

Overview

HP Elite x2 1013 G3



Left

- | | |
|----------------------------------|--|
| 1. Web cam LED | 7. Volume up/volume down |
| 2. Web cam | 8. Micro SIM Card Slot (Available on configurations with WWAN only) ¹ |
| 3. Optional IR cam | 9. Security lock slot (Lock sold separately.) |
| 4. Optional IR cam LED | 10. Pen holder |
| 5. Audio-out/Audio-in combo jack | 11. Glass clickpad |
| 6. Speakers | |

1. All units have a SIM card slot and icon but units that do not support WWAN are shipped with a non-removable SIM slot plug.

Overview

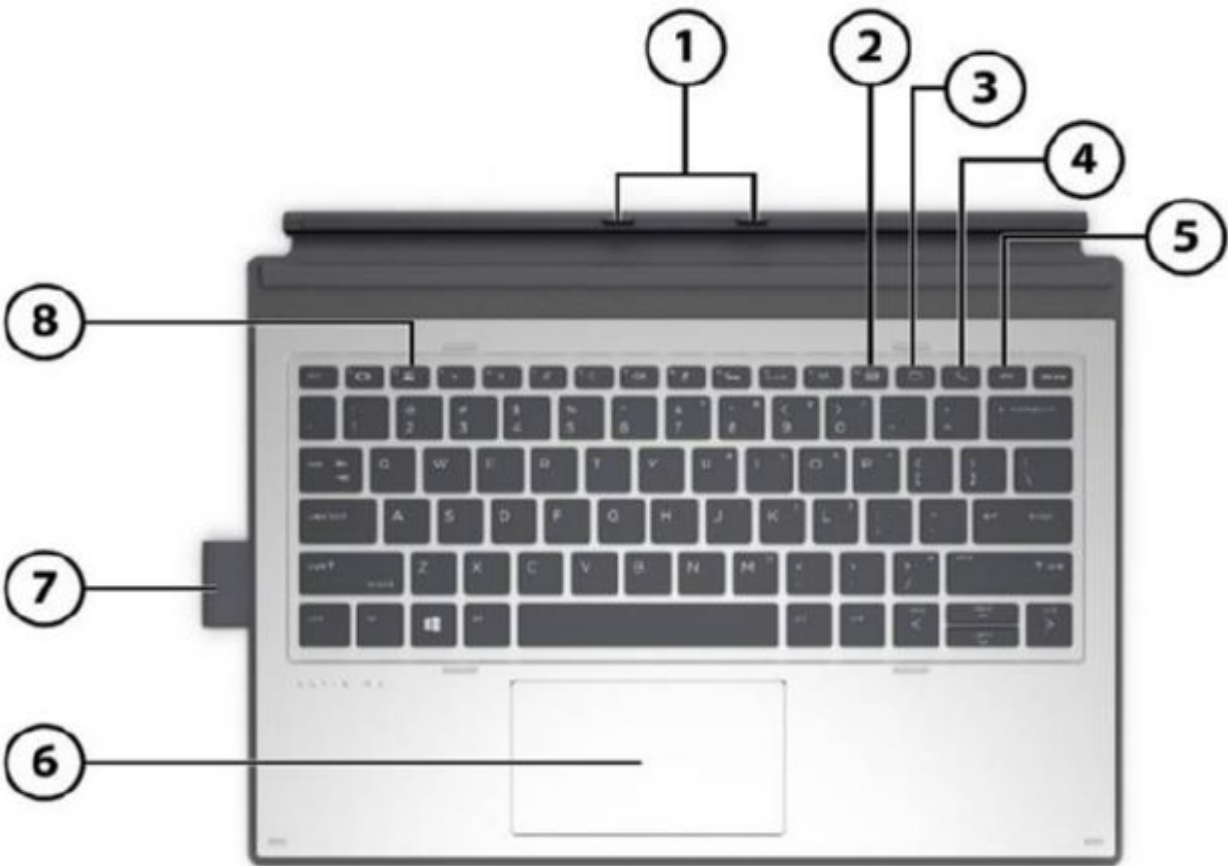


1. Charging LED
2. USB-C charging port
3. USB Type-C™ with Thunderbolt™
4. USB Type-C™ with Thunderbolt™

Rear

5. Rear-facing camera
6. Power button
7. Optional Fingerprint sensor
8. Kickstand

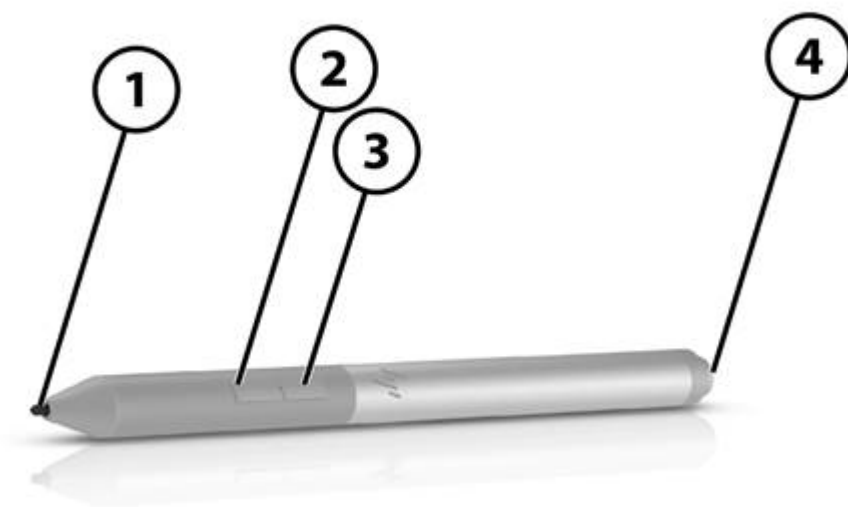
Overview



Keyboard

- | | | | |
|----|---------------------------|----|------------------|
| 1. | Keyboard guide pins | 5. | Call end |
| 2. | Outlook calendar initiate | 6. | Pen holder |
| 3. | Present | 7. | Glass clickpad |
| 4. | Call answer/initiate | 8. | Sure View on/off |

Overview



1. Tip
2. Erase

Pen

3. Select
4. Application Launch Button (Default OneNote)

Overview

AT A GLANCE

- Designed for PC performance with tablet mobility, this thin and sleek detachable is built to the standards of Elite durability
- Up to 10 hours and 30 minutes of battery life lets you work, surf and connect with colleagues¹
- Windows 10 versions
- 8th Generation Intel® Core™ (U-series) processors, some with vPro™ support²
- 13.0" diagonal ultra-slim IPS LED-backlit (3000k x 2000k) Multi-Touch Display
- Solid State Drives up to 512 GB including FIPS 140.2 (CIS only); OPAL 2 drives support up to 512 GB PCIe; NVMe drives support up to 1024 GB
- Weight starting at 810 g (1.78 lb) for Tablet
- Height starting at 7.9 mm (.31 inches) for Tablet
- Pending MIL-STD 810g testing³
- Optional Sure View privacy screen
- Audio by Bang & Olufsen
- Optional IR camera
- Three microphone array featuring a rear-facing microphone with HP Advanced Noise Reduction Software
- Front and Back facing camera and webcam
- Supports a broad range of wireless broadband and Wi-Fi options for connectivity on the go
- Optimized security using industry standard technologies such as TPM2.0 and an optional integrated fingerprint sensor
- Protect your device and data using the latest HP security technology solutions: HP Sure Start Gen4⁴, HP BIOSphere Gen4⁵ and HP Client Security Suite Gen4⁶
