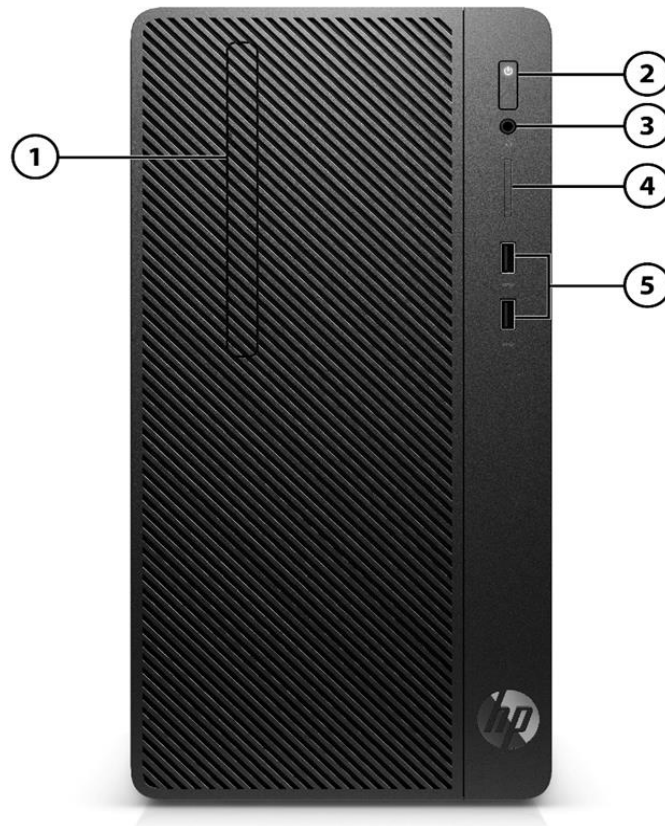


### Overview

### HP Desktop Pro G1 Microtower Business PC



#### **Front**

1. Slim-height Bay - supporting an optical disk drive (optional)
2. Power Button
3. Combo jack, Headphone/ Microphone
4. SD Card Reader
5. (2) USB 3.1 Gen1 Port

#### **Not Shown**

Slots (1) PCI Express x16

(1) PCI Express x1

(1) Legacy PCI (Optional on separated PCA)

(1) M.2 for WLAN

(1) M.2 2230/2280 storage

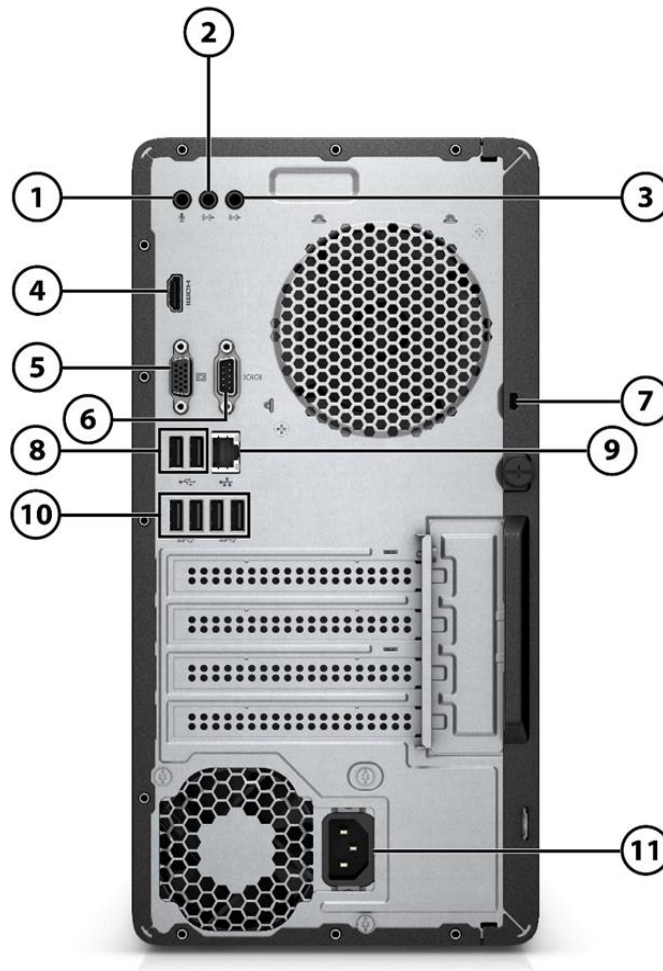
Bays (1) 3.5" internal HDD bay

(1) 3.5" or 2.5" internal HDD bay (share bay)

