA
Health and Education	HP 20-Notebook Managed Charging Cart	QL489AA
	HP 20-Notebook Charging Cart	QL488AA
	HP 30-Notebook Managed Charging Cart	QL490AA
Security	HP UltraSlim Keyed Cable Lock	H4D73AA

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