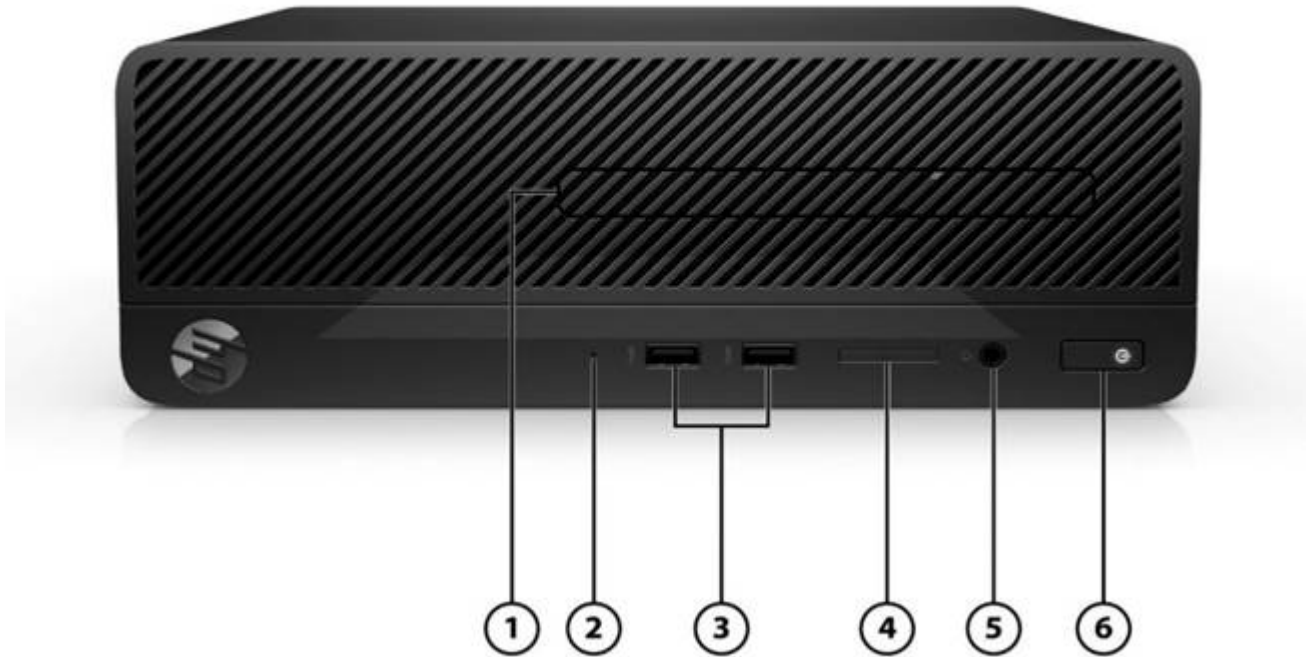


Overview

HP 280 G3 Small Form Factor Business PC



Front

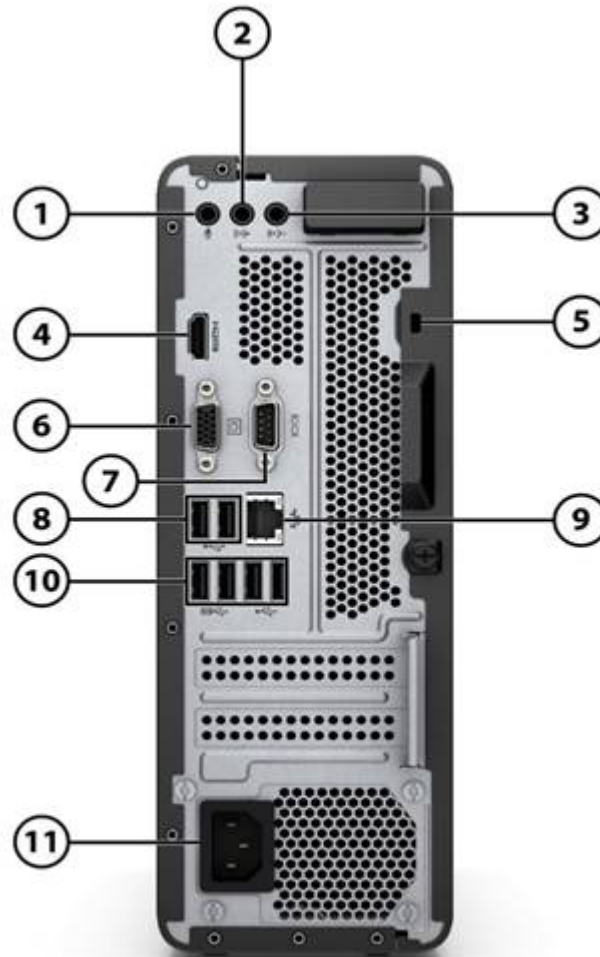
1. Slim-height Bay - supporting an optical disk drive (optional)
2. HDD LED light
3. (2) USB 3.1 Gen 1 Ports
4. 3-in1 SD Media Card Reader
5. Microphone/Headphone Combo Jack
6. Power Button

Not Shown

- Slots
- (1) PCI Express x16 Graphics Connector
 - (1) PCI Express x1 Accessory Connector
 - (1) M.2 for WLAN
 - (1) M.2 2230/2280 storage
- Bays
- (1) 3.5" or 2.5" internal storage
 - (1) Slim-height bay

Overview

HP 280 G3 Small Form Factor Business PC



Back

- | | |
|---------------------------|---|
| 1. Audio Mic in | 6. VGA Port ¹ |
| 2. Audio Line in | 7. Serial Port |
| 3. Audio Link out | 8. (2) USB 2.0 port |
| 4. HDMI Port ¹ | 9. RJ-45 Network Connector |
| 5. Security Lock Slot | 10. (2) USB 3.1 Gen1 Port (left) and (2) USB 2.0 port (right) |
| | 11. Power Cord Connector |