(1) 9.5mm internal optical drive bay

### Overview

### HP Desktop Pro G1 Microtower Business PC



#### **Back**

- |  |   |
|--|---|
| 1. Audio Mic in  | 7. Security Lock Slot   |
| 2. Audio Line in   | 8. (2) USB 2.0 port   |
| 3. Audio Link out  | 9. RJ-45 Network Connector                                    |
| 4. HDMI Port (port will be covered up when discrete graphic card is configured on shipped machine) | 10. (2) USB 3.1 Gen1 Port (left) and (2) USB 2.0 port (right) |
| 5. VGA Port (port will be covered up when discrete graphic card is configured on shipped machine)  | 11. Power Cord Connector                                      |
| 6. Serial Port (optional on separated PCA with PS/2 port available as well)                        |   |

#### **Not Shown**

- (1) PS/2 port (optional on same separated PCA with serial port available as well)
- (2) Parallel Port (Optional via PCIe1 slot)

### Overview

#### AT A GLANCE

- Windows 10 Pro, Windows 10 Home or FreeDos 2.0
- Intel® H370 chipset supporting Intel® 8<sup>th</sup> generation Pentium®, Core™ i3 ,i5, i7 processors featuring Intel® UHD Graphics
- Supports an optional discrete graphics card
- Integrated 10/100/1000 Ethernet Controller or 802.11ac (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 (either dTPM or fTPM)<sup>1</sup>
- 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/310W 90% HE power supply
- Security cable lock supported (sold separately)
- Protected by HP Services; terms and conditions vary by country; certain restrictions and exclusions apply
- Dust filter available

Trusted Platform Module (TPM) 2.0 (Infineon SLB9670). Common Criteria EAL4+ Certified. FIPS 140-2 Level 2 Certified  
TPM feature will not be supported on machine pre-configured with FreeDOS

In some 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.**

### Overview

## PRODUCT NAME

HP Desktop Pro G1 Microtower Business PC

## OPERATING SYSTEM

<b>Preinstalled</b>	Windows 10 Pro 64* Windows 10 Home 64*
<b>Pre-installed (other)</b>	FreeDOS 2.0

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

## PROCESSORS

### Intel® Celeron®<sup>2,3</sup>

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

### Intel® Pentium®<sup>2,3</sup>

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

### Intel® Core™ i3<sup>2,3</sup>

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

### Intel® Core™ i5<sup>2,3</sup>

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

CPU Intel Core i5+ (Core i5 and Intel® Optane™ Memory<sup>4</sup>)

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

### Intel® Core™ i5<sup>2,3</sup>

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

CPU Intel Core i5+ (Core i5 and Intel® Optane™ Memory<sup>4</sup>)

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

### Intel® Core™ i7<sup>2,3</sup>

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

CPU Intel Core i7+ (Core i7 and Intel® Optane™ Memory<sup>4</sup>)

i7-8700 6C 3.2GHz 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 any Windows® 8 or Windows 7 drivers on <http://www.support.hp.com>

3. Multi-Core is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. 64-bit computing system required. Performance and clock frequency will vary depending on application workload and your hardware and software configurations. Intel's numbering is not a measurement of higher performance.

4 Intel® Optane™ memory (cache) is sold separately. Intel® Optane™ memory system acceleration does not replace or increase the DRAM in your system. Available for HP commercial desktops and notebooks and for select HP workstations (HP Z240 Tower/SFF, Z2 Mini, ZBook Studio, 15 and 17 G5) and requires a SATA HDD, 7th Gen or higher Intel® Core™ processor or Intel® Xeon® processor E3-1200 V6 product family or higher, BIOS version with Intel® Optane™ supported, Windows 10 version 1703 or higher, M.2 type 2280-S1-B-M connector on a PCH Remapped PCIe Controller and Lanes in a x2 or x4 configuration with B-M keys that meet NVMe™ Spec 1.1, and an Intel® Rapid Storage Technology (Intel® RST) 15.5 driver.

### Overview

## CHIPSET

Intel® H370 Chipset

## GRAPHICS

### Integrated<sup>5,6</sup>

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

NVIDIA® GeForce® GT1060 3GB GFX

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 a standard VGA, HDMI cable, also sold separately

6. 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 a standard VGA, HDMI cable, also sold separately

## MEMORY<sup>7</sup>

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

7. Full availability of 4 GB or more of memory requires a 64-bit operating system. With Windows 32-bit operating systems, the amount of usable memory is dependent upon your configuration, so that above 3 GB all memory may not be available due to system resource requirements. Memory modules support data transfer rates up to 2400 MT/s; actual data rate is determined by the system's configured processor. See processor specifications for supported memory data rate.

### Overview

### STORAGE<sup>8</sup>

**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

**Solid State Drives 2.5"**

128GB M.2 NVMe (Value)  
256GB M.2 NVMe (Value)

**SD Card Reader<sup>9</sup>**

SD/SDHC/SDXC SD Card Reader

**Intel Optane Memory<sup>10</sup>**

SSD Intel 16GB 2280 Optance Memory

8. 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.

9. Card sold separately

10. Optional per configuration

---

### OPTICAL DISC DRIVES<sup>11</sup>

DVD-ROM 9.5mm  
DVD-Writer 9.5mm\*

11. 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.

