

Overview

Slice G2 Partner Ready Platform



Left side view

1. USB Type-C™ 3.1 Gen 1 USB port
2. Audio-out (headphone/audio-in microphone)



Back connectors

- | | |
|---|----------------------------------|
| 1. Power button | 5. 2 USB Type A 3.1 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 |

Features

At A Glance

- Teams Rooms/Skype Rooms systems conferencing solution built on Windows 10 IoT 64 Enterprise
- Designed for rooms of all sizes with 3rd party AV accessories and Room Controller
- Optional Video Ingest Module so that meeting attendees in the room can easily share content thru an HDMI port in the module
- HP Sure Start 3.0 with Dynamic Protection
- 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
- DDR4-2400 (up to 32GB) Synchronous Dynamic Random-Access Memory (SDRAM)
- Intel® Ethernet Connection I219LM GbE LOM integrated network connection (recommended)
- Dual-independent monitor support via HDMI and digital DisplayPort™ video interfaces
 - Dual HDMI ports supported with the HP DisplayPort to HDMI True 4K Adapter
- Supports Intel® AC Wireless with vPro™ Technology
- Conexant CX7501 audio codec
- High efficiency energy saving power supply
- ENERGY STAR certified. EPEAT® 2019 Silver registered where applicable. EPEAT® registration varies by country. See <http://www.epeat.net> for registration status by country.¹
- 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
- VESA Plate (Optional)

1. Based on US EPEAT® registration according to IEEE 1680.1-2018 EPEAT®. Status varies by country. Visit www.epeat.net for more information.

*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.

Features

OPERATING SYSTEMS A TYPOLOGY REQUIREMENTS

Preinstalled

Windows 10 IoT 64 Enterprise CBB¹

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>

Microsoft Teams Rooms/Skype Room Systems 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: Microsoft Teams Rooms/Skype Room Systems does not support Lync Server 2013

Note2: Preparation of the environment to enable Teams Rooms/SRS

- Microsoft Teams Rooms/Skype Room Systems 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. Microsoft Teams Rooms/Skype Room Systems 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 Microsoft Teams Rooms/Skype Room Systems to validate the user account and reach appropriate Microsoft services. For more information on configuration & licenses required: <https://docs.microsoft.com/en-us/microsoftteams/room-systems/requirements>
- A Microsoft Teams Rooms/Skype Room Systems client appliance PC with all required software installed
- For additional information on configuration & supported topologies: <https://docs.microsoft.com/en-us/microsoftteams/room-systems/room-systems>

PROCESSORS

7th Generation Intel® Core™ processors

Intel® Core™ i7-7700T with Intel® HD Graphics 630 Up to 3.8 GHz Max. Turbo Frequency
(2.9 GHz base frequency) 8 MB cache, 4 cores, 8 threads^{3,21,22}

Intel® Core™ i5-7500T vPro™ processor with Intel® HD Graphics 630

(2.7 GHz base frequency, up to 3.3 GHz with Intel® Turbo Boost Technology, 6 MB cache, 4 cores)^{3,20,21}

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.

21. Intel® Turbo Boost technology requires a PC with a processor with Intel Turbo Boost capability. Intel Turbo Boost performance varies depending on hardware, software and overall system configuration. See www.intel.com/technology/turboboost for more information.

22. Some functionality of this technology, such as Intel Active management technology and Intel Virtualization technology, requires additional 3rd party software in order to run. Availability of future "virtual appliances" applications for Intel vPro technology is dependant on 3rd party software providers. Compatibility of this generation of Intel vPro technology-based hardware with future "virtual appliances" is yet to be determined.

Features

CHIPSET

Intel® Q170

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)²⁰

16 GB DDR4-2400 SODIMM (2x8GB) (Dual Channel)²⁰

[20. DDR4-2400 SDRAM: up to 32 GB thru option kit\(s\).](#)

GRAPHICS

Integrated

Intel® HD Graphics 630 with GT2 support⁴

[4. HD content required to view HD images.](#)

STORAGE / DRIVES

PCIe® NVMe™ TLC M.2 SSD⁵

128 GB PCIe NVMe M.2 Solid State 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.](#)

SLOTS

Integrated

1 M.2 2230 PCIe for WLAN

1 M.2 2280 PCIe for NVMe SSD

Features

NETWORKING

LAN

Wired Intel® i219LM GbE LOM

WLAN (optional and must be configured at purchase)⁶

Intel® Dual Band Wireless-AC 8260 802.11ac 2x2 +Bluetooth® 4.2 vPro™

Intel® Dual Band Wireless-AC 7265 802.11ac 2x2 +Bluetooth® 4.2 (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.

