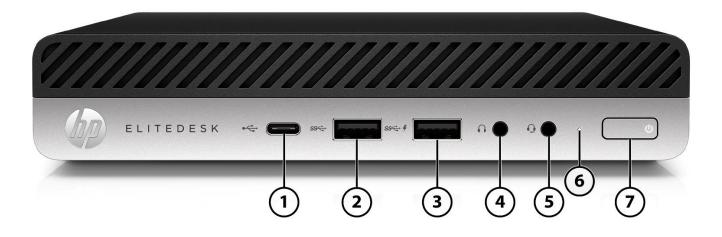
# Overview

# HP EliteDesk 705 G4 Desktop Mini Business PC



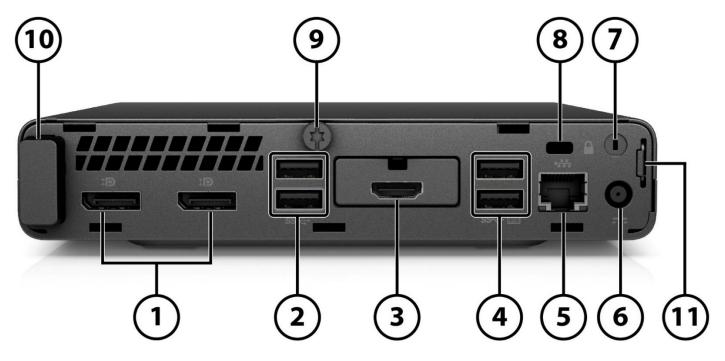
- 1. USB Type-C<sup>™</sup> (charge support up to 5V/3A)
- 2. USB 3.1 Gen 1 Type A
- 3. USB 3.1 Gen 1 Type A (charge support up to 5V/1.5A)
- 4. Headset Connector

- 5. Universal Audio Jack with CTIA headset support
- 6. Hard Drive activity light
- 7. Dual-state power button



Overview

HP EliteDesk 705 G4 Desktop Mini Business PC



- DisplayPort<sup>™</sup> 1.2 1.
- USB 3.1 Gen 1 Type A 2.
- 3. Configurable Option card slot (Choice of DisplayPort<sup>™</sup> 1.2, HDMI<sup>™</sup> 2.0, VGA, USB Type-C<sup>™</sup> with alt mode display, Discrete Graphics Option Card with DisplayPort<sup>™</sup> 1.4) (Availability depends on model)
- USB 3.1 Gen 1 Type A 4. allows for wake from S4/S5 with keyboard/mouse when connected and enabled in BIOS
- 5. **RJ-45 Network Adapter**
- 6. Power connector

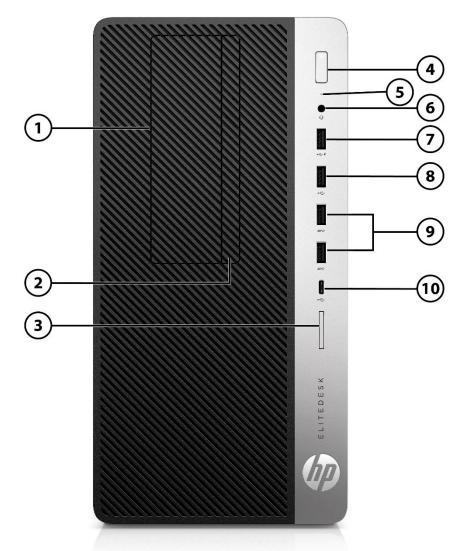
# Not Shown

- Slots (1) Internal M.2 2230 connector for WLAN (1) Internal M.2 SSD storage (2230 or 2280 connector)
- (1) 2.5- inch SATA drive Bay Bays Support for
- Mounting
- VESA 100 mounting system on bottom of PC chassis
- VESA Sleeve
- Quick Release Bracket
- B300/B500 Mounting bracket
- 100mm VESA Plate Integrated

- 7. WLAN External Antenna Punchout
- 8. Universal Cable Lock Slot
- 9. **Cover Release Thumbscrew**
- WLAN Internal Antenna 10.
- Padlock Loop 11.



