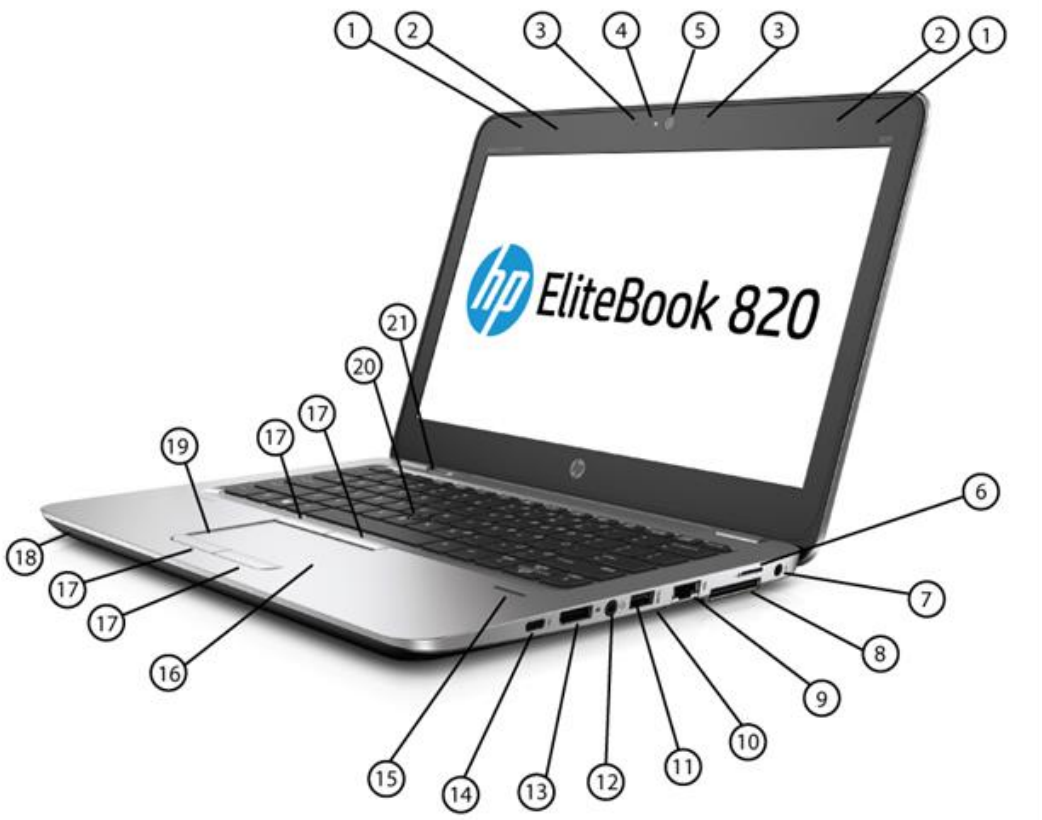
Overview

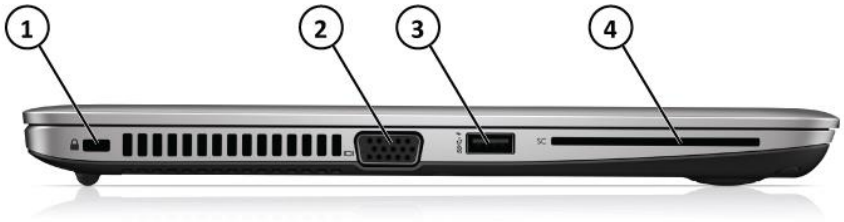
HP EliteBook 820 G4 Notebook PC



Front / Right

1. WLAN antennas (2)
2. WWAN antennas (2)
3. Internal microphones (2)
4. Webcam LED (select models)
5. Webcam (select models)
6. SIM card slot
7. Power connector
8. Docking connector
13. DisplayPort™ 1.2
14. USB-C™ port
15. Fingerprint reader (select models)
16. NFC (select models)
17. Touchpad buttons (4)
18. Indicator LEDs: Wireless Light, Power Light, AC Adapter/Battery Light, Storage Usage Light
19. Touchpad
20. Pointstick

Overview



Left

1. Security lock slot
2. VGA port
3. USB 3.1 Gen 1 Charging port
4. Smart Card Reader

Overview

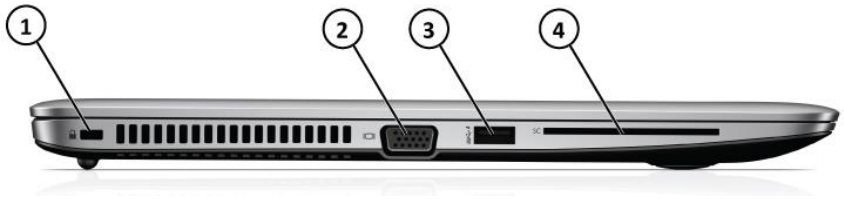
HP EliteBook 840 G4 Notebook PC



Front / Right

1. WLAN antennas (2)
2. WWAN antennas (2)
3. Internal microphones (2)
4. Webcam LED (select models)
5. Webcam (select models)
6. Wireless on/off button
7. Speaker mute button
8. SIM card slot
9. Power connector
10. Docking connector
11. Ethernet port
12. USB 3.1 Gen 1 port
13. Microphone/ headphones combo jack
14. SD card slot
15. DisplayPort™ 1.2
16. USB-C™ port
17. Fingerprint reader (select models)
18. NFC (select models)
19. Touchpad buttons (4)
20. Indicator LEDs: Wireless Light, Power Light, AC Adapter/Battery Light, Storage Usage Light
21. Touchpad
22. Pointstick
23. Power button

Overview



Left

1. Security lock slot
2. VGA port
3. USB 3.1 Gen 1 Charging port
4. Smart Card Reader

Overview

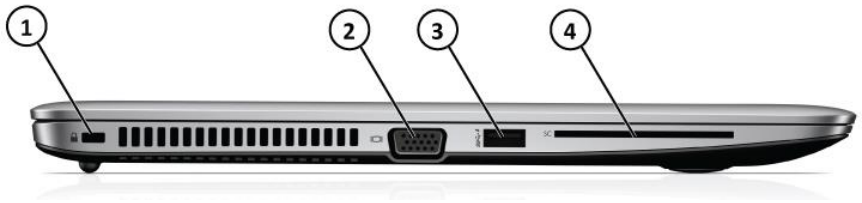
HP EliteBook 850 G4 Notebook PC



Front / Right

1. WLAN antennas (2)
2. WWAN antennas (2)
3. Internal microphones (2)
4. Webcam LED (select models)
5. Webcam (select models)
6. Wireless on/off button
7. Speaker mute button
8. SIM card slot
9. Power connector
10. Docking connector
11. Ethernet port
12. USB 3.1 Gen 1 port
13. SD card slot
14. Microphone/ headphones combo jack
15. DisplayPort™ 1.2
16. USB-C™ port
17. Fingerprint reader (select models)
18. NFC (select models)
19. Touchpad buttons (4)
20. Indicator LEDs: Wireless Light, Power Light, AC Adapter/Battery Light, Storage Usage Light
21. Touchpad
22. Pointstick
23. Power button

Overview



Left

1. Security lock slot
2. VGA port
3. USB 3.1 Gen 1 Charging port
4. Smart Card Reader

Overview

AT A GLANCE

- Stylish magnesium and aluminum chassis provides optimal durability with minimal weight
- Thin design but no adapters are needed with built-in VGA, drop-jaw RJ-45 Ethernet port, USB 3.1 Gen 1 Ports, USB Type-C™, and full-size DisplayPort™ 1.2 for high resolution support
- Design allows memory, storage, wireless modules, and battery to be customer serviceable and upgradeable
- Choice of 7th generation Intel® Core™ i7, i5 and i3 processors
- Integrated Intel® HD Graphics 620 or AMD Radeon™ R7 M465 discrete graphics (HP EliteBook 850 option only)
- Optimize your audio experience for conference calls and remote collaboration with optional HD webcam, dual-array microphones, premium speakers, HP Noise Cancellation Software, HP Audio Boost, and audio custom-tuned by HP and Bang & Olufsen
- Featuring HP Premium Keyboard with Pointstick and 10-key numeric keypad available on HP EliteBook 850
- Optional back-lit keyboard keeps you productive in all settings with HP DuraKeys to help protect keys from fading
- Passed MIL-SPEC 810G testing, plus an additional 120,000 hours of reliability testing through HP's Total Test Process[1]
- Enhanced security features including TPM2.0, SmartCard Reader, HP Sure Start self-healing BIOS, HP Client Security, Self-Encrypting storage drives, and optional Fingerprint reader
- HP Touchpoint Manager[3], HP Image Assistant and HP Management Integration Kit provide additional tools for more efficient manageability
- LED-backlit displays:
  - HP EliteBook 820: 31.75 cm (12.5") diagonal HD, FHD Non-Touch or FHD Touch
  - HP EliteBook 840: 35.56 cm (14") diagonal HD, FHD, QHD Non-Touch or FHD Touch
  - HP EliteBook 850: 39.6 cm (15.6") diagonal HD, FHD, UHD Non-Touch or FHD Touch
- Flexible wireless connectivity options including 4G LTE mobile broadband
- Easily dock with the optional HP UltraSlim Docking Station
- Choice of hard drives up to 1 TB and solid state drives up to 512 GB
- DDR4 memory up to 32 GB
- Preinstall Windows 10, FreeDOS 2.0 or NeoKylin Linux 64 versions
- Supports fast charging (50% in 30 minutes) with no impact on battery recharge cycles[2]
- UEFI 2.5 specification version

1. MIL STD 810G testing is not intended to demonstrate fitness for Department of Defense contracts requirements or for military use. Test results are not a guarantee of future performance under these test conditions. Damage under the MIL STD test conditions or any accidental damage requires an optional HP Accidental Damage Protection Care Pack.

2. Recharges your battery up to 50% within 30 minutes when the system is off or in standby mode. Power adapter with a minimum capacity of 65 watts is required. After charging has reached 50% capacity, charging will return to normal. Charging time may vary +/-10% due to System tolerance.

3. HP Touchpoint Manager requires purchase of a subscription and supports Android™, iOS and Windows 7 or higher operating systems and PCs, notebooks, tablets and smartphones from various manufacturers. Not available in all countries see http://www.hp.com/touchpoint for availability information.

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

Technical Specifications

PRODUCT NAMES

HP EliteBook 820 G4 Notebook PC
HP EliteBook 840 G4 Notebook PC
HP EliteBook 850 G4 Notebook PC

OPERATING SYSTEM

Preinstalled

Windows 10 Pro 64[1]
Windows 10 Home 64[1]
FreeDOS 2.0
NeoKylin Linux 64

Web Supported

Windows 10 Enterprise 64[1]

Note: In accordance with Microsoft's support policy, HP does not support the Windows 8 or Windows 7 operating system on products configured with Intel and AMD 7th generation and forward processors or provide any Windows 8 or Windows 7 drivers on http://www.support.hp.com.