- Standard commercial 1 year limited warranty with extended service available with optional HP Care Packs

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 <http://www.bapco.com> for additional details.

2. vPro™ support not available on all configurations

3. MIL-STD-810G testing is pending and is conducted on select HP products. Testing is not intended to demonstrate fitness of U.S. Department of Defense (DoD) contract requirements or for military use. Test results are not a guarantee of future performance under these test conditions. Accidental damage requires an optional HP Accidental Damage Protection Care Pack.

4. HP Sure Start Gen4 is available on HP EliteBook products equipped with Intel® 8th generation processors.

5. HP BIOSphere Gen4 requires Intel® or AMD 8th Gen processors. Features may vary depending on the platform and configurations.

6. HP Client Security Suite Gen 4 requires Windows and Intel® or AMD 8th generation processors.

Technical Specifications

PRODUCT NAME

HP Elite x2 1013 G3

OPERATING SYSTEM

Preinstalled	Windows 10 Pro 64 ¹ Windows 10 Pro 64 (National Academic only) ^{1,2} Windows 10 Home 64 ¹ Windows 10 Home Single Language 64 ¹ FreeDOS 2.0
--------------	--

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/>.
2. Note: Some devices for academic use will automatically be updated to Windows 10 Pro Education with the Windows 10 Anniversary Update. Features vary; see <https://aka.ms/ProEducation> for Windows 10 Pro Education feature information.

PROCESSORS

Intel® Core™ i3-8130U with Intel® UHD Graphics 620 (2.2 GHz base frequency, up to 3.4 GHz with Intel® Turbo Boost Technology, MB cache, 2 cores) ^{3,4,5,6}
Intel® Core™ i5-8250U with Intel® UHD Graphics 620 (1.6 GHz base frequency, up to 3.4 GHz with Intel® Turbo Boost Technology, MB cache, 4 cores) ^{3,4,5,6}
Intel® Core™ i5-8350U vPro™ processor with Intel® UHD Graphics 620 (1.7 GHz base frequency, up to 3.6 GHz with Intel® Turbo Boost Technology, 6 MB cache, 4 cores) ^{3,4,5,6,7}
Intel® Core™ i7-8550U SIPP processor with Intel® UHD graphics 620 (1.8 GHz base frequency, up to 4 GHz with Intel® Turbo Boost Technology, 8 MB cache, 4 cores) ^{3,4,5,6,7}
Intel® Core™ i7-8650U vPro™ processor with Intel® UHD graphics 620 (1.9 GHz base frequency, up to 4.2 GHz with Intel® Turbo Boost Technology, 8 MB cache, 4 cores) ^{3,4,5,6,7}
Processor Family
8th Generation Intel® Core™ i7 processor (i7-8650U and i7-8550U models) ⁵
8th Generation Intel® Core™ i5 processor (i5-8350U and i5-8250U models) ⁵
8th Generation Intel® Core™ i3 processor (i3-8130U model) ⁵