#### HP EliteDesk 705 G4 Microtower



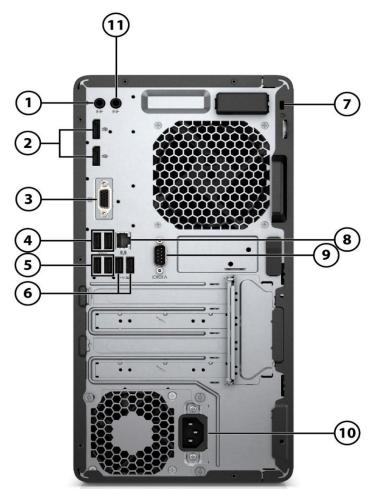
- 1. 5.25-inch Half-Height Drive Bay (behind bezel)
- 2. Slim optical drive (optional)
- 3. SD 4 Card Reader (optional)
- 4. Dual-state power button
- 5. Hard Drive activity light

- 6. Universal Audio Jack with CTIA headset support
- 7. USB 2.0 port (charge support up to 5V/1.5A)
- 8. USB 2.0 port
- 9. USB 3.1 Gen 1 ports (2)
- 10. USB Type-C<sup>™</sup> port (charge support up to 5V/3A)



# Overview





- 1. Audio-out jack for powered audio devices
- 2. Dual-Mode DisplayPort<sup>™</sup> 1.2 (2)
- Optional port (DisplayPort<sup>™</sup> 1.2, HDMI, VGA or USB Type-C<sup>™</sup>) (USB-C<sup>™</sup> option has alt mode DisplayPort<sup>™</sup> 1.2 or 15W output) shown here with VGA port installed
- 4. USB 3.1 Gen1 ports (2)
- 5. USB 2.0 ports (2)

- 6. USB 2.0 ports with wake from S4 (2)
- 7. Cable lock slot
- 8. RJ-45 Network Adapter
- 9. Optional serial port shown here installed
- 10. Power connector
- 11. Audio-in

#### Not shown

#### Bays

- (1) PCI Express x16 graphics connectors
- (3) PCI Express x1

Slots

- (1) internal M.2 SSD storage (2230 or 2280 connector)
- (1) internal M.2 WLAN (2230 connector)

- (2) 2.5" internal storage drive bay
- (1) 3.5" internal storage drive bay (convertible to 2.5")
- (1) 9.5mm slim optical drive bay
- (1) 5.25" external half-height drive bay



3

4



- 1. 9.5mm slim optical drive (optional)
- 2. SD 4 card reader (optional)
- 3. USB Type-C<sup>™</sup> (charge support up to 5V/3A)

ELITEDESK

- 4. USB 3.1 Gen 1 ports (2)
- 5. USB 2.0 port

6. USB 2.0 port (charge support up to 5V/1.5A)

6

7. Universal Audio Jack with CTIA headset support

8

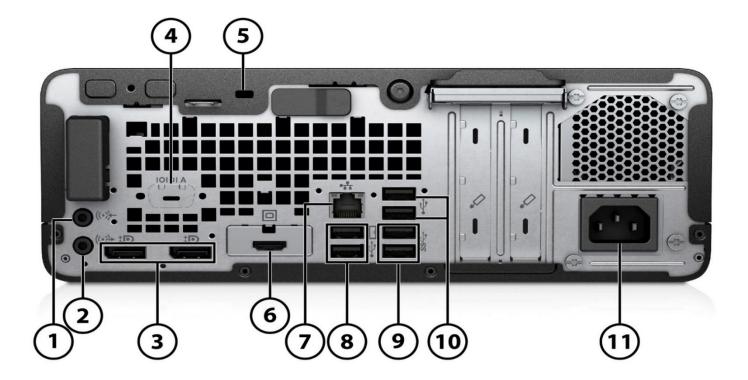
8. Hard Drive activity light

5

9. Dual-state power button



# HP EliteDesk 705 G4 Small Form Factor Business PC



- 1. Audio-in connector
- 2. Audio-out connector for powered audio devices
- 3. Dual-Mode DisplayPort<sup>™</sup> 1.2 (2)
- 4. Serial Port shown here not installed
- 5. Cable lock slot
- Optional port (DisplayPort<sup>™</sup> 1.2, HDMI, VGA or USB Type-C<sup>™</sup>) (USB-C<sup>™</sup> option has alt mode DisplayPort<sup>™</sup> 1.2 or 15W output) - shown here with HDMI port installed
- 7. RJ-45 Network Adapter
- 8. USB 2.0 ports with wake from S4 (2)
- 9. USB 3.1 Gen 1 (2
- 10. USB 2.0 (2)
- 11. Power connector

