Overview

HP EliteBook 1030 G1 Notebook PC

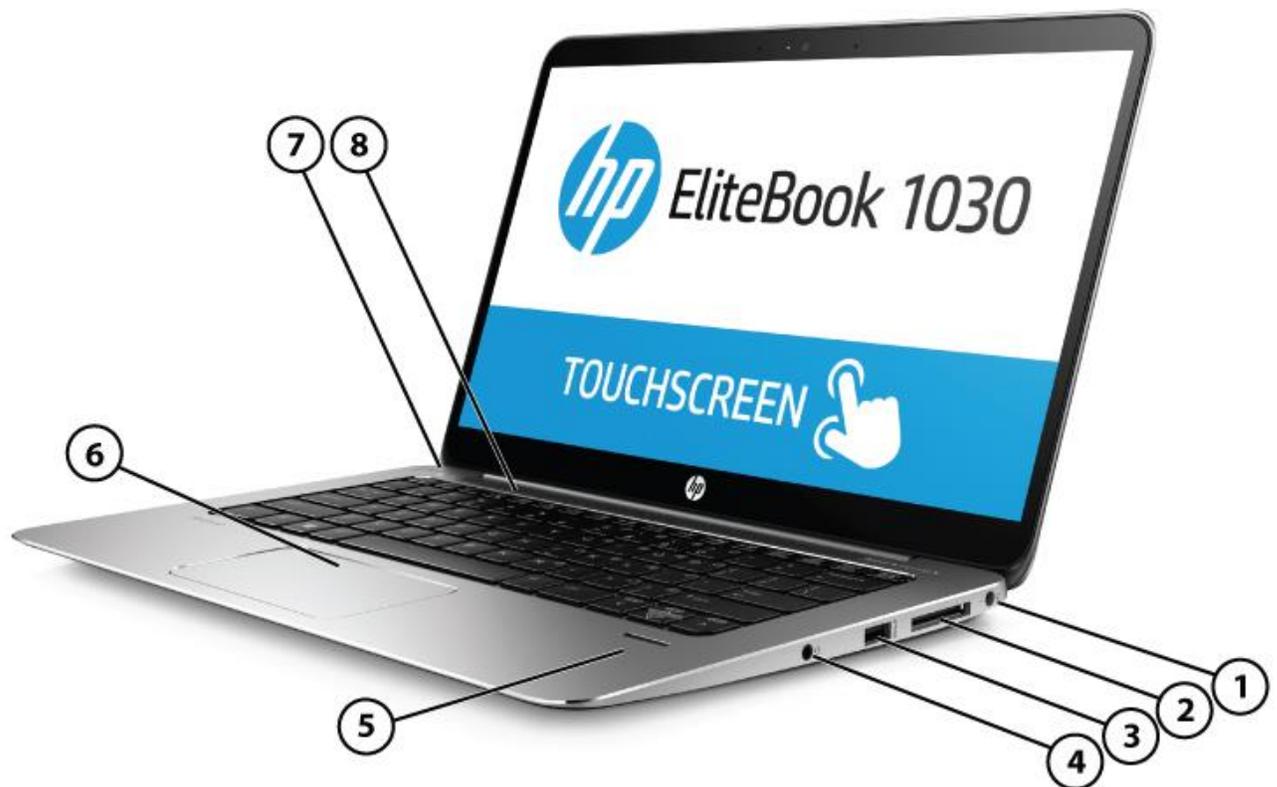

Front

1. Microphone
2. Webcam LED
3. Webcam
4. Microphone

5. Bezel
6. Near-borderless display
7. Diamond cut
8. Premium keyboard

Not all configuration components are available in all regions/countries.
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Overview

Front/ Left

1. Power jack
2. Docking connector
3. USB 3.0 charging port
4. Audio in/ out combo jack

5. Finger print reader
6. Clickpad
7. Power button
8. Speakers

Not all configuration components are available in all regions/countries.
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Overview