3. 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 branding and/or naming is not a measurement of higher performance.
4. Processor speed denotes maximum performance mode; processors will run at lower speeds in battery optimization mode.
5. 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>.
6. Intel Turbo Boost performance varies depending on hardware, software and overall system configuration. See <http://www.intel.com/technology/turboboost> for more information.
7. Some functionality of vPro, 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 dependant on 3rd party software providers. Compatibility of this generation of Intel vPro technology-based hardware with future "virtual appliances" is yet to be determined.

Technical Specifications

CHIPSET

Integrated with processor

GRAPHICS

Integrated
Intel® UHD Graphics 620⁸

8. HD content required to view HD images.

DISPLAY

Touch
33.02 cm (13") diagonal 3kx2k IPS LED-backlit touch screen with Corning® Gorilla® Glass 4, Low Power Ultra Slim bent, 450 cd/m² RGB (3000 x 2000)^{8,9,10}
HP Sure View integrated privacy screen 33.02 cm (13") diagonal FHD IPS eDP LED-backlit touch screen with Corning® Gorilla® Glass 4, CWLED UWVA 700 cd/m², RGB (1920 x 1280)^{8,9,10,11}

- 8. HD content required to view HD images.
- 9. Resolutions are dependent upon monitor capability, and resolution and color depth settings.
- 10. Sold separately or as an optional feature.
- 11. HP Sure View integrated privacy screen is an optional feature that must be configured at purchase.

STORAGE AND DRIVES

Primary Storage
128 GB SATA-3 SS TLC¹²
256 GB PCIe® Gen3x4 NVMe™ SS TLC¹²
256 GB PCIe® NVMe™ Value¹²
256 GB PCIe® TLC Opal 2¹²
512 GB PCIe® Gen3x4 NVMe™ SS TLC¹²
512 GB PCIe® Opal 2 TLC¹²
512 GB SATA SS TLC Federal Information Processing Standard (FIPS 140.2 available via CIS only)¹²
1 TB PCIe® Gen3x4 NVMe™ SS TLC¹²

12. For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 10) is reserved for system recovery software.

MEMORY

Technical Specifications

Maximum Memory

16 GB LPDDR3-2133 SDRAM¹³

Memory

16 GB LPDDR3-2133 SDRAM Total System Memory (32Gb 256Mx32x4, Qty 4)¹³

8 GB LPDDR3-2133 SDRAM Total System Memory (16Gb 256Mx16x4, Qty 4)¹³

4 GB LPDDR3-2133 SDRAM Total System Memory (8Gb 128Mx32x2, Qty 4)¹³

Memory Slots

Memory soldered down

Supports Dual Channel Memory

Supports up to 16 GB

13. 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

WLAN

Intel® Dual Band Wireless-AC 8265 802.11a/b/g/n/ac (2x2) Wi-Fi® and Bluetooth® 4.2 Combo, vPro™^{14,15}

Intel® Dual Band Wireless-AC 8265 802.11a/b/g/n/ac (2x2) Wi-Fi® and Bluetooth® 4.2 Combo, non-vPro™^{14,15}

WWAN

Integrated WWAN options with dual antennas:

HP It4132 LTE/HSPA+ with GPS Mobile Broadband Module¹⁶

HP It4220 LTE/HSPA+ with GPS Mobile Broadband Module¹⁶

WWAN cards are compatible with a programmable removable eSIM

Miracast

Native Miracast Support¹⁷

Standalone GPS

HP Graff GNSS Module¹⁸

HP Connection Optimizer

Support HP Connection Optimizer with WiFi Load balancing

14. Wireless access point and Internet service required and sold separately. 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.

15. Dynamic Regulatory Solution will auto-change AC WLAN to abgn by passive scan when entering Indonesia.

16. WWAN module is optional, must be configured at the factory and requires separately purchased service contract. Check with service provider for coverage and availability in your area. Connection speeds will vary due to location, environment, network conditions, and other factors. 4G LTE not available on all products, in all regions.

17. Miracast is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming.

18. Standalone GPS is an optional feature and requires factory configuration. GPS and WWAN are mutually exclusive.

AUDIO/MULTIMEDIA

Technical Specifications

Audio

Bang & Olufsen
Dual speakers (front-facing) with discrete amp
3 multi array microphone
HP Noise Cancellation
Headphone line-out and microphone-in (combo)
72 dB Audio Level

Camera

Integrated 5MP (1080p) - Front⁸
Integrated 8MP with flash (1080p) - Back⁸

IR Camera

Integrated VGA IR camera w/ IR LED emitters that meets Microsoft Hello face recognition certification for secure authentication^{19,20}

8. HD content required to view HD images.

19. Sold separately or as an optional feature. Microsoft Hello requires Windows 10.

20. Internet access required.

KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

Keyboard

Collaboration travel keyboard

Pointing Device

Touchpad with multi-touch gestures enabled.