#### Slots

#### Not shown Bavs

- (1) PCI Express x16 graphics connectors
- (1) PCI Express x1
- (1) internal M.2 SSD storage (2230 or 2280 connector)
- (1) internal M.2 WLAN (2230 connector)

(1) 3.5" internal storage drive bay (convertible to two 2.5")
(1) 9.5mm slim optical drive bay



### Standard Features and Configurable Components (availability may vary by country)

### AT A GLANCE

- Choice of three form factors: Microtower, Small Form Factor and Desktop Mini
- Latest AMD<sup>®</sup> Ryzen<sup>™</sup> PRO and Athlon PRO Processor with Radeon<sup>™</sup> Vega Graphics<sup>1</sup>
- 7th generation of AMD<sup>®</sup> Pro A-Series APU
- DDR4 Synchronous Dynamic Random Access Memory (SDRAM) (Transfer rates up to 2933 MT/s)<sup>1</sup>
- Processor support up to 65W on DM; up to 95W on MT/SFF
- Integrated AMD<sup>®</sup> Radeon<sup>™</sup> Vega Graphics (AMD<sup>®</sup> Radeon<sup>™</sup> on 7th gen) and optional Radeon<sup>™</sup> RX discrete graphics
- Support for up to three monitors via two standard DisplayPort<sup>™</sup> 1.2 connectors with multi-stream<sup>2</sup> and an optional third video port connector which provides the following choices: HDMI, VGA, DisplayPort<sup>™</sup> 1.2, or USB Type-C<sup>™</sup> with DisplayPort<sup>™</sup> 1.2 for all platforms; USB Type-C<sup>™</sup> with DisplayPort<sup>™</sup> 1.2 for 705 G4 DM 35W (see Ports section for port availability by platform)
- Selection of discrete graphic cards to configure systems to up to 7 displays (MT, SFF and DM 35W)
- AMD<sup>®</sup> Radeon<sup>™</sup> discrete graphics enabling viewing immersive VR
- MT and SFF models can be configured with dual data drives in a RAID (limited configurations)
- Industry-standard AMD<sup>®</sup> DASH manageability
- HP Sure Click
- HP Sure Start Gen4
- HP Sure Run
- HP Sure Recover
- HP BIOSphere Gen4
- HP Client Security Manager Gen4
- High efficiency energy saving power supply options
- ENERGY STAR® certified. EPEAT® Gold registered where applicable/supported. Registration may vary by country. See
- http://www.epeat.net for registration status by country. Search keyword generator on HP's 3rd party option store for solar generator accessories at http://www.hp.com/go/options.
- CCC, CECP and SEPA Certified
- PC chassis and all internal components and modules are manufactured with low halogen content<sup>3</sup>
- Arsenic-free
- Dust filter available (MT, SFF and DM 35W)
- Lengthy purchase lifecycles and image stability
- 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
- Integrated Conexant Audio Codec
- Compliance with CE (Class B) / FCC (Class B) / UL (UL609501) / CSA (CSA C22.2 No.60950-1-07) / ICES-003 / CCC / VCCI (Class B) / KCC (Class B)

1. 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. AMD's numbering is not a measurement of clock speed.

2. DisplayPort™ multi-stream monitors 'daisy-chained' together.

3. 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.



#### **PRODUCT NAME**

HP EliteDesk 705 G4 Microtower Business PC HP EliteDesk 705 G4 Small Form Factor Business PC HP EliteDesk 705 G4 Desktop Mini Business PC

#### **OPERATING SYSTEM**

Preinstalled

Windows® 10 Pro 64<sup>1</sup> Windows® 10 Pro 64 (National Academic License)<sup>2</sup> Windows® 10 Home 64<sup>1</sup> Windows® 10 Home Single Language 64<sup>1</sup> FreeDos 2.0

1. Not all features are available in all editions or versions of Window. 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 <a href="http://www.windows.com/">http://www.windows.com/</a>.