Side

1. Security lock slot
2. HDMI port

3. USB 3.0 charging port
4. USB Type-C™ charging port

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Overview

AT A GLANCE

- Window 10 versions, Windows 7 Professional or FreeDOS 2.0
- Choice of the 6th Generation Intel® Core™ m7 or m5 processors
- Intel® HD Graphics 515
- Choose from a 13.3" diagonal QHD+ eDP 1.3 (3200 x 1800) Touch or 13.3" diagonal FHD eDP 1.3 (1920 x 1080) Non-Touch display
- Choice of Solid State Drives up to 512 GB
- Memory up to 16 GB
- Weight starting at 2.55 lbs (1.16 kg) for Non-Touch or 2.56 lbs (1.16 kg) for Touch
- Spill-resistant, backlit keyboard with drain and function keys
- ClickPad with gestures support
- 720p webcam
- Audio by Bang & Olufsen with integrated stereo speakers
- Battery life up to 13 hours and 15 minutes
- With Intel® 8260 802.11a/b/g/n/ac (2x2) and Bluetooth® 4.2 Combo to keep you connected
- Passed 12 MIL STD tests[1]

1. Testing was 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.

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

Not all configuration components are available in all regions/countries.
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PRODUCT NAMES

HP EliteBook 1030 G1 Notebook PC

OPERATING SYSTEM

Preinstalled

Windows 10 Pro 64[1]
Windows 10 Home 64[1]
Windows 10 Home Single Language 64[1]
Windows 7 Professional 64 (available through downgrade rights from Windows 10 Pro 64) [2]
Windows 7 Professional 64[3]
FreeDOS 2.0

Web-only support

Windows 10 Enterprise[1]
Windows 8.1 Enterprise 64[1]
Windows 7 Enterprise 32[3]
Windows 7 Enterprise 64[3]
Windows 7 Professional 32[3]

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://http://www.microsoft.com.
2. This system is preinstalled with Windows 7 Professional software and also comes with a license and media for Windows 10 Pro software. You may only use one version of the Windows software at a time. Switching between versions will require you to uninstall one version and install the other version. You must back up all data (files, photos, etc.) before uninstalling and installing operating systems to avoid loss of your data.
3. 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. See http://www.microsoft.com.

PROCESSORS

Intel® Core™ m7-6Y75 with Intel® HD Graphics 515
(1.2 GHz, up to 3.1 GHz with Intel® Turbo Boost Technology, 4 MB cache, 2 cores)[1, 2]
Intel® Core™ m5-6Y57 with Intel® HD Graphics 515
(1.1 GHz, up to 2.8 GHz with Intel® Turbo Boost Technology, 4 MB cache, 2 cores) [1, 2]
Intel® Core™ m5-6Y54 with Intel® HD Graphics 515
(1.1 GHz, up to 2.7 GHz with Intel® Turbo Boost Technology, 4 MB cache, 2 cores) [1]

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. Intel® vPro™ Technology (select models)
NOTE: Processor speed denotes maximum performance mode; processors will run at lower speeds in battery optimization mode.

CHIPSET

Integrated with processor

Not all configuration components are available in all regions/countries.
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GRAPHICS

Integrated
Intel® HD Graphics 515[1]

1. HD content required to view HD images.

DISPLAY

Internal
Non-Touch
13.3" diagonal FHD eDP 1.3 (1920 x 1080)[1]

Touch
13.3" diagonal QHD+ eDP 1.3 (3200 x 1800) Touch[1]

1. HD content required to view HD images.

STORAGE AND DRIVES

Primary Storage Bay
Supports M.2 Solid State Drives SS 2280

Solid State Drives[1]
128 GB SATA-3 TLC SSD
180 GB Intel SATA-3 MLC SSD
180 GB Intel SATA-3 SED MLC (Opal 2) SSD
240 GB SATA-3 MLC SSD
256 GB PCIe-3x4 NVMe MLC SSD
256 GB SATA-3 SED MLC (Opal 2) SSD
256 GB SATA-3 TLC SSD
512 GB SATA - 3 TLC SSD

1. For storage drives, GB = 1 billion bytes. Actual formatted capacity is less. Up to 30 GB (for Windows 10) is reserved for system recovery software.

MEMORY

Memory soldered down
Supports dual channel memory
LPDDR3-1866 (Transfer rates up to 1866 MT/s)

Configuration
 8192 MB Total System Memory   (16 GB 256 M x 16 x 4, Qty 4)
16384 MB Total System Memory (32 GB 256 M x 32 x 4 , Qty 4)[1]

Maximum
16 GB

1. 16 GB maximum memory requires an Intel® Core™ m5-6Y57 or Intel® Core™ m7-6Y75 processor
NOTE: Internal component upgrades to memory are not available after factory configuration.