AUDIO / MULTIMEDIA

Conexant CX7501

1x Universal re-task able audio jack

KEYBOARD AND POINTING DEVICES (OPTIONAL)

Keyboards⁷

USB Business Slim Wired Keyboard¹⁴

Mouse^{7,8}

HP USB Mouse

7. Keyboards and mice are sold separately or as an optional feature.

8. China Only

14. China only.

Features

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

MODULES

Optional

- VESA Mount
- HP Video Ingest Module (optional)

Features

SOFTWARE COMPONENTS AND APPLICATIONS WITH WINDOWS

Software

Microsoft Teams Rooms/Skype Rooms Systems

Absolute Persistence Module¹¹

HP Notifications

HP Connection Optimizer

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.

MANAGEABILITY FEATURES

Intel® vPro™ Technology

SECURITY MANAGEMENT

Active Health (black box flight recorder)

TPM 2.0 Embedded Security Chip shipped with Windows 10 (Common Criteria EAL4+ Certified)(FIPS 140-2 Level 2 Certified)

HP Sure Start 3.0*

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

POWER SUPPLY

90W AC adapter¹³

Up to 85% efficient

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

Features

DIMENSIONS AND WEIGHT (configured with 1 SSD Drive)

Chassis (H x W x D)	6.5 x 6.5 x 1.4 in (165 x 165 x 35 mm)
Chassis (H x W x D) with Video Ingest	6.5 x 6.5 x 2.39 in (165 x 165 x 61 mm)
Chassis with Optional Video Ingest and Optional Vesa Plate	6.5 x 6.5 x 2.68 in (165 x 165 x 68 mm)
System Weight	3.46 lb / 1.57 kg

PACKAGING DIMENSIONS AND WEIGHT

Dimensions	12 x 23.5 x 8.4 in (30.5 x 59.9 x 21.5 cm)
Weight	16.9 lbs / 7.6 kg

COLOR

Sparkle black color

Features

HP VIDEO INGEST MODULE (Optional)



Functionality

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

Features

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.

COUNTRY OF ORIGIN

China

WHAT IS IN THE BOX

HP Elite Slice G2 - Partner Ready with Microsoft Teams Rooms; HP Video Ingest Module (optional); HP Wireless Display Module (optional); HP Vesa Plate (optional); HP DisplayPort to HDMI True 4k Adapter.

Technical Specifications - Graphics

GRAPHICS

Intel® HD Graphics 630 (integrated)			
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"> • 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"> ○ Encode/transcode HD content ○ Playback of high definition content including Blu-ray Disc ○ Superior image quality with sharper, more colorful images • DirectX Video Acceleration (DXVA) support for accelerating video processing <ul style="list-style-type: none"> ○ Full AVC/VC1/MPEG2/HEVC HW Decode • Advanced Scheduler 2.0, 1.0 • Windows 7, Windows 8.1, Windows 10, Linux OS Support • DirectX 12.1 • OpenGL 4.4 • Open CL 1.2 (Intel® HD Graphics 510) • Open CL 1.2/2.0 (Intel® HD Graphics 530) 		

Technical Specifications - Graphics

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	DisplayPort™ 1.2	HDMI	Standard
640 x 480	60, 75, 85	X	X	VESA DMT, CVT 0.31M3
720 x 400	70	X	X	IBM VGA
800 x 600	60, 75, 85	X	X	VESA DMT, CVT0.48M3
1024 x 768	60, 75, 85	X	X	VESA DMT, CVT 0.79M3
1152 x 864	60, 75, 85	X	X	VESA DMT, CVT 0.83MA
1280 x 720	60, 75, 85	X	X	VESA DMT, CVT 0.92M9, CEA-770.3
1280 x 768	60, 60RB, 75, 85	X	X	VESA DMT, CVT 0.98M9/0.98M9-R
1280 x 800	60, 75, 85	X	X	VESA DMT
1280 x 960	60, 75, 85	X	X	VESA DMT
1280 x 1024	60, 75, 85	X	X	VESA DMT, CVT 1.31M4
1366 x 768	60, 60RB	X	X	VESA DMT
1440 x 900	60, 60RB	X	X	VESA DMT
1600 x 900	60, 60RB, 75, 85	X	X	VESA DMT
1680 x 1050	60, 60RB, 75	X	X	VESA DMT, CVT 1.76MA/1.76MA-R
1920 x 1080	60	X	X	VESA DMT, CVT 2.07M9, SMPTE 274M
1920 x 1200	60, 60RB, 75, 85	X	X	DMT, CVT 2.30MA/2.30MA-R
1600 x 1200	60, 75, 85	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