2. Some devices for academic use will automatically be updated to Windows 10 Pro Education with the Windows 10 Anniversary Update. Features vary; see https://aka.ms/ProEducation for Windows 10 Pro Education feature information.

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

#### CHIPSET

	DM	<u>SFF</u>	<u>MT</u>
AMD® B350 FCH	X	X	X



### PROCESSORS

AMD® Ryzen™ with AMD®Radeon™ Vega Graphics APU and CPU*	DM	<u>SFF</u>	<u>MT</u>
AMD Ryzen™ 7 PRO 2700X CPU* (4.1 GHz Max Boost, 3.6 GHz base frequency, 20 MB, 95W, Eight-Core)		X	x
AMD Ryzen™ 7 PRO 2700 CPU* (4.1 GHz Max Boost, 3.2 GHz base frequency, 20 MB, 65W, Eight-Core)		X	X
AMD Ryzen™ 5 PRO 2600 CPU* (3.9 GHz Max Boost, 3.4 GHz base frequency, 19 MB, 65W, Six-Core)		X	x
AMD® Ryzen™ 5 PRO 2400G APU with AMD®Radeon™ Vega Graphics (3.9 GHz Max boost, 3.6 GHz base frequency, 6MB, 65W, Quad Core)	X	X	x
AMD® Ryzen™ 5 PRO 2400GE APU with AMD®Radeon™ Vega Graphics (3.8 GHz Max boost, 3.2 GHz base frequency, 6MB, 35W, Quad Core)	X		
AMD® Ryzen™ 3 PRO 2200G APU with AMD®Radeon™ Vega Graphics (3.7 GHz Max boost, 3.5 GHz base frequency, 6MB, 65W, Quad Core)	X	X	X
AMD® Ryzen™ 3 PRO 2200GE APU AMD®Radeon™ Vega Graphics (3.6 GHz Max boost, 3.2 GHz base frequency, 6MB, 35W, Quad Core)	X		
AMD® Athlon™ PRO 200GE APU with AMD®Radeon™ Vega Graphics (3.2 GHz Max boost, 3.2 GHz base frequency, 5MB, 35W, Dual Core)	Х		

7th Generation of AMD <sup>®</sup> Pro A-Series APU <sup>1</sup>	<u>DM</u>	<u>SFF</u>	<u>MT</u>
AMD® PRO A10-9700E APU with AMD® Radeon™ Graphics (3.5 GHz Max boost, 3.0 GHz base frequency, 2MB, 35W, Quad Core)	X		
AMD® PRO A10-9700 APU with AMD® Radeon™ Graphics (3.8 GHz Max boost, 3.5 GHz base frequency, 2MB, 65W, Quad Core)		X	x
AMD® PRO A8-9600 APU with AMD® Radeon™ Graphics (3.4 GHz Max boost, 3.1 GHz base frequency, 2MB, 65W, Quad Core)		X	x
AMD® PRO A6-9500 APU with AMD® Radeon™ Graphics (3.8 GHz Max boost, 3.5 GHz base frequency, 1MB, 65W, Dual core)		X	x
AMD® PRO A6-9500E APU with AMD® Radeon™ Graphics (3.4 GHz Max boost, 3.2 GHz base frequency, 1MB, 35W, Dual core)	X		

1. Multi-core is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. Performance and clock frequency will vary depending on application workload and your hardware and software configurations. AMD's numbering is not a measurement of clock speed.

\*. AMD® Ryzen PRO CPU requires discrete graphic card attached.