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### NETWORKING<sup>12</sup>

**Ethernet (RJ-45)**

Integrated 10/100/1000M GbE LAN

**Wi-Fi and Bluetooth<sup>®</sup>**

802.11ac (1x1) WiFi and Bluetooth<sup>®</sup> 4.2 Combo

12. 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.

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### Overview

## AUDIO / MULTIMEDIA

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

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## KEYBOARDS AND POINTING DEVICES<sup>13</sup>

### Keyboard

USB Business Slim Wired Keyboard  
HP USB Keyboard  
Business Slim PS/2 Wired Keyboard  
No KB Option

### Mouse

HP Optical USB Mouse  
Universal Wired Mouse USB  
USB Hardened Mouse (India)  
HP PS/2 Mouse (for machine configured with PS/2 port)  
No Mouse Option

[13. Keyboards and mouse are optional or add-on features.](#)

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## PORTS

### Front

Slim-height Bay - supporting an optical disk drive (optional)  
Power Button  
Combo jack, Headphone / Microphone  
SD Card Reader  
(2) USB 3.1 Gen1 Port

### Not Shown

(1) PCI Express x16 (3.0) Graphics slot  
(1) PCI Express x1 (2.0) Accessory slot  
(1) Full-height PCI (Optional on seperated PCA)  
(1) M.2 for WLAN  
(1) M.2 2230/2280 storage

### Rear

Audio Mic in  
Audio Line in  
Audio Link out  
HDMI Port (port will be covered up when discrete graphic card is configured on shipped machine)

### Overview

VGA Port (port will be covered up when discrete graphic card is configured on shipped machine)

Serial Port (optional on separated PCA with PS/2 port available as well)

Security Lock Slot

(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

PS/2 port (optional on same separated PCA with serial port available as well)

Parallel Port (Optional via PCIe1 slot)

### Not Shown

(2) PS/2 Port (optional on same separated PCA with serial port available as well)

(1) Parallel Port (Optional via PCIe1 slot)

## ENVIRONMENTAL & INDUSTRY

<b>Environmental Data</b>	<b>Eco-Label Certifications &amp; declarations</b>	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"> <li>• IT ECO declaration</li> <li>• EPEAT® Gold registered in the United States.</li> </ul> See <a href="http://www.epeat.net">http://www.epeat.net</a> for registration status in your country.		
	<b>System Configuration</b>	The configuration used for the Energy Consumption and Declared Noise Emissions data for the Desktop model is based on a “Typically Configured Desktop”.		
	<b>Energy Consumption</b>	<b>115VAC, 60Hz</b>	<b>230VAC, 50Hz</b>	<b>100VAC, 60Hz</b>
	Normal Operation (Short idle)	12.97	13.03	13.39
	Normal Operation (Long idle)	10.64	10.72	10.46
	Sleep	0.78	0.76	0.77
	Off	0.42	0.41	0.42
	<b>Heat Dissipation*</b>	<b>115VAC, 60Hz</b>	<b>230VAC, 50Hz</b>	<b>100VAC, 60Hz</b>
	Normal Operation (Short idle)	44.23	44.43	45.66
	Normal Operation (Long idle)	36.28	36.56	35.67
	Sleep	2.66	2.59	2.63
	Off	1.43	1.4	1.43



### Overview

	*NOTE: Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.	
<b>Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)</b>	<b>Sound Power (L<sub>WAd</sub>, bels)</b>	<b>Sound Pressure (L<sub>pAm</sub>, decibels)</b>
Typically Configured – Idle	3.6	26.5
Fixed Disk – Random writes	3.6	26.5
<b>Longevity and Upgrading</b>	<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>	
<b>Batteries</b>	<p>"This battery(s) in this product comply with EU Directive 2006/66/EC</p> <p>Batteries used in the product do not contain:            Mercury greater the 1ppm by weight            Cadmium greater than 20ppm by weight</p> <p>Battery size: CR2032 (coin cell)            Battery type: Lithium</p>	
<b>Additional Information</b>	<ul style="list-style-type: none"> <li>• "• This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC.</li> <li>• • This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive – 2002/96/EC.</li> <li>• • This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986).</li> <li>• • This product is in compliance with the IEEE 1680 (EPEAT) standard at the Gold level, see <a href="http://www.epeat.net">www.epeat.net</a></li> <li>• • Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043.</li> <li>• • This product contains 0% post-consumer recycled plastic (by wt.)</li> <li>• • This product is 94.4% recycle-able when properly disposed of at end of life."</li> </ul>	
<b>Packaging Materials</b>	<b>External:</b>	PAPER/Corrugated
	<b>Internal:</b>	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.		
<b>Material Usage</b>	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	