Function Keys

ESC Key
F1 - Display Switching
F2 - Sure View on/off
F3 - Brightness Down
F4 - Brightness Up
F5 - Mute
F6 - Volume Down
F7 - Volume Up
F8 - Mic Mute
F9 - Backlight Toggle
F10 - Num Lock
F11 - Wireless On/Off
F12 - Calendar
Delete key

Collaboration Keys

Call End
Share / Present
Call Answer

Technical Specifications

SOFTWARE AND SECURITY

Preinstalled Software

BIOS

HP BIOSphere Gen4²¹
HP DriveLock & Automatic DriveLock
BIOS Update via Network
Master Boot Record Security
Power On Authentication
Secure Erase²²
Absolute Persistence Module²³
Pre-boot Authentication
HP Wireless Wakeup

Software

HP Native Miracast Support¹⁷
HP LAN-Wireless Protection
HP Velocity
HP ePrint Driver + JetAdvantage²⁴
HP Hotkey Support - CMIT
HP Recovery Manager
HP Jumpstart
HP Support Assistant²⁵
HP Noise Cancellation Software
HP PhoneWise³²
HP WorkWise³⁸
Buy Office (Sold separately)

Manageability Features

HP Driver Packs²⁶
HP System Software Manager (SSM)
HP BIOS Config Utility (BCU)
HP Client Catalog
HP Manageability Integration Kit Gen2²⁷
Ivanti Management Suite²⁸

Client Security Software

HP Client Security Suite Gen4²⁹ including:
HP Client Security Manager³⁰ (including Credential Manager, Password Manager, Spare Key)
Synaptics Fingerprint Sensor³⁴
HP Device Access Manager
HP Power On Authentication
Microsoft Defender³¹

Technical Specifications

Security Management

Secure Erase²²

TPM 2.0 Embedded Security Chip shipped with Windows 10 (Common Criteria EAL4+ Certified)

SATA 0,1 port disablement (viaBIOS)

RAID configurations³⁵

Serial, USB enable / disable (viaBIOS)

Power-on password (viaBIOS)

Setup password (viaBIOS)

Support for chassis padlocks and cable lock devices

Integrated hood sensor

HP Sure Click³⁹

HP Sure Start Gen4³³

HP Sure Run³⁶

HP Sure Recover³⁷

HP Sure View Gen 2

17. Miracast is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming.

21. HP BIOSphere Gen4 requires Intel® or AMD 8th Gen processors. Features may vary depending on the platform and configurations.

22. Secure Erase for the methods outlined in the National Institute of Standards and Technology Special Publication 800-88 "Clear" sanitation method.

23. 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:

<http://www.absolute.com/company/legal/agreements/computrace-agreement>. 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.

24. HP ePrint Driver 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 <http://www.hp.com/go/eprintcenter>). Print times and connection speeds may vary.

25. HP Support Assistant requires Windows and Internet access.

26. HP Driver Packs not preinstalled, however available for download at <http://www.hp.com/go/clientmanagement>.

27. HP Manageability Integration Kit can be downloaded from <http://www8.hp.com/us/en/ads/clientmanagement/overview.html>.

28. Ivanti Management Suite subscription required.

29. HP Client Security Suite Gen 4 requires Windows and Intel® or AMD 8th generation processors.

30. HP Sure Recover is available on HP Elite PCs with 8th generation Intel® or AMD processors and requires an open, wired network connection. Not available on platforms with multiple internal storage drives, Intel® Optane™. You must back up important files, data, photos, videos, etc. before use to avoid loss of data.

31. Microsoft Defender Opt in and internet connection required for updates.

32. HP PhoneWise Client may not be available with HP Workwise. For supported platforms and HP PhoneWise system requirements see <http://www.hp.com/go/HPPhoneWise>.

33. HP Sure Start Gen4 is available on HP EliteBook products equipped with Intel® 8th generation processors.

34. HP Fingerprint Sensor sold separately or as an optional feature.

35. RAID configuration is optional and does require a second hard drive.

36. HP Sure Run is available on HP Elite products equipped with 8th generation Intel® or AMD® processors.

37. HP Sure Recover is available on HP Elite PCs with 8th generation Intel® or AMD processors and requires an open, wired network connection. You must back up important files, data, photos, videos, etc. before using HP Sure Recover to avoid loss of data.

38. HP WorkWise smartphone app is available as a free download on the Google Play. As of September 2017, HP WorkWise will no longer support iOS or iPhone® devices.