1. Not all features are available in all editions or versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers, software or BIOS update to take full advantage of Windows functionality. Windows 10 is automatically updated, which is always enabled. ISP fees may apply and additional requirements may apply over time for updates. See http://www.windows.com.

PROCESSOR

Intel® Core™ i7-7600U (2.8 GHz, up to 3.9 GHz with Intel Turbo Boost Technology, 4 MB cache, 2 cores)[1]
Intel® Core™ i7-7500U (2.7 GHz, up to 3.5 GHz with Intel Turbo Boost Technology, 4 MB cache, 2 cores)[1,2]
Intel® Core™ i5-7300U (2.6 GHz, up to 3.5 GHz with Intel Turbo Boost Technology, 3 MB cache, 2 cores)[1]
Intel® Core™ i5-7200U (2.5 GHz, up to 3.1 GHz with Intel Turbo Boost Technology, 3 MB cache, 2 cores)[1,2]
Intel® Core™ i3-7100U (2.4 GHz, 3 MB cache, 2 cores)[1,2]

Processors Family
7th Generation Intel® Core™ i3 processor (i3-7100 model)
7th Generation Intel® Core™ i5 processor (i5-7300, i5-7200 models)
7th Generation Intel® Core™ i7 processor (i7-7500, i7-7600 models)

Note: In accordance with Microsoft's support policy, HP does not support the Windows 8 or Windows 7 operating system on products configured with Intel and AMD 7th generation and forward processors or provide any Windows 8 or Windows 7 drivers on http://www.support.hp.com.

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

1. Multicore is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. Performance and clock frequency will vary depending on application workload and your hardware and software configurations. Intel's numbering is not a measurement of higher performance.

2. Not available with Intel iAMT (Not available with vPro™)

CHIPSET

Chipset integrated with processor

INTEL® CORE I5 WITH VPRO/CORE I7 WITH VPRO TECHNOLOGY CAPABLE

Intel® Core™ i5 with vPro™ and Intel® Core® i7 with vPro™ technology is a selectable feature that is available on units configured with select processors, on select Intel® Wireless WLAN module and a preinstalled Windows operating system.

1. 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 this technology, such as Intel® Active management technology and Intel Virtualization technology, requires additional 3rd party software in order to run. Availability of future "virtual appliances" applications for Intel vPro technology is dependent on 3rd party software providers. Microsoft Windows required.

GRAPHICS

Integrated
Intel® HD Graphics 620

Discrete
AMD Radeon™ R7 M465
2 GB GDDR5 dedicated
(HP EliteBook 850 only)

DISPLAY

HP EliteBook 820
Internal
Non-Touch
31.75 cm (12.5") diagonal HD SVA anti-glare slim LED-backlit non-touch (1366 x 768)
31.75 cm (12.5") diagonal HD SVA anti-glare slim LED-backlit non-touch with camera (1366 x 768)
31.75 cm (12.5") diagonal FHD UWVA anti-glare ultra-slim LED-backlit non-touch (1920 x 1080)
31.75 cm (12.5") diagonal FHD UWVA anti-glare ultra-slim LED-backlit non-touch with camera (1920 x 1080)
Touch
31.75 cm (12.5") diagonal FHD UWVA ultra slim with camera, Corning® Gorilla® Glass 4 LED-backlit touch screen (1920 x 1080)

HP EliteBook 840

Technical Specifications

Internal
Non-Touch
35.56 cm (14”) diagonal HD SVA anti-glare slim LED-backlit non-touch (1366 x 768)
35.56 cm (14”) diagonal HD SVA anti-glare slim LED-backlit non-touch with camera (1366 x 768)
35.56 cm (14”) diagonal FHD SVA anti-glare slim LED-backlit non-touch (1920 x 1080)
35.56 cm (14”) diagonal FHD SVA anti-glare slim LED-backlit non-touch with camera (1920 x 1080)
35.56 cm (14”) diagonal FHD UWVA anti-glare slim LED-backlit non-touch (1920 x 1080)
35.56 cm (14”) diagonal FHD UWVA anti-glare slim LED-backlit non-touch with camera (1920 x 1080)
35.56 cm (14”) diagonal QHD UWVA anti-glare ultraSlim LED-backlit non-touch (2560 x 1440)
35.56 cm (14”) diagonal QHD UWVA anti-glare ultraSlim LED-backlit non-touch with camera (2560 x 1440)

HP Sure View integrated privacy screen 35.56 cm (14”) diagonal FHD SVA anti-glare slim LED-backlit non-touch with camera (1920 x 1080) (Must be configured at purchase.)
Touch
35.56 cm (14") diagonal FHD SVA slim with camera, Corning® Gorilla® Glass 4 LED-backlit touch screen (1920 x 1080)

HP EliteBook 850
Internal
Non-Touch
39.6 cm (15.6”) diagonal HD SVA anti-glare slim LED-backlit non-touch (1366 x 768)
39.6 cm (15.6”) diagonal HD SVA anti-glare slim LED-backlit non-touch with camera (1366 x 768)
39.6 cm (15.6”) diagonal FHD SVA anti-glare slim LED-backlit non-touch (1920 x 1080)
39.6 cm (15.6”) diagonal FHD SVA anti-glare slim LED-backlit non-touch with camera (1920 x 1080)
39.6 cm (15.6”) diagonal FHD UWVA anti-glare slim LED-backlit non-touch (1920 x 1080)
39.6 cm (15.6”) diagonal FHD UWVA anti-glare slim LED-backlit non-touch with camera (1920 x 1080)
39.6 cm (15.6”) diagonal UHD UWVA anti-glare slim LED-backlit non-touch (3840 x 2160)
39.6 cm (15.6”) diagonal UHD UWVA anti-glare slim LED-backlit non-touch with camera (3840x 2160)
Touch
39.6 cm (15.6") diagonal FHD SVA slim with camera, Corning® Gorilla® Glass 4 LED-backlit touch screen (1920 x 1080)

VGA
Port supports resolutions up to 1920 x 1200 external resolution @60 Hz

DisplayPort™ 1.2
Supports resolutions up to 4096 x 2304 @ 60Hz
Resolutions are dependent upon monitor capability, and resolution and color depth settings.

Displays support
Supports dual display through the dock
Supports 3 independent displays if used with optional HP UltraSlim Docking Station.[2]

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

1. HD content required to view HD images.
2. Sold separately or as an optional feature.

STORAGE AND DRIVES

SATA, 7 mm 2.5" Hard Drives
500 GB 7200 rpm Hard Drive
500 GB 7200 rpm Self-Encrypting Hard Drive (Opal 2)
500 GB 7200 rpm Self-Encrypting Hard Drive FIPS-140-2
500 GB Hybrid 8 GB Cache
1 TB 5400 rpm Hard Drive

M.2 (NGFF) 2280 Solid State Drives
128 GB SATA-3 Value Solid State Drive
128 GB SATA-3 TLC Solid State Drive
256 GB PCIe Gen3x4 NVMe TLC Solid State Drive
256 GB PCIe Gen3x4 NVMe Value Solid State Drive
256 GB SATA-3 TLC Self-Encrypting Solid State Drive (Opal 2)
360 GB PCIe Gen3x4 NVMe TLC Solid State Drive
512 GB PCIe Gen3x4 NVMe Value Solid State Drive
512 GB PCIe Gen3x4 NVMe TLC Solid State Drive
512 GB PCIe Gen3x4 NVMe MLC Solid State Drive
512 GB PCIe Gen 3x4 NVMe TLC Self-Encrypting Solid State Drive (Opal 2)
512 GB SATA-3 TLC Solid State Drive FIPS-140-2
1 TB PCIe Gen 3x4 NVMe TLC Solid State Drive

NOTE: For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 30GB of system disk is reserved for system recovery software.

HP 3D DriveGuard (Windows and Hard Drives only)
The hard drive is mounted directly to the notebook frame, reducing the transmission of shock to the hard drive

Dual Drive Configuration
HP EliteBook 840 & 850 can be configured with a hard drive and M.2 SSD drive.

MEMORY

Supports the following configurations
DDR4 – 2400/2666 SDRAM (Transfer rates up to 2133 MT/s)
Two SODIMM slots supporting dual-channel memory
Both slots are customer accessible / upgradeable

Standard
4096 MB Total System Memory (4096 MB x 1)
8192 MB Total System Memory (4096 MB x 2)
8192 MB Total System Memory (8192 MB x 1)
16384 MB Total System Memory 16384 MB x 1)
16384 MB Total System Memory (8192 MB x 2)
32768 MB Total System Memory (16384 MB x 2)

Maximum Memory
Up to 32 GB

Dual-channel

Maximized dual-channel performance requires SODIMMs of the same size and speed in both memory slots.

NOTE: Improved system performance when memory is added in pairs (dual channel).
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.

NETWORKING/COMMUNICATIONS

Wireless
Support for a broad range of secure, integrated wireless LAN and wireless WAN options featuring support for the latest industry standards. Optional Broadband Wireless (WWAN) requires a Windows operating system and is available in select countries as a standard, factory configurable feature only. Integrated Bluetooth® is also available with any of the supported wireless LAN and wireless WAN options.

Broadband Wireless (WWAN) Via M.2 Minicard
HP lt4120 Qualcomm® Snapdragon™ X5 LTE Mobile Broadband Module [1]
HP lt4132 LTE/HSPA+ 4G Mobile Broadband Module[1]
HP hs3210 WW HSPA+ with GPS Mobile Broadband[1]

Note: The HP EliteBook 850 G4 UHD panel is not compatible with WWAN.

Wireless LAN (WLAN) Via M.2 Minicard
Intel® Dual Band Wireless-AC 8265 802.11 a/b/g/n/ac (2x2) WiFi and Bluetooth® 4.2 combo (vPro and non-vPro) [2]
Intel® Dual Band Wireless-AC 3168 802.11 a/b/g/n/ac (1x1) WiFi and Bluetooth® 4.2 combo (non-vPro) [2]

Near Field Communication (NFC)[1]
HP Module with NXP NFC Controller NPC100 I2C NCI

Support for Miracast

1. Sold separately or as an optional feature.
2. Wireless access point and Internet service is required and is not included.
   Availability of public wireless access points limited.
3. WWAN module 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, in all regions.

Communications
Intel® Ethernet Connection I219-V 10/100/1000 Ethernet (With Intel® i3-7100U, i5-7200U, and i7-7500U)
Intel® Ethernet Connection I219-LM 10/100/1000 Ethernet (With Intel® i5-7300U and i7-7600U)

NOTE: 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
Audio by Bang & Olufsen

HP Audio Boost
HP Noise Cancellation Software
Digital Microphones (Dual Array)
2 Premium Stereo Speakers

Webcam
Optional[1] 720p HD[2] webcam[3]

1. Sold separately or as an optional feature.
2. HD content required to view HD images.
3. Internet access required.

KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

Keyboard
HP Premium Keyboard
The HP Premium, spill-resistant keyboard with drain is designed using a thin layer of Mylar film under the keyboard and includes an all-metal keyboard deck for greater rigidity. Backlit keyboard with HP DuraKeys is available as an option.