### Overview

		<p><a href="http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/gse.pdf">http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/gse.pdf</a>):</p> <ul style="list-style-type: none"> <li>• Asbestos</li> <li>• Certain Azo Colorants</li> <li>• Certain Brominated Flame Retardants – may not be used as flame retardants in plastics</li> <li>• Cadmium</li> <li>• Chlorinated Hydrocarbons</li> <li>• Chlorinated Paraffins</li> <li>• Formaldehyde</li> <li>• Halogenated Diphenyl Methanes</li> <li>• Lead carbonates and sulfates</li> <li>• Lead and Lead compounds</li> <li>• Mercuric Oxide Batteries</li> <li>• Nickel – finishes must not be used on the external surface designed to be frequently handled or carried by the user.</li> <li>• Ozone Depleting Substances</li> <li>• Polybrominated Biphenyls (PBBs)</li> <li>• Polybrominated Biphenyl Ethers (PBBEs)</li> <li>• Polybrominated Biphenyl Oxides (PBBOs)</li> <li>• Polychlorinated Biphenyl (PCB)</li> <li>• Polychlorinated Terphenyls (PCT)</li> <li>• Polyvinyl Chloride (PVC) – except for wires and cables, has been voluntarily removed from most applications.</li> <li>• Radioactive Substances</li> <li>• Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)</li> </ul>
	<p><b>Packaging Usage</b></p>	<p>HP follows these guidelines to decrease the environmental impact of product packaging:</p> <ul style="list-style-type: none"> <li>• Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials.</li> <li>• Eliminate the use of ozone-depleting substances (ODS) in packaging materials.</li> <li>• Design packaging materials for ease of disassembly.</li> <li>• Maximize the use of post-consumer recycled content materials in packaging materials.</li> <li>• Use readily recyclable packaging materials such as paper and corrugated materials.</li> <li>• Reduce size and weight of packages to improve transportation fuel efficiency.</li> <li>• Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.</li> </ul>

### Overview

	<p><b>End-of-life Management and Recycling</b></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: <a href="http://www.hp.com/go/reuse-recycle">http://www.hp.com/go/reuse-recycle</a> 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: <a href="http://www.hp.com/go/recyclers">http://www.hp.com/go/recyclers</a>. 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><b>HP, Inc. Corporate Environmental Information</b></p>	<p>For more information about HP's commitment to the environment:</p> <p>Global Citizenship Report  <a href="http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html">http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html</a></p> <p>Eco-label certifications  <a href="http://www8.hp.com/us/en/hp-information/environment/ecolabels.html">http://www8.hp.com/us/en/hp-information/environment/ecolabels.html</a></p> <p>ISO 14001 certificates:  <a href="http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c04755842">http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c04755842</a>  <a href="http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf">http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf</a></p>

### Overview

#### BAYS

- (1) 9.5mm external slimline ODD bay (optional)
- (1) 3.5" internal HDD bay
- (1) 3.5 or 2.5" internal HDD bay (share bay)

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### SOFTWARE COMPONENTS AND APPLICATIONS WITH WINDOWS

#### Security and Protection

McAfee LiveSafe™<sup>11</sup>

#### Productivity

Buy Office (sold separately)  
Dropbox<sup>12</sup>

#### ODD Playback and TV Tuners

Power Media Player 14 for HP with DVD (ODD SKU only)<sup>13</sup>

#### Movies

Netflix<sup>14</sup>

#### App Stores and Content Purchasing

Amazon<sup>14</sup>

#### HP Utilities and Support

HP Documentation  
HP JumpStart  
HP Recovery ManagerPBR  
HP Audio Switch  
HP Support Assistant<sup>15</sup>

#### BTB

HP Setup Integrated OOBE

#### Hardware Enabling Drivers or software utility

HP ePrint<sup>16</sup>  
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.

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](http://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](http://www.hp.com/go/eprintcenter)). Print times and connection speeds may vary.

### Overview

#### **POWER SUPPLY<sup>16</sup>**

180 W

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

310 W

SFF ENTL EPA90 (Gold) Full range 115V/230V

16. All power supplies are not available in every region.

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### Overview

## DIMENSIONS AND WEIGHT

### Dimensions

6.69 x 13.3 x 10.92 in  
(170 x 338 x 277.5 mm)

### Weight

11.9 lbs / 5.4 kg

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## UNIT ENVIRONMENT AND OPERATING CONDITIONS

### General Unit Operating Guidelines

- 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)<sup>17</sup>  
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)

### Maximum Altitude (unpressurized)

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

<sup>17</sup> 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.

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## CERTIFICATIONS

SEPA

FCC

UL

RoHS

CE

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### Overview

## SERVICE AND SUPPORT

On-site Warranty 1: Available three-year (3-3-3) or one-year (1-1-1) limited warranty (varies by country) delivers on-site, next business day 2 service for parts and labor and complimentary limited technical support.<sup>3</sup> Three-year onsite and labor are not available in all countries. Service offers terms up to 5 years by choosing an optional HP Care Pack.<sup>4</sup> To choose the right level of service for your HP product, visit HP Care Pack Central: <http://www.hp.com/go/cpc>.

