

### Technical Specifications

#### HP Elite Slice for Meeting Rooms G2 for Skype Room Systems



#### Side Ports/ Collaboration buttons

- |    |   |    |             |
|----|---|----|-------------|
| 1. | USB Type-C™ 3.1 Gen 1 USB port              | 5. | Volume down |
| 2. | Audio-out (headphone)/audio-in (microphone) | 6. | Volume up   |
| 3. | Call  | 7. | Hang up     |
| 4. | Mute  |    |             |

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#### **Back Connectors**

- |   |                                  |
|---|----------------------------------|
| 1. Power button   | 5. 2 USB Type A 3.1 Gen 1 ports  |
| 2. Power connector  | 6. Dual-Mode DisplayPort™ (DP++) |
| 3. RJ-45 (network) jack   | 7. HDMI port                     |
| 4. USB Type-C™ 3.1 Gen 1 USB port (60 W input, DisplayPort™ Alternate Mode) | 8. UltraSlim cable lock slot     |

### Technical Specifications

#### At A Glance

- Designed for rooms of all sizes with 3rd party AV accessories
- Modular system from the base that enhances the interactive experience through unique technology
- New HP Audio Module with capacitive touch Skype for Business keys (comes with HP Elite Slice for Meeting Rooms G2) for Call or Answer/ Mute/Volume Up/ Volume Down/ Hang up/End or Reject support
- The HP Audio Module speaker with side firing speakers and up-facing mics
- New Center of Room Control so that the meeting leader can easily manage the meeting to start/add people/share contact/end meeting functions without a PC
- New Video Ingest Module so that meeting attendees in the room can easily share content thru an HDMI port in the module
- Optional Cable-less Expansion Accessories (sold separately)
  - HP ODD Module
  - VESA Plate
- HP Sure Start 3.0 with Dynamic Protection
- New HP Cable and Port Cover adapter secures the ports, prevents tampering, and provides cable management
- USB Type-C™ 3.1 with 60W power input
- Windows 10 IoT 64 Enterprise to have a dedicated OS to run the conferencing software
- UEFI BIOS developed and engineered by HP
- Intel® Q170 chipset supporting Intel® Peripheral Control Hub for 7th Gen Core™ Processors, featuring integrated Intel HD Graphics 630 and Intel® vPro™ Technology
- Intel® Ethernet Connection I219LM GbE LOM integrated network connection
- DDR4-2400 (up to 32GB) Synchronous Dynamic Random-Access Memory (SDRAM)
- Multi-independent monitor support via HDMI and digital DisplayPort™ video interfaces
- Dual HDMI ports supported with the optional HP DisplayPort to HDMI True 4K Adapter
- Conexant CX7501 audio codec
- High efficiency energy saving power supply
- ENERGY STAR® certified. EPEAT® Gold registered where applicable/supported. See <http://www.epeat.net> for registration status by country.
- Low halogen
- Protected by HP Services, including limited warranties up to 3-3-3 (terms and conditions vary by country; certain restrictions and exclusions apply); Care Packs available with up to 5 years Next Business Day Onsite Hardware Support

**\*NOTE:** Available on HP Elite products equipped with Intel® 7th generation processors.

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

### Technical Specifications

#### OPERATING SYSTEMS AND TOPOLOGY REQUIREMENTS

##### Preinstalled

###### Windows

10 IoT 64 Enterprise CBB<sup>1</sup>

**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>

##### Skype Room Systems V2 IT Topology Pre-Requisites (setup must be one of the these three):

1. Online Deployment (o365) - Skype for Business Online with Exchange Online. \*Active Directory Online
2. On Premise Deployment - Skype for Business Server 2015 On-Premises with Exchange 2013 SP1+ or later On-Prem. \*Active Directory On-Prem
3. Hybrid Deployment - Skype For Business 2015 On-Premise with Exchange Online/ Skype for Business 2015 Online with Exchange 2013 SP1+ On-Prem. \*Active Directory On-Prem