Not Shown

Optional Parallel Port (Optional via PCIe_x1 slot)

1. Port will be covered up when discrete graphic card is configured on shipped machine

Overview

AT A GLANCE

- Windows 10 Pro, Windows 10 Home or FreeDos 2.0
- Intel® H370 chipset supporting Intel® 8th generation Pentium®, Core™ i3 ,i5, i7 processors featuring Intel® UHD Graphics
- Supports an optional discrete graphics card
- Integrated 10/100/1000 Ethernet Controller or 802.11a/b/g/n/ac (1x1) WiFi and Bluetooth® 4.2 Combo
- Up to 32GB DDR4-2666 Unbuffered Memory (UDIMM)
- Independent monitor support via VGA and HDMI interfaces
- TPM 2.0 support (firmware)*
- Supports both Hard Disk Drives and SATA TLC / M.2 PCIe NVMe Solid State Drives
- Audio in, Audio out and Mic in support 5.1 channel
- 8 USB Ports (including 4 USB 3.1 Gen1 ports)
- 180W Full range 115V/230V
- Security cable lock supported (sold separately)
- Protected by HP Services; terms and conditions vary by country; certain restrictions and exclusions apply
- Dust filter available

1. TPM feature will not be supported on machine pre-configured with FreeDOS, In same cases, machines pre-configured with Windows OS might ship with TPM turned off

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

Standard Features and Configurable Modules

OPERATING SYSTEMS

Preinstalled (Windows)

Windows 10 Pro 64¹

Windows 10 Home 64¹

Pre-installed (Other)

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.microsoft.com>.

PROCESSOR

Intel® Celeron^{®2,3}

ICPU Intel Celeron G4900 Dual Core 3.1GHz 2400MHz 54W (Coffee Lake-S) (3.1 GHz, 2 MB cache, 2 cores)

Intel® Pentium^{®2,3}

ICPU Intel Pentium G5400 Dual Core 3.7GHz 2400MHz 54W (Coffee Lake-S) (3.7 GHz, 4 MB cache, 2 cores)

Intel® Core™ i3^{2,3}

CPU Intel Core i3-8100 Quad Core 3.6GHz 2400MHz 65W (Coffee Lake-S) (3.6 GHz, 6 MB cache, 4 cores)

Intel® Core™ i5^{2,3}

CPU Intel Core i5-8400 6C 2.8GHz 2666MHz 65W (Coffee Lake-S) (2.8GHz, turbo up to 4GHz, 9 MB cache, 6 cores)

Intel® Core™ i5^{2,3}

CPU Intel Core i5-8500 6C 3.0GHz 2666MHz 65W (Coffee Lake-S) (3GHz, turbo up to 4.1GHz, 9 MB cache, 6 cores)

Intel® Core™ i7^{2,3}

CPU Intel Core i7-8700 6C 3.2GHz 2666MHz 65W (Coffee Lake-S) (3.2GHz, turbo up to 4.6GHz, 12 MB cache, 6 cores)

2. Your product does not support Windows 8 or Windows 7. In accordance with Microsoft's support policy, HP does not support the Windows[®] 8 or Windows 7 operating system on products configured with Intel 8th generation and forward processors or provide an Windows[®] 8 or Windows 7 drivers on <http://www.support.hp.com>

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.

CHIPSET

Intel® H370 Chipset

Standard Features and Configurable Modules

GRAPHICS

Integrated^{4,5}

Intel® UHD Graphics 630 (integrated on Core i7/i5/i3 processors)
 Intel® UHD Graphics 610 (integrated on Pentium G5400 and Celeron G4900)

Discrete Graphics

AMD Radeon™ R7 430 2GB PCIe x16 GFX
 NVIDIA® GeForce® GT730 1GB PCIe x8 HDMI GFX
 NVIDIA® GeForce® GT730 2GB PCIe x8 DP GFX

4. HD content required to view HD images.

5. Integrated Intel Wi-Di software is available on select models only and requires separately purchased projector, tv or computer monitor with an integrated or external Wi-Di receiver. External Wi-Di receivers connect to the projector, tv or computer monitor via standard VGA, HDMI cable, also sold separately

MEMORY

Both slots are customer accessible / upgradeable, Supports Dual Channel Memory

Form Factor	Type	Maximum	# of Slots
Small Form Factor	DDR4 2666 (Transfer rates up to 2666 MT/s)	32 GB capacity	2 DIMM ⁶
	4 GB DDR4-2666 UDIMM (1x4GB)		
	8 GB DDR4-2666 UDIMM (1x8GB)		
	8 GB DDR4-2666 UDIMM (2x4GB)		
	16 GB DDR4-2666 UDIMM (1x16GB)		
	16 GB DDR4-2666 UDIMM (2x8GB)		

6. For systems configured with more than 3 GB of memory and a 32-bit operating system, all memory may not be available due to system resource requirements. Addressing memory above 4 GB requires a 64-bit operating system. Memory modules support data transfer rates up to 2666 MT/s; actual data rate is determined by the system's configured processor. See processor specifications for supported memory data rate.

Standard Features and Configurable Modules

STORAGE AND DRIVES

SATA3 - 3.5" or 2.5"? 6Gb/s HDDs*

2TB 7200 RPM SATA Hard Disk Drive

1TB 7200 RPM SATA Hard Disk Drive

500GB 7200 RPM SATA Hard Disk Drive

128GB 2.5"? TLC SSD

256GB 2.5"? TLC SSD

M.2 Solid State Drives ⁷

128GB M.2 NVMe

256GB M.2 NVMe

SD Card Reader⁸

SD/SDHC/SDXC SD Card Reader

7. 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.