### GRAPHICS

System Integrated Graphics	<u>DM</u>	<u>SFF</u>	<u>MT</u>
AMD® Radeon™ R5 Graphics	X	X	X
AMD® Radeon™ R7 Graphics	X	X	X
AMD Radeon™ Vega 8 Graphics	X	X	X
AMD Radeon™ Vega 11 Graphics	X	X	X

ptional Discrete Graphics Solutions	DM	<u>SFF</u>	<u>MT</u>
AMD <sup>®</sup> Radeon™ RX550 4GB FH PCIe x16			X
AMD <sup>®</sup> Radeon™ RX560 4GB GDDR5	X		
AMD® Radeon™ RX580 4GB FH PCIe x16			X
AMD <sup>®</sup> Radeon™ RX580 8GB FH GDDR5			X
AMD® Radeon™ R7 430 2GB VGA+DP Graphics Card		X	X
AMD® Radeon™ R7 430 2GB GDDR5 64bit DP+VGA		X	
AMD® Radeon™ R7 430 2GB GDDR5 64bit 2DP		X	X
AMD® Radeon™ R7 430 2GB 2DP Graphics Card		X	X
NVIDIA GeForce GTX1060 3GB GFX			X
NVIDIA GeForce GT730 2GB DP DVI PCIe x8 GFX		X	X

### STORAGE

3.5 inch SATA Hard Disk Drives (HDD)	<u>DM</u>	<u>SFF</u>	<u>MT</u>
HDD 1TB 7200RPM SATA-3 3.5in		X	X
HDD 2TB 7200RPM SATA-3 3.5in		X	X
HDD 500GB 7200RPM 3.5in		X	X
HP 1TB 7200rpm 3.5 SATA 6.0Gb/s NCQ Smart IV Hard Drive (16MB)		X	X
HP 500GB 7200rpm 3.5 SATA 6.0Gb/s Smart IV Hard Drive		X	X

2.5 inch SATA Hard Disk Drives (HDD)	DM	<u>SFF</u>	<u>MT</u>
500 GB 5400RPM 2.5in SATA SSHD	X	X	X
1 TB 5400RPM 2.5in SATA SSHD	X	X	X
2 TB 5400RPM 2.5in SATA SSHD			X

2.5 inch Solid State Drives (SSD)	DM	<u>SFF</u>	<u>MT</u>
HDD 500GB 7200RPM 2.5in	X	X	X
HDD 1TB 7200RPM 2.5in	Х	X	X
HDD 2TB 5400RPM 2.5in		X	X
HDD 500GB 7200RPM 2.5in Self Encrypted Drive OPAL2	X	X	X
HDD 500GB 7200RPM 2.5in Federal Information Processing Standard	X	X	X

2.5 inch SATA Solid State Hybrid Drives (SSHD)	DM	<u>SFF</u>	<u>MT</u>
HDD 500GB 5400RPM 2.5in SSHD	Х	х	Х



HDD 1TB 5400RPM 2.5in SSHD	X	X	X
HDD 2TB 5400RPM 2.5in SSHD			

i inch Solid State Drives (SSD)	DM	<u>SFF</u>	<u>MT</u>
SSD 128GB 2.5in SATA Three Layer Cell	Х	X	Х
SSD 256GB 2.5in SATA Three Layer Cell	Х	X	Х
SSD 512GB 2.5in SATA Three Layer Cell	Х	X	Х
SSD 256GB 2.5in SATA Self Encrypted OPAL2 TLC	X	X	X
SSD 512GB 2.5in SATA Self Encrypted OPAL2 TLC	X	X	Х
SSD 256GB 2.5in Federal Information Processing Standard	X	X	X
SSD 512GB 2.5in Federal Information Processing Standard	X	X	X

PCIe NMVe Solid State Drives (SSD)	<u>DM</u>	<u>SFF</u>	<u>MT</u>
SSD 128GB M.2 2280 PCIe NVMe		X	Х
SSD 256GB M.2 2280 PCIe NVMe	X	X	Х
SSD 512GB M.2 2280 PCIe NVMe	X	X	Х
SSD 128GB M.2 2280 PCIe-3x2 NVMe Three Layer Cell		X	Х
SSD 256GB M.2 2280 PCIe NVMe Three Layer Cell	X	X	Х
SSD 512GB M.2 2280 PCIe NVMe Three Layer Cell	X	X	Х
SSD 1TB M.2 2280 PCIe NVMe Three Layer Cell	X	X	Х
SSD 256GB M.2 2280 PCIe NVMe Self Encrypted OPAL2 Three Layer Cell	X	X	Х
SSD 512GB M.2 2280 PCIe NVMe Self Encrypted OPAL2 Three Layer Cell		X	Х
HP 9.5mm Slim DVD-ROM Drive		X	Х
HP 9.5mm Slim SuperMulti DVD Writer Drive		X	Х
HP 9.5mm Slim Blu-Ray Writer Drive		X	Х

