

### Overview

#### HP 200 (Pro) G4 22 All-in-One PC



#### Front

1. Pull-up webcam and microphone
2. Speakers
3. SD media card reader (optional)

### Overview

#### HP 200 (Pro) G4 22 All-in-One PC



#### Rear

1. Optical disc drive (optional)
2. Power button
3. Pull-up webcam
4. Microphone/Headphone Combo Jack
5. RJ-45 (network) jack
6. HDMI 1.4 out connector
7. Power connector
8. Two (2) Type-A Hi-Speed USB 480Mbps signaling rate ports
9. Two (2) Type-A SuperSpeed USB 5Gbps signaling rate port
10. Standard cable lock slot

### Features

#### AT A GLANCE

- Choice of Windows 11 Pro, Windows 11 Home, Windows 10 Pro, and FreeDOS
- Integrated All-in-One form factor
- 21.5-inch diagonal widescreen Full HD anti-glare display
- Intel® 12<sup>th</sup> generation processors, featuring optional Intel® Iris® Xe and integrated Intel® UHD Graphics
- Up to 32GB 3200MT/s of DDR4 Synchronous Dynamic Random-Access Memory (SDRAM)
- Integrated 10/100/1000 Gigabit LAN Ethernet Controller
- Optional Wi-Fi 5 (802.11ac) wireless connectivity
- Integrated HD audio card and stereo speakers
- Integrated 5MP pull-up camera to ensure no accidental recording to safeguard user's privacy
- Expandable storage options with up to 512GB SSD and 2TB HDD
- Optional HP Slim Tray DVD Writer 8X Optical Drive
- Optional 3-in-1 Media Card Reader
- TPM 2.0 support
- Low halogen<sup>1</sup> materials,
- Protected by HP Services. Terms and conditions vary by country. Certain restrictions and exclusions apply.

1. External power supplies, power cords, cables and peripherals are not low halogen. Service parts obtained after purchase may not be low halogen.

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

### Features

#### OPERATING SYSTEMS

**Preinstalled** Windows 11 Pro<sup>1</sup>  
Windows 11 Pro Education<sup>1</sup>  
Windows 11 Home - HP recommends Windows 11 Pro for business<sup>1</sup>  
Windows 10 Pro<sup>1,2</sup>

**Pre-installed (other)** FreeDOS

1. Device comes with Windows 10 and a free Windows 11 upgrade or may be preloaded with Windows 11. Upgrade timing may vary by device. Features and app availability may vary by region. Certain features require specific hardware (see Windows 11 Specifications).

2. 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 apply and additional requirements may apply over time for updates.

See <http://www.windows.com>.

#### PROCESSORS\*

##### Intel® 12<sup>th</sup> Generation Core™ Processors

Intel® Core™ i5-1235U Processor

0.9 GHz E-core 1.3 GHz P-core base frequency, up to 3.3 GHz E-core 4.4 P-core Max Turbo frequency

12 MB L3 cache, 10 cores, 12 threads

Integrated Intel® Iris® Xe Graphics

Supports DDR4 memory up to 3200MT/s data rate

Intel® Core™ i3-1215U

0.9 GHz E-core 1.2 GHz P-core base frequency, up to 3.3 GHz E-core 4.4 P-core Max Turbo frequency

10 MB L3 cache, 6 cores, 8 threads

Integrated Intel® UHD Graphics

Supports DDR4 memory up to 3200MT/s data rate

##### Intel® 10<sup>th</sup> Generation Core™ Processors

Intel® Core™ i5-10210U Processor

1.6 GHz base frequency

Up to 4.2 GHz max. turbo frequency with Intel® Turbo Boost\*\*

6 MB cache, 4 cores, 8 threads

Intel® UHD Graphics

Supports DDR4 memory up to 2666 MT/s data rate

Intel® Core™ i3-10110U Processor

2.1 GHz base frequency

Up to 4.1 GHz max. turbo frequency with Intel® Turbo Boost\*\*

4 MB cache, 2 cores, 4 threads

Intel® UHD Graphics

Supports DDR4 memory up to 2666 MT/s data rate

##### Intel® Pentium® Processors

Intel® Pentium® Silver J5040 Processor

2.0 GHz base frequency

Up to 3.2 GHz max. turbo frequency with Intel® Turbo Boost\*\*

4 MB cache, 4 cores, 4 threads

Intel® UHD Graphics 605

Supports DDR4 memory up to 2400 MT/s data rate

### Features

\*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.

\*\*Intel® Turbo Boost performance varies depending on hardware, software and overall system configuration. See <http://www.intel.com/technology/turboboost> for more information.