**NOTE 1:** Terms and conditions may vary by country. Certain restrictions and exclusions apply. Other warranty variations may be offered in your region.

**NOTE 2:** 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.

**NOTE 3:** Technical support applies only to HP-configured and third-party HP qualified hardware and software.

**NOTE 4:** 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 - Graphics

<b>Intel® UHD Graphics 630 (integrated on Core i7/i5/i3 processors)</b> <b>Intel® UHD Graphics 610 (integrated on Pentium G5400 and Celeron G4900)</b>	
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)
Memory	Additional memory is allocated for graphics as needed using Intel's Dynamic Video Memory Technology (DVMT), to provide an optimal balance between graphics and system memory use.
Maximum Graphics Memory	Windows 10: >4 GB
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	
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[1] @ 60 Hz 1680x1050 @ 60 Hz 1920x1080 @ 60 Hz
<p><b>Note:</b> The actual amount of maximum graphics memory can be less than the amounts listed above depending upon your computer's configuration.</p> <p><b>Note:</b> other resolutions may be available but are not recommended as they may not have been tested and qualified by HP Only supported on displays connected to the external DisplayPort™ connector.</p>	



### Technical Specifications - Graphics

#### **NVIDIA® GeForce® GTX 1060 3GB Graphics Card**

<b>Engine Clock</b>	1506 MHz
<b>Memory Clock</b>	4004 MHz
<b>Memory Size(width)</b>	3GB(192-bit)
<b>Memory Type</b>	128M x 32 GDDR5 @6pcs
<b>Max. Resolution(DVI)</b>	2560x1600@60Hz
<b>Max. Resolution(HDMI)</b>	4096x2160@60Hz
<b>Max. Resolution(DP)</b>	5120x3200@60Hz
<b>Multi Display Support</b>	4 displays
<b>HDCP Compliance</b>	Yes
<b>Rear I/O connectors(bracket)</b>	DVI-D+HDMI+DPx3
<b>Cooling(active/passive)</b>	Active fan-sink (Active cooling with dynamic speed)
<b>Total power consumption(W)</b>	<120W
<b>PCB form-factor with bracket</b>	ATX (Full height) PCB with ATX dual slot bracket

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#### **NVIDIA® GeForce® GT 730 2GB PCIe x8 DP Graphics Card**

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

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### Technical Specifications - Graphics

#### **NVIDIA® GeForce® GT 730 2GB Graphics Card**

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

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#### **AMD Radeon™ R7 430 2GB Graphics Card**

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

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### Technical Specifications – Storage

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

<b>Capacity</b>	2 TB
<b>Rotational Speed</b>	7,200 rpm
<b>Interface</b>	SATA 6Gb/s NCQ
<b>Buffer Size</b>	64 MB
<b>Logical Blocks</b>	3,907,029,168
<b>Seek Time</b>	Read: <8.5 ms Write: <9.5 ms
<b>Height</b>	1.028 in/26.11 mm
<b>Width</b>	4.0 in/101.6 mm
<b>Operating Temperature</b>	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 36 GB (for Windows 10) of system disk is reserved for the system recovery software.

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

<b>Capacity</b>	1 TB
<b>Rotational Speed</b>	7,200 rpm
<b>Interface</b>	Serial ATA 3.0 (6.0 Gb/s)
<b>Buffer Size</b>	32 MB
<b>Logical Blocks</b>	1,953,525,168
<b>Seek Time</b>	Single Track: 2.0 ms Average: 11 ms Full-Stroke: 21 ms
<b>Height</b>	1 in/2.54 cm
<b>Width</b>	Media diameter: 3.5 in/8.89 cm Physical size: 4 in/10.2 cm
<b>Operating Temperature</b>	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.

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### Technical Specifications – Storage

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

<b>Capacity</b>	500 GB
<b>Rotational Speed</b>	7,200 rpm
<b>Interface</b>	Serial ATA 3.0 (6.0 Gb/s)
<b>Buffer Size</b>	32 MB
<b>Logical Blocks</b>	1,953,525,168
<b>Seek Time</b>	Single Track: 2.0 ms Average: 11 ms Full-Stroke: 21 ms
<b>Height</b>	1 in/2.54 cm
<b>Width</b>	Media diameter: 3.5 in/8.89 cm Physical size: 4 in/10.2 cm
<b>Operating Temperature</b>	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

<b>Height</b>	9.5 mm height	
<b>Orientation</b>	Either horizontal or vertical	
<b>Interface type</b>	SATA/ATAPI	
<b>Disc recording capacity</b>	Up to 8.5 GB DL or 4.7 GB standard	
<b>Dimensions (W x H x D)</b>	5.04 x 0.37 x 5.0 in (128 x 9.5 x 127 mm) without bezel	
<b>Weight (max)</b>	0.31 lb (140 g)	
<b>Read Speeds</b>	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
<b>Access time (typical reads, including settling)</b>	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)	
<b>Power</b>	Source Slimline SATA DC power receptacle DC Power Requirement 5 VDC ± 5%-100 mV ripple p-p DC Current 5 VDC (< 1000 mA typical, 1600 mA maximum)	
<b>Environmental conditions (operating - non-condensing)</b>	Temperature 41° to 122° F (5° to 50° C) Relative Humidity 10% to 80% Maximum Wet Bulb Temperature 84° F (29° C)	