**Note1:** Skype Room Systems v2 does not support Lync Server 2013

**Note2:** Preparation of the environment to enable SRS

- Skype Room Systems v2 needs to be assigned a "User account" in Active Directory, Exchange, and Skype for Business. The account is used to access its meeting calendar and establish Skype for Business connectivity. People can book this account by scheduling a meeting with it. Skype Room Systems v2 will be able to join that meeting and provide various features to the meeting attendees. Without a user account, none of these features will work. The user account & infrastructure must be correctly configured to allow SRS v2 to validate the user account and reach appropriate Microsoft services. For more information on configuration & licenses required: <https://docs.microsoft.com/en-us/skypeforbusiness/room-systems/> [docs.microsoft.com]
- A Skype Room System client appliance PC with all required software installed
- For additional information on configuration & supported topologies: <https://docs.microsoft.com/en-us/skypeforbusiness/deploy/deploy-clients/deploy-skype-room-system> [docs.microsoft.com]; <https://docs.microsoft.com/en-us/skypeforbusiness/deploy/deploy-clients/room-systems-v2-configure-accounts> [docs.microsoft.com]

### Technical Specifications

#### PROCESSOR

##### Intel® Core™ i5<sup>2,3</sup>

##### Intel® Core™ i5-7500T vPro™ Processor

35W

Up to 3.3 GHz Max. Turbo Frequency (2.7 GHz base frequency)

6 MB cache, 4 cores, 4 threads

Intel® HD Graphics 630

Supports DDR4 memory up to 2400 MT/s data rate

Supports Intel® vPro™ Technology and Intel® Stable Image Platform Program (SIPP)

##### Intel® Core™ i5-7400T non vPro™ Processor

65 W

Up to 3 GHz Max. Turbo Frequency (2.4 GHz base frequency)

6 MB cache, 4 cores, 4 threads

Intel® HD Graphics 630

Supports DDR4 memory up to 2400 MT/s data rate

2. 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>.

3. Multicore is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. Performance and clock frequency will vary depending on application workload and your hardware and software configurations. Intel's numbering, branding and/or naming is not a measurement of higher performance.

#### GRAPHICS

Integrated

Intel® HD Graphics 630 with GT2 support<sup>4</sup>

4. HD content required to view HD images.

### Technical Specifications

#### MEMORY

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

Type	Maximum	# of Slots
DDR4-2400 (Transfer rates up to 2400 MT/s)	32 GB capacity	2 DIMM

#### Configurations

8 GB DDR4-2400 SODIMM (2x4GB) (Dual Channel)<sup>20</sup>

20. 8 GB DDR4-2400 SDRAM: up to 32 GB thru option kit(s).

#### STORAGE / DRIVES

##### Solid State Drives M.2 NVMe<sup>5</sup>

256 GB PCIe NVMe M.2 Solid State Drive

128 GB PCIe NVMe M.2 Solid State Drive

##### SATA Solid State Drives 2.5”<sup>5</sup>

256 GB SSD TLC SATA Drive

128 GB SSD TLC SATA Drive

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

#### NETWORKING

##### Ethernet (RJ-45)

Wired Intel® i219LM GbE LOM

##### Wireless (optional and must be configured at purchase)<sup>6</sup>

Intel™ 7265 ac 2x2 +Bluetooth non-vPro™

Intel™ 8260 ac 2x2 +Bluetooth vPro™

Intel™ 8260 ac 2x2 +Bluetooth non-vPro™

6. 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. The specifications for the 802.11ac WLAN are draft specifications and are not final. If the final specifications differ from the draft specifications, it may affect the ability of the notebook to communicate with other 802.11ac WLAN devices.

### Technical Specifications

#### AUDIO / MULTIMEDIA

Conexant CX20926  
1x Universal audio jack  
Four speakers with dual passive radiator stereo sound system  
HP Audio Module 2.0  
Four Digital Microphones

#### KEYBOARDS AND POINTING DEVICES

##### Keyboards<sup>7</sup>

HP Business Slim USB Keyboard (China Only)  
HP Business Slim USB Keyboard

##### Mice<sup>7</sup>

HP USB Optical Mouse  
HP Mouse Pad  
HP USB Mouse (China only)

[7. Keyboards and mice are sold separately or as an optional feature.](#)

#### PORTS

##### External I/O Ports

1 Universal audio jack (with re-tasking) connector  
1 USB Type-C™ (USB 3.1 Gen 1, 15W output) connector  
1 USB Type-A (USB 3.1, charging) connector  
1 USB Type-A (USB 3.1, S4/S5 wake) connector  
1 USB Type-C™ (Alternate Mode DP, USB 3.1 Gen 1, 15W output, 60W input) connector  
1 DisplayPort™ connector  
1 HDMI connector (optional HP DisplayPort™)  
1 RJ-45 connector  
1 DC-in 7.4mm barrel