**NOTE:** 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>.

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### Features

#### GRAPHICS

##### Integrated

Intel® Iris® Xe Graphics

Intel® UHD Graphics

Intel® UHD Graphics 605

**NOTE:** Intel® integrated UHD Graphics varies by processor

#### DISPLAY

##### Non-Touch

21.5" diagonal FHD IPS anti-glare WLED-backlit (1920 x 1080)

21.5" diagonal FHD VA anti-glare WLED-backlit (1920 x 1080)

#### STORAGE AND DRIVES<sup>1</sup>

##### M.2 PCIe NVMe Solid State Drives (SSD)

256GB 2280 PCIe NVMe Solid State Drive

512GB 2280 PCIe NVMe Solid State Drive

128GB 2280 PCIe NVMe TLC Solid State Drive

256GB 2280 PCIe NVMe TLC Solid State Drive

512GB 2280 PCIe NVMe TLC Solid State Drive

##### 3.5 inch 7200RPM SATA Hard Disk Drives (HDD)

500GB 7200RPM 3.5in HDD

1TB 7200RPM 3.5in HDD

2TB 7200RPM 3.5in HDD

##### Optical Disc Drives

9.5mm Ultra Slim DVD-Writer

##### Media Card Reader (Optional)

SD Card Reader with 3-in1 Interface (Supports SD, SDHC, SDXC)

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

#### MEMORY

##### Maximum

DDR4 SODIMM up to 3200 MT/s

##### Memory Slots

2 SODIMM

##### Available Configurations

4GB (4GB x1)

8GB (4GB x2)

8GB (8GB x1)

16GB (8GB x2)

16GB (16GB x1)

32GB (16GB x2)

**NOTE:** Actual data rate is determined by both the system's configured processor and memory module installed.

#### NETWORKING/COMMUNICATIONS



### Features

**Wireless LAN\***

Realtek® RTL8822CE Wi-Fi 5<sup>1</sup> (802.11ac) 2x2 Wi-Fi M.2 Card<sup>2</sup>

Realtek® RTL8821CE Wi-Fi 5<sup>1</sup> (802.11ac) 1x1 Wi-Fi M.2 Card<sup>2</sup>

**Ethernet (RJ-45) Integrated**

Realtek® RTL8111HSH-CG Gigabit Ethernet Controller

\*Wireless access point and internet service required and sold separately. Availability of public wireless access points limited. Wi-Fi 5 is backwards compatible with prior 802.11 specs.

1. Wireless access point and Internet service required and sold separately. Availability of public wireless access points limited.
2. Must be configured at time of purchase.

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### AUDIO/MULTIMEDIA

**High Definition Audio**

Integrated Realtek ALC3247 Audio Codec

High performance integrated stereo speakers

3.5mm combo (microphone/headphone) jack

**Webcams & Mic**

Integrated 5MP webcam, Up to 30 frames/sec, dual array microphone included

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### KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

**Keyboards**

HP Universal USB Wired Keyboard

**Mice**

HP USB Optical Mouse

HP USB Hardened Optical Mouse

HP USB Universal Mouse

**NOTE:** Availability may vary by country

### Features

#### SOFTWARE AND SECURITY

##### HP Support

HP PC Hardware Diagnostics  
HP Cloud Recovery  
HP Support Assistant

##### Internet Security and Antivirus

McAfee LiveSafe (30-day subscription)<sup>1</sup>

##### Product Setup

HP JumpStarts

##### Security Features

Trusted Platform Module (TPM) 2.0 (firmware)<sup>2,3</sup>

##### Productivity

Xerox<sup>®</sup> DocuShare<sup>®</sup> (90 days free trial offer)<sup>4</sup>

1. 30 day trial period. Internet access required to receive updates. First update included. Subscription required for updates thereafter
2. TPM feature will not be supported on machines pre-configured with FreeDOS and Linux
3. In selected countries, machines pre-configured with Windows OS will be shipped with TPM disabled.
4. Simply sign up and start using Xerox<sup>®</sup> DocuShare<sup>®</sup> Go. No credit card. No obligation. Data will become unavailable unless a subscription is entered before the end of the 90 day free trial period. See visit <https://xerox.com/docusharego> for details.

#### POWER

##### Power Supply

HP Smart 65W External AC power adapter

#### PORTS/SLOTS

##### Rear I/O Ports

Two (2) Type-A Hi-Speed USB 480Mbps signaling rate ports  
Two (2) Type-A SuperSpeed USB 5Gbps signaling rate ports  
One (1) RJ-45 (network) jack  
One (1) HDMI 1.4 out connector  
One (1) Microphone/Headphone Combo Jack  
One (1) DC in power

##### Bottom I/O Ports

One (1) 3 in 1 Card reader (SD, SDHC, SDXC) (Optional)

##### Internal I/O Ports

One (1) M.2 PCIe x1 2230 (for WLAN)  
One (1) M.2 PCIe x4 2280 for Intel<sup>®</sup> Core™ / One (1) M.2 PCIe x1 2280 for Intel<sup>®</sup> Pentium<sup>®</sup> configurations  
One (1) SATA storage connector