39. HP Sure Click is available on select HP platforms and supports Microsoft® Internet Explorer, Google Chrome, and Chromium™. Supported attachments include Microsoft Office (Word, Excel, PowerPoint) and PDF files in read only mode. Check <http://h20195.www2.hp.com/v2/GetDocument.aspx?docname=4AA7-0922ENW> for all compatible platforms as they become

Technical Specifications

available.

POWER

Power Supply
HP 65W External AC power adapter non-PFC USB-C, Length: DC = 1.8m^{40,42}
HP 65W External AC power adapter nPFC slim USB USB-C⁴⁰

Primary Battery
HP Long Life 4-cell, 50 Wh Polymer (3250mAh/cell)⁴¹

Power Cord
Duckhead
Duckhead Power Cord Length: AC = 1m

Battery Life
Up to 10 hours and 30 minutes⁴³

Battery Charge Time
50% in 30 minutes⁴⁴

40. Availability may vary by country.
41. Battery is internal and not replaceable by customer. Serviceable by warranty.
42. Supports HP Fast Charging.
43. 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.
44. Units enabled with 65w adapters or higher can support fast charging of the battery from 0-50% in 30 minutes while the system is off.

WEIGHTS & DIMENSIONS

Weight	
Tablet weight (imperial)	1.78 lb ⁴⁵
Tablet weight (metric)	810 g ⁴⁵
Keyboard weight (imperial)	0.81 lb
Keyboard weight (metric)	368 g
Weight of tablet and keyboard (imperial)	2.59 lb ⁴⁵
Weight of tablet and keyboard (metric)	1178 g ⁴⁵
Dimensions (W x D x H)	
Dimensions tablet (imperial)	11.81 x 0.31 x 9.11 in
Dimensions tablet (metric)	30 x 0.79 x 23.15 cm
Dimensions tablet and keyboard (imperial)	11.81 x 0.52 x 9.11 in
Dimensions tablet and keyboard (metric)	30 x 1.33 x 23.15 cm

Technical Specifications

45. Weight will vary by configuration.

PORTS/SLOTS

- Ports
- 2 USB 3.1 Type-C™ with Thunderbolt™ support

1 USB 3.1 Type-C™ power port (Power delivery, DisplayPort™)

1 Headphone/microphone combo
- Expansion Slots
- 1 nano SIM

SERVICE AND SUPPORT

HP Services offers a 1-year limited warranty and 90 day software limited warranty options 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 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>.⁴⁶

46. 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 <http://www.hp.com/go/cp> 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.

DISPLAYS

13" diagonal 3kx2k IPS LED-backlit touch screen with Corning® Gorilla® Glass 4 Low Power Ultra Slim bent 450nit 72% CG (3000x2000)	Outline Dimensions (W x H)	279.3 * 193.0 mm (max.)
	Active Area	274.5 * 183 mm (max.)
	Weight	160g (max.)
	Diagonal Size	13.0"
	Thickness	1.8(panel side)/3.9(PCBA side) mm(max.)
	Interface	eDP
	Surface Treatment	Glare
	Touch Enabled	No
	Contrast Ratio	1800 (typ.)
	Refresh Rate	60Hz
	Brightness	450 nit typical (Panel Only)
	Pixel Resolution	3000x2000
	Format	RGB stripe

Technical Specifications

Backlight	LED
Color Gamut Coverage	72%
Color Depth	6 bits
Viewing Angle	85/85/85/85

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

33.02 cm (13") diagonal
WUXGA+ IPS LED-backlit touch
screen with Corning® Gorilla®
Glass 4 and privacy screen,
CWLED UWVA (1920x1280)

Outline Dimensions (W x H x D)	279.3 x 193.2 mm (max.)
Active Area	272.449 x 181.632 mm (max.)
Weight	220g (max.)
Diagonal Size	13.0"
Thickness	1.8 mm / 3.9 mm(max.)
Interface	eDP 1.4a
Surface Treatment	Anti-Glare
Touch Enabled	No
Contrast Ratio	Sharing mode, 600:1 (typ.) Privacy mode, 150:1 (typ.)
Refresh Rate	120Hz
Brightness	Sharing mode, 700 nits (typ.) Privacy mode, 320 nits (typ.)
Pixel Resolution	1920x1280
Format	RGB strip
Backlight	LED
Color Gamut Coverage	Sharing mode, 72% Privacy mode, 60%
Color Depth	6 bits + Hi FRC
Viewing Angle	Sharing mode, CR >10, L/R/U/D, 85/85/85/85 (typ.) Privacy mode CR>2, L/R/U/D, 50/50/85/85 (typ.)

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

STORAGE

Technical Specifications

SSD 128 GB 2280 M2 SATA-3 TLC	Form Factor	M.2 2280
	Capacity	128 GB
	NAND Type	TLC
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Weight	0.02 lb (10 g)
	Interface	ATA-8, SATA 3.0
	Maximum Sequential Read	Up To 520 MB/s
	Maximum Sequential Write	Up To 450 MB/s
	Logical Blocks	250,069,680
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	DIPM; TRIM; DEVSLP

NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 10) of system disk is reserved for the system recovery software.