The 820 has 79/80-key, 840 has 85-86-key, the 850 has 100/101-key compatible keyboard and features a full-pitch key layout with desktop keyboard features, such as editing keys, both left and right control
and alt keys, and function keys.
US and International key layouts are available.

Pointing Devices
Glass Touchpad
On/Off button
Taps enabled as default
Gestures enabled by default - 2 Finger Scrolling, 2 Finger Zoom (Pinch)

Function Keys
HP EliteBook 820
F1 - Sleep
F2 - Blank
F3 - Backlit Keyboard Toggle
F4 - Display Switching
F5 - Brightness Down
F6 - Brightness Up
F7 - Audio Mute
F8 - Volume Down
F9 - Volume Up
F10 - Mic Mute
F11 - Wireless
F12 - Num Lock

Hidden Function Keys
Fn+R - Break
Fn+S - Sys Rq

Fn+C - Scroll Lock

HP EliteBook 840
F1 - Sleep
F2 - Blank (Privacy Key for configurations with HP Sure View integrated privacy screen)
F3 - Backlit Keyboard Toggle
F4 - Display Switching
F5 - Brightness Down
F6 - Brightness Up
F7 - Blank
F8 - Volume Down
F9 - Volume Up
F10 - Mic Mute
F11 - Blank
F12 - Num Lock

Hidden Function Keys
Fn+R - Break
Fn+S - Sys Rq
Fn+C - Scroll Lock

HP EliteBook 850
F1 - Sleep
F2 - Blank
F3 - Backlit Keyboard Toggle
F4 - Display Switching
F5 - Brightness Down
F6 - Brightness Up
F7 - Blank
F8 - Volume Down
F9 - Volume Up
F10 - Mic Mute
F11 - Blank
F12 - Blank

Hidden Function Keys
Fn+R - Break
Fn+S - Sys Rq
Fn+C - Scroll Lock

SOFTWARE AND SECURITY

Preinstalled Software
BIOS

HP BIOSphere[1]
HP Sure Start Gen3[10]
HP DriveLock | HP Automatic DriveLock
BIOS Update via Network

Master Boot Record Security
Power On Authentication
Secure Erase[2]
Pre-boot Authentication

Communication/Connectivity

HP Mobile Connect Pro (Windows 10 only)[3]
Native Miracast Support[4]
HP LAN-WLAN Protection
HP MAC Address Manager
HP Wireless Wakeup

HP Value Add Software

HP 3D DriveGuard (requires Windows)
HP ePrint Driver +JetAdvantage[5]
HP Hotkey Support
HP Recovery Manager
HP Jumpstart
HP Support Assistant
HP Noise Cancellation Software

Microsoft Products

Buy Office
Bing Search
Skype[6]

Manageability

HP Driver Packs[7]
HP SoftPaq Download Manager (SDM)
HP System Software Manager (SSM)[7]
HP BIOS Config Utility (BCU)[7]
HP Client Catalog[7]
HP MIK for Microsoft SCCM[7]
HP Image Assistant[7]
LANDESK Management[8]

For more information on HP Client Management Solutions refer to: http://www.hp.com/go/clientmanagement.

Client Security Software

HP Client Security

- HP Security Manager (including Credential Manager and Password Manager)

- HP Drive Lock
- HP Fingerprint Sensor
- HP Password Manager
- Absolute Persistence Module[9]
- Power On Authentication
- HP Device Access Manager

Microsoft Defender

Security

Trusted Platform Module (TPM) 2.0 (Infineon SLB9670). Common Criteria EAL4+ Certified.

Convertible to FIPS 140-2 Certified mode. (TPM 2.0 is not available for Win 7 32-bit.)

Fingerprint Reader (On select models)

For more information on HP Client Security Software Suite, refer to http://www.hp.com/go/clientsecurity.

1. Available only on business PCs with HP BIOS. HP BIOSphere features may vary depending on the PC platform & configuration.
2. For the methods outlined in the National Institute of Standards and Technology Special Publication 800-88.
3. HP Mobile Connect Pro is only available on preconfigured devices with WWAN. For geographic availability refer to http://www.hp.com/go/mobileconnect
4. Miracast is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming media players that also support Miracast. You can use Miracast to share what you're doing on your PC and present a slide show. For more information: http://windows.microsoft.com/en-us/windows-8/project-wireless-screen-miracast
5. 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.
6. Skype is not offered in China.
7. Not preinstalled, however available for download in December 2015 at http://www.hp.com/go/clientmanagement
8. Subscription required.
9. Absolute agent is shipped turned off, and will be activated when customers activate a purchased subscription. Subscriptions can be purchased for terms ranging multiple years. Service is limited, check with Absolute for availability outside the U.S. The Absolute Recovery Guarantee is a limited warranty. Certain conditions apply. For full details visit: https://www.absolute.com/en/about/legal/agreements/absolute. Data Delete is an optional service provided by Absolute Software. If utilized, the Recovery Guarantee is null and void. In order to use the Data Delete service, customers must first sign a Pre-Authorization Agreement and either obtain a PIN or purchase one or more RSA SecurID tokens from Absolute Software.
10. Available on HP EliteBook products equipped with Intel® 7th generation processors.

POWER

Power Supply[1]

HP 45W Smart AC Adapter

HP 45W 2-prong DC jack AC Adapter
HP 65W Smart AC Adapter[2]
HP 65W Smart AC Adapter EM[2]

1. Availability may vary by country.
2. Supports HP Fast Charging. Required for HP EliteBook 850 configured with optional discrete graphics.

Power cord is configurable; either 3.2 feet or 6 feet (1.0 or 1.8 meter)
Total length including external AC adapter is 9.2 feet or 12 feet (2.86 or 3.66 meter)

Battery
HP EliteBook 820
HP Long Life 3-cell, 49 WHr Li-ion polymer (Supports HP Fast Charging with 65W AC Adapter)

HP EliteBook 840 & 850
HP Long Life 3-cell, 51 WHr Li-ion polymer (Supports HP Fast Charging with 65W AC Adapter)

Battery Life[1]

Platform	Other HW Details	Battery	UMA Graphics	Discrete Graphics
HP EliteBook 820 G4	HDD	3-cell (49WHr)	Up to 11 hrs 15 mins	N/A
HP EliteBook 820 G4	SSD	3-cell (49WHr)	Up to 14 hrs 45 mins	N/A
HP EliteBook 840 G4	HDD	3-cell (51WHr)	Up to 12 hrs 15 mins	N/A
HP EliteBook 840 G4	SSD	3-cell (51WHr)	Up to 15 hrs 15 mins	N/A
HP EliteBook 850 G4	HDD	3-cell (51WHr)	Up to 12 hrs 15 mins	Up to 11 hrs 30 mins
HP EliteBook 850 G4	SSD	3-cell (51WHr)	Up to 14 hrs 15 mins	Up to 14 hrs 15 mins

1. Windows 10/MM14 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.

Power Conservation

Hibernation
Standby
ACPI compliance

WEIGHTS & DIMENSIONS

HP EliteBook 820
Weight[1]
Starting at 2.78 lbs (1.26 kg)
(3-cell battery (49WHr), UMA, no FPR, 1 SODIMM, WLAN, M.2 SSD, no camera, no WWAN, Non-Touch panel)
Starting at 3.05 lbs (1.38 kg)
(3-cell battery (49WHr), UMA, no FPR, 1 SODIMM, WLAN, M.2 SSD, no camera, no WWAN, Touch)

Dimensions[2] (w x d x h)
12.2 x 8.6 x 0.74 in (Front)
31 x 21.89 x 1.89 cm

HP EliteBook 840
Weight[1]
Starting at 3.27 lbs (1.48 kg)
(3-cell battery (51WHr), UMA, no FPR, 1 SODIMM, WLAN, M.2 SSD, no camera, no WWAN, Non-Touch panel)
Starting at 3.76 lbs (1.70 kg)
(3-cell battery (51WHr), UMA, no FPR, 1 SODIMM, WLAN, M.2 SSD, no camera, no WWAN, Touch)

Dimensions[2] (w x d x h)
13.3 x 9.3 x 0.74 in (Front)
33.8 x 23.7 x 1.89 cm

HP EliteBook 850
Weight[1]
Starting at 4.06 lbs (1.84 kg)
(3-cell battery (51WHr), UMA, no FPR, 1 SODIMM, WLAN, M.2 SSD, no camera, no WWAN, Non-Touch panel)

Starting at 4.54 lbs (2.06 kg)
(3-cell battery (51WHr), UMA, no FPR, 1 SODIMM, WLAN, M.2 SSD, no camera, no WWAN, Touch)

Dimensions[2] (w x d x h)
15.10 x 10.10 x 0.76 in (Front)
38.36 x 25.77 x1.94 cm

1. Weight varies by configuration and components.
2. Height varies depending upon where on the notebook the measurement is made.

PORTS/SLOTS

Technical Specifications

Ports

1 USB 3.1 Gen 1 Charging Port
1 USB 3.1 Gen 1 Port
1 USB-C™ port (Up to 5 Gbps data transfer and 15W power)
1 DisplayPort™ 1.2
1 VGA
1 RJ-45 / Ethernet
1 Docking connector
1 Headphone/Microphone Combo
1 AC Port

NOTE: Cables are not included.

Slots

SD Media Card Reader Slot
Supports SD, SDHC, SDXC

SERVICE AND SUPPORT

Limited 3-year or 1-year limited warranty options available, depending on country. Batteries have a default one year limited warranty except for Long Life batteries which will have same 1-year or 3-year limited warranty as the platform.Optional HP Care Pack Services[1] are extended service contracts which go beyond your standard limited warranties.

1. HP Care Packs are sold separately. 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 www.hp.com/go/cpc. HP services are governed by the applicable HP terms and conditions of service provided or indicated to Customer at the time of purchase. Customer may have additional statutory rights according to applicable local laws, and such rights are not in any way affected by the HP terms and conditions of service or the HP Limited Warranty provided with your HP Product.

Technical Specifications

SYSTEM UNIT

Stand-Alone Power Requirements (AC Power)	**Nominal Operating Voltage**	19.5 V
	Average Operating Power	**Windows 10 (64-bit)**
	Integrated graphics	12.9 W
	Max Operating Power	Discrete < 90W UMA < 65W
Temperature	**Operating**	32° to 95° F (0° to 35° C) (not writing optical)
		41° to 95° F (5° to 35° C) (writing optical)
	Non-operating	-4° to 140° F (-20° to 60° C)
Relative Humidity		10% to 90%, non-condensing
		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 15,000 ft (-15.24 to 12,192 m)
Planned Industry Standard	**UL**	Yes
Certifications	**CSA**	Yes
	FCC Compliance	Yes
	ENERGY STAR®	Select models*
	EPEAT®	Registered Gold in United States**
	ICES	Yes

Australia / NZ RCM Compliance	Yes
CCC	Yes
Japan VCCI Compliance	Yes
KC	Yes
BSMI	Yes
CE Marking Compliance	Yes
CIT	Yes
EAC	Yes
Saudi Arabian Compliance (SASO)	Yes
SABS	Yes
UKRSERTCOMPUTER	Yes

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

Displays

Note: All specifications represent the typical specifications provided by HP's component manufacturers; actual performance may vary either higher or lower.