##### Internal I/O Ports

1. M.2 nVME  
1 SATA

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#### SLOTS

##### Integrated

1 M.2 2230 PCIe for WLAN

1 M.2 2280 PCIe for NVMe SSD

#### MODULES

##### Included

HP Cable and Port cover

HP Center of Room Control<sup>8,9</sup>

HP Video Ingest Module

##### Optional

VESA Mount<sup>10</sup>

Wireless Display Module

8. Dimensions: Width (X) 301.75mm or 11.88 in; Height (Y) 219.75mm or 8.65 in; Depth (Z) 80.8mm or 3.17 in; Weight: 1040 grams or 2.3 lbs

9. 31.2 cm (12.3") diagonal FHD LCD touch screen (1920 x 1280)

10. Only can be purchased as an optional feature at time of sale

#### SOFTWARE COMPONENTS AND APPLICATIONS WITH WINDOWS

##### BIOS

Absolute Persistence Module<sup>11</sup>

HP Wireless Wakeup

##### Software

HP Velocity

HP Recovery Manager

HP Support Assistant<sup>12</sup>

HP Connection Optimizer

HP Collaboration Keyboard Software

Microsoft Skype Room Systems (SRS)

HP Notifications

11. Absolute agent is shipped turned off, and will be activated when customers activate a purchased subscription. Subscriptions can be purchased for terms ranging multiple years. Service is limited, check with Absolute for availability outside the U.S. The Absolute Recovery Guarantee is a limited warranty. Certain conditions apply. For full details visit:

<http://www.absolute.com/company/legal/agreements/computrace-agreement>. Data Delete is an optional service provided by Absolute Software. If utilized, the Recovery Guarantee is null and void. In order to use the Data Delete service, customers must first sign a Pre-Authorization Agreement and either obtain a PIN or purchase one or more RSA SecurID tokens from Absolute Software.

12. HP Support Assistant requires Windows and Internet access.



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#### SECURITY MANAGEMENT

Active Health (black box flight recorder)  
Infineon TPM SLB9670 1.2/2.0 (Common Criteria EAL4+ certified)  
HP Dual Head Keyed Cable Lock Kit  
HP Sure Start 3.0\*

\*NOTE: Available on HP Elite products equipped with Intel® 7th generation processors.

#### POWER SUPPLY

90W AC adapter<sup>13</sup>  
Up to 85% efficient

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

#### DIMENSIONS AND WEIGHT (CONFIGURED WITH 1 HDD)

Chassis (H x W x D)	6.5 x 6.5 x 4.4 in 165 x 165 x 112 mm
System Weight	3.36 lb / 1.52 kg

#### PACKAGING DIMENSIONS AND WEIGHT

Dimensions	23.5 x 10.75 x 8 in 596.9 x 273.05 x 203.2 mm
Weight	14.71 lb / 6.67 kg

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#### COLOR

Sparkle black color

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### Technical Specifications

#### HP VIDEO INGEST MODULE



##### Functionality

- 1080 Resolution support
- 60Hz refresh
- 1 x HDMI 1.4 input port
- Works in MS SRS with Present option (button)
- Display input to local display and meeting

#### HP CENTER OF ROOM CONTROL



##### Functionality

- See full Room Calendar for scheduled calls
- Initiate ad-hoc calls, dial out, or invite participants
- Toggle Skype views with Gallery, content, maximize 2x LDF for conferencing
- Fully replace the phone in the conference room
- Tool-less Type-C cable installation with stand cover module

##### Display

- 12.3" diagonal screen
- Type-C interface
- Dual orientation
- 1440 x 960 resolution
- 3:2 aspect ratio
- 10-point touch capable

##### Orientations

- 25 degrees horizontal
- 48 degrees horizontal

##### Sensor

- Pyro-electric IR-Detectors

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#### PORT COVER



#### Functionality

- Tamper-proofing of cables from the back of Slice
- Extends Power, 2 USB Type-A, RJ45, DisplayPort, and HDMI cables for connections under the table
- Clean single condensed cable for single group of cables extended from Slice
- Separate Type-C cable for easy movement of Center Of Room Control display on the table
- Cover to hide back connections to Slice

#### WIRELESS DISPLAY MODULE



#### Specs

- Only supported with HDMI connector
- 1080p HD resolution
- Only supported on table top
- Transmitter and Receiver paired at the factory
- Pair button included in case needed later
- Light status included to show paired devices
- 60Ghz band is used – signal is blocked by walls and confined to conference room
- Wireless Display Module is not support in all countries

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#### SERVICE AND SUPPORT

On-site Warranty: Protected by an HP standard three-year (3-3-3) or one-year (1-1-1) limited warranty (varies by region). Certain restrictions and exclusions apply. Limited warranty delivers next business day service for parts and labor and includes Complimentary Limited Technical Support. One-year onsite and labor are not available in all countries. Service offers terms up to 5 years by choosing an optional HP Care Pack. 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.

