Overview

HP Dragonfly 13.5 inch G4 Notebook PC



Left

1.	Ambient Light and Color Sensor	**6.**	Clickpad
2.	IR LED & Cam	**7.**	LED indicator
3.	Webcam	**8.**	Thunderbolt™ 4 with USB4 Type-C® 40Gbps signaling rate (USB Power Delivery, DisplayPort™ 1.4)[1]
4.	Webcam LED	**9.**	Nano SIM card slot (WWAN Configurations Only)
5.	NFC Sensor	**10**	HDMI 2.1

1. SuperSpeed USB 20Gbps is not available with Thunderbolt™ 4.

Overview



Right

1. Power Button Key
2. Speakers
3. Audio Combo Jack
4. SuperSpeed USB Type-A 5Gbps signaling rate (Charging port) (USB 3.2 Gen 1)
5. Thunderbolt™ 4 with USB4 Type-C® 40Gbps signaling rate (USB Power Delivery, DisplayPort™ 1.4)[1]
6. LED indicator
7. Nano Security Lock Slot (Lock sold separately)

1. SuperSpeed USB 20Gbps is not available with Thunderbolt™ 4.

Overview

At a Glance

- Preinstalled with Windows 11 versions or FreeDOS
- A new lightweight clamshell ultra slim design that starts at less than 1kg.
- The Elite Dragonfly G4 offers a choice of colors: Slate Blue or Natural Silver
- New 3:2 aspect ratio screen reduces the need to scroll by showing more vertical content than 16:9. Both touch and non-touch
- panels are offered."
- 13th Generation Intel® Core™ i5, i7 U series
- New 5MP camera with HP Auto Frame allows you around a little without losing viewers' attention during video calls
- New LPDDR5 memory (up to 32GB) and PCI Gen4 SSDs provide fast access to your work.
- Choice of displays:
  34.3 cm (13.5") diagonal, BV WUXGA+ (1920x1280), WLED-backlit, 400 nits, 100% sRGB, non-touch with HP Eye Ease
  34.3 cm (13.5") diagonal, AG WUXGA+ (1920x1280), WLED-backlit, 1000 nits, 100% sRGB, HP Sure View Reflect, non-touch with HP Eye Ease
  34.3 cm (13.5") diagonal, BV WUXGA+ (1920x1280), WLED-backlit, 400 nits, 100% sRGB, touch with HP Eye Ease
  34.3 cm (13.5") diagonal, AG WUXGA+ (1920x1280), WLED-backlit, 400 nits, 100% sRGB, touch with HP Eye Ease
  34.3 cm (13.5") diagonal, BV WUXGA+ (1920x1280), WLED-backlit, 1000 nits, 100% sRGB, HP Sure View Reflect, touch with HP Eye Ease
  34.3 cm (13.5") diagonal, 3K2K, OLED (3000x2000), 400 nits, 100% DCI P3, HP Eye Ease
- Choose from 45Whr or 68Whr battery options
- HP Wolf Security for Business creates a hardware-enforced, always-on, resilient defense.
- Larger Clickpad surface for easier, more intuitive input
- Connectivity with optional Intel® 5000 5G/WWAN available world-wide, and Thunderbolt™ Docking (Dock sold separately)
- Undergoes MIL-STD 810H tests[1]
- Supports fast charging (50% in 30 minutes) with no impact on battery recharge cycles
- Designed to support all HP docking options including the HP Universal Dock G5
- Can be wiped up to 1000 times with common household cleaning wipes[2]
- Synchronized hinge allows the EliteBook to ProBook to open to 177˚ +/- 3 ˚ without lifting the keyboard and offers visibility from multiple angles.

1. MIL-STD 810H is not intended to demonstrate fitness of U.S. Department of Defense 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.
2. See wipe manufacturer's instructions for disinfecting and the HP cleaning guide for HP tested wipe solutions at https://h20195.www2.hp.com/v2/GetDocument.aspx?docname=4AA7-7610ENW

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

Technical Specifications

PRODUCT NAME

HP Dragonfly 13.5 inch G4 Notebook PC

OPERATING SYSTEMS

Preinstalled

Windows 11 Pro [1]
Windows 11 Pro Education [1]
Windows 11 Home - HP recommends Windows 11 Pro for Business[1]
Windows 11 Home Single Language – HP recommends Windows 11 Pro for Business[1]
Windows 11 Pro (Windows 11 Enterprise or Windows 10 Enterprise available with a Volume Licensing Agreement) [1]
Windows 11 Pro (preinstalled with Windows 10 Pro Downgrade) [1,2]
FreeDOS

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 is automatically updated and enabled. High speed internet and Microsoft account required. ISP fees may apply and additional requirements may apply over time for updates. See http://www.windows.com.
2. This system is preinstalled with Windows 10 Pro software and also comes with a license for Windows 11 Pro software and provision for recovery 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.

PROCESSORS

Processor 3,4,5,6,7	Cores	Number of P-cores	Number of E-cores	Threads	L3 Cache	Max Turbo Frequency		Base Frequency		Intel SIPP/vPro® Enterprise	Intel vPro® Essentials
						P-cores	E-cores	P-cores	E-cores		
Intel® Core™ i7-1365U	10	2	8	12	12 MB	5.2 GHz	3.9 GHz	1.8 GHz	1.3 GHz	X	
Intel® Core™ i7-1355U	10	2	8	12	12 MB	5.0 GHz	3.7 GHz	1.7 GHz	1.2 GHz		X
Intel® Core™ i5-1345U	10	2	8	12	12 MB	4.7 GHz	3.5 GHz	1.6 GHz	1.0 GHz	X	
Intel® Core™ i5-1335U	10	2	8	12	12 MB	4.6 GHz	3.4 GHz	1.3 GHz	0.9 GHz		X

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.

Technical Specifications

5. Intel® Turbo Boost performance varies depending on hardware, software and overall system configuration. See www.intel.com/technology/turboboost for more information.
6. 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
7. Intel vPro® requires Windows 10 Pro 64 bit or higher, a vPro supported processor, vPro enabled chipset, vPro enabled wired LAN and/or Wi-Fi 6E WLAN and TPM 2.0. Some functionality requires additional 3rd party software in order to run. Features of vPro® Essentials and Enterprise vary. See http://intel.com/vpro

CHIPSET

Chipset is integrated with processor

GRAPHICS

Integrated
Intel® Iris® Xᵉ Graphics [8]

Supports
Support HD decode, DX12, HDMI 2.1[9]

8. Intel® Iris® Xᵉ Graphics capabilities require system to be configured with Intel® Core™ i5 or i7 processors and dual channel memory. Intel® Iris® Xᵉ Graphics with Intel® Core™ i5 or 7 processors and single channel memory will only function as UHD graphics.
9. HDMI cable sold separately

Technical Specifications

DISPLAY

Non-Touch

34.3 cm (13.5") diagonal, WUXGA+ , IPS BrightView, micro-edge, 400 nits, sRGB 100% eDP 1.4+PSR,Ambient Light Sensor + Ambient Color Sensor (1920 x 1280) [9,10]

34.3 cm (13.5") diagonal, WUXGA+ ,UWVA anti-glare, micro-edge, 1000 nits, HP Sure View integrated privacy screen, eDP 1.3+PSR, Ambient Light Sensor + Ambient Color Sensor (1920 x 1280) with HP Eye Ease [9,10,11,12]

34.3 cm (13.5") diagonal, 3Kx2K, OLED, IPS BrightView, micro-edge, 400 nits, DCI-P3 100% eDP 1.4+PSR, Ambient Light Sensor + Ambient Color Sensor (3000 x 2000) [9,10]

Touch

34.3 cm (13.5") diagonal, WUXGA+, touch, IPS anti-glare, micro-edge, 400 nits, sRGB 100% eDP 1.4+PSR, Ambient Light Sensor + Ambient Color Sensor (1920 x 1280) [9,10,12]

34.3 cm (13.5") diagonal, WUXGA+, touch, IPS BrightView, micro-edge, 400 nits, sRGB 100% eDP 1.4+PSR, Ambient Light Sensor + Ambient Color Sensor (1920 x 1280) [9,10,12]

34.3 cm (13.5") diagonal, WUXGA+,touch, UWVA BrightView, micro-edge, 1000 nits, HP Sure View integrated privacy screen, eDP 1.3+PSR, Ambient Light Sensor + Ambient Color Sensor (1920 x 1280) [9,10,11,12]

34.3 cm (13.5") diagonal, WUXGA+, touch, IPS BrightView, micro-edge, 400 nits, sRGB 100% eDP 1.4+PSR, Ambient Light Sensor + Ambient Color Sensor (1920 x 1280) [9,10,12]

Display Size (Diagonal)

13.5"

34.3 cm (13.5")

9. HD content required to view HD images.
10. Resolutions are dependent upon monitor capability, and resolution and color depth settings.
11. HP Sure View Reflect integrated privacy screen is an optional feature that must be configured at purchase and is designed to function in landscape orientation.
12. Actual brightness will be lower with touchscreen or HP Sure View.