31.75 cm (12.5") diagonal LED backlight HD Slim eDP SVA Anti-glare non-touch (1366 x 768)	**Outline Dimensions** (W x H x D)	291.0 x 181.9 X 3.0 mm (max)
	Active Area	276.62 mm x 155.52 mm
	Weight	250g max
	Diagonal Size	31.75 cm (12.5")
	Surface Treatment	AG
	Contrast Ratio	300:1 (typ)

Technical Specifications

	Refresh Rate	60Hz	
	Response time	16ms typ.	
	Pixel Per Inch (PPI)	125	
	Brightness	220nits	
	Pixel Resolution	**Format**	1366 x 768 (HD)
		Configuration	RGB
	Interface	eDP 1.2	
	LCD Mode	TN	
	Viewing Angle	SVA 45/45/25/35	
31.75 cm (12.5”) diagonal LED backlight FHD UltraSlim eDP UWVA Anti-glare non-touch (1920 x 1080)	**Outline Dimensions** (W x H x D)	282.7 x 179.82 x 2.3 (mm) max	
	Active Area	276.48 x 155.52 mm	
	Weight	170g max	
	Diagonal Size	31.75 cm (12.5”)	
	Surface Treatment	AG	
	Contrast Ratio	600:1 (typ)	
	Refresh Rate	60Hz	
	Response time	25ms typ.	
	Pixel Per Inch (PPI)	176	
	Brightness	300nits	
	Pixel Resolution	**Format**	1920 x 1080 (FHD)
		Configuration	RGB
	Interface	eDP 1.3 + PSR	
	LCD Mode	IPS/FFS/VA	
	Viewing Angle	UWVA 85/85/85/85	
31.75 cm (12.5”) diagonal LED backlight FHD UltraSlim eDP UWVA (1920 x 1080) Touch	**Outline Dimensions** (W x H x D)	282.7 x 179.82 x 2.3 (mm) max	
	Active Area	276.48 x 155.52 mm	
	Weight	310g max	
	Diagonal Size	31.75 cm (12.5”)	
	Touch Enabled	Yes	
	TSP Type	Capacitive	
	Surface Treatment	Anti-smudge/fingerprint coating	
	Contrast Ratio	600:1 (typ)	
	Refresh Rate	60Hz	
	Response time	25ms typ.	
	Pixel Per Inch (PPI)	176	
	Brightness	300nits	

Technical Specifications

	Pixel Resolution	**Format**	1920 x 1080 (FHD)
		Configuration	RGB
	Interface	eDP 1.3 + PSR	
	LCD Mode	IPS/FFS/VA	
	Viewing Angle	UWVA 85/85/85/85	
35.56 cm (14") diagonal LED backlight HD Slim eDP SVA Anti-glare non-touch (1366 x 768)	**Outline Dimensions** (W x H x D)	320.9 x 205.6 (max) x 3.0mm max	
	Active Area	309.4 x 173.95 (mm)	
	Weight	290 g max	
	Diagonal Size	35.56 cm (14")	
	Surface Treatment	Anti-Glare (AG)	
	Contrast Ratio	300:1 (typ)	
	Refresh Rate	60Hz	
	Response time	16ms typ.	
	Pixel Per Inch (PPI)	112	
	Brightness	220nits	
	Pixel Resolution	**Format**	1366 x 768 (HD)
		Configuration	RGB
	Interface	eDP 1.2	
	LCD Mode	TN	
	Viewing Angle	SVA 45/45/25/35	
35.56 cm (14") diagonal LED backlight FHD Slim eDP SVA Anti-glare non-touch (1920 x 1080)	**Outline Dimensions** (W x H x D)	320.9 x 205.6 (max) x 3.0(max) mm	
	Active Area	309.40 x 173.95 (mm)	
	Weight	270 g max	
	Diagonal Size	14"	
	Surface Treatment	Anti-Glare (AG)	
	Contrast Ratio	300:1 (typ)	
	Refresh Rate	60Hz	
	Response time	16ms typ.	
	Pixel Per Inch (PPI)	157	
	Brightness	300nits	
	Pixel Resolution	**Format**	1920 x 1080 (FHD)
		Configuration	RGB
	Interface	eDP 1.2	

Technical Specifications

	LCD Mode	TN	
	Viewing Angle	SVA 45/45/25/35	
35.56 cm (14”) diagonal LED backlight FHD Slim eDP UWVA Anti-glare non-touch (1920 x 1080)	**Outline Dimensions** (W x H x D)	320.9 x 205.6 x 3.0 (mm) max	
	Active Area	309.14 x 173.89 (mm)	
	Weight	285 g max	
	Diagonal Size	35.56 cm (14”)	
	Surface Treatment	Anti-Glare (AG)	
	Contrast Ratio	600:1 (typ)	
	Refresh Rate	60 Hz	
	Response time	35 ms (typ)	
	Pixel Per Inch (PPI)	157	
	Brightness	300 nits	
	Pixel Resolution	**Format**	1366 x 768 (HD)
		Configuration	RGB
	Interface	eDP 1.3	
	LCD Mode	IPS	
	Viewing Angle	UWVA 85/85/85/85	
35.56 cm (14”) diagonal LED backlight QHD UltraSlim eDP UWVA Anti-glare non-touch (2560 x 1440)	**Outline Dimensions (W x H x D)**	320.9 x 205.6 (mm) max x 2.6 (mm) max	
	Active Area	309.50 x 174.10 (mm)	
	Weight	270g max	
	Diagonal Size	35.56 cm (14”)	
	Surface Treatment	Anti-Glare (AG)	
	Contrast Ratio	600:1 (typ.)	
	Refresh Rate	60Hz	
	Response time	30 ms typ.	
	Pixel Per Inch (PPI)	210	
	Brightness	340 nits	
	Pixel Resolution	**Format**	2560x1440 (QHD)
		Configuration	RGB
	Interface	eDP 1.3 + PSR	
	LCD Mode	IPS/FFS/VA	
	Viewing Angle	UWVA 85/85/85/85	

Technical Specifications

35.56 cm (14") diagonal LED backlight FHD Slim eDP SVA Anti-glare (1920 x 1080) Non-Touch Integrated Privacy Screen	**Outline Dimensions** (W x H x D)	320.9 x 205.6 (max) x 3.6 (max) mm	
	Active Area	309.14 x 173.89 mm	
	Weight	<305 g max	
	Diagonal Size	35.56 cm (14")	
	Surface Treatment	Anti-Glare (AG)	
	Contrast Ratio	200:1 (typ) - AG	
	Refresh Rate	60Hz	
	Response time	16ms typ.	
	Pixel Per Inch (PPI)	157	
	Brightness	Privacy 85nits typ. (system) Sharing 275nits typ. (system)	
	Pixel Resolution	**Format**	1920 x 1080 (FHD)
		Configuration	RGB Stripe
	Interface	eDP 1.2 (2 lane)	
	LCD Mode	TN	
	Viewing Angle	Sharing 45/45/15/30 (CR>10) Privacy 40/40/15/30 (CR>10)	

35.56 cm (14") diagonal LED backlight FHD Slim eDP SVA (1920 x 1080) Touch	**Outline Dimensions** (W x H x D)	320.9 x 205.6 (mm) max x 3.0 (mm) max	
	Active Area	309.40 x 173.95 (mm)	
	Weight	430 g max	
	Diagonal Size	14"	
	Surface Treatment	Anti-smudge/fingerprint coating	
	Touch Enabled	Yes	
	TSP Type	Capacitive	
	Contrast Ratio	300:1 (typ)	
	Refresh Rate	60 Hz	
	Response time	16ms typ.	
	Pixel Per Inch (PPI)	157	
	Brightness	300nits	
	Pixel Resolution	**Format**	1920 x 1080 (FHD)
		Configuration	RGB
	Interface	eDP 1.2	
	LCD Mode	TN	
	Viewing Angle	SVA 45/45/25/35	

39.6 cm (15.6") diagonal LED backlight HD Slim eDP SVA Anti-glare non-touch (1366 x 768)	**Outline Dimensions** (W x H x D)	360.0 x 224.3 x 3.2 (mm) max	
	Active Area	344.2 x 193.5 (mm)	
	Weight	370g max	
	Diagonal Size	39.6 cm (15.6")	
	Surface Treatment	Anti-Glare (AG)	
	Contrast Ratio	300:1 (typ)	
	Refresh Rate	60Hz	
	Response time	16ms typ.	
	Pixel Per Inch (PPI)	101	
	Brightness	220 nit typ	
	Pixel Resolution	**Format**	1366 x 768 (HD)
		Configuration	RGB
	Interface	eDP 1.2	
	LCD Mode	TN	
	Viewing Angle	SVA 45/45/25/35	
39.6 cm (15.6") diagonal LED backlight FHD Slim eDP SVA Anti-glare non-touch (1920 x 1080)	**Outline Dimensions** (W x H x D)	360.0 x 224.3 x 3.2 (mm) max	
	Active Area	344.2 x 193.5 (mm)	
	Weight	360 g max.	
	Diagonal Size	39.6 cm (15.6")	
	Surface Treatment	Anti-Glare (AG)	
	Contrast Ratio	400:1 (typ)	
	Refresh Rate	60Hz	
	Response time	16ms typ.	
	Pixel Per Inch (PPI)	142	
	Brightness	300nits	
	Pixel Resolution	**Format**	1920 x 1080 (FHD)
		Configuration	RGB
	Interface	eDP 1.2	
	LCD Mode	TN	
	Viewing Angle	SVA 45/45/25/35	
39.6 cm (15.6") diagonal LED backlight FHD Slim	**Outline Dimensions** (W x H x D)	360 x 224.3 x 3.2 (mm) max	