SSD 256 GB 2280 M2 PCIe-3x4 SS NVMe TLC	Form Factor	M.2 2280
	Capacity	256 GB
	NAND Type	TLC
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Weight	0.02 lb (10 g)
	Interface	PCIe NVMe Gen3X4
	Maximum Sequential Read	Up To 2600 MB/s
	Maximum Sequential Write	Up To 900 MB/s
	Logical Blocks	500,118,192
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	TRIM; L1.2

NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 10) of system disk is reserved for the system recovery software.

Technical Specifications

SSD 256 GB 2280 M2 SATA-3 Self Encrypted OPAL2 Three Layer Cell	Form Factor	M.2 2280
	Capacity	256 GB
	NAND Type	TLC
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Weight	0.02 lb (10 g)
	Interface	ATA-8, SATA 3.0
	Maximum Sequential Read	Up To 530 MB/s
	Maximum Sequential Write	Up To 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

NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 10) of system disk is reserved for the system recovery software.

SSD 256 GB 2280 PCIe NVMe Value	Form Factor	M.2 2280
	Capacity	360 GB
	NAND Type	MLC
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Weight	0.02 lb (10 g)
	Interface	PCIe NVMe Gen3X4
	Maximum Sequential Read	Up To 1700 MB/s
	Maximum Sequential Write	Up To 600 MB/s
	Logical Blocks	703,282,608
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	TRIM; L1.2

NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 10) of system disk is reserved for the system recovery software.

Technical Specifications

SSD 360 GB 2280 PCIe-3x4 NVMe Three Layer Cell	Form Factor	0.02 lb (10 g)
	Capacity	360 GB
	NAND Type	TLC
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Weight	0.02 lb (10 g)
	Interface	PCIe NVMe Gen3X4
	Maximum Sequential Read	Up To 1700 MB/s
	Maximum Sequential Write	Up To 600 MB/s
	Logical Blocks	703,282,608
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	TRIM; L1.2

NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 10) of system disk is reserved for the system recovery software.

SSD 512 GB 2280 M2 PCIe-3x4 SS NVMe TLC	Form Factor	0.02 lb (10 g)
	Capacity	512 GB
	NAND Type	TLC
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Weight	0.02 lb (10 g)
	Interface	PCIe NVMe Gen3X4
	Maximum Sequential Read	Up To 2600 MB/s
	Maximum Sequential Write	Up To 1400 MB/s
	Logical Blocks	1,000,215,216
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	TRIM; L1.2

NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 10) of system disk is reserved for the system recovery software.

Technical Specifications

SSD 512 GB 2280 M2 SATA-3 Three Layer Cell Federal Information Processing Standard	Form Factor	M.2 2280
	Capacity	512 GB
	NAND Type	TLC
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Weight	0.02 lb (10 g)
	Interface	ACS-3, SATA 3.2
	Maximum Sequential Read	Up To 530 MB/s
	Maximum Sequential Write	Up To 400 MB/s
	Logical Blocks	1,000,215,216
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	TCG Opal 2.0; FIPS, DIPM; TRIM; DEVSLP

NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 10) of system disk is reserved for the system recovery software.

SSD 512 GB 2280 PCIe-3x4 NVMe Self Encrypted OPAL2 Three Layer Cell	Form Factor	0.02 lb (10 g)
	Capacity	512 GB
	NAND Type	TLC
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Weight	0.02 lb (10 g)
	Interface	PCIe NVMe Gen3X4
	Maximum Sequential Read	Up To 2900 MB/s
	Maximum Sequential Write	Up To 1400 MB/s
	Logical Blocks	1,000,215,215
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	TCG Opal2, TRIM; L1.2

NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 10) of system disk is reserved for the system recovery software.

Technical Specifications

SSD 1 TB 2280 PCIe-3x4 NVMe Three Layer Cell single-sided	Form Factor	0.02 lb (10 g)
	Capacity	1 TB
	NAND Type	TLC
	Height	0.09 in (2.3 mm)
	Width	0.87 in (22 mm)
	Weight	0.02 lb (10 g)
	Interface	PCIe NVMe Gen3X4
	Maximum Sequential Read	2900
	Maximum Sequential Write	2000
	Logical Blocks	2000409263
	Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
	Features	TRIM; L1.2

NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 10) of system disk is reserved for the system recovery software.