Media Card Reader	<u>DM</u>	<u>SFF</u>	<u>MT</u>
SD 4.0 with 5-in-1 Interface (Supports SD, SDXC, SDHC, UHS-I, UHS-II)		Х	X

**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.

#### MEMORY

Max Memory Configuration	<u>DM</u>	<u>SFF</u>	<u>MT</u>
DDR4-2666 (Transfer rates up to 2666 MT/s), 32 GB, 2 SODIMM <sup>1</sup>	X		
DDR4-2666 (Transfer rates up to 2666 MT/s), 64 GB, 4 DIMM		X	X

Memory Configuration	DM	<u>SFF</u>	<u>MT</u>
4GB (1x4GB) 2666 DDR4 1.2v DIMM		X	X
8GB (2x4GB) 2666 DDR4 1.2v DIMM		X	X
8GB (1x8GB) 2666 DDR4 1.2v DIMM		X	X
16GB (2x8GB) 2666 DDR4 1.2v DIMM		X	X



16GB (1x16GB) 2666 DDR4 1.2v DIMM		X	X
32GB (2x16GB) 2666 DDR4 1.2v DIMM		X	X
32GB (4x8GB) 2666 DDR4 1.2v DIMM		X	X
64GB (4x16GB) 2666 DDR4 1.2v DIMM		X	X
	<u>DM</u>	<u>SFF</u>	<u>MT</u>
4 GB (1 x 4 GB) 2666 DDR4 SODIMM <sup>1</sup>	X		
8 GB (2 x 4 GB) 2666 DDR4 SODIMM <sup>1</sup>	X		
8 GB (1 x 8 GB) 2666 DDR4 SODIMM <sup>1</sup>	X		
16 GB (2 x 8 GB) 2666 DDR4 SODIMM <sup>1</sup>	X		
16 GB (1 x 16 GB) 2666 DDR4 SODIMM <sup>1</sup>	X		
32 GB (2 x 16 GB) 2666 DDR4 SODIMM <sup>1</sup>	X		

1. Transfer rates up to 2133 MT/s: for processors with AMD Pro A-Series APU; Transfer rates up to 2666MT/s: for processors with AMD Ryzen<sup>™</sup> with AMD Radeon<sup>™</sup>.

### **NETWORKING/COMMUNICATIONS**

Ethernet (RJ-45)	DM	<u>SFF</u>	<u>MT</u>
Realtek® RTL8111EPH (standard)	X	Х	X

Wireless <sup>1</sup>	<u>DM</u>	<u>SFF</u>	<u>MT</u>
Intel® 3168 802.11 AC 1x1 with Bluetooth® 4.0 (Brazil)	X	Х	
Intel® 7265 802.11AC 2x2 with Bluetooth® M.2 Combo Card non-vPro™ (Brazil)	X	Х	
Intel® 9260 802.11 AC 2x2 +Bluetooth® 5 PCIe non-vPro™	X	Х	X
Realtek <sup>®</sup> 802.11 AC 1x1 with Bluetooth <sup>®</sup> 4.2 LE M.2 PCIe	X	Х	X
Realtek <sup>®</sup> 802.11 AC 2x2 with Bluetooth <sup>®</sup> 4.2 LE M.2 PCIe		Х	X

1. Wireless access point and Internet service required and not included. 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

# **KEYBOARDS AND POINTING DEVICES**

boards	DM	<u>SFF</u>	<u>MT</u>
HP Conferencing USB Keyboard	Х	X	X
HP Wireless Collaboration Keyboard	X	X	X
HP USB and PS/2 Washable Keyboard	X	X	X
HP USB Smart Card (CCID) Keyboard	X	X	X
HP USB Business Slim Keyboard	X	X	X
HP USB Keyboard	X	X	X
HP PS/2 Business Slim Keyboard		X	X
HP Wireless Business Slim Keyboard and Mouse	X	X	X