Technical Specifications

DOCKING (Sold Separately)

Docking station model #1	HP Thunderbolt 120W G4 Dock
Docking station model #2	HP Thunderbolt 280W G4 Dock
Docking station model #3	HP USB-C Dock G5
Docking station model #4	HP USB-C/A Universal Dock G2
Docking station model #5	HP USB-C G5 Essential Dock

For additional aftermarket options and docking specs please see page 38.

STORAGE AND DRIVES

Primary Storage

2 TB PCIe® NVMe™ TLC 2280 Solid State Drive[13]
1 TB PCIe® NVMe™ TLC 2280 Self Encrypted OPAL2 Solid State Drive [13]
1 TB PCIe® NVMe™ TLC 2280 Solid State Drive [13]
512 GB PCIe® NVMe™ TLC 2280 Self Encrypted OPAL2 Solid State Drive [13]
512 GB PCIe® NVMe™ TLC Solid State Drive [13]
512 GB PCIe® NVMe™ Value M.2 SSD [13]
256 GB PCIe® NVMe™ Value M.2 SSD [13]
256 GB PCIe® NVMe™ 2280 Self Encrypted OPAL2 Solid State Drive [13]

13. For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 30 GB (for Windows 10 and 11) is reserved for system recovery software.

MEMORY

Maximum Memory

32 GB LPDDR5-4800 SDRAM [14]
32 GB LPDDR5-4800 MHz RAM [14]

Memory

16 GB LPDDR5-4800 SDRAM [14]
32 GB LPDDR5-4800 SDRAM [14]

Memory Slots

LPDDR5, system runs at 4800[14,15]
Supports Dual Channel Memory [14,15]
Memory soldered down

14. 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.
15. All slots are non-accessible / non-upgradeable.

Technical Specifications

NETWORKING/COMMUNICATIONS

WLAN

Intel® Garfield Peak 2 AX211 Wi-Fi 6E + Bluetooth®5.3 M.2 1216 160MHz CNVi World-Wide WLAN Wireless Card[16]
Intel® Garfield Peak 2 AX211 Wi-Fi 6E + Bluetooth®5.3 M.2 1216 vPro 160MHz CNVi World-Wide WLAN Wireless Card[16,17]

WWAN

Intel® 5000 5G Solution WWAN [18,19]
Intel® XMM 7560 R+ LTE-Advanced Pro WWA [18]

NFC

Near Field Communication (NFC) module [20]

Miracast

Native Miracast Support [21]

16. Wi-Fi 6E requires a Wi-Fi 6E router, sold separately, to function in the 6GHz band. Availability of public wireless access points limited. Wi-Fi 6E is backwards compatible with prior 802.11 specs. And available in countries where Wi-Fi 6E is supported.
17. For full Intel® vPro™ functionality, Windows, a vPro supported processor, vPro enabled chipset, vPro enabled WLAN card and discrete TPM 2.0 are required. See https://www.intel.com/content/www/us/en/architecture-and-technology/vpro/vpro-platform-general.html
18. WWAN module is an optional feature, requires factory configuration and requires separately purchased service contract. Check with service provider for coverage and availability in your area. Connection speeds will vary due to location, environment, network conditions, and other factors. 4G LTE not available on all products, in all regions.
19. Intel 5G module is optional and must be configured at the factory. Module designed for 5G NR NSA (non-standalone) networks as carriers deploy Evolved-Universal Terrestrial Radio Access New Radio Dual Connectivity (ENDC) with both 100Mhz of 5G NR and LTE channel bandwidth, using 256QAM 4x4 as defined by 3GPP. Module requires activation and separately purchased service contract. Check with service provider for coverage and availability in your area. Data connection, upload and download speeds will vary due to network, location, environment, network conditions, and other factors. Backwards compatible to 4G LTE and 3G HSPA technologies. 5G module planned to be available in select platforms and select countries, where carrier supported.
20. Sold separately or as an optional feature.
21. Miracast is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming.

Technical Specifications

AUDIO/MULTIMEDIA

Audio
Audio by Bang & Olufsen
Microphone/Headphone Combo Audio Jack

Camera
5MP MIPI-RAW Infrared with HP Camera Privacy Key
5 MP + IR camera for face authentication with Windows Hello

Speakers
Woofer x2 and tweeter x2

Discrete Amps
Support louder SPL
Up to 8.8W output per channel

Speaker output power
Woofer
Rated power: 1W
Peak power: 1.5W
Tweeter
Rated power: 1W
Peak power: 1.3W

KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

Keyboard
HP Premium Keyboard, Spill-resistant keypad and optional backlit [22]

Pointing Device
Clickpad with multi-touch gesture support

Function Keys
F1 - Display Switching
F2 - Sure View or Blank
F3 - Brightness Down
F4 - Brightness Up
F5 - Speaker Mute
F6 - Volume Down
F7 – Volume Up
F8 - Mic Mute
F9 - Backlight Toggle (for backlit keyboard) or Blank
F10 - Insert
F11 - Airplane Mode
F12 - Programmable Key
HP Camera Privacy Key
Power
Delete

SOFTWARE AND SECURITY

Preinstalled Software

Software

HP Easy Clean[23]
HP PC Hardware Diagnostics Windows
myHP
HP Smart Support [24]
HP Services Scan[25]
HP Connection Optimizer
HP Hotkey Support
HP Support Assistant [26]
HP Notifications
HP Privacy Settings
HP Power Manager [27]
Microsoft Office sold separately and requires Internet access for activation

Manageability Features

HP Connect [28]
HP Image Assistant Gen5 (download)
HP Manageability Integration Kit (download) [29]
HP Client Management Script Library (download)
HP Patch Assistant (download) [30]
HP Driver Packs (download)
HP Client Catalog (download)
HP Cloud Recovery [31]

Security Management

HP Wolf Security for Business [32] includes:
HP Sure Click[33]
HP Sure Sense [34]
HP Sure Run [35]
HP Sure Recover [36]
HP Sure Start[37]
HP Tamper Lock[38]
HP Sure Admin [39]

BIOS

HP BIOSphere Gen6 [40]
HP Secure Erase [41]
Absolute Persistence Module [42]
BIOS Update via Network
HP Wake on WLAN
Secured-Core PC Enable [43]
TPM 2.0 Embedded Security Chip (Common Criteria EAL4+ Certified) (FIPS 140-2 Level 2 Certified)
HP Fingerprint Sensor [44]

Security

Technical Specifications

TPM
Model: Nuvoton NPCT760HABYX
Version: 7.2.3.1
Revision: TPM 2.0
FIPS 140-2 Compliant: Yes

IPv6 Support
Yes

FirstNet Certified
Yes

The BIOS on this notebook implements ISO/IEC 19678:2015 guidelines (formerly NIST 800-147).
UEFI version: 2.7
Class: 3

23. HP Easy Clean requires Windows 10 RS3 and higher and will disable the keyboard, touchscreen, and clickpad only. Ports are not disabled. See user guide for cleaning instructions.
24. HP Smart Support requires HP TechPulse to be installed. For more information about how to enable or to download HP Smart Support, please visit http://www.hp.com/smart-support.
25. HP Services Scan is provided with Windows Update on select products and will check entitlement on each hardware device to determine if an HP TechPulse-enabled service has been purchased, and will download applicable software automatically. HP TechPulse is a telemetry and analytics platform that provides critical data around devices and applications and is not sold as a standalone service. HP TechPulse follows stringent GDPR privacy regulations and is ISO27001, ISO27701, ISO27017 and SOC2 Type2 certified for Information Security. Internet access with connection to TechPulse portal is required. For full system requirements or to disable this feature, please visit http://www.hpdaas.com/requirements. Not applicable in China.
26. HP Support Assistance requires Windows and Internet Access
27. HP Power Manager requires Windows 10 and higher and can be downloaded from the Microsoft Store
28. HP Connect for Microsoft Endpoint Manager is available from the Azure Market Place for HP Pro, Elite, Z and Point-of-Sale PCs managed with Microsoft Endpoint Manager. Subscription to Microsoft Endpoint Manager required and sold separately. Network connection required.
29. HP Manageability Integration Kit can be downloaded from http://www8.hp.com/us/en/ads/clientmanagement/overview.html.
30. HP Patch Assistant available on select HP PCs with the HP Manageability Kit that are managed through Microsoft System Center Configuration Manager. HP Manageability Integration Kit can be downloaded from http://www8.hp.com/us/en/ads/clientmanagement/overview.html.
31. HP Cloud Recovery is available for Z by HP, HP Elite and Pro desktops and laptops PCs with Intel® or AMD processors and requires an open, wired network connection. **NOTE:** You must back up important files, data, photos, videos, etc. before use to avoid loss of data. Details please refer to: https://support.hp.com/us-en/document/c05115630.
32. HP Wolf Security for Business requires Windows 10 or higher, includes various HP security features and is available on HP Pro, Elite, RPOS and Workstation products. See product details for included security features and OS requirement.
33. HP Sure Click requires Windows 10 Pro or higher or Enterprise. See https://bit.ly/2PrLT6A_SureClick for complete details.
34. HP Sure Sense is available on select HP PCs with Windows 10 Pro, Windows 10 Enterprise, Windows 11 Pro, or Windows 11 Enterprise OS.
35. HP Sure Run Gen5 is available on select HP PCs and requires Windows 10 and higher.
36. HP Sure Recover Gen5 with Embedded Reimaging is an optional feature which requires Windows 10 and higher must be configured at purchase. You must back up important files, data, photos, videos, etc. before use to avoid loss of data. Network based recovery using Wi-Fi is only available on PCs with Intel Wi-Fi Module
37. HP Sure Start Gen7 is available on select HP PCs and requires Windows 10 and higher