Not all configuration components are available in all regions/countries.
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NETWORKING/COMMUNICATIONS

Wireless LAN (WLAN)[1]
WLAN options via M.2
Intel® 8260 802.11a/b/g/n/ac (2x2) and Bluetooth® 4.2 Combo

Communications
Near Field Communication (NFC)[2]

1. Wireless access point and Internet service is required and is not included. Availability of public wireless access points limited.
2. Sold separately or as an optional feature.
NOTE: Internal component upgrades to NFC are not available after factory configuration.

AUDIO/MULTIMEDIA

Audio
Audio by Bang & Olufsen
Intel® Smart Sound Technology (Windows 10 and Windows 8.1)
(2) Integrated stereo speakers
Integrated dual-microphone array
HP Clear Sound Amp

Webcam
HP Webcam[1]
- 720p

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

KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

Keyboard
Spill-resistant with drain
Backlit
DuraKeys

Function Keys
F1 - Blank
F2 -Blank
F3 - Sleep
F4 - Display Switching
F5 - Mute
F6 - Volume Down
F7 - Volume Up
F8 - Mic Mute
F9 - Brightness Down
F10 - Brightness Up
F11 - Backlight Toggle

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F12 - Wireless On/Off

Clickpad

Glass with chemical etched surface

Supports 2-way scroll

Taps enabled as default

Gestures enabled by default - 2 Finger Scrolling, 2 Finger Zoom (Pinch)

SOFTWARE AND SECURITY

Preinstalled Software with Windows Operating System
BIOS

HP BIOSphere[1]

HP Sure Start with Dynamic Protection

HP DriveLock | HP Automatic DriveLock

HP BIOS Protection[2]

BIOS Update via Network

Master Boot Record Security

Power On Authentication

HP SpareKey[4]

Pre-Boot Security

Secure Erase[3]

Hybrid Boot

Measure Boot

Secure Boot

Pre-boot Authentication

Multi Media

Cyberlink Power DVD, BD

Cyberlink YouCam BE (Windows 7 only)

Communication

HP Connection Manager (Windows 7 only)[6]

Intel® Wireless Display (WiDi) Software for Windows[7]

Native Miracast Support[8]

HP Value Add Software

HP ePrint Driver[9]

HP Hotkey Support

HP Recovery Manager

HP Recovery Disc Creator

HP Support Assistant

HP Noise Reduction Software

Not all configuration components are available in all regions/countries.
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3rd Party

Foxit PhantomPDF Express for HP (Windows 10 and Windows 7)

Microsoft Products

Buy Office
Bing Search
Skype[10]

Manageability

HP Driver Packs[11]
HP SoftPaq Download Manager (SDM)
HP System Software Manager (SSM)[11]
HP BIOS Config Utility (BCU)[11]
HP Client Catalog[11]
HP CIK for Microsoft SCCM[11]
HP Image Assistant[11]
LANDESK Management[12]

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

Client Security Software

HP Drive Encryption[13]
HP Client Security

- HP Security Manager (including Credential Manager and Password Manager)
- HP Drive Lock
- HP Fingerprint Sensor
- HP Password Manager
- Power On Authentication

Microsoft Security Essentials[5] (Windows 7 only)
Microsoft Defender[5] (Windows 10 only)

Standard

Trusted Platform Module (TPM) 1.2 Embedded Security Chip shipped with Windows 7 and Windows 7 downgrade (Common Criteria EAL4+ Certified). Field upgradeable to TPM 2.0[6]

Trusted Platform Module (TPM) 2.0 Embedded Security Chip shipped with Windows10 (Common Criteria EAL4+ Certified).
HP Fingerprint Reader

Security lock slot (Cable sold separately.)
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.
2. May require a manual recovery step if all copies of BIOS are compromised or deleted
3. For the methods outlined in the National Institute of Standards and Technology Special Publication 800-88.
4. Requires initial user set up.
5. Opt in and internet connection required for updates.
6. This product if configured with Windows 7 and Windows 7 downgrade operating system ships with TPM 1.2 with option to upgrade to TPM 2.0. Upgrade utility is expected to be available second half of 2016 via HP Customer Support.

Not all configuration components are available in all regions/countries.
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7. Integrated Intel Wi-Di feature is available on select configurations only and requires separately purchased projector, TV or computer monitor with an integrated or external Wi-Di receiver. External Wi-Di receivers connect to the projector, TV or computer monitor via a standard HDMI cable, also sold separately.

8. 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

9. 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).