### Technical Specifications – Storage

#### HP 9.5mm Desktop G2 Slim DVD-ROM Drive

<b>Height</b>	9.5 mm height
<b>Orientation</b>	Either horizontal or vertical
<b>Interface type</b>	SATA/ATAPI
<b>Disc recording capacity</b>	Up to 8.5 GB DL or 4.7 GB standard
<b>Dimensions (W x H x D)</b>	5.04 x 0.37 x 5.0 in (128 x 9.5 x 127 mm) without bezel
<b>Weight (max)</b>	0.31 lb (140 g)
<b>Read Speeds</b>	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
<b>Access time (typical reads, including settling)</b>	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)
<b>Power</b>	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)
<b>Environmental conditions (operating - non-condensing)</b>	Temperature 41° to 122° F (5° to 50° C) Relative Humidity 10% to 80% Maximum Wet Bulb Temperature 84° F (29° C)

### Technical Specifications – Storage

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

<b>Unformatted Capacity</b>	128 GB
<b>Architecture</b>	3D TLC NAND Flash
<b>Interface</b>	PCIE Gen3 x4
<b>Form Factor</b>	M.2 2280
<b>Dimensions (W x H x D)</b>	22mm x 80mm x 2.23mm
<b>Weight</b>	< 10g
<b>Bandwidth Performance</b>	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
<b>Power</b>	Total Power Consumption (TYP) 100mW (Active) 40mW (Idle)
<b>Useful Drive Life</b>	72TBW
<b>Environmental (all conditions, non- condensing)</b>	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.

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

<b>Unformatted Capacity</b>	256 GB
<b>Architecture</b>	3D TLC NAND Flash
<b>Interface</b>	PCIE Gen3 x4
<b>Form Factor</b>	M.2 2280
<b>Dimensions (W x H x D)</b>	22mm x 80mm x 2.23mm
<b>Weight</b>	< 10g
<b>Bandwidth Performance</b>	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
<b>Power</b>	Total Power Consumption (TYP) 100mW (Active) 40mW (Idle)
<b>Useful Drive Life</b>	144TBW
<b>Environmental (all conditions, non- condensing)</b>	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 - Storage

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

<b>Unformatted Capacity</b>	128GB
<b>Architecture</b>	TLC NAND Flash
<b>Interface</b>	SATA 3.2 (6.0 Gb/s)
<b>Form Factor</b>	M.2 2280
<b>Dimensions (W x H x D)</b>	22mm x 80mm x 2.23mm
<b>Weight</b>	< 10g
<b>Bandwidth Performance</b>	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
<b>Power</b>	Total Power Consumption (TYP) 150mW (Active) 50mW (Idle)
<b>Useful Drive Life</b>	72TBW
<b>Environmental (all conditions, non- condensing)</b>	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

<b>Unformatted Capacity</b>	256GB
<b>Architecture</b>	TLC NAND Flash
<b>Interface</b>	SATA 3.2 (6.0 Gb/s)
<b>Form Factor</b>	M.2 2280
<b>Dimensions (W x H x D)</b>	22mm x 80mm x 2.23mm
<b>Weight</b>	< 10g
<b>Bandwidth Performance</b>	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
<b>Power</b>	Total Power Consumption (TYP) 150mW (Active) 50mW (Idle)
<b>Useful Drive Life</b>	72TBW
<b>Environmental (all conditions, non- condensing)</b>	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.

### Technical Specifications - Audio

#### HIGH DEFINITION AUDIO

<b>Type</b>	Integrated
<b>HD Stereo Codec</b>	Realtek ALC3601
<b>Audio I/O Ports</b>	Front side Combo jack for supporting CTIA, Rear side Line-in/ Line-out/ Mic-in jacks
<b>Internal Speaker Amplifier</b>	2W class D mono amplifier for the internal speaker only. External speakers must be powered externally.
<b>Multi-streaming Capable</b>	Playback multi-streaming can be enabled in the audio control panel to allow independent audio streams to be sent to/from the front and rear jacks or integrated speaker.
<b>HD Audio Codec</b>	Realtek ALC3601
<b>Sampling</b>	Independent sampling rates for DAC's and ADC's; supports resolutions from 16 to 24-bit; 44.1K/ 48 K/96K / 192K Hz for DAC and 44.1K/ 48K/ 96K/ 192K Hz Hz for ADC
<b>Wavetable Syntheses</b>	Yes
<b>Analog Audio</b>	Yes
<b># of Channels on Line-Out</b>	Stereo
<b>Internal Speaker</b>	Yes
<b>External Speaker Jack</b>	2W class D mono amplifier for the internal speaker only. External speakers must be powered externally.