Technical Specifications - Graphics

3840 x 2160	50	X		CVT-RBv1/v2 (8.29M9-R), SMPTE 274M
3840 x 2160	60	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		CVT-RBv1/v2 (8.85M-R), SMPTE 274M
4096 x 2160	60	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)

Technical Specifications - Storage

STORAGE

128 GB M.2 2280 PCIe NVMe SSD

Drive Weight	< 10g
Capacity	128GB
Height	2.38mm
Length	80mm
Width	22mm
Interface	PCIe Gen3
Performance	Up to Random Read/Write = 60K/50K IOPS
Maximum Sequential Read	Up to 1400MB/s
Maximum Sequential Write	Up to 395MB/s
Logical Blocks	250,069,680
Operating Temperature	0° to 70°C (32° to 158°F) [ambient temp]
Features	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

NETWORKING

Intel 8260 802.11a/b/g/n/ac (2x2) WiFi and Bluetooth® 4.2 Combo vPro	
Wireless LAN Standards	<ul style="list-style-type: none"> IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac
Interoperability	Wi-Fi certified
Frequency Band	802.11b/g/n <ul style="list-style-type: none"> • 2.402 – 2.482 GHz 802.11a/n <ul style="list-style-type: none"> • 4.9 – 4.95 GHz (Japan) • 5.15 – 5.25 GHz • 5.25 – 5.35 GHz • 5.47 – 5.725 GHz • 5.825 – 5.850 GHz
Data Rates	<ul style="list-style-type: none"> • 802.11b: 1, 2, 5.5, 11 Mbps • 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz) • 802.11ac : MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, and 80MHz)
Modulation	Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM
Security¹	<ul style="list-style-type: none"> • IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only • AES-CCMP: 128 bit in hardware • 802.1x authentication • WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES. • WPA2 certification • IEEE 802.11i • Cisco Certified Extensions, all versions through CCX4 and CCX Lite • WAPI
Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
Roaming	IEEE 802.11 compliant roaming between access points
Output Power²	<ul style="list-style-type: none"> • 802.11b : +16dBm minimum • 802.11g : +14dBm minimum • 802.11a : +14dBm minimum • 802.11n HT20(2.4GHz) : +13dBm minimum • 802.11n HT40(2.4GHz) : +13dBm minimum • 802.11n HT20(5GHz) : +12dBm minimum • 802.11n HT40(5GHz) : +12dBm minimum • 802.11ac 80MHz(5GHz) : +11dBm minimum
Power Consumption	<ul style="list-style-type: none"> • Transmit mode 2.0 W • Receive mode 1.6 W • Idle mode (PSP) 180 mW (WLAN Associated) • Idle mode 50 mW (WLAN unassociated) • Connected Standby 10mW • Radio disabled 8 mW

Technical Specifications – Networking

	Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode	
	Receiver Sensitivity³	802.11b, 1Mbps : -93.5dBm maximum 802.11b, 11Mbps : -84dBm maximum 802.11a/g, 6Mbps : -86dBm maximum 802.11a/g, 54Mbps : -72dBm maximum 802.11n, MCS07 : -67dBm maximum 802.11n, MCS15 : -64dBm maximum 802.11ac, MCS0 : -84dBm maximum 802.11ac, MCS9 : -59dBm maximum	
	Antenna type	High efficiency antenna with spatial diversity, mounted in the display enclosure Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth® communications	
	Form Factor	PCI-Express M.2 MiniCard	
	Dimensions	Type 2230 : 2.3 x 22.0 x 30.0 mm	
	Weight	Type 2230 : 2.8g	
	Operating Voltage	3.3v +/- 9%	
	Temperature	Operating	14° to 158° F (-10° to 70° C)
		Non-operating	-40° to 176° F (-40° to 80° C)
	Humidity	Operating	10% to 90% (non-condensing)
		Non-operating	5% to 95% (non-condensing)
	Altitude	Operating	0 to 10,000 ft (3,048 m)
		Non-operating	0 to 50,000 ft (15,240 m)
	LED Activity	LED Amber – Radio OFF; LED White – Radio ON	
HP Integrated Module with Bluetooth 4.0/4.1/4.2 Wireless Technology			
	Bluetooth® Specification	4.0/4.1/4.2 Compliant	
	Frequency Band	2402 to 2480 MHz	
	Number of Available Channels	Legacy : 0~79 (1 MHz/CH) BLE : 0~39 (2 MHz/CH)	
	Data Rates and Throughput	Legacy : 3 Mbps data rate; throughput up to 2.17 Mbps BLE : 1 Mbps data rate; throughput up to 0.2 Mbps Legacy : Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Legacy : Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or 864 kbps symmetric (3-EV5)	
	Transmit Power	The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of + 4 dBm for BR and EDR.	
	Power Consumption	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW	
	Electrical Interface	USB 2.0 compliant	
	Bluetooth® Software Supported Link Typology	Microsoft Windows Bluetooth® Software	
	Power Management	Microsoft Windows ACPI, and USB Bus Support	
	Certifications	FCC (47 CFR) Part 15C, Section 15.247 & 15.249	
	Power Management Certifications	ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark	
	Bluetooth® Profiles Supported	BT4.1-ESR 5/6/7 Compliance LE Link Layer Ping	