Technical Specifications

38. HP Tamper Lock must be enabled by the customer or your administrator.
39. HP Sure Admin requires Windows 10 or higher, HP BIOS, HP Manageability Integration Kit from http://www.hp.com/go/clientmanagement and HP Sure Admin Local Access Authenticator smartphone app from the Android or Apple store
40. HP BIOSphere Gen6 features may vary depending on the platform and configuration.
41. HP Secure Erase for the methods outlined in the National Institute of Standards and Technology Special Publication 800-88 "Clear" sanitation method. HP Secure Erase does not support platforms with Intel® Optane™.
42. Absolute firmware module is shipped turned off and can only be activated with the purchase a license subscription and full activation of the software agent. License subscriptions can be purchased for terms ranging multiple years. Service is limited, check with Absolute for availability outside the U.S. Certain conditions apply. For full details visit: https://www.absolute.com/about/legal/agreements/absolute/
43. Secured-Core PC Enable requires an Intel® vPro® , AMD Ryzen™ Pro processor or Qualcomm® processor with SD850 or higher and requires 8 GB or more system memory. Secured-core PC is enabled from the factory.
44. HP Fingerprint sensor is an optional feature that must be configured at purchase.

Technical Specifications

POWER

Power Supply
HP 100W+10W USB-C®+USB-A Slim Straight Kenting AC Power Adapter [45]
HP Smart 65 W USB Type-C® adapter [45]
HP Smart 65 W Slim USB Type-C® adapter [45]

Battery
45Whr Long Life Polymer Fast Charge 4 cell Battery [46,47,48]
68Whr Long Life Polymer Fast Charge 6 cell Battery [46,47,48]

Power Cord
3-wire plug - 1m [45]

Battery Life
Up to 13 hours and 30 minutes with 45whr battery (HP Long Life 4-Cell, 45 Whr Polymer, UMA graphic, Intel U15, display set to 200 nits display, 16G memory, 512 GB SSD) [49]
Up to 20 hours and 45 minutes with 68whr battery (HP Long Life 6-Cell, 68 Whr Polymer, UMA graphic, Intel U15, display set to 200 nits display, 16G memory, 512 GB SSD)[49]

45. Availability may vary by country.
46. Battery is internal and not replaceable by customer. Serviceable by warranty.
47. Actual battery Watt-hours (Wh) will vary from design capacity. Battery capacity will naturally decrease with shelf life, time, usage, environment, temperature, system configuration, loaded apps, features, power management settings and other factors.
48. 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 and 100 watts is required. After charging has reached 50% capacity, charging will return to normal. Charging time may vary +/-10% due to System tolerance.
49. MM18 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

Product Weight [50]
2.2 lb
0.99 kg

Product Dimensions (W x D x H)
11.7 x 8.67 x 0.64 in
29.74 x 22.04 x 1.64 cm

Packaging Dimensions (W x D x H) [51]
12”-15” boxes (305mm height): 1200mm x 1000mm x 1080mm

50. Weight will vary by configuration. Does not include power adapter.
51. Product packaging size varies based on options chosen. Please contact your HP representative for your packaging size details.

PORTS/SLOTS

2 Thunderbolt™ 4 with USB4 Type-C® 40Gbps signaling rate (USB Power Delivery, DisplayPort™ 1.4) [52]
1 SuperSpeed USB Type-A 5Gbps signaling rate (Charging port)
1 Headphone/microphone combo jack
1 HDMI 2.1 [53]
1 Nano Security Lock Slot (Lock sold separately)
1 nano SIM card slot (WWAN Configurations Only) [54]

52. SuperSpeed USB 20Gbps is not available with Thunderbolt™ 4.
53. HDMI cable sold separately.
54. SIM slot is not user accessible without WWAN configuration.

SERVICE AND SUPPORT

1-year warranty and 90 day software limited warranty options depending on country. Batteries have a default one year limited warranty. Refer to http://www.hp.com/support/batterywarranty/ for additional battery information. 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.[55]

55. 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/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	AC 20V -> 68W battery AC 15V -> 45W battery
Average Operating Power	
Integrated graphics	Yes
Discrete Graphics	N/A
Max Operating Power	UMA<65W
Temperature	
Operating	32° to 95° F (0° to 35° C) (not writing optical)
Non-operating	41° to 95° F (5° to 35° C) (writing optical)
Relative Humidity	
Operating	32° to 95° F (0° to 35° C) (not writing optical)
Non-operating	5% to 95%, 101.6° F (38.7° C) maximum wet bulb temperature
Shock	
Operating	40 G, 2 ms, half-sine
Non-operating	200 G, 2 ms, half-sine
Random Vibration	
Operating	1.043 grams
Non-operating	3.5 grams
Altitude (unpressurized)	
Operating	-50 to 10,000 ft (-15.24 to 3,048 m)
Non-operating	-50 to 40,000 ft (-15.24 to 12,192 m)
Planned Industry Standard Certifications	
Regulatory Model Number	HSN-I59C
CSA/UL 62368-1	Yes
ENERGY STAR®	Yes [56]
EPEAT®	EPEAT® Gold in the United States [57]
FCC/ICES/CISPR/VCCI	Yes
CE MARKING	Yes
GS Mark	Yes Related commodity should comply with ISO 9241 Standards.
China CCC/SRRC	Yes
Taiwan BSMI/NCC	Yes
Korea KCC/KC/KES	Yes
Ukraine NSoC/TEC	Yes
EAEU Compliance	Yes
Saudi Arabian Compliance	Yes
TCO	Yes
Low Blue Light	Yes
WW RoHS	Yes

Technical Specifications

56. Configurations of the HP Dragonfly 13.5 inch G4 Notebook PC that are ENERGY STAR® qualified are identified as HP Dragonfly 13.5 inch G4 Notebook PC ENERGY STAR on HP websites and on http://www.energystar.gov.
57. Based on US EPEAT® registration according to IEEE 1680.1-2018 EPEAT®. EPEAT® status varies by country. Visit http://www.epeat.net for more information.

DISPLAYS

1. Actual brightness will be lower with touchscreen or HP Sure View.

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

13.5" WUXGA+ (1920 x 1280) BrightView UWVA WLED+LBL sRGB NB2Y 400 eDP 1.4+PSR2 Low-Power 100 bent LCD Panel	**Outline Dimensions (W x H x D)**	290.190 x 199.730 (max)
	Active Area	284.890 x 189.930 (typ)
	Weight	200 (max)
	Diagonal Size	13.5
	Surface Treatment	Bright View
	Touch Enabled	No
	Contrast Ratio	1500:1 (typ)
	Refresh Rate	60 Hz
	Brightness	400 nits[1]
	Pixel Resolution - Format	1920 x 1280 (WUXGA+)
	Backlight	WLED
	Pixel Resolution	RGB
	Color Gamut Coverage	sRGB 100%
	Color Depth	8
	Viewing Angle	UWVA 89/89/89/89
	Low Blue Light	Yes
	Power Consumption (W, EBL@ 150nits max/ 200nits max)	1.42 (max) / 1.71 (max)

13.5" WUXGA+ (1920 x 1280) Anti-Glare UWVA WLED+LBL sRGB NB2Y 1000 eDP 1.3+PSR 100 PrivacyG4 Plus bent LCD Panel	**Outline Dimensions (W x H x D)**	290.200 x199.970 (max)
	Active Area	284.890 x 189.930 (typ)
	Weight	225 (max)
	Diagonal Size	13.5
	Surface Treatment	Anti-Glare
	Touch Enabled	No
	Contrast Ratio	1500:1 (typ)
	Refresh Rate	60 Hz
	Brightness	1000 nits[1]
	Pixel Resolution - Format	1920 x1280 (WUXGA+)
	Backlight	WLED
	Pixel Resolution	RGB