8. Card sold separately.

OPTICAL DISC DRIVES

DVD-ROM 9.5mm⁹

DVD-Writer 9.5mm⁹

9. Optical drives are optional or add on features. Duplication of copyrighted material is strictly prohibited. Actual speeds may vary. Double Layer media compatibility will widely vary with some home DVD players and DVD-ROM drives.

NETWORKING/COMMUNICATIONS

Networking

Integrated 10/100/1000M GbE LAN

Wi-Fi and Bluetooth^{®10}

802.11a/b/g/n/ac (1x1) WiFi and Bluetooth[®] 4.2 Combo

10. Wireless cards are optional or add-on features and requires separately purchased wireless access point and internet service. Availability of public wireless access points limited.

Standard Features and Configurable Modules

AUDIO/MULTIMEDIA

Integrated Hi-Definition Audio
Combo Jack, Headphone/ Microphone
Line-in/ Line-out/ Mic-in jacks(3.5mm)

KEYBOARDS/POINTING DEVICES/BUTTONS AND FUNCTIONS KEYS

Keyboard

USB Business Slim Wired Keyboard
HP USB Keyboard
Business Slim USB Antimicrobial Wired Keyboard (China)
No KB Option

Mouse

Antimicrobial USB Mouse (China)
HP Optical USB Mouse
Universal Wired Mouse USB
USB Hardened Mouse (India)
No Mouse Option

PORTS

Front

Slim-height Bay - supporting an optical disk drive (optional)
HDD LED light
(2) USB 3.1 Gen 1 Ports
3-in1 SD Media Card Reader
Microphone/Headphone Combo Jack
Power Button

Not Shown

Slots (1) PCI Express x16 Graphics Connector
(1) PCI Express x1 Accessory Connector
(1) M.2 for WLAN
(1) M.2 2230/2280 storage

Rear

Audio Mic in
Audio Line in
Audio Link out
HDMI Port¹
Security Lock Slot
VGA Port¹
Serial Port

Standard Features and Configurable Modules

- (2) USB 2.0 port
- RJ-45 Network Connector
- (2) USB 3.1 Gen1 Port (left) and (2) USB 2.0 port (right)
- Power Cord Connector

Not Shown

- Optional Parallel Port (Optional via PCIe1 slot)

1. Port will be covered up when discrete graphic card is configured on shipped machine

ENVIRONMENTAL & INDUSTRY

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: <ul style="list-style-type: none"> • IT ECO declaration • US ENERGY STAR® • EPEAT® Gold registered in the United States. See http://www.epeat.net for registration status in your country. 		
	System Configuration	The configuration used for the Energy Consumption and Declared Noise Emissions data for the Desktop model is based on a "Typically Configured Desktop"?		
	Energy Consumption (in accordance with US ENERGY STAR® test method)	115VAC, 60Hz	230VAC, 50Hz	100VAC, 60Hz
	Normal Operation (Short idle)	10.93	11.16	10.96
	Normal Operation (Long idle)	10.39	10.37	10.18
	Sleep	0.65	0.68	0.65
	Off	0.36	0.39	0.37
		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, 60Hz
	Normal Operation (Short idle)	37.27	38.06	37.37
Normal Operation (Long idle)	35.43	35.36	34.71	
Sleep	2.22	2.32	2.22	
Off	1.23	1.33	1.26	
	*NOTE: Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.			

Standard Features and Configurable Modules

Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)	Sound Power (L_{WAd} , bels)	Sound Pressure (L_{pAm} , decibels)
Typically Configured - Idle	3.3	26
Fixed Disk - Random writes	3.4	26.1
Longevity and Upgrading	<p>"This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the product may include:</p> <p>Spare parts are available throughout the warranty period and or for up to "5"? years after the end of production.</p>	
Batteries	<p>"This battery(s) in this product comply with EU Directive 2006/66/EC</p> <p>Batteries used in the product do not contain:</p> <p>Mercury greater the 1ppm by weight</p> <p>Cadmium greater than 20ppm by weight</p> <p>Battery size: CR2032 (coin cell)</p> <p>Battery type: Lithium</p>	
Additional Information	<ul style="list-style-type: none"> • This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC. • This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive - 2002/96/EC. • This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986). • This product is in compliance with the IEEE 1680 (EPEAT) standard at the Gold level, see www.epeat.net • Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043. • This product contains 0% post-consumer recycled plastic (by wt.) • This product is 94.4% recycle-able when properly disposed of at end of life." 	
Packaging Materials	External:	PAPER/Corrugated
	Internal:	PLASTIC/EPE (Expanded Polyethylene)
		PLASTIC/Polyethylene low density - LDPE
	The plastic packaging material contains at least 50% recycled content.	
	The corrugated paper packaging materials contains at least 75% recycled content.	
Material Usage	<p>This product does not contain any of the following substances in excess of regulatory limits (refer to the HP General Specification for the Environment at http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/gse.pdf):</p> <ul style="list-style-type: none"> • Asbestos • Certain Azo Colorants • Certain Brominated Flame Retardants - may not be used as flame retardants in plastics • Cadmium • Chlorinated Hydrocarbons • Chlorinated Paraffins • Formaldehyde • Halogenated Diphenyl Methanes • Lead carbonates and sulfates 	

Standard Features and Configurable Modules

		<ul style="list-style-type: none"> • 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, has been voluntarily removed from most applications. • Radioactive Substances • Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)
	<p>Packaging Usage</p>	<p>HP follows these guidelines to decrease the environmental impact of product packaging:</p> <ul style="list-style-type: none"> • 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.
	<p>End-of-life Management and Recycling</p>	<p>Hewlett-Packard offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: http://www.hp.com/go/reuse-recycle or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.</p> <p>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.</p>
	<p>HP, Inc. Corporate Environmental Information</p>	<p>For more information about HP's commitment to the environment:</p> <p>Global Citizenship Report</p> <p>http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html</p> <p>Eco-label certifications</p> <p>http://www8.hp.com/us/en/hp-information/environment/ecolabels.html</p> <p>ISO 14001 certificates:</p> <p>http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c04755842</p>