Technical Specifications – Networking

		<p>LE Dual Mode</p> <p>LE Link Layer</p> <p>LE Low Duty Cycle Directed Advertising</p> <p>LE L2CAP Connection Oriented Channels</p> <p>Train Nudging & Interlaced Scan</p> <p>BT4.2 ESR08 Compliance</p> <p>LE Secure Connection- Basic/Full</p> <p>LE Privacy 1.2 –Link Layer Privacy</p> <p>LE Privacy 1.2 –Extended Scanner Filter Policies</p> <p>LE Data Packet Length Extension</p> <p>FAX Profile (FAX)</p> <p>Basic Imaging Profile (BIP)2</p> <p>Headset Profile (HSP)</p> <p>Hands Free Profile (HFP)</p> <p>Advanced Audio Distribution Profile (A2DP)</p>
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Intel 7265 802.11ac 2x2 DualBand Combo PCIe x1 Card

	Wireless LAN Standards	<p>IEEE 802.11a</p> <p>IEEE 802.11b</p> <p>IEEE 802.11g</p> <p>IEEE 802.11n</p> <p>IEEE 802.11ac</p>
	Interoperability	Wi-Fi certified
	Frequency Band	<p>802.11b/g/n</p> <ul style="list-style-type: none"> 2.402 – 2.482 GHz <p>Note:</p> <p>The FCC has declared as of January 1, 2015 products that utilize passive scanning on channel 12/13 and are capable of transmitting must fully comply with requirements of 15.247 or otherwise disable those channels.</p> <p>802.11a/n</p> <ul style="list-style-type: none"> 4.9 – 4.95 GHz (Japan) 5.15 – 5.25 GHz 5.25 – 5.35 GHz 5.47 – 5.725 GHz 5.825 – 5.850 GHz <p>Note: Indonesia no support this band)</p>
	Data Rates	<ul style="list-style-type: none"> 802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz) 802.11ac : MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, and 80MHz)
	Modulation	<p>Direct Sequence Spread Spectrum</p> <p>BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM</p>
	Security¹	<ul style="list-style-type: none"> IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only AES-CCMP: 128 bit in hardware 802.1x authentication WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES. WPA2 certification IEEE 802.11i Cisco Certified Extensions, all versions through CCX4 and CCX Lite

Technical Specifications – Networking

		<ul style="list-style-type: none"> WAPI
Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)	
Roaming	IEEE 802.11 compliant roaming between access points	
Output Power²	<ul style="list-style-type: none"> 802.11b : +16dBm minimum 802.11g : +14dBm minimum 802.11a : +14dBm minimum 802.11n HT20(2.4GHz) : +13dBm minimum 802.11n HT40(2.4GHz) : +13dBm minimum 802.11n HT20(5GHz) : +12dBm minimum 802.11n HT40(5GHz) : +12dBm minimum 802.11ac 80MHz(5GHz) : +11dBm minimum 	
Power Consumption	Transmit: 2.0 W (max) Receive: 1.6 W (max) Idle mode (PSP): 180 mW (WLAN Associated) Idle mode: 60 mW (WLAN unassociated) Radio disabled: 30 mW	
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode	
Receiver Sensitivity³	802.11b, 1Mbps : -94dBm maximum 802.11b, 11Mbps : -86dBm maximum 802.11g, 6Mbps : -88dBm maximum 802.11g, 54Mbps : -74dBm maximum 802.11a, 6Mbps : -86dBm maximum 802.11a, 54Mbps : -72dBm maximum 802.11n, MCS07 : -69dBm maximum 802.11n, MCS15 : -66dBm maximum 802.11ac, 1SS, MCS-0 : -86dBm maximum 802.11ac, 1SS, MCS-9 : -61dBm maximum 802.11ac, 2SS, MCS-0 : -83dBm maximum 802.11ac, 2SS, MCS-9 : -58dBm maximum	
Antenna type	High efficiency antenna with spatial diversity, mounted in the display enclosure Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth® communications	
Form Factor	PCI-Express M.2 MiniCard	
Dimensions	Type 2230 : 2.3 x 22.0 x 30.0 mm Or Type 1630 : 2.3 x 16.0 x 30.0 mm	
Weight	Type 2230 : 2.8g Or Type 1630 : 2g	
Operating Voltage	3.3v +/- 9%	
Temperature	Operating	14° to 158° F (-10° to 70° C)
	Non-operating	-40° to 176° F (-40° to 80° C)
Humidity	Operating	10% to 90% (non-condensing)
	Non-operating	5% to 95% (non-condensing)
Altitude	Operating	0 to 10,000 ft (3,048 m)
	Non-operating	0 to 50,000 ft (15,240 m)
LED Activity	LED Amber – Radio OFF; LED White – Radio ON	
	<ol style="list-style-type: none"> Check latest software/driver release for updates on supported security features. Maximum output power may vary by country according to local regulations. 	