# Standard Features and Configurable Components (availability may vary by country)

DM	<u>SFF</u>	<u>MT</u>
	X	X
X	X	X
X	X	X
X	X	X
X	X	X
X	X	X
X	X	X
	<u>DM</u>	DM         SFF           X         X           X         X           X         X           X         X           X         X           X         X           X         X           X         X           X         X           X         X           X         X           X         X           X         X           X         X           X         X

1. Not available in all regions



# SECURITY

	<u>DM</u>	<u>SFF</u>	<u>MT</u>
Trusted Platform Module (TPM) 2.0 (Infineon SLB9670). Common Criteria EAL4+ Certified. FIPS 140-2 Level 2 Certified	X	X	X

### PORTS

I/O Ports – Standard	DM	<u>SFF</u>	<u>MT</u>
USB 2.0	N/A	2 including 1 fast charging (front); 4 including 2 wake from S4 (rear)	2 including 1 fast charging (front); 4 including 2 wake from S4 (rear)
USB 3.1 Gen 1	2 front; 4 rear	2 front; 2 rear	2 front; 2 rear
USB 3.0 Type-C™ (15W)	1 front; 1 rear (option)	1 front; 1 rear (option)	1 front; 1 rear (option)
Video	2 DisplayPort <sup>™</sup> 1.2 (rear), 1 Configurable video port (rear) (Choice of DisplayPort <sup>™</sup> 1.4, HDMI <sup>™</sup> 2.0, VGA, or USB Type- C <sup>™</sup> with alt mode display) For models with discrete graphics: 1 DisplayPort <sup>™</sup> 1.4 (rear)	2 DisplayPort™ 1.2 (rear), 1 Configurable video port (rear) (Choice of DisplayPort™ 1.2, HDMI™ 2.0, VGA, or USB Type-C™ with alt mode display port or 15W output)	2 DisplayPort™ 1.2 (rear), 1 Configurable video port (rear) (Choice of DisplayPort™ 1.2, HDMI™ 2.0, VGA, USB Type-C™ with alt mode display port or 15W output)
Audio	1 Headset (front), 1 Universal Audio Jack with CTIA headset support (front)	1 Headset (front); 1 Audio-out (rear), 1 Audio-in (rear)	1 Headset (front); 1 Audio-out (rear), 1 Audio-in (rear)
Network Interface	RJ45	RJ45	RJ45

I/O Ports – Optional	DM	<u>SFF</u>	<u>MT</u>
Serial (RS-232)	1 (rear)(option)	1 (rear) (option)	1 (rear) (option)
Serial (RS-232) and PS/2 combination	N/A	1 (rear) (option)	1 (rear) (option)

I/O Ports – Internal Ports	DM	<u>SFF</u>	<u>MT</u>
Internal SATA storage connector(s)	N/A	3	4
Internal SATA storage connector(s)	N/A	3	4
Internal SATA storage connector (Data and Power)	1	N/A	N/A

**NOTE**: For Desktop Mini with M.2 Storage config, there will be no SATA drive bracket. If you plan to use or upgrade the storage with any 2.5" SATA drive, please select a DM SATA Drive Bracket (available as both factory configured and after market option).

Slots	DM	<u>SFF</u>	<u>MT</u>
M.2 PCIe	(1) M.2 PCle x1 2230 (for WLAN) (1) M.2 PCle x2 2280/2230 Combo (for storage)	(1) M.2 PCIe x1 2230 (for WLAN) (1) M.2 PCIe x2 2280/2230 Combo (for storage)	(1) M.2 PCIe x1 2230 (for WLAN) (1) M.2 PCIe x2 2280/2230 Combo (for storage)
PCI Express x1 (v3.0)	N/A	1	3
PCI Express x16 (v3.0)	N/A	1	1
Bays	DM	SFF	MT
5.25" Half Height ODD	N/A	N/A	1
9.5mm Slim ODD	N/A	1	1
Secure Digital (SD) Reader	N/A	1	1
2.5" internal storage drive	1 (optional)	2 <sup>3</sup>	2
3.5" internal storage drive	N/A	1	1

**NOTE**: SFF can be configured with either (1) 3.5" or (2) 2.5" internal storage drive (2.5 inch drive needs adapter) **NOTE**: The MT can support a single graphics card up to 75W. When configured with dual graphics cards support is limited to 35W for each.