Technical Specifications

eDP UWVA Anti-glare non-touch (1920 x 1080)	**Active Area**	344.2 x 193.5 (mm)	
	Weight	360 g max	
	Diagonal Size	39.6 cm (15.6”)	
	Surface Treatment	Anti-Glare (AG)	
	Contrast Ratio	600:1 (typ)	
	Refresh Rate	60 Hz	
	Response time	35 ms (typ)	
	Pixel Per Inch (PPI)	142	
	Brightness	300 nits	
	Pixel Resolution	**Format**	1920 x 1080 (FHD)
		Configuration	RGB
	Interface	eDP 1.3 + PSR	
	LCD Mode	IPS	
	Viewing Angle	UWVA 85/85/85/85	
39.6 cm (15.6”) diagonal LED backlight UHD Slim eDP UWVA Anti-glare non-touch (3840 x 2160)	**Dimensions (W x H x D)**	368.48 x 218.81 x 3.14 (mm) max	
	Diagonal Size	15.6 in (39.6 cm)	
	Weight	345 g ~~(~~max~~)~~	
	Surface Treatment	Anti-glare (AG)	
	Contrast Ratio	1000:1 (typ)	
	Refresh Rate	60 Hz	
	Brightness	340 nit	
	Pixel Resolution		
		Format	3840x2160 (UHD)
		Configuration	RGB
	Backlight	LED	
	PPI	282	
	Viewing Angle	80° Horizontal, ±80° Vertical (minimum) 80/80/80/80 (Left/Right/Down/Up) (min) UWVA 85/85/85/85	
39.6 cm (15.6”) diagonal LED backlight FHD Slim eDP SVA (1920 x 1080) Touch	**Outline Dimensions** (W x H x D)	360.0 x 224.3 x 3.2 (mm) max	
	Active Area	344.2 x 193.5 (mm)	
	Weight	560 g max.	
	Diagonal Size	39.6 cm (15.6”)	
	Surface Treatment	Anti-smudge/fingerprint coating	
	Contrast Ratio	400:1 (typical)	
	Touch Enabled	Yes	
	TSP Type	Capacitive	
	Refresh Rate	60Hz	
	Response time	16ms typ.	
	Pixel Per Inch (PPI)	142	

Brightness	300nits	
Pixel Resolution	**Format**	1920 x 1080 (FHD)
	Configuration	RGB
Interface	eDP 1.2	
LCD Mode	TN	
Viewing Angle	SVA 45/45/25/35	

NETWORKING

	HP lt4120 Qualcomm® Snapdragon™ X5 LTE Mobile Broadband Module
Technology/Operating bands	LTE: 2100 (Band 1), 1900 (Band 2), 1800 (Band 3), 1700/2100 (Band 4), 850 (Band 5), 2600 (Band 7), 900 (Band 8), 700 (Band 12 lower), 700 (Band 13 upper), 700 (Band 17 lower), 800 (Band 20), 700 (Band 28). HSPA+: 2100 (Band 1), 1900 (Band 2), 1700/2100 (Band 4), 850 (Band 5), 900 (Band 8) MHz EV-DO: 850 (BC0), 1900 (BC1) MHz (Only work with Verizon network) E-GPRS: 1900 (Band 2), 1800 (Band 3), 850 (Band 5), 900 (Band 8) MHz
Wireless protocol standards	3GPP Release 10 LTE Specification CAT.4, 20MHz BW WCDMA R99, 3GPP Release 5, 6, 7 and 8 UMTS Specification 1xEVDO Release 0, A and B. E-GPRS: Class B, Multi-slot class 12, coding schemes CS1 - CS4 and MSC1 - MSC9
GPS	Standalone, A-GPS (MS-A, MS-B and XTRA)
GPS bands	1575.42 MHz ± 1.023 MHz, GLONASS 1596-1607MHz
Maximum data rates	LTE: 150 Mbps (Download), 50 Mbps (Upload) DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload) HSPA+: 21Mbps (Download), 5.76 Mbps (Upload) CDMA 1xRTT: 153.6 kbps (Download), 153.6 kbps (Upload) EVDO Rel.A: 3.1 Mbps (Download), 1.8 Mbps (Upload) EVDO Rel.B: 14.7 Mbps (Download), 5.4Mbps (Upload) EDGE: 236.8 kbps (Download), 236.8 kbps (Upload) GPRS: 85.6 kbps(Download), 85.6 kbps (Upload)
Maximum output power	LTE: 23 dBm HSPA+: 23.5 dBm 1xRTT/EVDO: 24dBm E-GPRS 1900/1800: 26 dBm E-GPRS 900/850: 27 dBm GPRS 1900/1800: 29.5 dBm GPRS 900/850: 32.5 dBm
Maximum power consumption	LTE: 1,200 mA (peak); 900 mA (average) HSPA+: 1,100 mA (peak); 800 mA (average)

Technical Specifications

	1xRTT/EVDO: 1,000 mA (peak); 700 mA (average) E-GPRS: 2,800 mA (peak); 500 mA (average)
Form Factor	M.2, 3042-S3 Key B
Weight	6.2 g
Dimensions (Length x Width x Thickness)	42 x 30 x 2.3 mm

* Mobile Broadband is an optional feature. 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 or in all countries.

	HP lt4132 LTE/HSPA+ 4G Mobile Broadband Module
Technology/Operating bands	LTE: 2100 (Band 1), 1900 (Band 2), 1800 (Band 3) MHz, 850 (Band 5), 2600 (Band 7), 900 (Band 8) MHz, 800 (Band 20), 700 (Band 28) MHz. HSPA+: 2100 (Band 1), 1900 (Band 2), 850 (Band 5), 900 (Band 8) MHz E-GPRS: 1900 (Band 2), 1800 (Band 3), 850 (Band 5), 900 (Band 8) MHz
Wireless protocol standards	3GPP Release 10 LTE Specification CAT.4, 20MHz BW WCDMA R99, 3GPP Release 5, 6, 7 and 8 UMTS Specification E-GPRS: Class B, Multi-slot class 12, coding schemes CS1 - CS4 and MSC1 - MSC9
GPS	Standalone, A-GPS (MS-B and LTO)
GPS bands	1575.42 MHz ± 1.023 MHz, GLONASS 1596-1607MHz
Maximum data rates	LTE: 150 Mbps (Download), 50 Mbps (Upload) DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload) HSPA+: 21Mbps (Download), 5.76 Mbps (Upload) EDGE: 236.8 kbps (Download), 236.8 kbps (Upload) GPRS: 85.6 kbps(Download), 85.6 kbps (Upload)
Maximum output power	LTE: 23 dBm HSPA+: 23.5 dBm E-GPRS 1900/1800: 26 dBm E-GPRS 900/850: 27 dBm GPRS 1900/1800: 29.5 dBm GPRS 900/850: 32.5 dBm
Maximum power consumption	LTE: 1,200 mA (peak); 900 mA (average) HSPA+: 1,100 mA (peak); 800 mA (average) E-GPRS: 2,600 mA (peak); 500 mA (average)
Form Factor	M.2, 3042-S3 Key B
Weight	6 g
Dimensions (Length x Width x Thickness)	42 x 30 x 2.3 mm

* Mobile Broadband is an optional feature. 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.

Technical Specifications

4G LTE not available on all products or in all countries.

	HP hs3210 WW HSP with GPS Mobile Broadband **HP hs3210 HSPA+ Mobile Broadband Module***
Technology/Operating bands	HSPA+: 2100 (Band1), 1900 (Band 2), 850 (Band 5), 900 (Band 8) MHz E-GPRS: 1900 (Band 2), 1800 (Band 3), 850 MHz (Band 5), 900 (Band 8) MHz
Wireless protocol standards	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
Maximum data rates	HSPA+: 21.6 Mbps (Download), 5.76 Mbps (Upload) E-GPRS: 296 kbps (Download), 236.8 kbps (Upload) GPRS: 107 kbps (Download), 85.6 kbps (Upload)
Maximum output power	HSPA+: 24 dBm E-GPRS 1800/1900: 26 dBm E-GPRS 850/900: 27 dBm GPRS 1800/1900: 30 dBm GPRS 850/900: 33 dBm
Maximum power consumption	HSPA+: 1,100 mA (peak); 800 mA (average) E-GPRS: 2,800 mA (peak); 700 mA (average)
Form Factor	M.2, 2242-S3 Key B
Weight	6 g
Dimensions (Length x Width x Thickness)	1.65 x 8.66 x 0.09 in (42 x 22 x 2.38 mm)

* Mobile Broadband is an optional feature. 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.

Note: Wireless access point and Interet 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."

Intel® Dual Band Wireless-AC 8265 802.11 a/b/g/n/ac (2x2) WiFi and Bluetooth® 4.2 combo

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 • 2.402 – 2.482 GHz Note: The FCC has declared as of January 1, 2015 products that utilize passive scanning on channel 12/13 and are capable of transmitting must fully comply with requirements of 15.247 or otherwise disable those channels. 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 Note: Indonesia no support this band)
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
Network Architecture	Ad-hoc (Peer to Peer)
Models	Infrastructure (Access Point Required)

Roaming	IEEE 802.11 compliant roaming between access points
Output Power[2]	• 802.11b : +16dBm minimum • 802.11g : +14dBm minimum • 802.11a : +14dBm minimum • 802.11n HT20(2.4GHz) : +14dBm minimum • 802.11n HT40(2.4GHz) : +12dBm minimum • 802.11n HT20(5GHz) : +14dBm minimum • 802.11n HT40(5GHz) : +12dBm minimum
Power Consumption	Transmit: 2.0 W (max) Receive: 1.6 W (max) Idle mode (PSP): 180 mW (WLAN Associated) Idle mode: 50 mW (WLAN unassociated) Connect Standby: 10 mW (WLAN+BT) Radio disabled: 5 mW
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Receiver Sensitivity[3]	802.11b, 1Mbps : -94dBm maximum 802.11b, 11Mbps : -86dBm maximum 802.11g, 6Mbps : -88dBm maximum 802.11g, 54Mbps : -74dBm maximum 802.11a, 6Mbps : -88dBm maximum 802.11a, 54Mbps : -74dBm maximum 802.11n, MCS07 : -69dBm maximum 802.11n, MCS15 : -66dBm maximum 802.11ac, 1SS, MCS-0 : -86dBm maximum

	802.11ac, 1SS, MCS-9 : -61dBm maximum	
	802.11ac, 2SS, MCS-0 : -83dBm maximum	
	802.11ac, 2SS, MCS-9 : -58dBm maximum	
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 M.2 MiniCard	
Dimensions	Type 2230 : 2.3 x 22.0 x 30.0 mm	
	Or Type 1630 : 2.3 x 16.0 x 30.0 mm	
Weight	Type 2230 : 2.8g	
	Or	
	Type 1630 : 2g	
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; LED White – 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).

HP Integrated Module with Bluetooth 4.0/4.1/4.2 Wireless Technology

Bluetooth Specification	4.0/4.1/4.2 Compliant

Technical Specifications

Frequency Band	2402 to 2480 MHz
Number of Available Channels	Legacy : 0~79 (1 MHz/CH) BLE : 0~39 (2 MHz/CH)
Data Rates and Throughput	Legacy : 3 Mbps data rate; throughput up to 2.17 Mbps BLE : 1 Mbps data rate; throughput up to 0.2 Mbps Legacy : Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Legacy : Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or 864 kbps symmetric (3-EV5)
Transmit Power	The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of + 4 dBm for BR and EDR.