Technical Specifications – Networking

	3. 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).		
HP Integrated Module with Bluetooth® 4.0+EDR Wireless Technology			
Bluetooth® Specification	4.0+EDR Compliant		
Frequency Band	2402 to 2480 MHz		
Number of Available Channels	79 (1 MHz) available channels		
Data Rates and Throughput	3 Mbps data rate; throughput up to 2.17 Mbps		
	Synchronous Connection Oriented links up to 3, 64 kbps, voice channels		
	Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric or 1306.9 kbps symmetric		
Transmit Power	The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of +4 dBm for BR and EDR.		
Receiver Sensitivity	Modulation	0.01% BER	0.001% BER
	GFSK	-80 dBm	-70 dBm
	π/4-DQPSK	-80 dBm	-70 dBm
	8DPSK	-80 dBm	-70 dBm
Power Consumption	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW		
Range	Up to 33 ft (10 m)		
Electrical Interface	USB 2.0 compliant		
Bluetooth® Software Supported Link Topology	Microsoft Windows Bluetooth® Software		
Electrical Interface Bluetooth® Software Supported Security	Point to Point, Multipoint Pico Nets up to 7 slaves Full support of Bluetooth® Security Provisions		
Power Management Power Management Certifications	Microsoft Windows ACPI, and USB Bus Support Self-configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff		
Security Certifications	All necessary regulatory approvals for supported countries, including: FCC (47 CFR) Part 15C, Section 15.247 & 15.249		
Bluetooth® Profiles Supported	FCC (47 CFR) Part 15C, Section 15.247 & 15.249		
Power Management Certifications	ETS 300 328, ETS 300 826 Low Voltage Directive IEC950		
Certifications Bluetooth® Profiles Supported	UL, CSA, and CE Mark Serial Port Profile (SPP) ¹ Service Discovery Application Profile (SDAP) Dial-Up Networking (DUN) ^{1,2} Generic Object Exchange Profile (GOEP) ^{1,2} Object Push Profile (OPP) ^{1,2} File Transfer Profile (FTP) Synchronization Profile (SYNC) Hard Copy Cable Replacement (HCRP) ^{1,2} Personal Area Networking Profile (PAN) ^{1,2} Human Interface Device Profile (HID) ^{1,2} FAX Profile (FAX) Basic Imaging Profile (BIP) ² Headset Profile (HSP) Hands Free Profile (HFP) Advanced Audio Distribution Profile (A2DP)		

Technical Specifications – Networking

Technical Specifications – Input /Output Devices

INPUT / OUTPUT DEVICES

HP USB Business Slim USB Keyboard		
Physical characteristics	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)
Electrical	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
Mechanical	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
Environmental	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)

Technical Specifications – Input /Output Devices

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

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

After Market Options

AFTER MARKET OPTIONS

ITEM	Part Number
Memory	
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
Other	
HP VESA Plate	X8U74AA
HP DisplayPort Cable Kit	VN567AA
Pointing Devices	
HP USB Mouse	QY777AA
HP 1000dpi Laser Mouse	QY778AT
Keyboards	
HP USB Business Slim Keyboard	N3R87AA
HP Wireless Business Slim Keyboard and Mouse	N3R88AA

Summary of Changes

Date of change:	Version History:		Description of change:
July 30, 2019	V1 to V2	Update	Footnote number 2 removed from page 3
August 26, 2019	V2 to V3	Update	Software components and EPEAT references updated
January 21, 2020	V3 to V4	Update	First image in Page 1 updated
February 10, 2020	V4 to V5	Update	Supported Display Resolutions and Refresh Rates table
May 27, 2020	V5 to V6	Update	Intel® Dual Band Wireless-AC 7265 added and Dimensions and weight updated

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