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#### COUNTRY OF ORIGIN

China

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### Technical Specifications

#### HIGH DEFINITION AUDIO

<b>Audio by Bang &amp; Olufsen</b>	
<b>Type</b>	Four speakers with dual passive radiator stereo sound system
<b>HD Stereo Codec</b>	1x Universal audio jack (w/ re-tasking)
<b>Audio I/O Ports</b>	High Definition Audio
<b>Internal Speaker Amplifier</b>	TI TAS5754M
<b>Sampling</b>	Conexant CX20926
<b>Analog Audio</b>	1x Universal audio Jack
<b># of Channels</b>	Yes – Uses OS soft wavetable
<b>Internal Speaker</b>	Yes – four speakers
<b>DAC Sampling Rates</b>	44.1 kHz/48 kHz/96 kHz
<b>ADC Sampling Rates</b>	44.1 kHz/48 kHz/96 kHz

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#### GRAPHICS

<b>Intel® HD Graphics 630 (integrated)</b>			
DisplayPort™ 1.2	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	The BIOS has options for selecting the dedicated memory size of 128MB, 256MB or 512MB. 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	Microsoft Windows 7	Windows 8.1	Windows 10
	Up to 1.7GB	Up to 1.8GB	>4 GB
Note: the actual amount of maximum graphics memory can be less than the amounts listed above depending upon your computer's configuration.			
Maximum Color Depth	32 bits/pixel		
Graphics/Video API Support	<p>6th Generation Core™ processors:</p> <ul style="list-style-type: none"> <li>• Next Generation Intel® Clear Video Technology HD Support is a collection of video playback and enhancement features that improve the end user's viewing experience <ul style="list-style-type: none"> <li>○ Encode/transcode HD content</li> <li>○ Playback of high definition content including Blu-ray Disc</li> <li>○ Superior image quality with sharper, more colorful images</li> </ul> </li> <li>• DirectX Video Acceleration (DXVA) support for accelerating video processing <ul style="list-style-type: none"> <li>○ Full AVC/VC1/MPEG2/HEVC HW Decode</li> </ul> </li> <li>• Advanced Scheduler 2.0, 1.0</li> <li>• Windows 7, Windows 8.1, Windows 10, Linux OS Support</li> <li>• DirectX 12.1</li> <li>• OpenGL 4.4</li> <li>• Open CL 1.2 (Intel® HD Graphics 510)</li> <li>• Open CL 1.2/2.0 (Intel® HD Graphics 530)</li> </ul>		

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#### Supported Display Resolutions and Refresh Rates

Note: other resolutions may be available but are not recommended as they may not have been tested and qualified by HP. For All in One platforms, resolutions higher than the integrated panel resolution are not supported on the integrated panel.

Resolution	Refresh Rate	VGA	DisplayPort™ 1.2	HDMI	Standard
640 x 480	60, 75, 85	X	X	X	VESA DMT, CVT 0.31M3
720 x 400	70	X	X	X	IBM VGA
800 x 600	60, 75, 85	X	X	X	VESA DMT, CVT0.48M3
1024 x 768	60, 75, 85	X	X	X	VESA DMT, CVT 0.79M3
1152 x 864	60, 75, 85	X	X	X	VESA DMT, CVT 0.83MA
1280 x 720	60, 75, 85	X	X	X	VESA DMT, CVT 0.92M9, CEA-770.3
1280 x 768	60, 60RB, 75, 85	X	X	X	VESA DMT, CVT 0.98M9/0.98M9-R
1280 x 800	60, 75, 85	X	X	X	VESA DMT
1280 x 960	60, 75, 85	X	X	X	VESA DMT
1280 x 1024	60, 75, 85	X	X	X	VESA DMT, CVT 1.31M4
1366 x 768	60, 60RB	X	X	X	VESA DMT
1440 x 900	60, 60RB	X	X	X	VESA DMT
1600 x 900	60, 60RB, 75, 85	X	X	X	VESA DMT
1680 x 1050	60, 60RB, 75	X	X	X	VESA DMT, CVT 1.76MA/1.76MA-R
1920 x 1080	60	X	X	X	VESA DMT, CVT 2.07M9, SMPTE 274M
1920 x 1200	60, 60RB, 75, 85	X*	X	X	DMT, CVT 2.30MA/2.30MA-R
1600 x 1200	60, 75, 85	X*	X	X	VESA DMT, 1.92M3
1920 x 1440	60, 75, 85		X	X	VESA DMT, CVT 2.76M3
2048 x 1536	60,75		X	X	CVT 3.15M3
2560 x 1440	59.951		X	X	CVT 3.69M9-R
2560 x 1600	60, 60RB		X	X	VESA DMT, CVT 4.10MA/4.10MA-R
3440 x 1440	60		X	X	VESA DMT, CVT 0.31M3
3440 x 1440	75, 85		X		VESA DMT, CVT 0.31M3
3840 x 2160	24		X	X	CVT-RBv1/v2 (8.29M9-R), SMPTE 274M
3840 x 2160	25		X	X	CVT-RBv1/v2 (8.29M9-R), SMPTE 274M
3840 x 2160	30		X	X	CVT-RBv1/v2 (8.29M9-R), SMPTE 274M
3840 x 2160	50		X	X	CVT-RBv1/v2 (8.29M9-R), SMPTE 274M