Standard Features and Configurable Modules

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

BAYS

- (1) 3.5" or 2.5" internal storage
- (1) Slim-height bay

SOFTWARE COMPONENTS AND APPLICATIONS WITH WINDOWS

Security and Protection

McAfee LiveSafe™¹¹

Productivity

Buy Office (sold separately)
Dropbox¹²

ODD Playback and TV Tuners

Power Media Player 14 for HP with DVD (ODD SKU only)¹³

Movies

Netflix¹⁴

App Stores and Content Purchasing

Amazon¹⁴

HP Utilities and Support

HP Documentation
HP JumpStart
HP Recovery Manager
PBR
HP Audio Switch¹⁵
HP Support Assistant¹⁶

BTB

HP Setup Integrated OOB

Hardware Enabling Drivers or software utility

HP ePrint + Jet Advantage¹⁷
HP System Event Utility

11. Free 1-year subscription of McAfee LiveSafe service included. Internet access required and not included. Subscription required after expiration

12. New Dropbox users are eligible to get 25 GB of Dropbox space free for 12 months from date of registration. For complete details and terms of use, including cancellation policies, visit the Dropbox website at <https://www.dropbox.com/help/space/hp-promotion>. Internet service required and not included.

Standard Features and Configurable Modules

13. Actual speeds may vary. Don't copy copyright-protected materials
14. Internet access required and not included.
15. Easily switch between speaker and microphone sources with intuitive controls and a consistent app experience
16. For more information visit hp.com/go/hpsupportassistant [Link will vary outside of the U.S.] HP Support Assistant is available for Android and Windows based PCs..
17. 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 www.hp.com/go/eprintcenter). Print times and connection speeds may vary.

POWER

Power Supply

180 W

ENERGY® STAR® Libra2 EPA90 (Gold) Full range 115V/230V

WEIGHT AND DIMENSIONS (configured with 1 HDD and 1 ODD)

Chassis (D x W x H)	3.74 x 10.63 x 11.65 in (95 x 270 x 296 mm)
System Weight	9.23 lbs / 4.2 kg*

*NOTE: Weight varies by configuration and component

UNIT ENVIRONMENT AND OPERATING CONDITIONS

General Unit Operating Guidelines

Environmental and Industry

- Keep the computer away from excessive moisture, direct moisture and the extremes of heat and cold, to ensure that unit is operated within the specified operating range.
- Leave a 10.2 cm (4 in) clearance on all vented sides of the computer to permit the required airflow.
- Never restrict airflow into the computer by blocking any vents or air intakes. Do not stack computers on top of each other or place computers so near each other that they are subject to each other's re-circulated or preheated air.
- Occasionally clean the air vents on the front, back, and any other vented side of the computer. Lint, dust and other foreign matter can block the vents and limit the airflow.
- If the computer is to be operated within a separate enclosure, intake and exhaust ventilation must be provided on the enclosure, and the same operating guidelines listed above will still apply.

Temperature Range	Operating:	32° to 104° F (0° to 40° C) ¹³
	Non-operating:	-22° to 140° F(-30° to 60° C)
Relative Humidity	Operating:	10% to 90% (non-condensing at ambient)
	Non-operating:	0% to 95% (non-condensing at ambient)

Standard Features and Configurable Modules

Maximum Altitude (unpressurized)	Operating:	10,000 ft (3048 m)
	Non-operating:	30,000 ft (9144 m)

13. Operating temperature is de-rated 1.0 deg C per 300 m (1000 ft) to 3000 m (10,000 ft) above sea level, no direct sustained sunlight. Maximum rate of change is 10 deg C/Hr. The upper limit may be limited by the type and number of options installed.

CERTIFICATIONS

CECP
SEPA
ENERGY STAR® certified
CEL
FCC
UL
RoHS
CCC
CE

SERVICE AND SUPPORT

On-site Warranty¹⁴: Available three-year (3-3-3) or one-year (1-1-1) limited warranty (varies by country) delivers on-site, next business day¹⁵ service for parts and labor and complimentary limited technical support¹⁶. Three-year onsite and labor are not available in all countries. Service offers terms up to 5 years by choosing an optional HP Care Pack¹⁷. To choose the right level of service for your HP product, visit HP Care Pack Central: <http://www.hp.com/go/cpc>.

14. Terms and conditions may vary by country. Certain restrictions and exclusions apply. Other warranty variations may be offered in your region.

15. On-site service may be provided pursuant to a service contract between HP and an authorized HP third-party provider, and is not available in certain countries. Global service response times are based on commercially reasonable best effort and may vary by country.

16. Technical support applies only to HP-configured and third-party HP qualified hardware and software.

17. Service levels and response times for HP Care Packs may vary depending on your geographic location. Service starts on date of hardware purchase. Restrictions and limitations apply. For details, visit www.hp.com/go/cpc. HP services are governed by the applicable HP terms and conditions of service provided or indicated to Customer at the time of purchase. Customer may have additional statutory rights according to applicable local laws, and such rights are not in any way affected by the HP terms and conditions of service or the HP Limited Warranty provided with your HP Product.

CERTIFICATION AND COMPLIANCE

ENERGY STAR® certified; EPEAT® Silver¹⁸

18. EPEAT® registered where applicable. EPEAT registration varies by country. See <http://www.epeat.net> for registration status by country. See HP's 3rd party option store for solar energy accessory at <http://www.hp.com/go/options>.