Technical Specifications

	Color Gamut Coverage	sRGB 100%
	Color Depth	8
	Viewing Angle	UWVA 85/85/85/85
	Low Blue Light	Yes
	Power Consumption (W, EBL@ 150nits max/ 200nits max)	NA
13.5" 3k2k (3000x+G64:G882000) BrightView OLED UWVA DCI-P3 100percent cg 400nits eDP 1.4+PSR NBZ2 ultraslim	**Outline Dimensions (W x H x D)**	289.430 x 199.620 (max)
	Active Area	285.300 x 190.200 (typ)
	Weight	154 (max)
	Diagonal Size	13.5
	Surface Treatment	BrightView
	Touch Enabled	No
	Contrast Ratio	100,000:1(typ)
	Refresh Rate	60 Hz
	Brightness	400 nits
	Pixel Resolution - Format	3000 x 2000 (3k2k)
	Backlight	OLED
	Pixel Resolution	RGB
	Color Gamut Coverage	DCI P3 100%
	Color Depth	8
	Viewing Angle	UWVA 85/85/85/85
	Low Blue Light	Yes
	Power Consumption (W, EBL@ 150nits max/ 200nits max)	4.15 (max) / 4.93 (m+H88+G85:G88
13.5" WUXGA+ (1920 x 1280) Anti-Glare UWVA WLED+LBL sRGB NB2Y 1000 eDP 1.3+PSR 100 PrivacyG4 Plus bent LCD Panel Touch	**Outline Dimensions (W x H x D)**	290.200 x199.970 (max)
	Active Area	284.890 x 189.930 (typ)
	Weight	225 (max)
	Diagonal Size	13.5
	Surface Treatment	Bright View
	Touch Enabled	Yes[1]
	Contrast Ratio	1500:1 (typ)
	Refresh Rate	60 Hz
	Brightness	1000 nits[1]
	Pixel Resolution - Format	1920 x1280 (WUXGA+)
	Backlight	WLED
	Pixel Resolution	RGB
	Color Gamut Coverage	sRGB 100%

Technical Specifications

	Color Depth	8
	Viewing Angle	UWVA 85/85/85/85
	Low Blue Light	Yes
	Power Consumption (W, EBL@ 150nits max/ 200nits max)	NA
13.5" WUXGA+ (1920 x 1280) Anti-Glare UWVA WLED+LBL sRGB NB2Y 400 eDP 1.4+PSR2 Low-Power 100 bent LCD Panel Touch	**Outline Dimensions (W x H x D)**	290.190 x 199.730 (max)
	Active Area	284.890 x 189.930 (typ)
	Weight	200 (max)
	Diagonal Size	13.5
	Surface Treatment	Anti-Glare
	Touch Enabled	Yes[1]
	Contrast Ratio	1500:1 (typ)
	Refresh Rate	60 Hz
	Brightness	400 nits[1]
	Pixel Resolution - Format	1920 x 1280 (WUXGA+)
	Backlight	WLED
	Pixel Resolution	RGB
	Color Gamut Coverage	sRGB 100%
	Color Depth	8
	Viewing Angle	UWVA 89/89/89/89
	Low Blue Light	Yes
	Power Consumption (W, EBL@ 150nits max/ 200nits max)	1.42 (max) / 1.71 (max)
13.5" WUXGA+ (1920 x 1280) BrightView UWVA WLED+LBL sRGB NB2Y 400 eDP 1.4+PSR2 Low-Power 100 bent LCD Panel Touch	**Outline Dimensions (W x H x D)**	290.190 x 199.730 (max)
	Active Area	284.890 x 189.930 (typ)
	Weight	200 (max)
	Diagonal Size	13.5
	Surface Treatment	Bright View
	Touch Enabled	Yes[1]
	Contrast Ratio	1500:1 (typ)
	Refresh Rate	60 Hz
	Brightness	400 nits[1]
	Pixel Resolution - Format	1920 x 1280 (WUXGA+)
	Backlight	WLED
	Pixel Resolution	RGB
	Color Gamut Coverage	sRGB 100%
	Color Depth	8

Technical Specifications

Viewing Angle	UWVA 89/89/89/89
Low Blue Light	Yes
Power Consumption (W, EBL@ 150nits max/ 200nits max)	1.42 (max) / 1.71 (max)

Technical Specifications

STORAGE AND DRIVES

For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 30 GB (for Windows 10 and 11) is reserved for system recovery software.

SSD 256GB 2230 PCIe NVMe Value	**Form Factor**	M.2 2230
	Capacity	256 GB
	NAND Type	Value
	Interface	2000 MB/s ±20%
	Maximum Sequential Read	900 MB/s ±20%
	Maximum Sequential Write	500118192
	Logical Blocks	32° to 158°F (0° to 70°C) [ambient temp]
	Features	M.2 2230
256GB PCIe 2280 NVMe Self Encrypted OPAL2 Value Solid State Drive	**Form Factor**	M.2 2280
	Capacity	256 GB
	NAND Type	Opal2 Value
	Interface	2000 MB/s ±20%
	Maximum Sequential Read	900 MB/s ±20%
	Maximum Sequential Write	500,118,192
	Logical Blocks	32° to 158°F (0° to 70°C) [ambient temp]
	Features	M.2 2280
SSD 512GB 2280 PCIe NVMe Value	**Form Factor**	M.2 2280
	Capacity	512GB
	NAND Type	Value
	Interface	PCIe NVMe
	Maximum Sequential Read	2200 MB/s ±20%
	Maximum Sequential Write	1000 MB/s ±20%
	Logical Blocks	1000215216
	Features	Pyrite 2.0, TRIM; L1.2
SSD 512GB 2280 PCIe-4x4 NVMe Three Layer Cell	**Form Factor**	M.2 2280
	Capacity	512 GB
	NAND Type	TLC
	Interface	PCIe NVMe Gen4X4
	Maximum Sequential Read	6400 MB/s ±20%
	Maximum Sequential Write	3500 MB/s ±20%
	Logical Blocks	1,000,215,216
	Features	Pyrite 2.0, TRIM; L1.2

Technical Specifications

512GB PCIe-4x4 2280 NVME Self Encrypted OPAL2 Three Layer Cell Solid State Drive	**Form Factor**	M.2 2280
	Capacity	512 GB
	NAND Type	Opal2 TLC
	Interface	PCIe NVMe Gen4X4
	Maximum Sequential Read	6400 MB/s ±20%
	Maximum Sequential Write	3500 MB/s ±20%
	Logical Blocks	1,000,215,216
	Features	Pyrite 2.0, TRIM; L1.2
SSD 1TB 2280 PCIe-4x4 NVMe Three Layer Cell	**Form Factor**	M.2 2280
	Capacity	1 TB
	NAND Type	TLC
	Interface	PCIe NVMe Gen4X4
	Maximum Sequential Read	6400 MB/s ±20%
	Maximum Sequential Write	5000 MB/s ±20%
	Logical Blocks	2,000,409,264
	Features	Pyrite 2.0; TRIM; L1.2
1TB PCIe-4x4 2280 NVME Self Encrypted OPAL2 Three Layer Cell Solid State Drive	**Form Factor**	M.2 2280
	Capacity	1 TB
	NAND Type	Opal2 TLC
	Interface	PCIe NVMe Gen4X4
	Maximum Sequential Read	6400 MB/s ±20%
	Maximum Sequential Write	5000 MB/s ±20%
	Logical Blocks	2,000,409,264
	Features	Pyrite 2.0, TRIM; L1.2
SSD 2TB 2280 PCIe-4x4 NVMe Three Layer Cell	**Form Factor**	M.2 2280
	Capacity	2 TB
	NAND Type	TLC
	Interface	PCIe NVMe Gen4X4
	Maximum Sequential Read	6400 MB/s ±20%
	Maximum Sequential Write	5000 MB/s ±20%
	Logical Blocks	4,000,797,360
	Features	Pyrite 2.0; TRIM; L1.2

Technical Specifications

NETWORKING/COMMUNICATIONS

Intel® AX211 Wi-Fi 6E + Bluetooth® 5.3 M.2 160MHz CNVi World-wide WLAN vPro Wireless Card[1]	**Wireless LAN Standards**	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac IEEE 802.11ax IEEE 802.11d IEEE 802.11e IEEE 802.11h IEEE 802.11i IEEE 802.11k IEEE 802.11r IEEE 802.11v
	Interoperability	Wi-Fi certified
	Frequency Band	•802.11b/g/n/ax 2.402 – 2.482 GHz •802.11a/n/ac/ax 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 5.955 – 6.415 GHz 6.435 – 6.515 GHz 6.535 – 6.875 GHz 6.895 – 7.115 GHz
	Data Rates	• 802.11b: 1, 2, 5.5, 11 Mbps • 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11n: max 300Mbps • 802.11ac : 1733Mbps • 802.11ax : max 2.4Gbps
	Modulation	Direct Sequence Spread Spectrum OFDM, BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024QAM
	Security[2]	• 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 • WPA3 certification • IEEE 802.11i • WAPI
	Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
	Roaming	IEEE 802.11 compliant roaming between access points