Receiver Sensitivity

Legacy

Modulation	0.01% BER	0.001% BER
GFSK	-80 dBm	-70 dBm
π/4-DQPSK	-80 dBm	-70 dBm
8DPSK	-80 dBm	-70 dBm

Power Consumption	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW
Range	Legacy Up to 33 ft (10 m) BLE Up to 99 ft (30 m)
Electrical Interface	USB 2.0 compliant
Bluetooth Software Supported	Microsoft Windows Bluetooth Software
Link Topology	
Electrical Interface	Point to Point, Multipoint Pico Nets up to 7 slaves
Bluetooth Software Supported	Full support of Bluetooth Security Provisions

Technical Specifications

Security	
Power Management	Microsoft Windows ACPI, and USB Bus Support
Certifications	Self-configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff
Security	All necessary regulatory approvals for supported countries, including:
Certifications	FCC (47 CFR) Part 15C, Section 15.247 & 15.249
Bluetooth Profiles Supported	
Power Management	ETS 300 328, ETS 300 826
Certifications	Low Voltage Directive IEC950
	UL, CSA, and CE Mark
Certifications **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] Hard Copy Cable Replacement (HCRP)[1,2] Personal Area Networking Profile (PAN)[1,2] Human Interface Device Profile (HID)[1,2] Hands Free Profile (HFP) Advanced Audio Distribution Profile (A2DP) Audio Video Remote Control Profile (AVRCP)
Bluetooth V4.1/V4.2 support feature	V4.1: ESR5/6/7 compliant V4.2: ESR8 compliant, LE Secure Connection – Basic.

Intel® Dual Band Wireless-AC 3168 802.11 a/b/g/n/ac (1x1) WiFi and Bluetooth® 4.2 combo

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 • 2.402 – 2.482 GHz Note: The FCC has declared as of January 1, 2015 products that utilize passive scanning on channel 12/13 and are capable of transmitting must fully comply with requirements of 15.247 or otherwise disable those channels. 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 Note: Indonesia only supports 5.725 - 5.825 GHz (CH149 - CH161)
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 ~ MCS7, (1SS) (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
Network Architecture	Ad-hoc (Peer to Peer)
Models	Infrastructure (Access Point Required)
Roaming	IEEE 802.11 compliant roaming between access points
Output Power[2]	• 802.11b : +16dBm minimum • 802.11g : +14dBm minimum • 802.11a : +14dBm minimum • 802.11n HT20(2.4GHz) : +14dBm minimum • 802.11n HT40(2.4GHz) : +12dBm minimum • 802.11n HT20(5GHz) : +14dBm minimum • 802.11n HT40(5GHz) : +12dBm minimum • 802.11ac 80MHz(5GHz) : +11dBm minimum
Power Consumption	Transmit: 2.0 W (max) Receive: 1.6 W (max) Idle mode (PSP): 180 mW (WLAN Associated) Idle mode: 50 mW (WLAN unassociated) Connect Standby: 10 mW (WLAN+BT) Radio disabled: 5 mW
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Receiver Sensitivity[3]	802.11b, 1Mbps : -94dBm maximum

	802.11b, 11Mbps : -86dBm maximum	
	802.11g, 6Mbps : -88dBm maximum	
	802.11g, 54Mbps : -74dBm maximum	
	802.11a, 6Mbps : -88dBm maximum	
	802.11a, 54Mbps : -74dBm maximum	
	802.11n, MCS07 : -69dBm maximum	
	802.11n, MCS15 : -66dBm maximum	
	802.11ac, 1SS, MCS-0 : -86dBm maximum	
	802.11ac, 1SS, MCS-9 : -61dBm maximum	
	802.11ac, 2SS, MCS-0 : -83dBm maximum	
	802.11ac, 2SS, MCS-9 : -58dBm maximum	
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 M.2 MiniCard	
Dimensions	Type 2230 : 2.3 x 22.0 x 30.0 mm	
	Or Type 1630 : 2.3 x 16.0 x 30.0 mm	
Weight	Type 2230 : 2.8g	
	Or	
	Type 1630 : 2g	
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; LED White – 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).

HP Integrated Module with Bluetooth 4.0/4.1/4.2 Wireless Technology

Bluetooth Specification	4.0/4.1/4.2 Compliant
Frequency Band	2402 to 2480 MHz
Number of Available Channels	Legacy : 0~79 (1 MHz/CH) BLE : 0~39 (2 MHz/CH)
Data Rates and Throughput	Legacy : 3 Mbps data rate; throughput up to 2.17 Mbps BLE : 1 Mbps data rate; throughput up to 0.2 Mbps Legacy : Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Legacy : Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or 864 kbps symmetric (3-EV5)
Transmit Power	The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of + 4 dBm for BR and EDR.

Receiver Sensitivity

Legacy

Modulation	0.01% BER	0.001% BER
GFSK	-80 dBm	-70 dBm
π/4-DQPSK	-80 dBm	-70 dBm
8DPSK	-80 dBm	-70 dBm

Power Consumption

Peak (Tx) 330 mW
Peak (Rx) 230 mW

	Selective Suspend 17 mW
Range	Legacy Up to 33 ft (10 m)
	BLE Up to 99 ft (30 m)
Electrical Interface	USB 2.0 compliant
Bluetooth Software Supported	Microsoft Windows Bluetooth Software
Link Topology	
Electrical Interface	Point to Point, Multipoint Pico Nets up to 7 slaves
Bluetooth Software Supported	Full support of Bluetooth Security Provisions
Security	
Power Management	Microsoft Windows ACPI, and USB Bus Support
Certifications	Self-configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff
Security	All necessary regulatory approvals for supported countries, including:
Certifications	FCC (47 CFR) Part 15C, Section 15.247 & 15.249
Bluetooth Profiles Supported	
Power Management	ETS 300 328, ETS 300 826
Certifications	Low Voltage Directive IEC950
	UL, CSA, and CE Mark
Certifications **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] Hard Copy Cable Replacement (HCRP)[1,2] Personal Area Networking Profile (PAN)[1,2] Human Interface Device Profile (HID)[1,2] Hands Free Profile (HFP) Advanced Audio Distribution Profile (A2DP)

	Audio Video Remote Control Profile (AVRCP)
Bluetooth V4.1/V4.2 support feature	V4.1: ESR5/6/7 compliant
	V4.2: ESR8 compliant, LE Secure Connection – Basic.

Intel® I219-V Gigabit Network Connection

Ethernet	10 Mbit/s operation (10BASE-T; IEEE 802.3i; IEEE 802.3 clauses 13-14)
Features	100 10 Mbit/s operation (10BASE-T; IEEE 802.3i; IEEE 802.3 clauses 13-14) 100 Mbit/s operation (100BASE-TX; IEEE 802.3u; IEEE 802.3 clauses 21-30) 1000 Mbit/s operation (1000BASE-T; IEEE 802.3ab; IEEE 8023. Clauses 40) Auto-Negotiation (Automatic Speed Selection) Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/s IEEE 802.1p QoS (Quality of Service) Support IEEE 802.1q VLAN support IEEE 802.3x Flow Control (IEEE 802.3 clauses 31-32; configurable) IEEE 802.3az EEE(Energy Efficient Ethernet) Jumbo Frame 9K Auto MDI/MDIX Crossover cable detection
Power Management	ACPI compliant - multiple power modes Energy Detect Low Power Mode(Green Ethernet)
Performance Features	TCP/IP/UDP Checksum Offload (configurable) Protocol Offload(ARP & NS) Large send offload and Giant send offload Receiving Side Scaling

	MACSec Offload (802.3ae) Intel Non-vPro iSCSI Boot
Manageability	Wake-on-LAN from standby and hibernation (Magic Packet and Microsoft Wake-Up Frame); Wake-on-LAN from off (Magic Packet only) PXE 2.1 Remote Boot Statistics Gathering (SNMP MIB II, Ethernet-like MIB, Ethernet MIB (802.3x, clause 30)) Comprehensive diagnostic and configuration software suite Virtual Cable Doctor for Ethernet cable status
Interface	PCI Express 1.1 x1 to fully support ASPM L0s/L1 and CLKREQ. **NOTE:** Intel 82579 PCIe interface is not PCIe compliant. It operates at half of PCIe specification V1.1 (2.5GT/S) speed.
NIC Device Driver Name	**Intel 82579LM/82579V Ethernet Network Connection**

Intel® I219-LM Gigabit Network Connection

Ethernet Features	10 Mbit/s operation (10BASE-T; IEEE 802.3i; IEEE 802.3 clauses 13-14) 100 10 Mbit/s operation (10BASE-T; IEEE 802.3i; IEEE 802.3 clauses 13-14) 100 Mbit/s operation (100BASE-TX; IEEE 802.3u; IEEE 802.3 clauses 21-30) 1000 Mbit/s operation (1000BASE-T; IEEE 802.3ab; IEEE 8023. Clauses 40) Auto-Negotiation (Automatic Speed Selection) Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/s IEEE 802.1p QoS (Quality of Service) Support IEEE 802.1q VLAN support IEEE 802.3x Flow Control (IEEE 802.3 clauses 31-32; configurable) IEEE 802.3az EEE(Energy Efficient Ethernet) Jumbo Frame 9K Auto MDI/MDIX Crossover cable detection
Power Management	ACPI compliant - multiple power modes Energy Detect Low Power Mode(Green Ethernet)
Performance Features	TCP/IP/UDP Checksum Offload (configurable) Protocol Offload(ARP & NS) Large send offload and Giant send offload Receiving Side Scaling MACSec Offload (802.3ae) Intel vPro

	iSCSI Boot
Manageability	Wake-on-LAN from standby and hibernation (Magic Packet and Microsoft Wake-Up Frame); Wake-on-LAN from off (Magic Packet only) PXE 2.1 Remote Boot Statistics Gathering (SNMP MIB II, Ethernet-like MIB, Ethernet MIB (802.3x, clause 30)) Comprehensive diagnostic and configuration software suite Virtual Cable Doctor for Ethernet cable status
Interface	PCI Express 1.1 x1 to fully support ASPM L0s/L1 and CLKREQ. **NOTE:** Intel 82579 PCIe interface is not PCIe compliant. It operates at half of PCIe specification V1.1 (2.5GT/S) speed.
NIC Device Driver Name	Intel 82579LM/82579V Ethernet Network Connection

Near Field Communications Controller (optional)

Dimensions (L x W x H)	Module 25 mm by 10 mm by 2.0 mm
Chipset	NPC100
System interface	I^2C
NFC RF standards	ISO/IEC 14443 A ISO/IEC 14443 B ISO/IEC 15693 ISO/IEC 18092 ECMA-340 NFCIP-1 Target and Initiator ECMA-320 NFCIP-2
NFC Forum Support	Tag Type 1, Type 2, Type3 and Type 4, NFCIP-1 and NFCIP-2

Reader (PCD-VCD) Mode(1)	ISO/IEC 14443 A ISO/IEC 14443 B ISO/IEC 15693 MIFARE 1K MIFARE 4K MIFARE DESFire FeliCa Jewel and Topaz cards	
Card Emulation (PICC-VICC) Mode(1)	ISO/IEC 14443 A ISO/IEC 14443 B and B' MIFARE FeliCa	
Frequency	13.56 MHz	
NFC Modes Supported	Reader/Writer, Peer-to-Peer	
Raw RF Data Rates	106, 212, 424, 848 kbps	
Operating temperature	0°C to 70°C	
Storage temperature	-20°C to 125°C	
Humidity	10-90% operating 5-95% non-operating	
Supply Operating voltage	2.97 to 5.5 Volts	
I/O Voltage	1.8V or 3.3V	
Power Consumption **(Booster enable, VBAT= 3.3V, VCC_BOOST = 5V)**	**Mode**	**Power Consumption, Typical(2)**
	Polling	7.3 mA
	Detected Test Tag Type 1	Total 283.8 mA Net Module 236.8 mA

	Detected Test Tag Type 2	Total 288.8 mA Net Module 241.8 mA
	Detected Test Tag Type 3	Total 287.7 mA Net Module 240.7 mA
	Detected Test Tag Type 4	Total 282.3 mA Net Module 235.3 mA
Antenna	Antenna connector, 0.5mm pitch, 7 connector FPC. Antenna matching is external to module.	