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3840 x 2160	60		X	X	CVT-RBv1/v2 (8.29M9-R), SMPTE 274M
4096 x 2160	24		X	X	CVT-RBv1/v2 (8.85M-R), SMPTE 274M
4096 x 2160	25		X	X	CVT-RBv1/v2 (8.85M-R), SMPTE 274M
4096 x 2160	30		X	X	CVT-RBv1/v2 (8.85M-R), SMPTE 274M
4096 x 2160	50		X	X	CVT-RBv1/v2 (8.85M-R), SMPTE 274M
4096 x 2160	60		X	X	CVT-RBv1/v2 (8.85M-R), SMPTE 274M
1920 x 1080	60		X	X	VESA (SMPTE 274M)
1920 x 1080	50		X	X	SMPTE 274M
1920 x 1080	30		X	X	SMPTE 274M
1920 x 1080	24		X	X	SMPTE 274M
1280 x 720	60		X	X	VESA (CEA-770.3)
1280 x 720	50		X	X	SMPTE 296M
720 x 480	60		X	X	MHL (CEA-770.2)
720 x 576	50		X	X	ITU-R BT.1358
640 x 480	60		X	X	CEA (VESA DMT)
* 60Hz refresh rate only on VGA					



### Technical Specifications

#### STORAGE

<b>128GB SATA 2.5" (Non-SED) Solid State Drive</b>		
<b>Unformatted Capacity</b>	256 GB	
<b>Architecture</b>	TLC NAND Flash	
<b>Interface</b>	SATA 3.2 (6.0 Gb/s)	
<b>Form Factor</b>	2.5 inch	
<b>Dimensions (W x D x H)</b>	6.98 x 10.05 x 0.7 cm	
<b>Weight</b>	31g	
<b>Bandwidth Performance</b>	Sustained Sequential Read:	Sustained Sequential Read:
	Sustained Sequential Write:	Sustained Sequential Write:
	Random Read:	Random Read:
	Random Write:	Random Write:
<b>Power</b>	DC power requirement:	DC power requirement:
	Total power consumption:	Total power consumption:
<b>Useful Drive Life</b>	72TB written, up to 40GB/day for 5 years	
<b>Environmental</b> (all conditions, non-condensing)	Operating Temperature:	Operating Temperature:
	Relative Humidity:	Relative Humidity:
	Shock:	Shock:
<b>NOTE:</b> 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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#### 128 GB M.2 2280 PCIe NVMe SSD

<b>Drive Weight</b>	< 10g
<b>Capacity</b>	128GB
<b>Height</b>	2.38mm
<b>Length</b>	80mm
<b>Width</b>	22mm
<b>Interface</b>	PCIe Gen3
<b>Performance</b>	Up to Random Read/Write = 60K/50K IOPS
<b>Maximum Sequential Read</b>	Up to 1400MB/s
<b>Maximum Sequential Write</b>	Up to 395MB/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.

#### 256 GB M.2 2280 PCIe NVMe 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>Performance</b>	Up to Random Read/Write = 120K/170K IOPS
<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.