Technical Specifications

Output Power[3]	• 802.11b : +17dBm minimum • 802.11g : +16dBm minimum • 802.11a : +17dBm minimum • 802.11n HT20(2.4GHz) : +14dBm minimum • 802.11n HT40(2.4GHz) : +13dBm minimum • 802.11n HT20(5GHz) : +14dBm minimum • 802.11n HT40(5GHz) : +13dBm minimum • 802.11ac VHT80(5GHz) : +10dBm minimum • 802.11ac VHT160(5GHz) : +10dBm minimum • 802.11ax HE40(2.4GHz) : +12dBm minimum • 802.11ax HE80(5GHz) : +10dBm minimum • 802.11ax HE160(5GHz) : +10dBm minimum
Power Consumption	• 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[4]	• 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(VHT80) : -84dBm maximum • 802.11ac, MCS9(VHT80) : -59dBm maximum • 802.11ac, MCS9(VHT160) : -58.5dBm maximum • 802.11ax, MCS11(HE40): -57dBm maximum • 802.11ax, MCS11(HE80): -54dBm maximum • 802.11ax, MCS11(HE160): -53.5dBm 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	1. Type 2230: 2.3 x 22.0 x 30.0 mm 2. Type 1216: 1.67 x 12.0 x 16.0 mm
Weight	1. Type 2230: 2.8g 2. Type 1216: 1.3g
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)

Technical Specifications

	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 OFF – Radio ON
HP Integrated Module with Bluetooth 4.0/4.1/4.2/5.0/5.1/5.2/5.3 Wireless Card		
	Bluetooth Specification	4.0/4.1/4.2/5.0/5.1/5.2/5.3 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 + 9.5 dBm for BR and EDR.
	Power Consumption	Peak (Tx): 330 mW Peak (Rx): 230 mW Selective Suspend: 17 mW
	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	ETS 300 328, ETS 300 826
	Certifications	Low Voltage Directive IEC950 UL, CSA, and CE Mark
	Bluetooth Profiles Supported	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 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)

Technical Specifications

Advanced Audio Distribution Profile (A2DP)
BT5.2
ESR9/10 Compliance
LE Advertisement Extensions
Channel Selection Algo
Limited High Duty Cycle Non-Connectable Advertising
2Mbps LE
LE Long Range
BT5.3
Host to Controller Encryption Key Control Enahancements
Compliance to the latest Errata Sectipn 12.3 of BT 5.3 specification

1. Wi-Fi 6E requires a Wi-Fi 6E router, sold separately, to function in the 6GHz band. Availability of public wireless access points limited. Wi-Fi 6E is backwards compatible with prior 802.11 specs. And available in countries where Wi-Fi 6E is supported. Wi-Fi 6E is designed to support gigabit data rate when transferring files between two devices connected to the same router. Requires a wireless router, sold separately, that supports 80MHz and higher channels.
2. Check latest software/driver release for updates on supported security features.
3. The FCC has declared as of September 1, 2014 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.
4. 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).

Technical Specifications

Intel® AX211 Wi-Fi 6E + Bluetooth® 5.3 M.2 160MHz CNVi World-Wide WLAN non-vPro Wireless Card[1]	**Wireless LAN Standards**	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac IEEE 802.11ax IEEE 802.11d IEEE 802.11e IEEE 802.11h IEEE 802.11i IEEE 802.11k IEEE 802.11r IEEE 802.11v
	Interoperability	Wi-Fi certified
	Frequency Band	•802.11b/g/n/ax 2.402 – 2.482 GHz •802.11a/n/ac/ax 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 5.955 – 6.415 GHz 6.435 – 6.515 GHz 6.535 – 6.875 GHz 6.895 – 7.115 GHz
	Data Rates	• 802.11b: 1, 2, 5.5, 11 Mbps • 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11n: max 300Mbps • 802.11ac : 1733Mbps • 802.11ax : max 2.4Gbps
	Modulation	Direct Sequence Spread Spectrum OFDM, BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024QAM
	Security [2]	• 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 • WPA3 certification • IEEE 802.11i • WAPI
	Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
	Roaming	IEEE 802.11 compliant roaming between access points
	Output Power [3]	• 802.11b : +17dBm minimum • 802.11g : +16dBm minimum

Technical Specifications

	• 802.11a : +17dBm minimum • 802.11n HT20(2.4GHz) : +14dBm minimum • 802.11n HT40(2.4GHz) : +13dBm minimum • 802.11n HT20(5GHz) : +14dBm minimum • 802.11n HT40(5GHz) : +13dBm minimum • 802.11ac VHT80(5GHz) : +10dBm minimum • 802.11ac VHT160(5GHz) : +10dBm minimum • 802.11ax HE40(2.4GHz) : +12dBm minimum • 802.11ax HE80(5GHz) : +10dBm minimum • 802.11ax HE160(5GHz) : +10dBm minimum
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Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Receiver Sensitivity [4]	• 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(VHT80) : -84dBm maximum • 802.11ac, MCS9(VHT80) : -59dBm maximum • 802.11ac, MCS9(VHT160) : -58.5dBm maximum • 802.11ax, MCS11(HE40): -57dBm maximum • 802.11ax, MCS11(HE80): -54dBm maximum • 802.11ax, MCS11(HE160): -53.5dBm 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
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Weight	1. Type 2230: 2.8g 2. Type 1216: 1.3g
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)

Technical Specifications

	LED Activity	LED Amber – Radio OFF; LED OFF – Radio ON
HP Integrated Module with Bluetooth 4.0/4.1/4.2/5.0/5.1/5.2/5.3 Wireless Card		
	Bluetooth Specification	4.0/4.1/4.2/5.0/5.1/5.2/5.3 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 + 9.5 dBm for BR and EDR.
	Power Consumption	Peak (Tx): 330 mW Peak (Rx): 230 mW Selective Suspend: 17 mW
	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

1. Wi-Fi 6E requires a Wi-Fi 6E router, sold separately, to function in the 6GHz band. Availability of public wireless access points limited. Wi-Fi 6E is backwards compatible with prior 802.11 specs. And available in countries where Wi-Fi 6E is supported. Wi-Fi 6E is designed to support gigabit data rate when transferring files between two devices connected to the same router. Requires a wireless router, sold separately, that supports 80MHz and higher channels.
2. Check latest software/driver release for updates on supported security features.
3. The FCC has declared as of September 1, 2014 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.
4. 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).

Technical Specifications

NFC Mirage module (NXP NPC300 I2C 10mmx17mm)	**Dimensions (L x W x H)**	Module 25 mm by 10 mm by 2.0 mm
	Chipset	NPC300
	System interface	I2C
	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 ISO/IEC 14443 A ISO/IEC 14443 B ISO/IEC 15693 MIFARE 1K MIFARE 4K MIFARE DESFire FeliCa
	Reader (PCD-VCD) Mode	Jewel and Topaz cards ISO/IEC 14443 A ISO/IEC 14443 B and B’
	Card Emulation (PICC-VICC) Mode	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	4.35 to 5.25 Volts
	I/O Voltage	1.8V or 3.3V
	Power Consumption (Booster enable, VBAT= 3.3V, VCC_BOOST = 5V)	
	Mode	Power Consumption, Typical
	Polling	7.3 mA Total 283.8 mA
	Detected Test Tag Type 1	Net Module 236.8 mA Total 288.8 mA
	Detected Test Tag Type 2	Net Module 241.8 mA Total 287.7 mA
	Detected Test Tag Type 3	Net Module 240.7 mA Total 282.3 mA
	Detected Test Tag Type 4	Net Module 235.3 mA
	Antenna	Antenna connector, 0.5mm pitch, 7 connector FPC. Antenna matching is external to module.

Technical Specifications

Intel® XMM™ 7560 R+ LTE-Advanced Pro [1]	**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 14 upper), 700 (Band 17 lower), 850 (Band 18 lower), 850 (Band 19 upper), 800 (Band 20), 1900 (Band 25), 850 (Band 26), 700 (Band 28), 700 (Band 29 RX only), 2300 (Band 30), 1700/2100 (Band 66), 600 (band 71). TDD LTE: 2100 (Band 34), 2600 (Band 38), 1900 (Band 39), 2400 (Band 40), 2500 (Band 41), 3500 (Band 42), 3700 (Band 43), 3700 (band 48), 5200 (Band 46 RX only) MHz; HSPA+: 2100 (Band 1), 1900 (Band 2), 1700/2100 (Band 4), 850 (Band 5), 900 (Band 8) MHz
	Wireless protocol standards	3GPP Release 12 LTE Specification DL-CAT.16, DL 100MHz BW throughput up to 978Mbps; UL-CAT.13 40MHz throughput up to 150Mbps WCDMA R99, 3GPP Release 5, 6, 7 and 8 UMTS Specification
	GPS	Standalone GPS/Beidou/Glonass, A-GPS (MS-A, MS-B)
	GPS bands	1575.42 MHz ± 1.023 MHz, GLONASS 1596-1607MHz, Beidou 1561.098 MHz
	Maximum data rates	LTE: 978 Mbps (Download), 150 Mbps (Upload) DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload) HSPA+: 21Mbps (Download), 5.76 Mbps (Upload)
	Maximum output power	LTE: 23 dBm in all band except B41 LTE B41 HPUE = 26dBm HSPA+: 23.5 dBm
	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
	embedded eSIM	Support

1. 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.