### Technical Specifications – Power Supply & Weight and Dimensions

#### POWER SUPPLY

<b>Operating Voltage Range</b>	90 – 264 VAC
<b>Rated Voltage Range</b>	100-240V AC
<b>Rated Line Frequency</b>	50/60 HZ
<b>Operating Line Frequency</b>	47 – 63 Hz
<b>Rated Input Current</b>	180W : <2.3A; 310W: <4A
<b>Rated Input Current with Energy Efficient* Power Supply</b>	180W active PFC 87/90/87% efficient at 20/50/100% load (115V) 88/91/88% efficient at 20/50/100% load (230V); 310W active PFC 87/90/87% efficient at 20/50/100% load (115V) 88/91/88% efficient at 20/50/100% load (230V)
<b>DC Output</b>	+12.1V
<b>Current Leakage (NFPA 99: 2102)</b>	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.
<b>Power Supply Fan</b>	70*25mm (linear type)

#### WEIGHT AND DIMENSIONS

<b>Chassis (W x H x D)</b>	6.69 x 13.3 x 10.92 in (170 x 338 x 277.5 mm)
<b>System Volume</b>	915.36cu in 15L
<b>System Weight*</b>	11.9 lbs / 5.4 kg
<b>Max Supported Weight (desktop orientation)</b>	N/A
<b>Tower Stand (H x W x D)</b>	13.42 x 6.69 x 10.92 in (340.8 x 170 x 277.5 mm)
<b>Packaged (H x W x D)</b>	11.46 x 15.35 x 19.65 in 291 x 390 x 499 mm
<b>Shipping Weight</b>	17.64lb / 8 kg
<b>Palletization Profile</b>	6 units per layer 7layer max 42 per pallet Footprint -85.31x39.37x47.24 in ( 2167 x 1000 x1200 mm)

### Technical Specifications - Networking

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

### Technical Specifications - Networking

<b>Realtek 802.11ac (1x1) WiFi and Bluetooth® 4.2 Combo *</b>	
<b>Wireless LAN Standards</b>	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac
<b>Interoperability</b>	Wi-Fi certification
<b>Frequency Bands</b>	802.11b/g/n <ul style="list-style-type: none"> <li>• 2.402 – 2.482 GHz</li> </ul>
	802.11a/n <ul style="list-style-type: none"> <li>• 4.9 – 4.95 GHz (Japan)</li> <li>• 5.15 – 5.25 GHz</li> <li>• 5.25 – 5.35 GHz</li> <li>• 5.47 – 5.725 GHz</li> <li>• 5.825 – 5.850 GHz</li> </ul>
<b>Data Rates</b>	<ul style="list-style-type: none"> <li>• 802.11b: 1, 2, 5.5, 11 Mbps</li> <li>• 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps</li> <li>• 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps</li> <li>• 802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz)</li> <li>• 802.11ac : MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, and 80MHz)</li> </ul>
<b>Modulation</b>	Direct Sequence Spread Spectrum  BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM
<b>Security<sup>1</sup></b>	<ul style="list-style-type: none"> <li>• IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only</li> <li>• AES-CCMP: 128 bit in hardware</li> <li>• 802.1x authentication</li> <li>• WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.</li> <li>• WPA2 certification</li> <li>• IEEE 802.11i</li> <li>• Cisco Certified Extensions, all versions through CCX4 and CCX Lite</li> <li>• WAPI</li> </ul>
<b>Network Architecture Models</b>	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
<b>Roaming</b>	IEEE 802.11 compliant roaming between access points

### Technical Specifications - Networking

<b>Output Power<sup>2</sup></b>	<ul style="list-style-type: none"> <li>• 802.11b : +14dBm minimum</li> <li>• 802.11g : +12dBm minimum</li> <li>• 802.11a : +12dBm minimum</li> <li>• 802.11n HT20(2.4GHz) : +12dBm minimum</li> <li>• 802.11n HT40(2.4GHz) : +12dBm minimum</li> <li>• 802.11n HT20(5GHz) : +10dBm minimum</li> <li>• 802.11n HT40(5GHz) : +10dBm minimum</li> <li>• 802.11ac VHT80(5GHz) : +10dBm minimum</li> </ul>	
<b>Power Consumption</b>	<ul style="list-style-type: none"> <li>• Transmit mode 2.0 W</li> <li>• Receive mode 1.6 W</li> <li>• Idle mode (PSP) 180 mW (WLAN Associated)</li> <li>• Idle mode 50 mW (WLAN unassociated)</li> <li>• Connected Standby 10mW</li> <li>• Radio disabled 8 mW</li> </ul>	
<b>Power Management</b>	ACPI and PCI Express compliant power management 802.11 compliant power saving mode	
<b>Receiver Sensitivity<sup>3</sup></b>	<ul style="list-style-type: none"> <li>• 802.11b, 1Mbps : -93.5dBm maximum</li> <li>• 802.11b, 11Mbps : -84dBm maximum</li> <li>• 802.11a/g, 6Mbps : -86dBm maximum</li> <li>• 802.11a/g, 54Mbps : -72dBm maximum</li> <li>• 802.11n, MCS07 : -67dBm maximum</li> <li>• 802.11n, MCS15 : -64dBm maximum</li> <li>• 802.11ac, MCS0 : -84dBm maximum</li> <li>• 802.11ac, MCS9 : -59dBm maximum</li> </ul>	
<b>Antenna type</b>	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	
<b>Form Factors</b>	PCI-Express M.2 MiniCard	
<b>Dimensions</b>	Type 2230 : 2.3 x 22.0 x 30.0 mm	
<b>Weight</b>	Type 2230 : 2.8g	
<b>Operating Voltage</b>	3.3v +/- 9%	
<b>Temperature</b>	<b>Operating:</b>	14° to 158° F (-10° to 70° C)
	<b>Non-operating:</b>	-40° to 176° F (-40° to 80° C)
<b>Humidity</b>	<b>Operating:</b>	10% to 90% (non-condensing)
	<b>Non-operating:</b>	5% to 95% (non-condensing)