10. Skype is not offered in China.

11. Not preinstalled, however available for download at http://www.hp.com/go/clientmanagement

12. Subscription required.

13. Data is protected prior to Drive Encryption login. Turning the PC off or into hibernate logs out of Drive Encryption and prevents data access.

POWER

Power Supply
HP 45W Smart AC adapter
HP 45W AC adapter 2-prong (Available for Japan and England)
HP 65W Smart EM AC adapter (Available for Asia, China and India)
HP 65W Slim Travel AC adapter (Available for Japan, England and Australia)

Power Cord
2-wire plug – 1 m (Available with HP 45W 2-prong adapter)
3-wire plug – 1 m (Not available with HP 45W 2-prong adapter)
3-wire plug - 1.8 m (Not available with 45W 2-prong adapter)

Primary Battery
HP 4-cell Long Life Polymer battery (40 Whr)

Battery Life and System Standby Time
Up to 13 hours and 15 minutes*
(FHD and Up to 9 hours for QHD+)

* 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.

WEIGHTS & DIMENSIONS

Weight
Non-Touch
Starting at 2.55 lbs (1.16 kg)[1]
(FHD, 8 GB, M.2 128 GB SATA III, FPR, Camera, No NFC, wireless)

Touch
Starting at 2.56 lbs (1.16 kg) [1]
(QHD+, 8 GB, M.2 128 GB SATA III, FPR, Camera, No NFC, wireless)

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Dimensions (w x d x h)
12.2 x 8.27 x 0.62 in
31 x 21 x 1.57 cm

1. Weight varies by configuration and components.

PORTS/SLOTS

Ports
USB Type-C™ 3.0 – One (Data only charging port)
USB 3.0 ports- Two (Both ports charging)
HDMI port – One
Docking connector – One
Headphone/microphone – One
AC power connector – One
Ethernet via accessory dongle (optional)

SERVICE AND SUPPORT

HP Services offers 3-year and 1-year limited warranty options and 90 days software support 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. On-site service and extended coverage is also available. HP Care Pack Services[1,2] are optional extended service contracts that go beyond the standard limited warranties. To choose the right level of service for your HP product, use the HP Care Pack Services Lookup Tool at: http://www.hp.com/go/cpc

1. Sold separately or as an optional feature.
2. Service levels and response times for HP Care Packs may vary depending on your geographic location. Service starts on date of hardware purchase. Restrictions and limitations apply. Consult the HP Customer Support Center for details. http://h20000.www2.hp.com/bizsupport/TechSupport/ProductRoot.jsp

Not all configuration components are available in all regions/countries.
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SYSTEM UNIT

Stand-Alone Power Requirements (AC Power)	**Nominal Operating Voltage**	19.5V
	Average Operating Power	TBD W
	Max Operating Power	<45W
Temperature	**Operating**	32° to 95° F (0° to 35° C)
	Non-operating	-4° to 140° F (–20° ~to 60° C)
Relative Humidity	**Operating**	10% to 90%
	Non-operating	5% to 95%
Shock	**Operating**	40 G, 2 ms, half-sine
	Non-operating	200 G, 2 ms, half-sine
Random Vibration	**Operating**	0.75 grms
	Non-operating	1.50 grms
Altitude (unpressurized)	**Operating**	-50 to 10,000 ft (-15.24 to 3,048 m)
	Non-operating	-50 to 40,000 ft (-15.24 to 12,192 m)
Planned Industry Standard	**UL**	Yes
Certifications	**CSA**	Yes
	FCC	Yes
	ENERGY STAR®*	TBD models*
	EPEAT**	Registered TBD in United States**
	ICES	Yes
	Australia / NZ A-Tick	Yes
	CCC	Yes
	Japan VCCI	Yes
	KC	Yes
	BSMI	Yes
	CE	Yes
	CIT	Yes

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Saudi Arabian (ICCP)	Yes

* Configurations of the HP EliteBook 1030 G1 Notebook PC that are ENERGY STAR qualified are identified as the
HP EliteBook 1030 G1 Notebook PC
ENERGY STAR on HP websites and on http://www.energystar.gov.
** EPEAT registration varies by country. See www.epeat.net for registration status by country.
EPEAT status listed above applies to U.S.