##### Bays

One (1) 3.5" internal storage drive



### Features

#### WEIGHTS & DIMENSIONS

##### Weight

##### 21.5 Non-Touch Product Weight (Unboxed)

##### Without Stand

5.15 kg, 11.35 lbs

##### Basic Stand

5.7 kg, 12.57 lbs

##### 21.5 Shipping Weight (Boxed)

8.16 kg, 17.99 lbs

##### 21.5 Shipping Weight (Pallet)

167.61 kg, 369.52 lbs

##### Dimension

##### 21.5 System Dimensions

##### Without Stand

490.3 x 322.0 x 58.1 mm

19.3 x 12.68 x 2.29 in

##### Basic Stand

490.3 x 380.74 x 204.51 mm

19.3 x 14.99 x 8.05 in

##### 21.5 Shipping Dimensions (Boxed)

593 x 478 x 243 mm, 23.35 x 18.82 x 9.57 in

##### 21.5 Shipping Dimensions (Pallet)

1186 x 972 x 1569 mm, 46.69 x 38.27 x 61.77 in

##### 21.5 Pallet Quantity (including Touch, Non-Touch)

24

### Features

#### UNIT ENVIRONMENT AND OPERATING CONDITIONS<sup>9</sup>

- 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.

<b>Temperature Range</b>	Operating: 50° to 95° F (10° to 35° C)* Non-operating: -22° to 140° F (-30° to 60° C)
<b>Relative Humidity</b>	Operating: 10% to 90% (non-condensing at ambient) Non-operating: 5% to 95% (non-condensing at ambient)
<b>Maximum Altitude (unpressurized)</b>	Operating: 5000m Non-operating: 50000ft (15240 m)

**NOTE:** 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.

#### ENVIRONMENTAL & INDUSTRY

##### 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<sup>1</sup> 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
- Commission Regulation (EC) No 617/2013 (ErP Lot 3)

##### 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)

Normal Operation (Short idle)  
Normal Operation (Long idle)  
Sleep  
Off

**115VAC, 60Hz**

**230VAC, 50Hz**

**100VAC, 50Hz**

**NOTE:** Energy efficiency data listed is for an ENERGY STAR® certified 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® certified configurations, then energy efficiency data listed is for a typically configured PC featuring a hard disk drive, a high

### Features

efficiency power supply, and a Microsoft Windows® operating system. Search keyword generator on HP's 3rd party option store for solar generator accessories at <http://www.hp.com/go/options>

#### Heat Dissipation\*

Normal Operation (Short idle)  
Normal Operation (Long idle)  
Sleep  
Off

115VAC, 60Hz

230VAC, 50Hz

100VAC, 50Hz

**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)

Typically Configured – Idle  
Fixed Disk – Random writes

Sound Power  
(L<sub>WAd</sub>, bels)

Sound Pressure  
(L<sub>pAm</sub>, decibels)

#### Longevity and Upgrading

This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the product may include: Spare parts are available throughout the warranty period and or for up to "5" years after the end of production.

#### Batteries

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

Batteries used in the product do not contain:  
Mercury greater than 1ppm by weight  
Cadmium greater than 20ppm by weight

Battery size: CR2032 (coin cell)  
Battery type: Lithium

#### Additional Information

- This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC.
- This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive – 2002/96/EC.
- This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986).
- Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043.
- This product contains 38.3% post-consumer recycled plastic (by wt.)
- This product is 95.8% recycle-able when properly disposed of at end of life.

#### Packaging Materials

**External:** PAPER/Corrugated  
**Internal:** PLASTIC/EPE (Expanded Polyethylene)  
PLASTIC/Polyethylene low density

The plastic packaging material contains at least 90% recycled content.

The corrugated paper packaging materials contains at least 80% recycled content. 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>):

#### Material Usage

- Asbestos
- Certain Azo Colorants
- Certain Brominated Flame Retardants – may not be used as flame retardants in plastics
- Cadmium
- Chlorinated Hydrocarbons

### Features

- Chlorinated Paraffins
- Formaldehyde
- Halogenated Diphenyl Methanes
- Lead carbonates and sulfates
- Lead and Lead compounds
- Mercuric Oxide Batteries
- Nickel – finishes must not be used on the external surface designed to be frequently handled or carried by the user.
- Ozone Depleting Substances
- Polybrominated Biphenyls (PBBs)
- Polybrominated Biphenyl Ethers (PBBEs)
- Polybrominated Biphenyl Oxides (PBBOs)
- Polychlorinated Biphenyl (PCB)
- Polychlorinated Terphenyls (PCT)
- Polyvinyl Chloride (PVC) – except for wires and cables, and certain retail packaging has been voluntarily removed from most applications.
- Radioactive Substances
- Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)

### Packaging Usage

HP follows these guidelines to decrease the environmental impact of product packaging:

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

### End-of-life Management and Recycling

HP Inc. 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.