Technical Specifications

Intel® (R) 5G Solution 5000[1]	**Technology/Operating bands**	WCDMA/HSPA+ operating bands: Band 1: 1920 to 1980 MHz (UL), 2110 to 2170 MHz (DL) Band 2: 1850 to 1910 MHz (UL), 1930 to 1990 MHz (DL) Band 4: 1710 to 1755 MHz (UL), 2110 to 2155 MHz (DL) Band 5: 824 to 849 MHz (UL), 869 to 894 MHz (DL) Band 8: 880 to 915 MHz (UL), 925 to 960 MHz (DL) LTE FDD/TDD operating bands: Band 1: 1920 to 1980 MHz (UL), 2110 to 2170 MHz (DL) Band 2: 1850 to 1910 MHz (UL), 1930 to 1990 MHz (DL) Band 3: 1710 to 1785 MHz (UL), 1805 to 1880 MHz (DL) Band 4: 1710 to 1755 MHz (UL), 2110 to 2155 MHz (DL) Band 5: 824 to 849 MHz (UL), 869 to 894 MHz (DL) Band 7: 2500 to 2570 MHz (UL), 2620 to 2690 MHz (DL) Band 8: 880 to 915 MHz (UL), 925 to 960 MHz (DL) Band 12: 699 to 716 MHz (UL), 729 to 746 MHz (DL) Band 13: 777 to 787 MHz (UL), 746 to 756 MHz (DL) Band 14: 788 to 798 MHz (UL), 758 to 768 MHz (DL) Band 17: 704 to 716 MHz (UL), 734 to 746 MHz (DL) Band 18: 815 to 830 MHz (UL), 860 to 875 MHz (DL) Band 19: 830 to 845 MHz (UL), 875 to 890 MHz (DL) Band 20: 832 to 862 MHz (UL), 791 to 821 MHz (DL) Band 25: 1850 to 1915 MHz (UL), 1930 to 1995 MHz (DL) Band 26: 814 to 849 MHz (UL), 859 to 894 MHz (DL) Band 28: 703 to 748 MHz (UL), 758 to 803 MHz (DL) Band 29: 717 to 728 MHz (DL) Band 30: 2305 to 2315 MHz (UL) 2350 to 2360 MHz (DL) Band 32: 1452 to 1496 MHz (DL) Band 34: 2010 to 2025 MHz (UL/DL) Band 38: 2570 to 2620 MHz (UL/DL) Band 39: 1880 to 1920 MHz (UL/DL) Band 40: 2300 to 2400 MHz (UL/DL) Band 41: 2496 to 2690 MHz (UL/DL) Band 42: 3400 to 3600 MHZ (UL/DL) Band 43: 3400 to 3800 MHZ (UL/DL) Band 46: 5150 to 5925 MHZ (DL) Band 48: 3550 to 3700 MHZ (UL/DL) Band 66: 1710 to 1800 MHz (UL), 2110 to 2200 MHz (DL) Band 71: 663 to 698 MHz (UL), 617 to 652 MHz (DL) 5GNR Sub 6GHZ n1: 1920 to 1980 MHz (UL), 2110 to 2170 MHz (DL) n2: 1850 to 1910 MHz (UL), 1930 to 1990 MHz (DL) n3: 1710 to 1785 MHz (UL), 1805 to 1880 MHz (DL) n5: 824 to 849 MHz (UL), 869 to 894 MHz (DL) n7: 2500 to 2570 MHz (UL), 2620 to 2690 MHz (DL) n8: 880 to 915 MHz (UL), 925 to 960 MHz (DL) n20: 832 to 862 MHz (UL), 791 to 821 MHz (DL) n25: 1850 to 1915 MHz (UL), 1930 to 1995 MHz (DL) n28: 703 to 748 MHz (UL), 758 to 803 MHz (DL) n38: 2570 to 2620 MHz (UL/DL)

Technical Specifications

	n40: 2300 to 2400 MHz (UL/DL) n41: 2496 to 2690 MHz (UL/DL) n48: 3550 to 3700 MHZ (UL/DL) n66: 1710 to 1800 MHz (UL), 2110 to 2200 MHz (DL) n71: 663 to 698 MHz (UL), 617 to 652 MHz (DL) n77: 3300 to 4200 MHz (UL/DL) n78: 3300 to 3800 MHz (UL/DL) n79: 4400 to 5000 MHz (UL/DL)
Wireless protocol standards	5GNR Air Interface 3GPP Rel15 5G NR sub-6 LTE Rel14 20 layers and 2 Gbps downlink (DL) throughput – 4 × 4 MIMO across 5x CA 200 Mbps/uplink (UL) throughput – 40 MHz ULCA and 256 QAM WCDMA R99, 3GPP Release 5, 6, 7 and 8 UMTS Specification
GPS	Standalone, A-GPS (MS-A, MS-B)
GPS bands	GPS: L1 (1575.42MHz) GLONASS: L1 (1602MHz) BeidouB1(1561.098MHz) Galileo E1 (1575.42) QZSS(1575.42 MHz)
Maximum data rates	SA 5G/NR sub-6 Peak: DL4.67Gbps/ UL 1.25Gbps 5G NSA sub 6G : DL: 3.8 Gbps/UL 700Mbps LTE: ue-CategoryDL 19, (DL : 1.6 Gbps) ue-CategoryUL 18 , (UL: 211Mbps) DC-HSPA+: 42 Mbps (Download), 11.5 Mbps (Upload)
Maximum output power	LTE: 23 dBm in all band except B41 LTE B41 HPUE = 26dBm NR: 23 dBm in all band except n41, n77, n78 and n79 LTE n41, n77, n78 and n79 HPUE = 26dBm HSPA+: 23.5 dBm
Maximum power consumption	5G Sub 6 : 2500 mA LTE: 1,300 mA (peak); 1100 mA (average) HSPA+: 1,100 mA (peak); 800 mA (average)
Form Factor	M.2, 3052-S3 Key B
Weight	8 g
Dimensions (Length x Width x Thickness)	52 mm × 30 mm × 2.3 mm
embedded eSIM	Support

Intel® 5G module is optional and must be configured at the factory. Module designed for 5G NR NSA (non-standalone) networks as carriers deploy Evolved-Universal Terrestrial Radio Access New Radio Dual Connectivity (ENDC) with both 100Mhz of 5G NR and LTE channel bandwidth, using 256QAM 4x4 as defined by 3GPP. Module requires activation and separately purchased service contract. Check with service provider for coverage and availability in your area. Data connection, upload and download speeds will vary due to network, location, environment, network conditions, and other factors. Backwards compatible to 4G LTE and 3G HSPA technologies. 5G module planned to be available in select platforms and select countries, where carrier supported.

POWER

1. Actual battery Watt-hours (Wh) will vary from design capacity. Battery capacity will naturally decrease with shelf life, time, usage, environment, temperature, system configuration, loaded apps, features, power management settings and other factors

HP 65W Slim USB-C® Straight AC Power Adapter Taroko	**Dimensions (H x W x D)**	3.819 x 2.106 x 0.827 in (9.7x5.35x2.1cm)	
	Weight	0.49 lb (220 g) max (Not including power cord. Power cord varies by country.)	
	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	47-63Hz
		Input AC current	Max. 1.6 A at 90 Vac
	Output	**Output power**	5V/15W 9V/27W 12V/60W 15V/65W 20V/65W
		DC output	5V/9V/12V/15V/20V
		Hold-up time	100% load 5ms at 115 Vac input
		Output current limit	< 8.0A
	Connector	USB Type-C®	
	Environmental Design	**Operating temperature**	32°F to 95°F (0°to 35°C)
		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 - IEC60950-1 and IEC62368-1 : 2018, EN62368-1:2014+A11, UL 62368-1 Agency approvals - C-UL-US, TUV/GS, TUV/PSE, EN55032 Class B, FCC Class B, CISPR32 Class B, CCC and CECP, CU(EAC), EAEU, KCC(Safety+EMC) and K-MEPS, NOM-001 and 029 NYCE, NRcan, NRCS, ISC, SEC, PSB, Argentina S-mark, Australia RCM, BIS, BSMI, UAE, UKCA DoC	

Technical Specifications

AC Adapter 65 Watt nPFC Standard USB Type C® Straight 1.8m	**Dimensions (H x W x D)**	90.0 x 51 x 28.5 mm	
	Weight	unit: 250g +/- 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% 15V : 88% 20V : 89%
		Input frequency range	47 ~ 63 Hz
		Input AC current	Max. 1.6 A at 90 Vac
	Output	**Output power**	65W
		DC output	5V/9V/12V/15V/20V
		Hold-up time	5ms at 115 Vac input
		Output current limit	<8.0A
	Connector	USB TYPE C®	
	Environmental Design	**Operating temperature**	32°F to 95°F (0°to 35°C)
		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 - IEC60950-1 and/or IEC62368-1, EN60950-1 and/or EN62368-1, UL60950-1 and/or UL62368-1 , Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55032 Class B, FCC Class B, CISPR32 Class B, CCC, NOM-001 NYCE. * MTBF - over 200,000 hours at 25°C ambient condition.	