STORAGE AND DRIVES

500 GB 7200rpm Hard Drive	**Drive Weight**	0.20 lbs (92 g) ~ 0.21 lbs (95 g)	
	Capacity	500 GB	
	Height	0.28 in (7 mm)	
	Width	2.75 in (69.85 mm)	
	Interface	ATA-8, SATA 3.0	
	Transfer Rate	**Synchronous** (maximum)	600 MB/s
	Seek Time (typical reads, including settling)	**Single Track**	1.5 ms ~ 2 ms
		Average	11 ms ~ 13 ms
		Maximum	18 ms ~ 22 ms
	Cache	32 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, S.M.A.R.T., NCQ, Ultra DMA	
500 GB 7200rpm Self-Encrypting Drive (Opal 2)	**Drive Weight**	0.21 lbs (95 g)	
	Capacity	500 GB	
	Height	0.28 in (7 mm)	
	Width	2.75 in (69.85 mm)	
	Interface	ATA-8, SATA 3.0	

	Transfer Rate	**Synchronous** (maximum)	600 MB/s
	Seek Time (typical reads, including settling)	**Single Track**	1.5ms
		Average	12ms
		Maximum	21 ms
	Cache	32 MB	
	Rotational Speed	7200rpm	
	Logical Blocks	976,773,168	
	Operating Temperature	32° to 140° F (0° to 60° C) [top cover temp]	
	Features	ATA Security; TCG Opal 2.x, S.M.A.R.T., NCQ, Ultra DMA	
500 GB 7200rpm Self Encrypting Drive (FIPS-140-2) (Opal 2)	**Drive Weight**	0.21 lbs (95 g)	
	Capacity	500 GB	
	Height	0.28 in (7 mm)	
	Width	2.75 in (69.85 mm)	
	Interface	ATA-8, SATA 3.0	
	Transfer Rate	**Synchronous** (maximum)	600 MB/s
	Seek Time (typical reads, including settling)	**Single Track**	1.5 ms
		Average	12 ms
		Maximum	21 ms
	Cache	32 MB	
	Rotational Speed	7200 rpm	
	Logical Blocks	976,773,168	
	Operating Temperature	32° to 140° F (0° to 60° C) [top cover temp]	
	Features	ATA Security; TCG Opal 2.x, FIPS, S.M.A.R.T., NCQ, Ultra DMA—,	
500 GB Hybrid, 8 GB cache	**Drive Weight**	0.20 lbs (92 g) ~ 0.21 lbs (95 g)	
	Capacity	500 GB	
	Height	0.28 in (7 mm)	
	Width	2.75 in (69.85 mm)	
	Interface	ATA-8, SATA 3.0	
	Transfer Rate	**Synchronous** (maximum)	600 MB/s
	Seek Time (typical reads, including settling)	**Single Track**	2 ms
		Average	12 ms
		Maximum	22 ms
	Cache	64 MB	
	Rotational Speed	5400 rpm	
	Logical Blocks	976,773,168	
	Operating Temperature	32° to 140° F (0° to 60° C) [case temp]	

	Features	ATA Security, S.M.A.R.T., NCQ, Ultra DMA	
1 TB 5400rpm Hard Drive	**Drive Weight**	0.21 lbs (94 g)- 0.21 lbs (95 g)	
	Capacity	1TB	
	Height	0.28 in (7 mm)	
	Width	2.75 in (69.85 mm)	
	Interface	ATA-8, SATA 3.0	
	Transfer Rate	**Synchronous** (maximum)	600 MB/s
	Seek Time (typical reads, including settling)	**Single Track**	2ms
		Average	12ms-13ms
		Maximum	18ms- 22ms
	Cache	Up to 32-MB	
	Rotational Speed	5400rpm	
	Logical Blocks	1,953,525,168	
	Operating Temperature	32° to 140° F (0° to 60° C) [case temp]	
	Features	ATA Security, S.M.A.R.T., NCQ, Ultra DMA	
128 GB SATA-3 Value Solid State Drive	**Drive Weight**	0.01 lb (6 g) ~ 0.02 lb (10 g)	
	Capacity	128 GB	
	Height	0.09 in (2.3 mm)	
	Width	0.87 in (22 mm)	
	Interface	ATA-8, SATA 3.0	
	Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
		520 ~ 535 MB/s	185 ~ 515 MB/s
	Logical Blocks	250,069,680	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	ATA Security; DIPM; TRIM; DEVSLP	
128 GB SATA-3 TLC Solid State Drive	**Drive Weight**	0.02 lb (10 g)	
	Capacity	128 GB	
	Height	0.09 in (2.3 mm)	
	Width	0.87 in (22 mm)	
	Interface	ATA-8, SATA 3.0	
	Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
		515 ~ 520 MB/s	320 ~ 450 MB/s

	Logical Blocks	250,069,680	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	ATA Security; DIPM; TRIM; DEVSLP	
256 GB PCIe Gen3x4 NVMe TLC Solid State Drive	**Drive Weight**	0.02 lb (10g)	
	Capacity	256 GB	
	Height	0.09 in (2.3 mm)	
	Width	0.87 in (22 mm)	
	Interface	PCIe NVMe Gen3X4	
	Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
		1,800 ~ 2600 MB/s	600 ~ 900 MB/s
	Logical Blocks	500,118,192	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	ATA Security (Option); TRIM; L1.2	
256 GB PCIe Gen3x4 NVMe Value Solid State Drive	**Drive Weight**	0.02 lb (10 g)	
	Capacity	256 GB	
	Height	0.09 in (2.3 mm)	
	Width	0.87 in (22 mm)	
	Interface	PCIe NVMe Gen3X4	
	Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
		1,700 MB/s (Compressible Performance)	600 MB/s (Compressible Performance)
	Logical Blocks	500,118,192	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	ATA Security (Option); TRIM; L1.2	
256 GB SATA-3 TLC Self-Encrypting Solid State Drive (Opal 2)	**Drive Weight**	0.02 lb (10g)	
	Capacity	256 GB	
	Height	0.09 in (2.3 mm)	
	Width	0.87 in (22 mm)	
	Interface	ATA-8, SATA 3.0	
	Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
		515 ~ 530 MB/s	490 ~ 515 MB/s
	Logical Blocks	500,118,192	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	ATA Security; TCG Opal 2.0; DIPM; TRIM; DEVSLP	

360 GB PCIe Gen3x4 NVMe TLC Solid State Drive	**Drive Weight**	0.02 lb (10 g)	
	Capacity	360 GB	
	Height	0.09 in (2.3 mm)	
	Width	0.02 lb (10 g)	
	Interface	PCIe NVMe Gen3X4	
	Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
		1,700 MB/s (Compressible Performance)	600 MB/s (Compressible Performance)
	Logical Blocks	703,282,608	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	ATA Security (Option); TRIM; L1.2	
512 GB PCIe Gen3x4 NVMe Value Solid State Drive	**Drive Weight**	0.02 lb (10 g)	
	Capacity	512 GB	
	Height	0.09 in (2.3 mm)	
	Width	0.87 in (22 mm)	
	Interface	PCIe NVMe Gen3X4	
	Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
		1,700MB/s	600 MB/s
	Logical Blocks	1,000,215,216	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	ATA Security (Option); TRIM; L1.2	
512 GB PCIe Gen3x4 NVMe TLC Solid State Drive	**Drive Weight**	0.02 lb (10g)	
	Capacity	512 GB	
	Height	0.09 in (2.3 mm)	
	Width	0.87 in (22 mm)	
	Interface	PCIe NVMe Gen3X4	
	Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
		1,580 ~ 2600 MB/s	300 ~ 400 MB/s
	Logical Blocks	1,000,215,216	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	ATA Security (Option); TRIM; L1.2	
512 GB PCIe Gen3x4 NVMe MLC Solid State Drive	**Drive Weight**	0.02 lb (10g)	
	Capacity	512 GB	
	Height	0.09 in (2.3 mm) ~ 0.14 in (3.65 mm)	

	Width	0.87 in (22 mm)	
	Interface	PCIe NVMe Gen3X4	
	Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
		2,260 ~ 3,000 MB/s	1,500 ~ 1,600 MB/s
	Logical Blocks	1,000,215,216	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	ATA Security (Option); TRIM; L1.2	
512 GB PCIe Gen3x4 NVMe TLC Self-Encrypting Solid State Drive (Opal 2)	**Drive Weight**	0.02 lb (10g)	
	Capacity	512 GB	
	Height	0.09 in (2.3 mm)	
	Width	0.87 in (22 mm)	
	Interface	PCIe NVMe Gen3X4	
	Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
		1,800 ~ 2,600 MB/s	980 ~ 1,400 MB/s
	Logical Blocks	1,000,215,216	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	ATA Security (Option) ; TCG Opal 2.0; TRIM; L1.2	
512 GB SATA-3 TLC Solid State Drive FIPS-140-2	**Drive Weight**	0.02 lb (10 g)	
	Capacity	512 GB	
	Height	0.09 in (2.3 mm)	
	Width	0.87 in (22 mm)	
	Interface	ATA-8, SATA 3.0	
	Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
		530 MB/s	400 MB/s
	Logical Blocks	1,000,215,216	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	ATA Security; TCG Opal 2.0; FIPS; DIPM; TRIM; DEVSLP	
1 TB PCIe Gen3x4 NVMe TLC Solid State Drive	**Drive Weight**	0.02 lb (10 g)	
	Capacity	1024 GB	
	Height	0.09 in (2.3 mm) ~ 0.14 in (3.65 mm)	
	Width	0.87 in (22 mm)	
	Interface	PCIe NVMe Gen3X4	
	Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
		1,500 ~ 1,800 MB/s	980 ~ 2,800 MB/s

Logical Blocks	2,000,409,264
Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
Features	ATA Security (Option); TRIM; L1.2