### Features

#### **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 certifications:

<http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c04755842>

and

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

**ALL-IN-ONE DISPLAY PANEL SPECIFICATIONS****21.5" diagonal FHD IPS anti-glare WLED-backlit (1920 x 1080)**

Non-touch

<b>Type</b>	IPS WLED Backlit LCD
<b>Active area (mm)</b>	476.064 x 267.786
<b>Native resolution (HxV)</b>	1920 x 1080
<b>Refresh rate</b>	60 Hz @ 1920 x 1080
<b>Aspect ratio</b>	16:9
<b>Pixel pitch (HxV)(mm)</b>	0.24795 x 0.24795
<b>Contrast ratio (typical)</b>	1000:1
<b>Brightness (typical)</b>	250nits
<b>Viewing angle (typical) (HxV)</b>	178° x 178°
<b>Backlight lamp life (to half brightness)</b>	30,000 hours minimum
<b>Color support</b>	Up to 16.7 million colors with the use of FRC technology
<b>Color gamut (typical)</b>	NTSC 72%
<b>Anti-glare</b>	Yes
<b>Response time (typical)</b>	14ms
<b>Default color temperature</b>	Warm (6500K)

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

**21.5" diagonal FHD VA anti-glare WLED-backlit (1920 x 1080)**

Non-touch

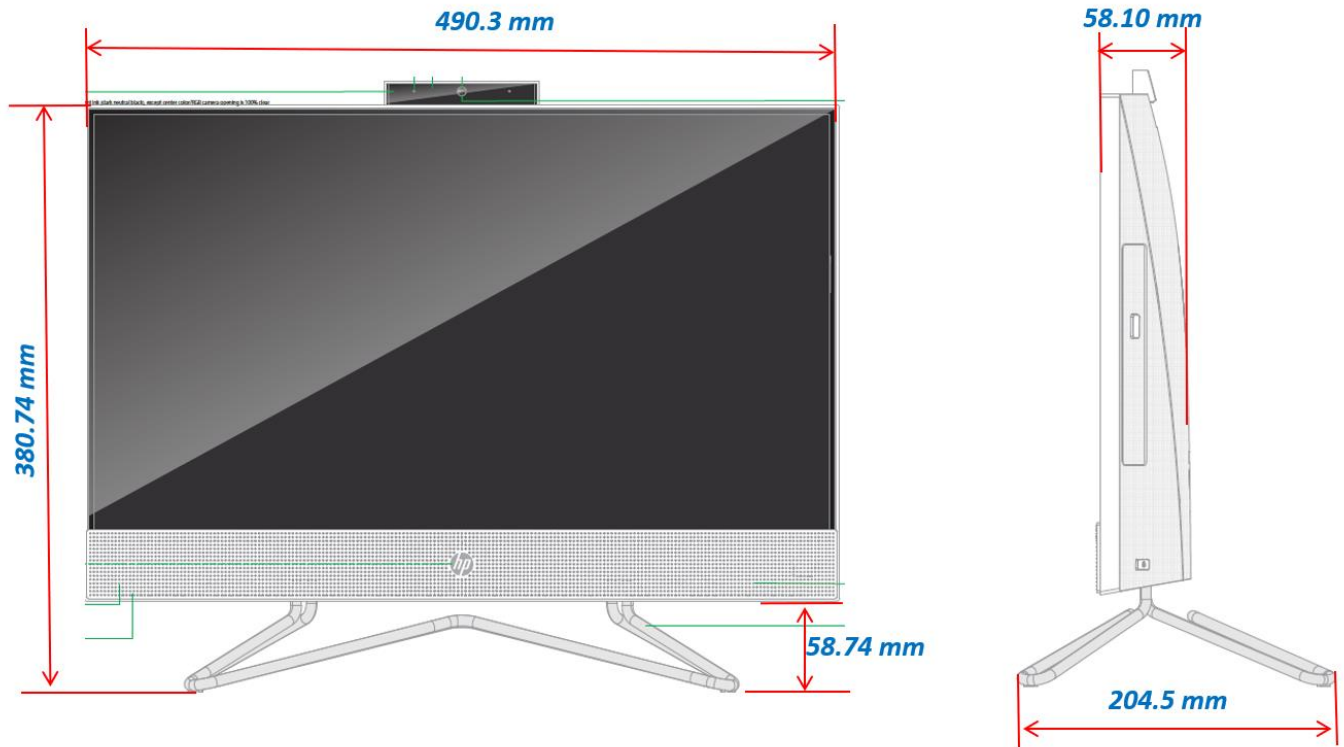
<b>Type</b>	VA WLED Backlit LCD
<b>Active area (mm)</b>	476.064 x 267.786
<b>Native resolution (HxV)</b>	1920 x 1080
<b>Refresh rate</b>	60 Hz @ 1920 x 1080
<b>Aspect ratio</b>	16:9
<b>Pixel pitch (HxV)(mm)</b>	0.24795 x 0.24795
<b>Contrast ratio (typical)</b>	3000:1
<b>Brightness (typical)</b>	250nits
<b>Viewing angle (typical) (HxV)</b>	178° x 178°
<b>Backlight lamp life (to half brightness)</b>	30,000 hours minimum
<b>Color support</b>	Up to 16.7 million colors with the use of FRC technology
<b>Color gamut (typical)</b>	NTSC 72%
<b>Anti-glare</b>	Yes
<b>Response time (typical)</b>	18ms
<b>Default color temperature</b>	Warm (6500K)