Technical Specifications - Graphics

GRAPHICS			
Intel® UHD Graphics 630 (integrated on Core i7/i5/i3 processors)			
Intel® UHD Graphics 610 (integrated on Pentium G5400 and Celeron G4900)			
DisplayPort™	Multimode capable; supports HDCP, DisplayPort™ Audio (2 streams), HBR2 link rates and Multi-Stream Technology for a maximum of 3 displays (including the integrated panel)		
Maximum Graphics Memory	Microsoft Windows 7	Windows 8.1	Windows 10
	Up to 1.7GB	Up to 1.8GB	>4 GB
	Note: the actual amount of maximum graphics memory can be less than the amounts listed above depending upon your computer's configuration.		
Maximum Color Depth	32 bits/pixel		
Graphics/Video API Support	8th Generation Intel® Core™ processors:		
	With Intel® UHD Graphics 630 DirectX 12, OpenGL 4.4, OpenCL 2.0, Intel® Quick Sync Video 8th Generation Pentium® G5400 and Celeron® G4900 With Intel® UHD Graphics 610 DirectX 12, OpenGL 4.4, OpenCL 2.0, Intel® Quick Sync Video		
Supported Display Resolutions and Refresh Rates			
Note: other resolutions may be available but are not recommended as they may not have been tested and qualified by HP			
Resolution		Refresh Rates	
800x600		60 Hz	
1024x768		60 Hz	
1152x864		60 Hz	
1280x600		60 Hz	
1280x720		60 Hz	
1280x800		60 Hz	
1280x960		60 Hz	
1280x1024		60 Hz	
1360x768		60 Hz	
1366x768		60 Hz	
1400x1050		60 Hz	
1440x900		60 Hz	
1600x900		60 Hz	
1600x1200*		60 Hz	
1680x1050		60 Hz	
1920x1080		60 Hz	
* Only supported on displays connected to the external DisplayPort connector.			

NVIDIA® GeForce® GT 730 1GB Graphics Card

Technical Specifications - Graphics

Engine Clock	902 MHz
Memory Clock	1250 MHz
Memory Size(width)	1GB(64-bit)
Memory Type	128M x 32 GDDR5 @2pcs
Max. Resolution(DVI)	2560x1600@60Hz
Max. Resolution(HDMI)	4096x2160@24Hz
Multi Display Support	2 displays
HDCP Compliance	Yes
Rear I/O connectors(bracket)	DVI+HDMI
Cooling(active/passive)	Active fan-sink (Active cooling with dynamic speed)
Total power consumption(W)	<35W
PCB form-factor with bracket	LP PCB with FH/LP bracket

NVIDIA® GeForce® GT 730 2GB Graphics Card

Engine Clock	902 MHz
Memory Clock	1250 MHz
Memory Size(width)	2GB(64-bit)
Memory Type	256M x 32 GDDR5 @2pcs
Max. Resolution(DVI)	2560x1600@60Hz
Max. Resolution(HDMI)	4096x2160@60Hz
Multi Display Support	2 displays
HDCP Compliance	Yes
Rear I/O connectors(bracket)	DVI+DP
Cooling(active/passive)	Active fan-sink (Active cooling with dynamic speed)
Total power consumption(W)	<35W
PCB form-factor with bracket	LP PCB with FH/LP bracket

AMD Radeon™ R7 430 2GB Graphics Card

Technical Specifications - Graphics

Engine Clock	780 MHz
Memory Clock	1100 MHz
Memory Size(width)	2GB(128-bit)
Memory Type	128M x 32 GDDR5 @4pcs
Max. Resolution(VGA)	2048x1536
Max. Resolution(DP)	4096x2160@60Hz
Multi Display Support	2 displays
HDCP Compliance	Yes
Rear I/O connectors(bracket)	VGA+DP
Cooling(active/passive)	Active fan-sink (Active cooling with dynamic speed)
Total power consumption(W)	<50W
PCB form-factor with bracket	LP PCB with FH/LP bracket

Technical Specifications – Hard Disk and Solid State Storage

HP 2 TB* 7.2K rpm SATA 6.0Gb/s 3.5" Hard Disk Drive*

Capacity	2 TB
Rotational Speed	7,200 rpm
Interface	SATA 6Gb/s NCQ
Buffer Size	64 MB
Logical Blocks	3,907,029,168
Seek Time	Read: <8.5 ms Write: <9.5 ms
Height	1.028 in/26.11 mm
Width	4.0 in/101.6 mm
Operating Temperature	32° to 140° F (0° to 60° C)

*NOTE: For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and 36 GB (for Windows 8.1/10) of system disk is reserved for the system recovery software.

1TB 7.2K rpm SATA 6.0Gb/s 3.5" Hard Disk Drive

Capacity	1 TB
Rotational Speed	7,200 rpm
Interface	Serial ATA 3.0 (6.0 Gb/s)
Buffer Size	32 MB
Logical Blocks	1,953,525,168
Seek Time	Read: <8.5 ms Write: <9.5 ms Full-Stroke: 21 ms
Height	1 in/2.54 cm
Width	Media diameter: 3.5 in/8.89 cm Physical size: 4 in/10.2 cm
Operating Temperature	41° to 131° F (5° to 55° C)

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

500GB 7.2K rpm SATA 6.0Gb/s 3.5" Hard Disk Drive

Technical Specifications – Hard Disk and Solid State Storage

Capacity	500 GB
Rotational Speed	7,200 rpm
Drive Type	Serial ATA 3.0 (6.0 Gb/s)
Interface	32 MB
Buffer Size	976,773,168
Seek Time	Single Track: 2.0 ms Average: 11 ms Full-Stroke: 21 ms
Height	1 in/2.54 cm
Width	Media diameter: 3.5 in/8.89 cm Physical size: 4 in/10.2 cm
Operating Temperature	41° to 131° F (5° to 55° C)

*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.