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POWER

HP 45W Smart AC Adapter	**Dimensions** (H x W x D)	9.5 x 4.0 x 2.65 cm)	
	Weight	unit: 200g +/- 10g	
	Input	90 to 265 VAC	
		Input Efficiency	87.74% at 115Vac and 88.4% at 230Vac
		Input frequency range	47 to 63 Hz
		Input AC current	Max. 1.4 A at 90 Vac
	Output	**Output power**	45W
		DC output	19.5V
		Hold-up time	5 ms at 115 Vac input
		Output current limit	<8.0A
	AC Connector (Ac Inlet)	C6 (3pin/with grounded, with Smart ID DC connector)	
	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 16,400 ft (0 to 5,000 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 45W Smart AC Adapter (2 Prong)	**Dimensions** (H x W x D)	95.0x40.0x26.5mm	
	Weight	unit: 200g +/- 10g	
	Input	90 to 265 VAC	
		Input Efficiency	87.74% at 115Vac and 88.4% at 230Vac
		Input frequency range	47 to 63 Hz
		Input AC current	Max. 1.4 A at 90 Vac
	Output	**Output power**	45W
		DC output	19.5V
		Hold-up time	5 ms at 115Vac input
		Output current limit	<8.0A
	AC Connector (Ac Inlet)	C8 (2 pin/non-grounded, with Smart ID DC connector)	
	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 16,400 ft (0 to 5,000 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**	107.0x47.0x30.0mm	
	Weight	unit: 250g +/- 10g	
	Input	90 to 265 VAC	
		Input Efficiency	88.0 % at 115 Vac and 89.0 % at 230 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 ms at 115 Vac input
		Output current limit	<11.0A
	AC Connector (Ac Inlet)	C6 (3pin/with grounded, with Smart ID DC connector)	
	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 16,400 ft (0 to 5,000 m)
		Humidity	20% to 95%
		Storage Humidity	10% to 95%
	EMI and Safety Certifications	~~Eg:~~ *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 EM	**Dimensions**	102.0x55.0x30.0mm	
	Weight	unit: 350g +/- 10g	
	Input	90 to 265 VAC	
		Input Efficiency	87.0% min at 115 VAC and 230Vac
		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 ms at 115 Vac input
		Output current limit	<11.0A
	AC Connector (Ac Inlet)	C6 (3pin/with grounded, with Smart ID DC connector)	
	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 16,400 ft (0 to 5,000 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 3-cell Long Life Li-Ion (49	**Dimensions** (H x W x L)	8.30 mm x127.5 mm x 160.25 mm
	Weight	225g

Technical Specifications

WHr) – HP EliteBook 820 G4	**Cells/Type**	3 cell Lithium-Ion Polymer cell / 505295	
	Energy	**Voltage**	11.55V
		Amp-hour capacity	4250mAh
		Watt-hour capacity	49Wh
	Temperature	**Operating (Charging)**	0~45 C
		Operating (Discharging)	-10~60 C
	Fuel Gauge LED	NA	
	Warranty	Batteries have a default one year limited warranty except for Long Life batteries which will have same 1-year or 3-year limited warranty as the platform.	
	Optional Travel Battery Available	No	
HP 3-cell Long Life Li-Ion (51 WHr) – HP EliteBook 840 & 850 G4	**Dimensions** (H x W x L)	6.8mm x 102.8mm x 198mm	
	Weight	235g	
	Cells/Type	3cell Lithium-Ion Polymer cell / 506480	
	Energy	**Voltage**	11.55V
		Amp-hour capacity	4420mAh
		Watt-hour capacity	51wh
	Temperature	**Operating (Charging)**	0~45 C
		Operating (Discharging)	-10~60 C
	Fuel Gauge LED	NA	
	Warranty	Batteries have a default one year limited warranty except for Long Life batteries which will have same 1-year or 3-year limited warranty as the platform.	
	Optional Travel Battery Available	No	

ENVIRONMENTAL

HP EliteBook 820 G4 Notebook PC

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 **Energy Consumption (in accordance with US ENERGY STAR® test method)**	The configuration used for the Energy Consumption and Declared Noise Emissions data for the Notebook model is based on a "Typically Configured Notebook".		
	115VAC, 60Hz	**230VAC, 50Hz**	**100VAC, 50Hz**
Normal Operation (Short idle)	5.15 W	5.15 W	4.66 W
Normal Operation (Long idle)	2.80 W	3.23 W	2.80 W
Sleep	0.74 W	0.83 W	0.77 W
Off	0.40 W	0.48 W	0.40 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, 50Hz**
Normal Operation (Short idle)	18 BTU/hr	18 BTU/hr	16 BTU/hr

Normal Operation (Long idle)	10 BTU/hr	11 BTU/hr	10 BTU/hr
Sleep	3 BTU/hr	3 BTU/hr	3 BTU/hr
Off	1 BTU/hr	2 BTU/hr	1 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	3.2	26	
Fixed Disk – Random writes	3.5	27	
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 Battery size: CR2320 (coin cell) Battery type: Lithium		
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 96.7% recycle-able when properly disposed of at end of life.		

Packaging Materials	**External:**	PAPER/Corrugated	328 g
	Internal:	PLASTIC/Expanded Polyethylene - EPE	38 g
		PLASTIC/Polyethylene low density - LDPE	14 g
		PLASTIC/Polypropylene - PP	3 g
	The plastic packaging material contains at least 50% recycled content.		
	The corrugated paper packaging materials contains at least 70% 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. • 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.
HP Inc. **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://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c04755842 and http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf

HP EliteBook 840 G4 Notebook PC

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, 50Hz**
Normal Operation (Short idle)	5.12 W	5.47 W	5.18 W
Normal Operation (Long idle)	3.00 W	3.26 W	3.50 W
Sleep	0.66 W	0.66 W	0.67 W
Off	0.40 W	0.40 W	0.40 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, 50Hz**
Normal Operation (Short idle)	18 BTU/hr	19 BTU/hr	18 BTU/hr
Normal Operation (Long	10 BTU/hr	11 BTU/hr	12 BTU/hr

idle)			
Sleep	2 BTU/hr	2 BTU/hr	2 BTU/hr
Off	1 BTU/hr	1 BTU/hr	1 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	2.9	21
Fixed Disk – Random writes	3.2	22

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 Battery size: CR2032 (coin cell) Battery type: Lithium
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 94.6% recycle-able when properly disposed of at end of life.

Packaging Materials	**External:**	PAPER/Corrugated	323 g
	Internal:	PLASTIC/Polyethylene Expanded - EPE	38 g

		PLASTIC/Polyethylene low density - LDPE	15 g
		PLASTIC/Polypropylene - PP	4 g
	The plastic packaging material contains at least 50% recycled content.		
	The corrugated paper packaging materials contains at least 70% 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. • 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://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c04755842 and http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf

HP EliteBook 850 G4 Notebook PC

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	**115VAC, 60Hz**	**230VAC, 50Hz**	**100VAC, 50Hz**

ENERGY STAR® test method)			
Normal Operation (Short idle)	5.86 W	5.86 W	5.99 W
Normal Operation (Long idle)	3.14 W	3.73 W	3.40 W
Sleep	0.71 W	0.79 W	0.72 W
Off	0.40 W	0.48 W	0.40 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, 50Hz**
Normal Operation (Short idle)	20 BTU/hr	20 BTU/hr	20 BTU/hr
Normal Operation (Long idle)	11 BTU/hr	13 BTU/hr	12 BTU/hr
Sleep	2 BTU/hr	3 BTU/hr	2 BTU/hr
Off	1 BTU/hr	2 BTU/hr	1 BTU/hr
	*NOTE: Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.		
Declared Noise Emissions	Sound Power (L_{WAd}, bels)	Sound Pressure (L_{pAm}, decibels)	

(in accordance with ISO 7779 and ISO 9296)		
Typically Configured – Idle	2.9	22
Fixed Disk – Random writes	3.5	28

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 Battery size: CR2032 (coin cell) Battery type: Lithium		
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 95.2% recycle-able when properly disposed of at end of life.		
Packaging Materials	**External:**	PAPER/Corrugated	348 g
	Internal:	PLASTIC/Polyethylene Expanded - EPE	38 g
		PLASTIC/Polyethylene low density - LDPE	15 g
		PLASTIC/Polypropylene - PP	5 g
	The plastic packaging material contains at least 50% recycled content.		
	The corrugated paper packaging materials contains at least 70% 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. • 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://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c04755842 and http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf

COUNTRY OF ORIGIN

China

Options and Accessories (Sold separately and availability may vary by country.)

Type	Description	Part Number
Docking	HP USB-C Travel Dock	T0K29AA#xxx
	HP USB Travel Dock	T0K30AA#xxx
	HP UltraSlim Docking Station	D9Y32AA#xxx
	HP Elite USB-C Docking Station	X7W54AA
	HP Adjustable Dual Display Stand	AW664AA
	HP Display and Notebook Stand II	E8G00AA
Input/Output	HP Slim Wireless Keyboard and Mouse	T6L04AAxxx
	HP USB Essential Keyboard and Mouse	H6L29AA
	HP Conferencing Keyboard	K8P74AA
	HP Ultrathin Wireless Mouse	L9V78AA
	HP UC Speaker Phone	K7V16AA
	HP UC Wired Headset	K7V17AA
	HP Stereo 3.5mm Headset	T1A66AA
	HP Stereo USB Headset	T1A67AA
	HP UC Wireless Mono Headset	W3K08AA
	HP UC Wireless Duo Headset	W3K09AA
	HP USB Speaker Phone	X7N17AA
Memory	HP 4GB 2400 MHz DDR4 Memory	Z4Y84AA
	HP 8GB 2400 MHz DDR4 Memory	Z4Y85AA
	HP 16GB 2400 MHz DDR4 Memory	Z4Y86AA
Power	HP 65W Slim AC Adapter	H6Y82AA#xxx
	HP 90W Slim AC Adapter	H6Y83AA#xxx
	HP 90W Slim Combo AC Adapter w/ USB	H6Y84AA#xxx
	HP 45W Smart AC Adapter	H6Y88AA#xxx
	HP 65W Smart AC Adapter	H6Y89AA#xxx
	HP 90W Smart AC Adapter	H6Y90AA#xxx
	HP Notebook Power Bank	N9F71AA#xxx
Storage	HP USB External DVDRW Drive	F2B56AA
Security	HP Combination Lock	T0Y15AA
	HP Keyed Cable lock	T0Y14AA
Displays	HP EliteDisplay E232 23-inch Monitor	M1N98AA
	HP EliteDisplay S231d 23-inch Notebook Docking Monitor	F3J72AA
	HP Elite Display S140u 14-inch USB Portable Monitor	G8R65AA

Change Log

Date of change	Version History		Description of change
December 19, 2016	V1 to V2	Launch	Quickspecs launched
March 6, 2017	V2	Update	Options page updated (updated memory)
March 7, 2017	V2 to V3	Update	Technical Specification section updated (Note added in Processor)
March 9, 2017	V3 to V4	Update	Updated Note in Operating System and Processor sections
March 17, 2017	V4 to V5	Update	At a Glance, Displays, Storage and Drives and Technical Specificarions section updated
April 4, 2017	V5 to V6	Added	Processors Family added
April 11, 2017	V6 to V7	Removed	Planned to be available notes from displays and Memory
April 25, 2017	V7 to V8	Updated	Planned to be available notes from displays and updated Memory section

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