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

### Technical Specifications – Stand

#### ALL-IN-ONE STAND SPECIFICATIONS

<b>Articulating Stand</b>	<b>Tilt Angle</b>	-5° to +20°
	<b>Rotation (Swivel)</b>	None
	<b>Pivot</b>	None



#### STORAGE AND DRIVES

##### 500 GB 7200RPM 3.5in SATA HDD

<b>Capacity</b>	500 GB
<b>Rotational Speed</b>	7,200 rpm
<b>Interface</b>	SATA 6.0 Gb/s
<b>Buffer Size</b>	32 MB
<b>Logical Blocks</b>	976,773,168
<b>Seek Time</b>	11 ms (Average)
<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.

##### 1 TB 7200RPM 3.5in SATA HDD

<b>Capacity</b>	1 TB
<b>Rotational Speed</b>	7,200 rpm
<b>Interface</b>	SATA 6 Gb/s
<b>Buffer Size</b>	64 MB
<b>Logical Blocks</b>	1,953,525,168
<b>Seek Time</b>	11 ms (Average)
<b>Height</b>	1 in/2.54 cm
<b>Width (nominal)</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.

##### 2 TB 7200RPM 3.5in SATA HDD

<b>Capacity</b>	2 TB
<b>Rotational Speed</b>	7,200 rpm
<b>Interface</b>	SATA 6 Gb/s
<b>Buffer Size</b>	64 MB
<b>Logical Blocks</b>	3,907,029,168
<b>Seek Time</b>	11 ms (Average)
<b>Height</b>	1.028 in/26.11 mm
<b>Width (nominal)</b>	4.0 in/101.6 mm
<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.



### Technical Specifications – Storage

#### 256 GB M.2 2280 PCIe NVMe SSD

<b>Drive Weight</b>	< 10g
<b>Capacity</b>	256 GB
<b>Height</b>	2.38mm
<b>Length</b>	80mm
<b>Width</b>	22mm
<b>Interface</b>	PCIe Gen3
<b>Maximum Sequential Read</b>	Up to 1600MB/s
<b>Maximum Sequential Write</b>	Up to 780MB/s
<b>Logical Blocks</b>	500,118,192
<b>Operating Temperature</b>	0° to 70°C (32° to 158°F) [ambient temp]
<b>Features</b>	APST; ASPM L1.2; NVME spec 1.2

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

#### 512 GB M.2 2280 PCIe NVMe SSD

<b>Drive Weight</b>	< 10g
<b>Capacity</b>	512 GB
<b>Height</b>	2.38mm
<b>Length</b>	80mm
<b>Width</b>	22mm
<b>Interface</b>	PCIe Gen3
<b>Maximum Sequential Read</b>	Up to 1600MB/s
<b>Maximum Sequential Write</b>	Up to 860MB/s
<b>Logical Blocks</b>	1,000,215,216
<b>Operating Temperature</b>	0° to 70°C (32° to 158°F) [ambient temp]
<b>Features</b>	APST; ASPM L1.2; NVME spec 1.2

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

#### 128 GB M.2 2280 PCIe NVMe Three Layer Cell SSD

<b>Drive Weight</b>	< 10g
<b>Capacity</b>	128 GB
<b>Height</b>	2.38mm
<b>Length</b>	80mm
<b>Width</b>	22mm
<b>Interface</b>	PCIe Gen3
<b>Maximum Sequential Read</b>	Up to 2800MB/s
<b>Maximum Sequential Write</b>	Up to 600MB/s
<b>Logical Blocks</b>	250,069,680
<b>Operating Temperature</b>	0° to 70°C (32° to 158°F) [ambient temp]
<b>Features</b>	APST; ASPM L1.2; NVME spec 1.2