HP 9.5mm Desktop G2 Slim DVD Writer Drive

Height	9.5 mm height
Orientation	Either horizontal or vertical
Interface type	SATA/ATAPI
Disc recording capacity	Up to 8.5 GB DL or 4.7 GB standard
Dimensions (W x H x D)	5.04 x 0.37 x 5.0 in (128 x 9.5 x 127 mm) without bezel
Weight (max)	0.31 lb (140 g)
Read Speeds	DVD-R DL - Up to 6X DVD+R - Up to 8X DVD+RW - Up to 8X DVD+R DL - Up to 6X DVD-R - Up to 8X DVD-RW - Up to 6X CD-R - Up to 24X CD-RW - Up to 10X DVD-RW, DVD+RW - Up to 8X DVD-R DL, DVD+R DL - Up to 8X DVD+R, DVD-R - Up to 8X DVD-ROM DL, DVD-ROM - Up to 8X CD-ROM, CD-R - Up to 24X CD-RW - Up to 24X
Access time (typical reads, including settling)	Random DVD-ROM: 170 ms (typical), CD-ROM: 170 ms (typical) Full Stroke DVD-ROM: 320 ms (typical), CD-ROM: 320 ms (typical) Stop Time 6 seconds (typical)
Power	Source Slimline SATA DC power receptacle DC Power Requirement 5 VDC \pm 5%-100 mV ripple p-p DC Current 5 VDC (< 1000 mA typical, 1600 mA maximum)
Environmental conditions (operating - non-condensing)	Temperature 41° to 122° F (5° to 50° C) Relative Humidity 10% to 80% Maximum Wet Bulb Temperature 84° F (29° C)

Technical Specifications – Hard Disk and Solid State Storage

HP 9.5mm Desktop G2 Slim DVD-ROM Drive

Height	9.5 mm height
Orientation	Either horizontal or vertical
Interface type	SATA/ATAPI
Disc recording capacity	Up to 8.5 GB DL or 4.7 GB standard
Dimensions (W x H x D)	5.04 x 0.37 x 5.0 in (128 x 9.5 x 127 mm) without bezel
Weight (max)	0.31 lb (140 g)
Read Speeds	DVD-R DL - Up to 6X DVD+R - Up to 8X DVD+RW - Up to 8X DVD+R DL - Up to 6X DVD-R - Up to 8X DVD-RW - Up to 6X CD-R - Up to 24X CD-RW - Up to 10X DVD-RW, DVD+RW - Up to 8X DVD-R DL, DVD+R DL - Up to 8X DVD+R, DVD-R - Up to 8X DVD-ROM DL, DVD-ROM - Up to 8X CD-ROM, CD-R - Up to 24X CD-RW - Up to 24X
Access time (typical reads, including settling)	Random DVD-ROM: 170 ms (typical), CD-ROM: 170 ms (typical) Full Stroke DVD-ROM: 320 ms (typical), CD-ROM: 320 ms (typical) Stop Time 6 seconds (typical)
Power	Source Slimline SATA DC power receptacle DC Power Requirement 5 VDC \pm 5%-100 mV ripple p-p DC Current 5 VDC (< 1000 mA typical, 1600 mA maximum)
Environmental conditions (operating - non-condensing)	Temperature 41° to 122° F (5° to 50° C) Relative Humidity 10% to 80% Maximum Wet Bulb Temperature 84° F (29° C)

Technical Specifications – Hard Disk and Solid State Storage

128GB PCIE NVME M.2 2280 (Non-SED) Solid State Drive

Unformatted Capacity	128GB
Architecture	3D TLC NAND Flash
Interface	PCIE Gen3 x4
Form Factor	M.2 2280
Dimensions (W x H x D)	22mm x 80mm x 2.23mm
Weight	< 10g
Bandwidth Performance	Sequential Read: Up to 770 MB/s Sequential Write: Up to 450 MB/s Random Read: Up to 35K IOPs Random Write: Up to 91K IOPs
Power	Total Power Consumption (TYP) 100mW (Active) 40mW (Idle)
Useful Drive Life	72TBW
Environmental (all conditions, non- condensing)	Operating Temperature: 0° to 70°C Relative Humidity: 5% to 95% Shock: 1,000 G/0.5 ms

*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.

256GB PCIE NVME M.2 2280 (Non-SED) Solid State Drive

Unformatted Capacity	256GB
Architecture	3D TLC NAND Flash
Interface	PCIE Gen3 x4
Form Factor	M.2 2280
Dimensions (W x H x D)	22mm x 80mm x 2.23mm
Weight	< 10g
Bandwidth Performance	Sequential Read: Up to 1570 MB/s Sequential Write: Up to 540 MB/s Random Read: Up to 71K IOPs Random Write: Up to 112K IOPs
Power	Total Power Consumption (TYP) 100mW (Active) 40mW (Idle)
Useful Drive Life	144TBW
Environmental (all conditions, non- condensing)	Operating Temperature: 0° to 70°C Relative Humidity: 5% to 95% Shock: 1,000 G/0.5 ms

*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 – Hard Disk and Solid State Storage

128GB M.2 2280 SATA TLC (Non-SED) Solid State Drive

Unformatted Capacity	128GB
Architecture	TLC NAND Flash
Interface	SATA 3.2 (6.0 Gb/s)
Form Factor	M.2 2280
Dimensions (W x H x D)	22mm x 80mm x 2.23mm
Weight	< 10g
Bandwidth Performance	Sequential Read: Up to 520MB/s Sequential Write: Up to 450 MB/s Random Read: Up to 70K IOPs Random Write: Up to 30K IOPs
Power	Total Power Consumption (TYP) 150mW (Active) 50mW (Idle)
Useful Drive Life	72TBW
Environmental (all conditions, non- condensing)	Operating Temperature: 0° to 70°C Relative Humidity: 5% to 95% Shock: 1,500 G/0.5 ms

*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.