NETWORKING/COMMUNICATIONS

Intel 802.11a/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
		802.11a/n
		• 4.9 - 4.95 GHz (Japan)
		• 5.15 - 5.25 GHz
	Data Rates	• 5.25 - 5.35 GHz
		• 5.47 - 5.725 GHz
		• 5.825 - 5.850 GHz
		• 802.11b: 1, 2, 5.5, 11 Mbps
		• 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
	Modulation	• 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)
		Direct Sequence Spread Spectrum
		BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM
	Security	• 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

Technical Specifications

	<ul style="list-style-type: none">• 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
	<ul style="list-style-type: none">• 802.11b : +14dBm minimum• 802.11g : +12dBm minimum• 802.11a : +12dBm minimum
Output Power	<ul style="list-style-type: none">• 802.11n HT20(2.4GHz) : +12dBm minimum• 802.11n HT40(2.4GHz) : +12dBm minimum• 802.11n HT20(5GHz) : +10dBm minimum• 802.11n HT40(5GHz) : +10dBm minimum• 802.11ac VHT80(5GHz) : +10dBm minimum
Power Consumption	<ul style="list-style-type: none">• Transmit mode 2.0 W• Receive mode 1.6 W• Idle mode (PSP) 180 mW (WLAN Associated)• Idle mode 50 mW (WLAN unassociated)• Connected Standby 10mW• Radio disabled 8 mW
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Receiver Sensitivity	802.11b, 1Mbps : -93.5dBm maximum 802.11b, 11Mbps : -84dBm maximum 802.11a/g, 6Mbps : -86dBm maximum 802.11a/g, 54Mbps : -72dBm maximum 802.11n, MCS07 : -67dBm maximum 802.11n, MCS15 : -64dBm maximum 802.11ac, MCS0 : -84dBm maximum 802.11ac, MCS9 : -59dBm 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
Weight	Type 2230 : 2.8g
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
Subtitle	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)

Technical Specifications

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.
Power Consumption	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW
Electrical Interface	USB 2.0 compliant
Bluetooth Software Supported	Microsoft Windows Bluetooth Software
Link Topology	
Power Management	Microsoft Windows ACPI, and USB Bus Support
Certifications	FCC (47 CFR) Part 15C, Section 15.247 & 15.249
Power Management Certifications	ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark BT4.1-ESR 5/6/7 Compliance LE Link Layer Ping LE Dual Mode LE Link Layer LE Low Duty Cycle Directed Advertising LE L2CAP Connection Oriented Channels Train Nudging & Interlaced Scan
Bluetooth Profiles Supported	BT4.2 ESR08 Compliance LE Secure Connection- Basic/Full LE Privacy 1.2 -Link Layer Privacy LE Privacy 1.2 -Extended Scanner Filter Policies LE Data Packet Length Extension FAX Profile (FAX) Basic Imaging Profile (BIP)2 Headset Profile (HSP) Hands Free Profile (HFP) Advanced Audio Distribution Profile (A2DP)

Technical Specifications

HP It4132 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

NOTE: Wireless access point and Internet service is required. Availability of public wireless access point is limited. The specifications f the 802.11ac WLAN are draft specifications and are not final. If the final specifications differ from the draft specifications, it may affec the ability of the notebook to communicate with other 802.11ac WLAN devices

Qualcomm® Snapdragon™ X12 LTE-Advanced	Technology/Operating bands	FDD 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), 850 (Band 18 lower), 850 (Band 19 upper), 800 (Band 20), 1400 (Band 21), 850 (Band 26), 700 (Band 28), 700 (Band 29 RX only), 2300 (Band 30), 1700/2100 (Band 66). TDD LTE: 2600 (Band 38), 1900 (Band 39), 2400 (Band 40), 2500 (Band 41). HSPA+: 2100 (Band 1), 1900 (Band 2), 1700/2100 (Band 4), 850 (Band 5), 900 (Band 8) MHz
	Wireless protocol standards	3GPP Release 11 LTE Specification CAT.9, DL 60MHz BW throughput up to 450Mbps; UL 20MHz throughput up to 50Mbps WCDMA R99, 3GPP Release 5, 6, 7 and 8 UMTS Specification
	GPS	Standalone, A-GPS (MS-A, MS-B and XTRA)
	GPS bands	1575.42 MHz ± 1.023 MHz, GLONASS 1596-1607MHz, Beidou 1561.098 MHz
	Maximum data rates	LTE: 450 Mbps (Download), 50 Mbps (Upload) DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload) HSPA+: 21Mbps (Download), 5.76 Mbps (Upload)
	Maximum output power	LTE: 23 dBm HSPA+: 23.5 dBm

Technical Specifications

Maximum power consumption	LTE: 1,200 mA (peak); 900 mA (average) HSPA+: 1,100 mA (peak); 800 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

NOTE: 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 Graff GNSS Module Technology	Standalone GPS, GLONASS
Dimensions (L x W x H)	42 x 30 x 2.3 mm
System interface	USB 2.0
GPS bands	GPS L1 1575.42 MHz ± 1.023 MHz, GLONASS 1596-1607MHz
Power Consumption	Active mode (continuous): 67 mA (peak); 26 mA (average)
Form Factor	M.2, 3042-S3 Key B
Weight	4.3g

POWER

AC Adapter 65 Watt nPFC Slim USB	Dimensions	88.0x53.5x21.0mm	
	Weight	220g +/- 10g	
	Input	100 to 240 VAC	
	Input Efficiency	Average Efficiency of 25%, 50%, 75%, 100% load condition with 115Vac/230Vac Spec: 5V : 81.5% 9V : 86.7% 12V : 88.0% 15V : 89.0% 20V : 89.0%	
		Input frequency range	48 ~ 63 Hz
		Input AC current	Max. 1.7 A at 90 VAC
	Output	DC output	5V/15W 9V/27W 10V/50W 12V/60W 15V/65W 20V/65W
		Hold-up time	5V / 9V / 10V /12V / 15V / 20V
		Output current limit	5ms at 115 Vac input
	Connector	<8.0A	
	Environmental Design	Operating temperature	32°F to 95°F (0°to 35°C)

Technical Specifications

	Non-operating (storage) temperature	-4°F to 185°F (-20°to 85°C)
	Altitude	0 to 16,400 ft (0 to 5000m)
	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.