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

### Technical Specifications – Storage

#### 256 GB M.2 2280 PCIe NVMe Three Layer Cell SSD

<b>Drive Weight</b>	< 10g
<b>Capacity</b>	256GB
<b>Height</b>	2.38mm
<b>Length</b>	80mm
<b>Width</b>	22mm
<b>Interface</b>	PCIe Gen3
<b>Maximum Sequential Read</b>	Up to 2700MB/s
<b>Maximum Sequential Write</b>	Up to 1000MB/s
<b>Logical Blocks</b>	500,118,192
<b>Operating Temperature</b>	0° to 70°C (32° to 158°F) [ambient temp]
<b>Features</b>	APST; ASPM L1.2; NVME spec 1.2

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

#### 512 GB M.2 2280 PCIe NVMe Three Layer Cell SSD

<b>Drive Weight</b>	< 10g
<b>Capacity</b>	512 GB
<b>Height</b>	2.38mm
<b>Length</b>	80mm
<b>Width</b>	22mm
<b>Interface</b>	PCIe Gen3
<b>Maximum Sequential Read</b>	Up to 2900MB/s
<b>Maximum Sequential Write</b>	Up to 1100MB/s
<b>Logical Blocks</b>	1,000,215,216
<b>Operating Temperature</b>	0° to 70°C (32° to 158°F) [ambient temp]
<b>Features</b>	APST; ASPM L1.2; NVME spec 1.2

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

### Technical Specifications – Storage

#### HP 9.5mm 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>Write 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
<b>Read Speeds</b>	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 - Audio

#### HIGH DEFINITION AUDIO

<b>Type</b>	Integrated
<b>HD Audio Codec</b>	Realtek ALC3247 Audio Codec
<b>Audio I/O Ports</b>	Rear 3.5mm combo (microphone/headphone) jack (32 Ohm) supporting CTIA and OMTP style headset Microphone(2K Ohm)
<b>Analog Audio</b>	Yes
<b>Internal Speaker Amplifier</b>	2W per channel stereo amplifier for the internal speakers only
<b>Internal Speaker</b>	Yes - Stereo Speaker
<b>DAC Sampling Rates</b>	44.1 kHz/48 kHz/96 kHz/192 kHz
<b>ADC Sampling Rates</b>	44.1 kHz/48 kHz/96 kHz/192 kHz

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### Technical Specifications – Input/Output

#### INPUT/OUTPUT DEVICES

##### HP Universal USB Wired Keyboard

	Keys	104, 105 layout (depending upon country)
<b>Physical Characteristics</b>	Dimensions (L x W x H)	18.15 x 6.02 x 1.08 in (461 x 153 x 27.4 mm)
	Weight	1.32 lb (600g) min
	Operating voltage	5 VDC, +/-5%
<b>Electrical</b>	Power consumption	50mA Max (All LED on)
	System interface	USB Type A plug connector
	ESD	Contact Discharge: 8 KV Air Discharge: 15 KV
	EMI - RFI	Conforms to FCC rules for a Class B computing device
<b>Mechanical</b>	Keycaps	Mid-profile design
	Switch actuation	60±10g nominal peak force with tactile feedback
	Switch life	10 million keystrokes (Life tester)
	Switch type	Contamination-resistant switch membrane
	Key-leveling mechanisms	For all double-wide and greater-length keys
	Cable length	6 ft (1.8 m)
	Acoustics	43-dBA maximum sound pressure level
	Operating temperature	50° to 122° F (10° to 50° C)
	Non-operating temperature	-22° to 140° F (-30° to 60° C)
	Operating humidity	10% to 90% (non-condensing at ambient)
<b>Environmental</b>	Non-operating humidity	20% to 80% (non-condensing at ambient)
	Operating shock	40 g, six surfaces
	Non-operating shock	80 g, six surfaces
	Operating vibration	2-g peak acceleration
	Non-operating vibration	4-g peak acceleration
	Drop (out of box)	26 in (66 cm) on carpet, six-drop sequence
	Drop (in box)	30 in (76.2 cm) on concrete, 16-drop sequence

### Technical Specifications – Input/Output

#### HP USB Universal Wired Mouse

<b>Dimensions (H x L x W)</b>	4.21 x 2.64 x 1.52 in (107 x 67 x 38.7 mm)	
<b>Weight</b>	0.19lb (90g)	
<b>Environmental</b>	Operating temperature	50° to 122° F (10° to 50° C)
	Non-operating temperature	-22° to 140° F (-30° to 60° C)
	Operating humidity	10% to 90% (non-condensing at ambient)
	Non-operating humidity	20% to 80% (non-condensing at ambient)
	Operating shock	50 g, 6 surfaces
	Non-operating shock	80 g, 6 surfaces
	Operating vibration	2-g peak acceleration
	Non-operating vibration	4-g peak acceleration
	Operating voltage	5 VDC, +/-5%
	Power consumption	50mA Max
<b>Electrical</b>	Resolution	800, 1200, 1600 DPI
	Tracking speed	31 inch/sec (max)
	Tracking acceleration	8G(max), 1G=9.8m/s <sup>3</sup>
<b>Mechanical</b>	Connector	USB 2.0
	Cable length	6 ft (1.8 m)