256GB M.2 2280 SATA TLC (Non-SED) Solid State Drive

Unformatted Capacity	256GB
Architecture	TLC NAND Flash
Interface	SATA 3.2 (6.0 Gb/s)
Form Factor	M.2 2280
Dimensions (W x H x D)	22mm x 80mm x 2.23mm
Weight	< 10g
Bandwidth Performance	Sequential Read: Up to 520MB/s Sequential Write: Up to 450 MB/s Random Read: Up to 73K IOPs Random Write: Up to 50K IOPs
Power	Total Power Consumption (TYP) 150mW (Active) 50mW (Idle)
Useful Drive Life	72TBW
Environmental (all conditions, non- condensing)	Operating Temperature: 0° to 70°C Relative Humidity: 5% to 95% Shock: 1,500 G/0.5 ms

Technical Specifications – Hard Disk and Solid State Storage

*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 - Audio

AUDIO

Audio control

Front side Combo jack for supporting CTIA, Rear side Line-in/ Line-out/ Mic-in jacks

High Definition Audio

Type	Integrated
HD Audio Codec	Realtek ALC3601
Audio I/O Ports	Front side Combo jack for supporting CTIA, Rear side Line-in/ Line-out/ Mic-in jacks
Wavetable Syntheses	Yes
Analog Audio	Yes
Internal Speaker	NA
DAC Sampling Rates	16 to 24-bit; 44.1K/ 48 K/96K / 192K Hz
ADC Sampling Rates	16 bit, 44.1K/ 48K/ 96K/ 192K Hz

Integrated Webcam (optional) and Microphone

Integrated microphone array

Infrared (640 x 480) camera (optional)

All HP devices which carry the Bang & Olufsen brand are custom-tuned and review by Bang & Olufsen's acoustical engineers for precise sound experience in business use.

Technical Specifications – Power

POWER SUPPLY

Operating Voltage Range	90 - 264 VAC
Rated Voltage Range	100-240V AC
Rated Line Frequency	50/60 HZ
Operating Line Frequency	47 - 63 Hz
Rated Input Current	180W : <2.3A
Rated Input Current with Energy Efficient* Power Supply	88/91/88% efficient at 20/50/100% load (230V)
DC Output	+12.1V
Current Leakage (NFPA 99: 2102)	Less than 500 microamps of leakage current at 120 Vac with the ground wire disconnected, as required for Non-patient Electrical Appliances and Equipment used in a patient care facility or that contact patients in normal use. Per section 10.3.5.1. Less than 100 microamps of leakage current at 120 Vac with the ground wire intact with normal polarity, as required for Non-patient Electrical Appliances and Equipment used in a patient care facility or that contact patients in normal use. Per section 10.3.5.1.
Power Supply Fan	50*20mm (linear type)

Technical Specifications – Weights and Dimensions

WEIGHTS AND DIMENSIONS

Chassis (W x H x D)	3.74 x 10.63 x 11.65 in (95 x 270 x 296 mm)
System Volume	488.19cu in 8L
System Weight*	9.23 lbs / 4.2 kg
Tower Stand (H x W x D)	10.73 x 3.74 x 11.65 in (272.6 x 95 x 296 mm)
Packaged (H x W x D)	13.46 x 7.72 x 19.65 in 342 x 196 x 499 mm
Shipping Weight*	13.2 lb / 6 kg
Shipping Weight (Molded Pulp)*	13.86 lb / 6.3 kg
Palletization Profile	12-units per layer 6 layer max 72 per pallet Footprint (H x W x D) 85.91 x 39.37 x 47.24 in (2182 x 1000 x 1200 mm)

***NOTE:** Weight varies by configuration and component

Technical Specifications – Networking and communication

NETWORKING

10/100/1000 Integrated NIC

Ethernet Features	<p>10 Mbit/s operation (10BASE-T; IEEE 802.3i; IEEE 802.3 clauses 13-14)</p> <p>100 Mbit/s operation (100BASE-TX; IEEE 802.3u; IEEE 802.3 clauses 21-30)</p> <p>1000 Mbit/s operation (1000BASE-T; IEEE 802.3ab; IEEE 8023 clauses 40)</p> <p>Auto-Negotiation (Automatic Speed Selection)</p> <p>Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/s</p>
Power Management	<p>ACPI compliant - multiple power modes</p> <p>Situation-sensitive features reduce power consumption</p> <p>Advanced link down power saving for reducing link down power consumption</p>
Performance Features	<p>TCP/IP/UDP Checksum Offload (configurable)</p> <p>Protocol Offload (ARP & NS)</p> <p>Large send offload and Giant send offload</p> <p>Receiving Side Scaling</p> <p>Jumbo Frame 9K</p>
Manageability	<p>Wake-on-LAN from standby and hibernation (Magic Packet and Microsoft Wake-Up Frame);</p> <p>Wake-on-LAN from off (Magic Packet only)</p> <p>PXE 2.1 Remote Boot</p> <p>Statistics Gathering (SNMP MIB II, Ethernet-like MIB, Ethernet MIB (802.3x, clause 30))</p> <p>Comprehensive diagnostic and configuration software suite</p> <p>Virtual Cable Doctor for Ethernet cable status</p>