HP 100W+10W Slim USB-C+USB-A Straight AC Power Adapter Kenting	**Dimensions (H x W x D)**	136 x 60 x 22 mm	
	Weight	unit: 365g +/- 10g	
	Input	100 to 240 VAC	
		Input Efficiency	Average Efficiency of 25%, 50%, 75%, 100% load condition with 115Vac/230Vac Spec: 5VusbA : 73.62% 5VusbC : 81.5% 9V : 86.7% 12V : 88% 15V : 89% 20V : 89%

Technical Specifications

		> 90% efficiency at 100W (20V/5A) output condition
	Input frequency range	47 ~ 63 Hz
	Input AC current	1.6 A at 90 VAC and maximum load
Output	**Output power**	110W
	DC output	5VusbA/5V/9V/12V/15V/20V
	Hold-up time	5ms at 115 Vac input
	Output current limit	<6.25A
Connector	USB TYPE C®	
Environmental Design	**Operating temperature**	32°F to 95°F (0°to 35°C)
	Non-operating (storage) temperature	-4°F to 185°F (-20°to 85°C)
	Altitude	0 to 16,400 ft (0 to 5000m)
	Humidity	5% to 95%
	Storage Humidity	5% to 95%
EMI and Safety Certifications	*CE Mark - full compliance with LVD and EMC directives * Worldwide safety standards - IEC60950-1 and/or IEC62368-1, EN60950-1 and/or EN62368-1, UL60950-1 and/or UL62368-1, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55032 Class B, FCC Class B, CISPR32 Class B, CCC, NOM-001 NYCE. * MTBF - over 200,000 hours at 25°C ambient condition.	

Technical Specifications

45Wh Long Life Polymer Fast Charge 4 cell Battery[1,2]	**Weight**	206.8g+/-10g	
	Cells/Type	4cell Lithium-Ion Polymer cell / 484283	
	Energy	**Voltage**	7.72V
		Amp-hour capacity	5.909Ah
		Watt-hour capacity[1]	45.6Wh
	Temperature	**Operating (Charging)**	32˚ to 113˚ F (0˚ to 45˚ C)
		Operating (Discharging)	14˚ to 122˚ F (-10˚ to 60˚ C)
		Optional Travel Battery Available	No

1. Actual battery Watt-hours (Wh) will vary from design capacity. Battery capacity will naturally decrease with shelf life, time, usage, environment, temperature, system configuration, loaded apps, features, power management settings and other factors
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 and 100 watts is required. After charging has reached 50% capacity, charging will return to normal. Charging time may vary +/-10% due to System tolerance

68Whr Long Life Polymer Fast Charge 6 cell Battery[1,2]	**Weight**	300g+/-10g	
	Cells/Type	6cell Lithium-Ion Polymer cell / 484283	
	Energy	**Voltage**	11.58V
		Amp-hour capacity	5.909 Ah
		Watt-hour capacity[1]	68.4Wh
	Temperature	**Operating (Charging)**	32˚ to 113˚ F (0˚ to 45˚ C)
		Operating (Discharging)	14˚ to 122˚ F (-10˚ to 60˚ C)
		Optional Travel Battery Available	No

1. Actual battery Watt-hours (Wh) will vary from design capacity. Battery capacity will naturally decrease with shelf life, time, usage, environment, temperature, system configuration, loaded apps, features, power management settings and other factors
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 and 100 watts is required. After charging has reached 50% capacity, charging will return to normal. Charging time may vary +/-10% due to System tolerance

Technical Specifications

AUDIO

HD Stereo Codec	Realtek ALC3315
Audio I/O Ports	Headset: CTIA only and Headphone-out
Internal Speaker Amplifier	Cirrus Logic High-Efficiency Boosted Class D Amplifier
Multi-streaming Capable	Playback multi-streaming can be enabled in the audio control panel to allow independent audio. Following MSFT Behavior
Sampling	DAC:44.1k/48kHz ADC:48kHz
Wavetable Syntheses	
Analog Audio	Support 3.5mm Headset: CTIA only and Headphone-out
# of Channels on Line-Out	
Internal Speaker	Yes

FINGERPRINT READER

Sensor vendor	Synaptics FS7604
Sensor type	Capacitive
DPI resolution	363DPI
Scan area	7.4x6mm sensor area
False Rejection Rate	<1%
False Acceptance Rate	1:50K FAR
Mobile Voltage Operation	Mobile Voltage Operation: 3.0V to 3.6V
Operating Temperature	Operating Temperature: 0~60°C
Current Consumption Image	Current Consumption Image: 100mA Max
Low Latency Wait For Finger	Low Latency Wait For Finger: 260 uA
Capture Rate	Capture Rate: <30msec per image
ESD Resistance	ESD Resistance: IEC 61000-4-2 4B (+/-15KV)
Detection Matrix	Detection Matrix: 363 dpi / 7.4x6mm sensor area

Technical Specifications

ENVIRONMENTAL DATA

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® • US Federal Energy Management Program (FEMP) • EPEAT Gold registered in the United States. See http://www.epeat.net for registration status in your country. • TCO Certified • China Energy Conservation Program (CECP) • China State Environmental Protection Administration (SEPA) • Taiwan Green Mark • Korea Eco-label • Japan PC Green label*		
Sustainable Impact Specifications	• Ocean-bound plastic in Speaker • 20% post-consumer recycled plastic • 85% recycled metal • Low halogen • Outside Box and corrugated cushions are 100% sustainably sourced and recyclable • Molded Paper Pulp Cushion inside box is 100% sustainably sourced and recyclable • Bulk packaging available		
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 (Sort idle)	6.39 W	6.40 W	6.27 W
Normal Operation (Long idle)	0.72 W	0.71 W	0.65 W
Sleep	0.72 W	0.71 W	0.65 W
Off	0.45 W	0.44 W	0.47 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)	21.9 BTU/hr	21.9 BTU/hr	21.4 BTU/hr
Normal Operation (Long idle)	2.5 BTU/hr	2.4 BTU/hr	2.2 BTU/hr

Technical Specifications

Sleep	2.5 BTU/hr	2.4 BTU/hr	2.2 BTU/hr
Off	1.5 BTU/hr	1.5 BTU/hr	1.6 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	2.6	13.5	
Fixed Disk – Random writes	3.1	24.1	
Optical Drive – Sequential reads	3.1	24	
Longevity and Upgrading	This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the		
	Spare parts are available throughout the warranty period and or for up to “5” years after the end of production.		
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 is 92.7% recycle-able when properly disposed of at end of life.		
Packaging Materials	**External:**	PAPER/Corrugated	220 g
		PAPER/Corrugated	41g
		PAPER/Molded pulp	54g
		PAPER/Molded pulp	57g
		PAPER/Paper	3g
	Internal:	PLASTIC/Polyethylene low density-LDPE	14g
	The plastic packaging material contains at least 0.0% recycled content.		
	The corrugated paper packaging materials contains at least 53.4% recycled content.		
RoHS Compliance	HP Inc. complies fully with materials regulations. We were among the first companies to extend the restrictions in the European Union (EU) Restriction of Hazardous Substances (RoHS) Directive to our products worldwide through the HP GSE. HP has contributed to the development of related legislation in Europe, as well as China, India, and Vietnam. We believe the RoHS directive and similar laws play an important role in promoting industry-wide elimination of substances of concern. We have supported the inclusion of additional		

Technical Specifications

	substances—including PVC, BFRs, and certain phthalates—in future RoHS legislation that pertains to electrical and electronics products. We met our voluntary objective to achieve worldwide compliance with the new EU RoHS requirements for virtually all relevant products by July 2013, and we will continue to extend the scope of the commitment to include further restricted substances as regulations continue to evolve. To obtain a copy of the HP RoHS Compliance Statement, see HP RoHS position statement.
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/supplychain/gen_specifications.html): • Asbestos • Certain Azo Colorants • Certain Brominated Flame Retardants – may not be used as flame retardants in plastics • Cadmium • Chlorinated Hydrocarbons • Chlorinated Paraffins • Bis(2-Ethylhexyl) phthalate (DEHP) • Benzyl butyl phthalate (BBP) • Dibutyl phthalate (DBP) • Diisobutyl phthalate (DIBP) • 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)