### Technical Specifications – Input/Output

#### HP USB Optical Mouse

**Dimensions (H x L x W)** 4.53 x 2.50 x 1.40 in (115 x 63.46 x 35.48 mm)

**Weight** 0.18lb (80g)

<b>Environmental</b>	Operating temperature	50° to 122° F (10° to 50° C)
	Non-operating temperature	-22° to 140° F (-30° to 60° C)
	Operating humidity	10% to 90% (non-condensing at ambient)
	Non-operating humidity	20% to 80% (non-condensing at ambient)
	Operating shock	40 g, six surfaces
	Non-operating shock	80 g, six surfaces
	Operating vibration	2-g peak acceleration
	Non-operating vibration	4-g peak acceleration
	Operating voltage	5 VDC, +/-5%
	Power consumption	50mA Max
<b>Electrical</b>	Resolution	1,000 DPI
	Sensor	Pixart PAN3606DL
	Tracking speed	30 inch/sec (max)
	Tracking acceleration	9G(max), 1G=9.8m/s <sup>2</sup>
<b>Mechanical</b>	Connector	USB 2.0
	Cable length	6 ft (1.8 m)

#### NETWORKING/COMMUNICATIONS

<b>Realtek® RTL8111HSH-CG Gigabit Ethernet Controller</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 802.3 clauses 40) Auto-Negotiation (Automatic Speed Selection) Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/s IEEE 802.1p QoS (Quality of Service) Support IEEE 802.1q VLAN support IEEE 802.3x Flow Control (IEEE 802.3 clauses 31-32; configurable) IEEE 802.3az EEE (Energy Efficient Ethernet) Jumbo Frame 9K Auto MDI/MDIX Crossover cable detection
	<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
	<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>	PCI Express 1.1 x1 to fully support ASPM L0s/L1 and CLKREQ
	<b>NIC Device Driver Name</b>	PCIe GBE Ethernet Family Controller

#### WLAN\*

<b>Realtek RTL8822CE Wi-Fi 5<sup>1</sup> (802.11 ac) 2x2 with Bluetooth® M.2</b>	
<b>Wireless LAN Standards</b>	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac IEEE 802.11d IEEE 802.11e IEEE 802.11h IEEE 802.11i IEEE 802.11k IEEE 802.11r IEEE 802.11v
<b>*NOTE:</b> Wireless access point and internet service required and sold separately. Availability of public wireless access points limited. Wi-Fi 5 is backwards compatible with prior 802.11 specs.	
<b>Interoperability</b>	Wi-Fi® certified
<b>Frequency Band</b>	802.11b/g/n • 2.402 – 2.482 GHz 802.11a/n • 4.9 – 4.95 GHz (Japan) • 5.15 – 5.25 GHz



### Technical Specifications - Networking

	<ul style="list-style-type: none"> <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 &amp; 80MHz)</li> </ul>	
<b>Modulation</b>	Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM	
<b>Security<sup>2</sup></b>	<ul style="list-style-type: none"> <li>• IEEE 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>• 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	
<b>Output Power<sup>3</sup></b>	<ul style="list-style-type: none"> <li>• 802.11b: +18.5dBm minimum</li> <li>• 802.11g: +17.5dBm minimum</li> <li>• 802.11a: +18.5dBm minimum</li> <li>• 802.11n HT20(2.4GHz): +15.5dBm minimum</li> <li>• 802.11n HT40(2.4GHz): +14.5dBm minimum</li> <li>• 802.11n HT20(5GHz): +15.5dBm minimum</li> <li>• 802.11n HT40(5GHz): +14.5dBm minimum</li> <li>• 802.11ac VHT80(5GHz): +11.5dBm minimum</li> <li>• 802.11ac VHT160(5GHz): +11.5dBm 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/Modern 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>4</sup></b>	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	
<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 Factor</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>	Operating	14° to 158° F (-10° to 70° C)
	Non-operating	-40° to 176° F (-40° to 80° C)
<b>Humidity</b>	Operating	10% to 90% (non-condensing)
	Non-operating	5% to 95% (non-condensing)