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

DISPLAYS*

13.3" diagonal FHD eDP 1.3 (1920 x 1080) Non-Touch	Outline Dimensions (W x H x D)	299.6mm x 185.21mm x 2.35mm	
	Active Area	293.76mm x 165.24mm	
	Weight	87g(Typ.)	
	Diagonal Size	13.3"	
	Contrast Ratio	1000:1(Typ.)	
	Refresh Rate	60Hz	
	Brightness	300nits(Typ.)	
	Pixel Resolution	**Format**	1920 x 1080
		Configuration	RGB Stripe
	Interface	eDP 1.3	
	LCD Mode	IPS	
	PPI	166	
	Viewing Angle	89/89/89/89 (Typ.)	

13.3" diagonal QHD+ eDP 1.3 (3200 x 1800) Touch	Outline Dimensions (W x H x D)	299.6mm x 185.21mm x 2.35mm	
	Active Area	293.76mm x 165.24mm	
	Weight	88g(Typ.)	
	Diagonal Size	13.3"	
	Touch enabled	Yes	
	Contrast Ratio	1000:1(Typ.)	
	Refresh Rate	60Hz	
	Brightness	300nit(Typ.)	
	Pixel Resolution	**Format**	3200 x 1800

Not all configuration components are available in all regions/countries.
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Technical Specifications

	Configuration	RGB Stripe
Interface	eDP 1.3	
LCD Mode	IPS	
PPI	276	
Viewing Angle	89/89/89/89 (Typ.)	

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

STORAGE **128 GB SATA-3 SS TLC**	**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**
		540 MB/s	300 MB/s
	Logical Blocks	250069680	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	ATA Security, DIPM; TRIM; DEVSLP	

180 GB Intel SATA-3 SS MLC	**Drive Weight**	0.02 lb (10 g)	
	Capacity	180 GB	
	Height	0.09 in (2.3 mm)	
	Width	0.87 in (22 mm)	
	Interface	ACS-3, SATA 3.2	
	Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
		540 MB/s (Compressible Performance)	490 MB/s (Compressible Performance)
	Logical Blocks	351651888	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	ATA Security, DIPM; TRIM; DEVSLP	

180 GB INTEL SATA-3 SS SED MLC (OPAL 2)	**Drive Weight**	0.02 lb (10 g)
	Capacity	180 GB
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Interface	ACS-3, SATA 3.2

Not all configuration components are available in all regions/countries.
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Technical Specifications

	Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
		540 MB/s (Compressible Performance)	490 MB/s (Compressible Performance)
	Logical Blocks	351651888	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	ATA Security, DIPM; TRIM; DEVSLP	
240 GB SATA-3 MLC SSD	**Drive Weight**	0.02 lb (10 g)	
	Capacity	240 GB	
	Height	0.14 in (3.58 mm)	
	Width	0.87 in (22 mm)	
	Interface	ACS-3, SATA 3.2	
	Performance	**Maximum Sequential Read**	**Maximum Sequential Write**
		540 MB/s (Compressible Performance)	490 MB/s (Compressible Performance)
	Logical Blocks	468862128	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	ATA Security, DIPM; TRIM; DEVSLP	
256 GB PCIE-3X4 NVME SS MLC	**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**
		2260 MB/s	1260 MB/s
	Logical Blocks	500118192	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	ATA Security (Option), TRIM; L1.2	
256 GB SATA-3 SS SED MLC (OPAL 2)	**Drive Weight**	0.02 lb (10 g)	
	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**
		540 MB/s	460 MB/s
	Logical Blocks	500118192	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	

Not all configuration components are available in all regions/countries.
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	Features	ATA Security; TCG Opal 2.0, DIPM; TRIM; DEVSLP	
256 GB SATA-3 TLC SSD	**Drive Weight**	0.02 lb (10 g)	
	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**
		540 MB/s	390 MB/s
	Logical Blocks	500118192	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	ATA Security, DIPM; TRIM; DEVSLP	
512 GB SATA - 3 TLC SSD	**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**
		540 MB/s	500 MB/s
	Logical Blocks	1000215216	
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]	
	Features	ATA Security; DIPM; TRIM; DEVSLP	

NETWORKING/COMMUNICATIONS

Intel® 802.11a/b/g/n/ac (2x2) 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

Not all configuration components are available in all regions/countries.
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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 Models	Ad-hoc (Peer to Peer) 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

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- 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

Not all configuration components are available in all regions/countries.
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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)

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Receiver Sensitivity	Modulation	0.01% BER	0.001% BER
Legacy	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

Certifications UL, CSA, and CE Mark

Bluetooth Profiles Supported Serial Port Profile (SPP)[1]
Service Discovery Application Profile (SDAP)
Dial-Up Networking (DUN)[1,2]
Generic Object Exchange Profile (GOEP)[1,2]

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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 feature	**V4.1/V4.2**	**support**	V4.1: ESR5/6/7 compliant
			V4.2: ESR8 compliant, LE Secure Connection – Basic.