Technical Specifications

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	HP 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
footnotes	• Percentage of ocean-bound plastic contained in each component varies by product • Recycled plastic content percentage is based on the definition set in the IEEE 1680.1-2018 standard. • External power supplies, WWAN modules, power cords, cables and peripherals excluded. • 100% outer box packaging and corrugated cushions made from sustainably sourced certified and recycled fibers. • Fiber cushions made from 100% recycled wood fiber and organic materials. • Plastic cushions are made from >90% recycled plastic. • Recycled metal is expressed as a percentage of the total weight of the metal according to ISO 14021 definitions for metal parts over 25 grams

COUNTRY OF ORIGIN

China

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

DOCKING (Sold Separately)

Docking station model #1	HP Thunderbolt 120W G4 Dock
Total number of supported displays (incl. the notebook display)	4
Max. resolutions supported	Quad 4K @60Hz Dual 8K single cable@30 for TB hosts or USB-C hosts DP 1.4 with DSC in high res mode
Dock Connectors	2xDP, 1xHDMI, 1xTB, 1xUSB-C Alt Mode
Technical limitations	Maximum resolution and display support is dependent on the maximum capability of the notebook. Thunderbolt Hosts: Maximum of (4) displays with maximum resolution of 5K@ 30Hz running Thunderbolt host. Maximum resolution possible is dual 8K displays @ 60Hz running Thunderbolt host or running a non-Thunderbolt host in high resolution mode @30Hz Non-Thunderbolt hosts: The highest resolution for dual displays running a non-Thunderbolt host in multi-function mode is (1) 5K dual cable (using both DP ports) +(1) 4K on USB-C DP port Non-Thunderbolt hosts support (3) displays with a maximum resolution of (2) 5K single cable + (1) 4K UHD @ 60 Hz in high resolution mode. In multi-function mode the maximum resolution for (3) displays is (2) 5K single cable @ 30Hz + (1) 4K UHD @ 30Hz.
Docking station model #2	HP Thunderbolt 280W G4 Dock
Total number of supported displays (incl. the notebook display)	4
Max. resolutions supported	Quad 4K @60Hz Dual 8K single cable@30 for TB hosts or USB-C hosts DP 1.4 with DSC in high res mode
Dock Connectors	2xDP, 1xHDMI, 1xTB, 1xUSB-C Alt Mode
Technical limitations	Maximum resolution and display support is dependent on the maximum capability of the notebook. Thunderbolt Hosts: Maximum of (4) displays with maximum resolution of 5K@ 30Hz running Thunderbolt host. Maximum resolution possible is dual 8K displays @ 60Hz running Thunderbolt host or running a non-Thunderbolt host in high resolution mode @30Hz Non-Thunderbolt hosts: The highest resolution for dual displays running a non-Thunderbolt host in multi-function mode is (1) 5K dual cable (using both DP ports) +(1) 4K on USB-C DP port Non-Thunderbolt hosts support (3) displays with a maximum resolution of (2) 5K single cable + (1) 4K UHD @ 60 Hz in high resolution mode. In multi-function mode the maximum resolution for (3) displays is (2) 5K single cable @ 30Hz + (1) 4K UHD @ 30Hz.

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

Docking station model #3	HP USB-C Dock G5
Total number of supported displays (incl. the notebook display)	3
Max. resolutions supported	Dual 5K@ 30Hz + (1) 4K UHD (multi-function mode)
Dock Connectors	1xHDMI, 2xDP
Technical limitations	Maximum resolution and display support is dependent on the maximum capability of the notebook. Highest resolution with dual displays is two 8K@ 60Hz host in High Resolution mode. Three maximum displays supported are two 5K@ 30 Hz on DP ports plus one 4K UHD@ 30 Hz on HDMI in Multi-function mode The highest resolution for a non-Thunderbolt host in Multi-function mode is a single 5K dual cable (using both DP ports) + (1) 4K on HDMI port.
Docking station model #4	HP USB-C/A Universal Dock G2
Total number of supported displays (incl. the notebook display)	3
Max. resolutions supported	Dual 4K @ 60Hz Single 5K @ 60Hz
Dock Connectors	1xHDMI, 2xDP
Technical limitations	Maximum resolution and display support is dependent on the maximum capability of the notebook. The best resolution for dual or triple displays is 4K UHD@ 60Hz. For use with the USB-A adapter that comes in the box the maximum number of displays supported is (2) 4k x 60 Hz on the Type-A Gen 1 connection from the host.
Docking station model #5	HP USB-C G5 Essential Dock
Total number of supported displays (incl. the notebook display)	3
Max. resolutions supported	For hosts that support DisplayPort 1.4 with Display Stream Compression: 3x FHD @ 60 Hz 3x QHD @ 60 Hz 3x 4K @ 60 Hz For hosts that support DisplayPort 1.3/1.4: 3x FHD @ 60 Hz 3x QHD @ 60 Hz 2x 4K @ 60 Hz
Dock Connectors	1 x HDMI, 2 x DP
Technical limitations	Video resolution depends on the capability of the host machine. This dock provides up to 65W of power delivery to the host machine.

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

Type	Description	Part Number
Audio	HP Wired USB-A Stereo Headset	428K6AA
	HP Wired 3.5mm Stereo Headset	428K7AA
	HP 365 BT Speaker	567D3AA#ACJ
Video	HP 325 FHD USB-A Webcam	53X27AA
	HP 965 4K USB-A STR Webcam	695J5AA
Cases	HP Prelude G2 15.6 Backpack	1E7D6AA
	HP Prelude G2 15.6 Top Load	1E7D7AA
	HP Prelude Pro Recycled 15.6 Backpack	1X644AA
	HP Prelude Pro Recycled 15.6 Top Load	1X645AA
	HP Renew 14 Laptop Sleeve	2E6U9AA
	HP Renew Business 14.1 Laptop Bag	3E5F9AA
	HP Renew Business 14.1 Laptop Sleeve	3E2U7AA
	HP Renew Business 15.6 Laptop Bag	3E5F8AA
	HP Renew Business 17.3 Laptop Backpack	3E2U5AA
	HP Renew Business 17.3 Laptop Bag	3E2U6AA
	HP Renew Executive 14.1 Laptop Sleeve	6B8Y3AA
	HP Renew Executive 16 Laptop Backpack	6B8Y1AA
	HP Renew Executive 16 Laptop Bag	6B8Y2AA
	HP Travel 18L 15.6 Iron Gray Laptop Backpack	6H2D9AA
	HP Travel 25L 15.6 Iron Gray Laptop Backpack	6H2D8AA
Hub	HP 4K USB-C Multiport Hub	6G842AA
	HP Universal USB-C Multiport Hub	50H55AA
	HP USB-C Travel Dock G2	7PJ38AA
	HP USB-C to USB-A Hub	Z6A00AA
Adapter	HP USB-C to RJ45 Adapter G2	4Z527AA
	HP USB 3.0 to Gigabit RJ45 Adapter G2	4Z7Z7AA
	HP HDMI to VGA Adapter	H4F02AA
	HP USB-C to DisplayPort Adapter	N9K78AA
	HP USB-C to HDMI 2.0 Adapter	1WC36AA
	HP USB-C to USB 3.0 Adapter	N2Z63AA
	HP USB-C to VGA Adapter	N9K76AA
Keyboard/Combo	HP 125 WD USB Keyboard	266C9AA
	HP 320K WD USB Keyboard	9SR37AA
	HP 155 Wired Mouse and Keyboard Combo	5B8C0AA#ACJ

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

	HP 225 Antimicrobial Wired Mouse and Keyboard Combo	286K3AA#AB2
	HP 225 Wired Mouse and Keyboard Combo	286J4AA
	HP Wired Desktop 320MK Mouse and Keyboard	9SR36AA
Mouse	HP 125 USB-A Wired Mouse	265A9AA
	HP 128 USB Laser Wired Mouse	265D9AA
	HP 155 USB-A Wired Mouse	5B8B7AA#ACJ
	HP 320M USB-A Wired Mouse	9VA80AA
Power	HP 65W GaN USB-C Laptop Charger	600Q7AA
	HP 65W USB-C Laptop Charger	671R3AA
	HP 65W USB-C LC AC Power Adapter	1P3K6AA
Commodity	HP USB DVD-Writer EXT ODD	F2B56AA
	HP Nano Keyed Cable Lock	1AJ39AA
	HP Nano Master Keyed Cable Lock	1AJ40AA
	HP SureKey Standard/Nano/Wedge Cable Lock	6UW42AA
	HP Combination Nano Cable Lock	63B28AA
	HP Essential Combination Nano Cable Lock	63B31AA

Change Log

Date of change:	Version History:		Description of change:
April 28, 2023	V1 to V2	Updated	Audio section
May 15, 2023	V2 to V3	Updated	Displays section
	V3 to V4		

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