### Technical Specifications - Networking

<b>Altitude</b>	Operating Non-operating	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	
<p>1. Wireless access point and Internet service required and sold separately. Availability of public wireless access points limited. 2. Must be configured at time of purchase.</p> <p>2. Check latest software/driver release for updates on supported security features.</p> <p>3. Maximum output power may vary by country according to local regulations.</p> <p>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).</p>		
<b>HP Integrated Module with Bluetooth 4.0/4.1/4.2/5.0 Wireless Technology</b>		
<b>Bluetooth® Specification</b>	4.0/4.1/4.2/5.0 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>Power Consumption</b>	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW	
<b>Bluetooth® Software Supported Link Topology</b>	Microsoft Windows Bluetooth® Software	
<b>Power Management</b>	Microsoft Windows ACPI, and USB Bus Support	
<b>Certifications</b>	FCC (47 CFR) Part 15C, Section 15.247 & 15.249 ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark	
<b>Bluetooth Profiles Supported</b>	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) Advanced Audio Distribution Profile (A2DP)	

### Technical Specifications - Networking

<b>Realtek RTL8821CE Wi-Fi 5<sup>1</sup> (802.11ac) 1x1 with Bluetooth® M.2</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® certified
<b>Frequency Band</b>	802.11b/g/n • 2.402 – 2.482 GHz 802.11a/n • 4.9 – 4.95 GHz (Japan) • 5.15 – 5.25 GHz • 5.25 – 5.35 GHz • 5.47 – 5.725 GHz • 5.825 – 5.850 GHz
<b>Data Rates</b>	• 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)
<b>Modulation</b>	Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM
<b>Security<sup>2</sup></b>	• IEEE 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
<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
<b>Output Power<sup>3</sup></b>	• 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
<b>Power Consumption</b>	• 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
<b>Power Management</b>	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
<b>Receiver Sensitivity<sup>4</sup></b>	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

### Technical Specifications - Networking

	802.11ac, MCS9: -59dBm maximum	
<b>Antenna type</b>	High efficiency antenna. One embedded dual band 2.4/5 GHz antenna is provided to the card to support WLAN communications and Bluetooth communications	
<b>Form Factor</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>	Operating	14° to 158° F (-10° to 70° C)
	Non-operating	-40° to 176° F (-40° to 80° C)
<b>Humidity</b>	Operating	10% to 90% (non-condensing)
	Non-operating	5% to 95% (non-condensing)
<b>Altitude</b>	Operating	0 to 10,000 ft (3,048 m)
	Non-operating	0 to 50,000 ft (15,240 m)
<b>LED Activity</b>	LED Amber – Radio OFF; LED White – Radio ON	
<p>1. Wireless access point and Internet service required and sold separately. Availability of public wireless access points limited. 2. Must be configured at time of purchase.</p> <p>2. Check latest software/driver release for updates on supported security features.</p> <p>3. Maximum output power may vary by country according to local regulations.</p> <p>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).</p>		
<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>Power Consumption</b>	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW	
<b>Bluetooth® Software Supported Link Topology</b>	Microsoft Windows Bluetooth® Software	
<b>Power Management</b>	Microsoft Windows ACPI, and USB Bus Support	
<b>Certifications</b>	ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark	
<b>Bluetooth Profiles Supported</b>	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	

### Technical Specifications - Networking

	FAX Profile (FAX) Basic Imaging Profile (BIP)2 Headset Profile (HSP) Hands Free Profile (HFP) Advanced Audio Distribution Profile (A2DP)
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### Technical Specifications - Power

#### POWER

<b>Efficiency</b>	65W EPS, 88% average efficiency at 115V & 89% at 230Vac
<b>Operating Voltage Range</b>	90Vac~264Vac
<b>Rated Voltage Range</b>	100Vac~240Vac
<b>Rated Line Frequency</b>	50Hz~60Hz
<b>Operating Line Frequency</b>	47Hz~63Hz
<b>Rated Input Current</b>	≤1.6A
<b>Rated Input Current with Energy Efficient* Power Supply</b>	≤1.6A
<b>DC Output</b>	+19.5V
<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>Dimensions</b>	102 x 55 x 30 mm

#### ADDITIONAL FEATURES

**SMART Technology (Self-Monitoring, Analysis and Reporting Technology)**

Description

Allows hard drives to monitor their own health and to raise flags if imminent failures were predicted

### Summary of Changes

#### SUMMARY OF CHANGES

Date of change:	Version History:		Description of change:
March 13, 2020	V1 to V2	Update	First page call out number 1 corrected.
June 16, 2020	V2 to V3	Update	Rear image call outs and rear I/O ports updated
July 20, 2020	V3 to V4	Update	Rear image call out #9 and ports section speed corrected
September 24, 2020	V4 to V5	Addition	Xerox® DocuShare® and footnote to software section.
December 3, 2020	V5 to V6	Removal	Energy Star and EPEAT on Page 3, Page 28
October 29, 2021	V6 to V7	Update	OS section
December 15, 2021	V7 to V8	Update	Windows 11 update
May 23, 2022	V8 to V9	Update	Document Name, at a glance, OS's, processors, graphics and memory sections updated
June 21, 2022	V9 to V10	Update	Environmental table certifications updated
July 29, 2022	V10 to V11	Update	SD card reader as optional

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