POWER

HP 45W Smart AC adapter	**Dimensions**		95.0 x 40.0 x 26.5mm
	Weight		
	Input		90 to 265 VAC
		Input Efficiency	88% min at 115 VAC / 89% min at 230VAC
		Input frequency range	47 to 63 Hz
		Input AC current	1.4 A at 90 VAC and maximum load
	Output	**Output power**	45W
		DC output	19.5V
		Output current limit	<8A, Over voltage protection- 29V max automatic shutdown
	Environmental Design	**Operating temperature**	32° to 95° F (0° to 35° C)
		Non-operating (storage) **temperature**	-4° to 121° F (-20° to 85° C)
		Humidity	0% to 95%
		Storage Humidity	0% to 95%
	EMI and Safety Certifications		CE Mark - full compliance with LVD and EMC directives; Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE; Reliability - failure rate of less than 0.1% annually within the first three years of operation.

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HP 45W AC adapter 2-prong (Available for Japan and England)	Dimensions		95.0 x 40.0 x 26.5mm
	Weight		
	Input		90 to 265 VAC
		Input Efficiency	88% min at 115 VAC / 89% min at 230VAC
		Input frequency range	47 to 63 Hz
		Input AC current	1.4 A at 90 VAC and maximum load
	Output	Output power	45W
		DC output	19.5V
		Output current limit	<8A, Over voltage protection- 29V max automatic shutdown
	Environmental Design	Operating temperature	32° to 95° F (0° to 35° C)
		Non-operating (storage) temperature	-4° to 121° F (-20° to 85° C)
		Humidity	0% to 95%
		Storage Humidity	0% to 95%
	EMI and Safety Certifications		CE Mark - full compliance with LVD and EMC directives; Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE; Reliability - failure rate of less than 0.1% annually within the first three years of operation.

HP 65W Smart EM AC adapter	Dimensions		4.98 x 1.97 x 1.18 in (12.65 x 5.0 x 3.0 cm)
	Weight		0.62 lb (300 g) max
	Input		90 to 265 VAC
		Input Efficiency	87% min at 115 VAC
		Input frequency range	47 to 63 Hz
		Input AC current	1.7 A at 90 VAC
	Output	Output power	65W
		DC output	19.5V
		Output current limit	<11A, Over voltage protection- 29V max automatic shutdown
	Environmental Design	Operating temperature	32° to 95° F (0° to 35° C)
		Non-operating (storage) temperature	-4° to 185° F (-20° to 85° C)
		Humidity	20% to 95%
		Storage Humidity	10% to 95%

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Technical Specifications

EMI and Safety Certifications	CE Mark - full compliance with LVD and EMC directives; Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE; Reliability - failure rate of less than 0.1% annually within the first three years of operation.	

HP 65W Slim Travel AC adapter		
Dimensions	4.8 x 2.3 x 0.67 in (12.0 x 5.76 x 1.67 cm)	
Weight	0.77 lb (350 g) max	
Input		
	Input Efficiency	87% min at 115 VAC
	Input frequency range	47 to 63 Hz
	Input AC current	1.7 A at 90 VAC
Output	**Output power**	65W/7.5W
	DC output	+19.5V/+5V
	Output current limit	<11A, Over voltage protection- 29V max automatic shutdown
Environmental Design	**Operating temperature**	32° to 95° F (0° to 35° C)
	Non-operating (storage) **temperature**	-4° to 185° F (-20° to 85° C)
	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; Reliability - failure rate of less than 0.1% annually within the first three years of operation.	

HP 4-cell Long Life Polymer battery (40 Whr)		
Dimensions (H x W x L)	4.58mm*283.35mm*141.95mm	
	0.2 in x 12.32 in x 6.17 in	
Weight	190g	
Cells/Type	4 cell Lithium-Ion	
Energy	**Voltage**	7.6V
	Amp-hour capacity	5270mAh

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	Watt-hour capacity	40Wh
Temperature	**Operating (Charging)**	0~50℃
	Operating (Discharging)	-10℃~60℃
	Non-operating	>60℃
Battery Re-Charge Time	**System in OFF or Standby Mode**	3 Hr
	Fuel Gauge LED	No LED

ENVIRONMENTAL

Eco-Label Certifications & declarations

This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks:

- IT ECO declaration
- US ENERGY STAR®
- EPEAT <Gold> registered in the United States. See http://www.epeat.net for registration status in your country.