Realtek 802.11ac (1x1) WiFi and Bluetooth® 4.2 Combo *

Wireless LAN Standards	<p>IEEE 802.11a</p> <p>IEEE 802.11b</p> <p>IEEE 802.11g</p> <p>IEEE 802.11n</p> <p>IEEE 802.11ac</p>	
Interoperability	Wi-Fi certified	
Frequency Bands	802.11b/g/n	<ul style="list-style-type: none"> ● 2.402 - 2.482 GHz <p>Note: The FCC has declared as of January 1, 2015 products that utilize passive scanning on channel 12/13 and are capable of transmitting must fully comply with requirements of 15.247 or otherwise disable those channels.</p>
	802.11a/n	<ul style="list-style-type: none"> ● 4.9 - 4.95 GHz (Japan) ● 5.15 - 5.25 GHz ● 5.25 - 5.35 GHz ● 5.47 - 5.725 GHz ● 5.825 - 5.850
Data Rates	<ul style="list-style-type: none"> ● 802.11b: 1, 2, 5.5, 11 Mbps ● 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps ● 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps ● 802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz) ● 802.11ac : MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, and 80MHz) 	

Technical Specifications – Networking and communication

Modulation	Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM
Security¹	<ul style="list-style-type: none"> • IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only • AES-CCMP: 128 bit in hardware • 802.1x authentication • WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES. • WPA2 certification • IEEE 802.11i • Cisco Certified Extensions, all versions through CCX4 and CCX Lite • WAPI
	¹ Check latest software/driver release for updates on supported security features.
Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
Roaming²	IEEE 802.11 compliant roaming between access points
Output Power²	<ul style="list-style-type: none"> • 802.11b : +14dBm minimum • 802.11g : +12dBm minimum • 802.11a : +12dBm minimum • 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 10 mW • Radio disabled 8 mW
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Receiver Sensitivity³	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
	³ Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CCK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).
Antenna type	High efficiency antenna. One embedded dual band 2.4/5 GHz antenna is provided to the card to support WLAN communications and Bluetooth communications
Form Factor	PCI-Express M.2 MiniCard
Dimensions	Type 2230 : 2.3 x 22.0 x 30.0 mm

Technical Specifications – Networking and communication

Weight	Type 2230 : 2.8g	
Operating Voltage	3.3v +/- 9%	
Temperature	Operating: Non-operating:	14° to 158° F (-10° to 70° C) -40° to 176° F (-40° to 80° C)
Humidity	Operating: Non-operating:	10% to 90% (non-condensing) 5% to 95% (non-condensing)
Altitude	Operating: Non-operating:	0 to 10,000 ft (3,048 m) 0 to 50,000 ft (15,240 m)
LED Activity	LED Amber - Radio OFF; LED White - Radio ON	
5. Wireless access point and Internet service required and not included. Availability of public wireless access points limited.		

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

Bluetooth Specification	4.0/4.1/4.2 Compliant
Frequency Band	2402 to 2480 MHz
Number of Available Channels	Legacy : 0~79 (1 MHz/CH) BLE : 0~39 (2 MHz/CH)
Data Rates and Throughput	Legacy : 3 Mbps data rate; throughput up to 2.17 Mbps BLE : 1 Mbps data rate; throughput up to 0.2 Mbps Legacy : Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Legacy : Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or 864 kbps symmetric (3-EV5)
Transmit Power	The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of + 4 dBm for BR and EDR.
Receiver Sensitivity Legacy	
Power Consumption	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW
Range	Legacy : 0~79 (1 MHz/CH) BLE : 0~39 (2 MHz/CH)
Electrical Interface	USB 2.0 compliant
Bluetooth Software Supported Link Topology	Microsoft Windows Bluetooth Software
Power Management Certifications	Microsoft Windows ACPI, and USB Bus Support
Certifications 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

Technical Specifications – Networking and communication

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)
Advanced Audio Distribution Profile (A2DP)

After-Market Options (availability may vary by region)

<u>Type</u>	<u>Description</u>	<u>Part #</u>
Memory	HP 4GB DDR4-2666 DIMM	3TK85AA
	HP 8GB DDR4-2666 DIMM	3TK87AA
	HP 16GB DDR4-2666 DIMM	3TK83AA
Storage	HP 500GB SATA 6.0Gb/s Hard Drive	QK554AA
	HP 1TB 7200rpm SATA 6Gbps Hard Drive	QK555AA
	HP Turbo Drive Gen2 256GB M.2 SSD Drive	1CA51AA
	HP 256GB SATA TLC Non-SED Solid State Drive	P1N68AA
	HP 9.5mm G3 8/6/4 SFF G4 400 SFF/MT DVD Writer	1CA53AA
Graphics	Nvidia® GT 730 2GB DP Card	Z9H51AA
	AMD Radeon™ R7 430 Card	1MX32AA
Security	HP Business PC Security Lock V2 Kit	N3R93AA
	HP Keyed Cable Lock 10mm kit	T1A62AA
Adapters	HP PCIe x1 Parallel Port Card	N1M40AA
	HP HDMI Standard Cable Kit	T6F94AA
	HP USB to Serial Port Adapter	J7B60AA
Networking	Intel Ethernet I210-T1 GbE NIC Card	E0X95AA
Input	HP USB Mouse	QY777AA
	HP USB Hardened Mouse	P1N77AA
	HP USB Keyboard	QY776AA
	HP USB Business Slim Keyboard	N3R87AA
	HP Conferencing Keyboard	K8P74AA
	HP USB Antimicrobial Slim Keyboard and Mouse	Z9H50AA
Others	HP Business Headset v2	T4E61AA
	HP USB Business Speakers v2	N3R89AA

title

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Change Log

Date of change:	Version History:		Description of change:
May 14, 2018	From v1 to v2	Added	Environmental Tab
July 5, 2018	From v2 to v3	Update	Redundant wording removed from pages 2, 4, 6, 7, 15 and 22.
August 7, 2018	From v3 to v4	Update	Correction made and footnote added to weight specs.