### Technical Specifications

#### NETWORKING

<b>Intel 8260 802.11a/b/g/n/ac (2x2) WiFi and Bluetooth® 4.2 Combo vPro</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 <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
<b>Output Power<sup>2</sup></b>	<ul style="list-style-type: none"> <li>• 802.11b : +16dBm minimum</li> <li>• 802.11g : +14dBm minimum</li> <li>• 802.11a : +14dBm minimum</li> <li>• 802.11n HT20(2.4GHz) : +13dBm minimum</li> <li>• 802.11n HT40(2.4GHz) : +13dBm minimum</li> <li>• 802.11n HT20(5GHz) : +12dBm minimum</li> <li>• 802.11n HT40(5GHz) : +12dBm minimum</li> <li>• 802.11ac 80MHz(5GHz) : +11dBm 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>

### Technical Specifications

	<b>Power Management</b>	ACPI and PCI Express compliant power management 802.11 compliant power saving mode	
	<b>Receiver Sensitivity<sup>3</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)
	<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	
<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>Electrical Interface</b>	USB 2.0 compliant	
	<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	
	<b>Power Management 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	

### Technical Specifications

		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)
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### Technical Specifications

#### INPUT / OUTPUT DEVICES

<b>HP USB Business Slim USB Keyboard</b>		
<b>Physical characteristics</b>	Keys	104, 105, 106, 107, 109 layout (depending upon country)
	Dimensions (L x W x H)	171.97 x 68.35 x 8.27 in (436.8± 1.5 x 137.6± 1.0 x 21.0± 1.0 cm)
	Weight	1.32 lb (0.6± 0.08 kg)
<b>Electrical</b>	Operating voltage	+ 4.4 – 5.25VDC
	Power consumption	50-mA maximum (with 5 VDC power supplied and three LEDs ON)
	System interface	USB Type A plug connector
	ESD	Contact Discharge: 2, 4, 6, 8KV Air Discharge: 2, 4, 8, 10, 12.5KV
	EMI - RFI	Conforms to FCC rules for a Class B computing device
	Microsoft® PC 99 - 2001	Functionally compliant
<b>Mechanical</b>	Keycaps	Low-profile design
	Switch actuation	60±12.5g 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)
	Microsoft PC 99 - 2001	Mechanically compliant
<b>Environmental</b>	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)
	Non-operating humidity	20% to 80% (non-condensing at ambient)

### Technical Specifications

	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
<b>Approvals</b>	UL, FCC, CE Mark, TUV, TUV GS, VCCI, BSMI, C-Tick, KC	
<b>Ergonomic compliance</b>	ANSI HFS 100, ISO 9241-4, and TUVGS	
<b>Kit contents</b>	Keyboard	Installation Guide
	Warranty Card	Safety and Comfort Guide

<b>HP USB Mouse</b>		
<b>Dimensions</b> (H x L x W)	2.5 x 4.5 x 1.5 in (63.5 x 114.3 x 38.1 mm)	
<b>Weight</b>	0.22 lb (99.79 g)	
<b>Color</b>	Black	
<b>Connector</b>	USB	
<b>Mechanical</b>	Resolution	800 DPI sensitivity
	Buttons	Two primary buttons and clickable scroll wheel

### After Market Options

<b>Memory</b>	<b>Part Number</b>
HP 4GB DDR4-2400 SODIMM	Z9H55AA
HP 8GB DDR4-2400 SODIMM	Z9H56AA
HP 16GB DDR4-2400 SODIMM	Z9H53AA
HP 16GB DDR4-2666 SODIMM	3TK84AA
HP 4GB DDR4-2666 SODIMM	3TK86AA
HP 8GB DDR4-2666 SODIMM	3TK88AA
<b>Storage</b>	
HP 256GB SATA TLC Non-SED Solid State Drive	P1N68AA
HP PCIe NVME TLC 256GB SSD M.2 Drive	1CA51AA
<b>Other</b>	
HP ODD Module	X8U73AA
HP VESA Plate (not recommend under the table)	X8U74AA
HP (Bulk) Elite Slice Sata Storage Drive Screws Kit	Z5U26AA
HP DisplayPort Cable Kit	VN567AA
<b>Pointing Devices</b>	
HP USB Mouse	QY777AA
HP 1000dpi Laser Mouse	QY778AT
<b>Keyboards</b>	
HP USB Business Slim Keyboard	N3R87AA
HP Wireless Business Slim Keyboard and Mouse	N3R88AA



### Summary of Changes

<b>Date of change:</b>	<b>Version History:</b>		<b>Description of change:</b>
June 21, 2018	V1 to V2	Update	Typology requirements added to Operating system section
October 2, 2018	V2 to V3	Update	Wireless display module added
November 9, 2018	V3 to V4	Update	General re-arrangement

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