System Configuration

The configuration used for the Energy Consumption and Declared Noise Emissions data for the Notebook model is based on a "Typically Configured Notebook".

Energy Consumption (in accordance with US ENERGY STAR® test method)	**115VAC, 60Hz**	**230VAC, 50Hz**	**100VAC, 60Hz**
Normal Operation (Short idle)	6.47 W	6.82 W	7.00 W
Normal Operation (Long idle)	3.01 W	2.96 W	2.86 W
Sleep	0.29 W	0.32 W	0.29 W
Off	0.23 W	0.26 W	0.23 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

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is for a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system.

Heat Dissipation*	115VAC, 60Hz	230VAC, 50Hz	100VAC, 60Hz
Normal Operation (Short idle)	22 BTU/hr	23 BTU/hr	24 BTU/hr
Normal Operation (Long idle)	10 BTU/hr	10 BTU/hr	10 BTU/hr
Sleep	1 BTU/hr	1 BTU/hr	1 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	2.5	15
Fixed Disk – Random writes	2.6	16

Longevity and Upgrading

This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the product may include:

- 3 USB ports
- 1 PC card slot (type I/II)
- 1 ExpressCard/54 slot
- 1 IEEE 1394 Port
- 2 SODIMM memory slots
- Optional expansion base docking station
- 1 multi-bay II storage port
- Interchangeable HDD??

Spare parts are available throughout the warranty period and or for up to "5" years after the end of production.

Batteries

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

Batteries used in the product do not contain:
Mercury greater the1ppm by weight
Cadmium greater than 20ppm by weight

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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 97.3% recycle-able when properly disposed of at end of life.

Packaging Materials

External:	PAPER/Corrugated	324 g

Internal:	PLASTIC/Polyethylene low density	14.5 g
	PLASTIC/EPE-Expanded Polyethylene	42.8 g
	PLASTIC/Polystyrene	3.9 g

The plastic packaging material contains at least 70% recycled content.
The corrugated paper packaging materials contains at least 50% 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.

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- Radioactive Substances
- Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)

Packaging Usage

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

End-of-life Management and Recycling

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

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/recyclers. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

Hewlett-Packard Corporate Environmental Information

For more information about HP's commitment to the environment:

Global Citizenship Report
   http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html
Eco-label certifications
   http://www8.hp.com/us/en/hp-information/environment/ecolabels.html
 ISO 14001 certificates:

http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC_GBU_Product_Design_ISO_14K_Certificate.pdf

and

http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf

COUNTRY OF ORIGIN

China

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QuickSpecs

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

Type	Description	Part Number
Cases		
	HP Executive Slim Top Load 15.6" Black	P6N20AA
	HP Executive Messenger 15.6" Black	P6N21AA
	HP Executive Top Load 15.6" Brown	P6N19AA
	HP Executive Top Load 15.6" Black	P6N18AA
	HP Executive Backpack 15.6" Brown	P6N22AA
	HP Executive Backpack 17.3" Black	P6N23AA
	HP Exec 17.3" Leather Black Top Load	P6N25AA
	HP Exec 17.3" Leather Brown Top Load	P6N24AA
Docking		
	HP UltraSlim Docking Station	D9Y32AA
Input/Output		
	HP Ultrathin Wireless Mouse	L9V78AA
	HP HDMI to VGA Adapter	H4F02AA
	HP USB-C to RJ45/USB 3.0/USB-C	N2Z64AA
	HP USB-C to RJ45	V7W66AA
	HP UC Wired Headset	K7V17AA
	HP Conferencing Keyboard	K8P74AA
	HP UC Speaker Phone	K7V16AA
Displays		
	HP EliteDisplay E272q QHD 27-inch Monitor	M1P04AA
	HP EliteDisplay E240c Video Conferencing Monitor	M1P00AA
	HP EliteDisplay E242 24-inch Monitor	M1P02AA

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Summary of changes

Date of change:	Version History:		Description of change:
May 25, 2016	Version 1 to 2	Added	MIL-STD results
July 12, 2016	V2 to 3	Deleted	Anti-glare references
July 25, 2016	V3 to v4	Added	Environmental info

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