Battery ME 4 Cell WHr 50 Long Life -PL Fast Charge	Dimensions	4.0 x 96.62 x231.8 mm (0.157 x3.804 x9.126 inch)
	Weight	0.188kg (0.415 lb)
	Cells/Type	4cell Lithium-Ion Polymer cell / 385784
	Energy	ED750 platform
	Voltage	8.8V/7.7V
	Watt-hour capacity	47.5Wh(min.)/50Wh(typ.)
	Operating (charging)	32° to 113° F (0° to 45° C)
	Operating (Discharging)	14° to 122° F (-10° to 60° C)
	Operating (Discharging)	14° to 122° F (-10° to 60° C)
	Fuel Gauge LED	NA
	Optional Travel Battery Available	No

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

Type	Description	Part #
Cases	HP Business Slim Top Load	2SC66AA
	HP Elite Top Load Colombian Leather Case	T9H72AA
	HP Elite Top Load Herringbone Nylon Case	T9H73AA
	HP Elite x2 1012 G3 Protective Case	TBD
	HP Slim Ultrabook Messenger (up to 15.6" x .88"/22/5mm)	F3W14AA
	HP Slim Ultrabook Top Load (up to 15.6" x .88"/22/5mm)	F3W15AA
	HP Slim Ultrabook Backpack (up to 15.6" x .88"/22/5mm)	F3W16AA
	HP x2 1013 G3 Protective Case	4LR28AA
	HP x2 1013 G3 Healthcare Case	4LR29AA
Docking	HP Thunderbolt Dock 120W G2	2UK37AA#xxx
	HP TB Dock G2 w/ Combo Cable	3TR87AA#xxx
	HP TB Dock 120W G2 w/ Audio	3YE87AA#xxx
	HP Thunderbolt Dock Audio Module	3AQ21AA
	HP TB Dock 120W G2 cable	3XB94AA
	HP TB Dock G2 combo cable	3XB96AA
	HP USB-C Universal Dock	1MK33AA#xxx
	HP USB-C Universal Dock NF	3DV65AA#xxx
	HP USB-C Dock G4	3FF69AA#xxx
	HP USB-C Mini Dock	1PM64AA#xxx
	HP USB-C Travel Hub	Z9G82AA
Input/Output	HP Elite x2 1013 G3 Collaboration Keyboard	TBD
	HP Essential USB Mouse	2TX37AA#xxx
	HP Slim Bluetooth Mouse	F3J92AA#xxx
	HP Elite presenter mouse	2CE30AA#xxx
	HP Stereo 3.5mm Headset	T1A66AA
	HP Active Pen G2	TBD
	HP USB-C to VGA Adapter	N9K76AA
	HP USB-C to HDMI 2.0 Adapter	X7W54AA
	HP USB-C to DisplayPort Adapter	N9K78AA
	HP USB-C to USB 3.0	N2Z63AA
	HP USB-C to RJ45 Adapter	V8Y76AA
	HP USB-C to 4.5mm + 3.0mm Combo DC Jack	N2Z65AA
Power	HP 45W USB-C Auto Adapter	Z3Q87AA
	HP 45W USB-C AC Adapter	1HE07AA#xxx
	HP USB-C Notebook Power Bank	1TZ86AA
	HP 65W USB-C AC Adapter	1HE08AA#xxx
Security	HP Nano Keyed Cable Lock	1AJ39AA
	HP Nano Master Keyed Cable Lock	1AJ40AA
	HP Nano Keyed Dual Head Cable Lock	1AJ41AA

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

Displays	HP EliteDisplay S340c 34-inch Curved Monitor	V4G46AA
	HP S270n 27-inch 4K Monitor	2PD37AA
	HP EliteDisplay E273m Collaboration Monitor	1FH51AA
	HP EliteDisplay E243 Monitor	1FH47AA

Summary of Changes

Date of change:	Version History:		Description of change:
	V1 to V2		

Copyright © 2018 HP Development Company, L.P. The only warranties for HP products are set forth in the express limited warranty statements accompanying such products. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein. Intel, Core and Intel vPro are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. DisplayPort™ and the DisplayPort™ logo are trademarks owned by the Video Electronics Standards Association (VESA®) in the United States and other countries. USB Type-C™ and USB-C™ are trademarks of USB Implementers Forum. ENERGY STAR is a registered trademark of the U.S. Environmental Protection Agency. Microsoft and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.