### Technical Specifications - Networking

<b>Altitude</b>	<b>Operating:</b> <b>Non-operating:</b>	0 to 10,000 ft (3,048 m) 0 to 50,000 ft (15,240 m)
<b>LED Activity</b>	LED Amber – Radio OFF; LED White – Radio ON	
<b>HP Integrated Module with Bluetooth 4.0/4.1/4.2 Wireless Technology</b>		
<b>Bluetooth® Specification</b>	4.0/4.1/4.2 Compliant	
<b>Frequency Band</b>	2402 to 2480 MHz	
<b>Number of Available Channels</b>	Legacy : 0~79 (1 MHz/CH) BLE : 0~39 (2 MHz/CH)	
<b>Data Rates and Throughput</b>	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)	
<b>Transmit Power</b>	The Bluetooth® component shall operate as a Class II Bluetooth® device with a maximum transmit power of + 4 dBm for BR and EDR.	
<b>Receiver Sensitivity Legacy</b>		
<b>Power Consumption</b>	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW	
<b>Range</b>	Legacy : 0~79 (1 MHz/CH) BLE : 0~39 (2 MHz/CH)	
<b>Electrical Interface</b>	USB 2.0 compliant	
<b>Bluetooth® Software Supported Link Topology</b>	Microsoft Windows Bluetooth® Software	
<b>Power Management Certifications</b>	ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark	
<b>Certifications Bluetooth® Profiles Supported</b>	FCC (47 CFR) Part 15C, Section 15.247 & 15.249	
<b>Power Management Certifications</b>	Microsoft Windows ACPI, and USB Bus Support	

### Technical Specifications - Networking

<p><b>Certifications</b> <b>Bluetooth® Profiles Supported</b></p>	<p>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 &amp; 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)</p>
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- [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.
- [2] The FCC has declared products that utilize passive scanning on channel 12/13 and are capable of transmitting must fully comply with requirements of 15.247 & 15.249 or otherwise disable those channels.
- [3] Check latest software/driver release for updates on supported security features.
- [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).
- [5] Wireless access point and Internet service required and not included. Availability of public wireless access points limited.

### After-Market Options (availability may vary by region)

Type	Description	Part #
<b>Memory</b>	HP 4GB DDR4-2666 DIMM	3TK85AA
	HP 8GB DDR4-2666 DIMM	3TK87AA
	HP 16GB DDR4-2666 DIMM	3TK83AA
<b>Storage</b>	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
	Intel Optane Memory 16GB (cache) ****	1WV97AA
	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
<b>Graphics</b>	NVIDIA® GT 730 2GB DP Card	Z9H51AA
	AMD Radeon™ R7 430 Card	1MX32AA
<b>Security</b>	HP Business PC Security Lock V2 Kit	N3R93AA
	HP Keyed Cable Lock 10mm kit	T1A62AA
<b>Adapters</b>	HP USB to Serial Adapter	J7B60AA
	HP HDMI Standard Cable Kit	T6F94AA
	HP USB to Serial Port Adapter	J7B60AA
<b>Networking</b>	Intel Ethernet I210-T1 GbE NIC Card	E0X95AA
<b>Input</b>	HP USB Mouse	QY777AA
	HP USB Hardened Mouse	P1N77AA
	HP USB Keyboard	QY776AA
	HP PS/2 Business Slim Keyboard	N3R86AA
	HP USB Business Slim Keyboard	N3R87AA
	HP Conferencing Keyboard	K8P74AA
<b>Others</b>	HP Business Headset v2	T4E61AA
	HP USB Business Speakers v2	N3R89AA

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### Change Log

Date of change:	Version History:	Change	Description of change:
	From v1 to v2		