# SOFTWARE COMPONENTS AND APPLICATIONS WITH WINDOWS

#### BIOS

HP BIOSphere Gen4<sup>17</sup> HP DriveLock & Automatic DriveLock BIOS Update via Network Master Boot Record Security Power On Authentication HP Secure Erase<sup>18</sup> Absolute Persistence Module<sup>19</sup> Pre-boot Authentication HP Wireless Wakeup

#### Software

HP Native Miracast Support<sup>15</sup> HP LAN-Wireless Protection HP Velocity

HP Hotkey Support – CMIT HP Recovery Manager HP JumpStart HP Support Assistant<sup>21</sup> HP Noise Cancellation Software Buy Office

#### **Manageability Features**

HP Driver Packs<sup>22</sup> HP System Software Manager (SSM) HP BIOS Config Utility (BCU) HP Client Catalog HP Manageability Integration Kit Gen2<sup>23</sup> Ivanti Management Suite<sup>24</sup>

#### **Client Security Software**

HP Client Security Suite Gen4<sup>25</sup> including: HP Security Manager<sup>26</sup> (including Credential Manager, HP Password Manager, HP Spare Key) HP Device Access Manager HP Power On Authentication Microsoft Defender<sup>27</sup>

#### **Security Management**

HP Secure Erase<sup>18</sup> TPM 2.0 Embedded Security Chip shipped with Windows 10 (Common Criteria EAL4+ Certified) (FIPS 140-2 Level 2 Certified)<sup>32</sup> SATA 0,1 port disablement (viaBIOS) RAID configurations<sup>33</sup> Serial, USB enable/disable (viaBIOS) Power-on password (viaBIOS) Setup password (viaBIOS) Support for chassis padlocks and cable lock devices Integrated hood sensor HP Sure Start Gen4<sup>30</sup> HP Sure Run<sup>35</sup> HP Sure Recover<sup>36</sup>



# Standard Features and Configurable Components (availability may vary by country)

15. Miracast is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming

17. HP BIOSphere Gen4 requires Intel<sup>®</sup> or AMD<sup>®</sup> 8th Gen processors. Features may vary depending on the platform and configurations.

18. For the methods outlined in the National Institute of Standards and Technology Special Publication 800-88 "Clear" sanitation method. 19. 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.

21. HP Support Assistant requires Windows and Internet access.

22. HP Driver Packs not preinstalled, however available for download at http://www.hp.com/go/clientmanagement.

23. HP Manageability Integration Kit can be downloaded from http://www8.hp.com/us/en/ads/clientmanagement/overview.html 24. Ivanti Management Suite subscription required.

25. HP Client Security Suite Gen 4 requires Windows and Intel® or AMD® 8th generation processors.

26. HP Password Manager requires Internet Explorer or Chrome or FireFox. Some websites and applications may not be supported. User may need to enable or allow the add-on / extension in the internet browser.

27. Windows Defender Opt in Windows 10 and internet connection required for updates.

30. HP Sure Start Gen4 is available on HP EliteDesk products equipped with Intel® 8th generation or AMD processors

32. Firmware TPM is version 2.0. Hardware TPM is v1.2, which is a subset of the TPM 2.0 specification version v0.89 as implemented by Intel Platform Trust Technology (PTT).

33. RAID configuration is optional and does require a second hard drive. RAID 1 is pre-installed and functionality will require a second hard drive.

35. HP Sure Run is available on HP Elite products equipped with 8th generation Intel® or AMD® processors.

36. HP Sure Recover is available on HP Elite PCs with 8th generation Intel<sup>®</sup> or AMD<sup>®</sup> processors and requires an open, wired network connection. Not available on platforms with multiple internal storage drives, Intel<sup>®</sup> Optane<sup>™</sup>. You must back up important files, data, photos, videos, etc. before use to avoid loss of data.



### **ENVIRONMENTAL & INDUSTRY**

#### Environmental Data HP EliteDesk 700 Desktop Mini G4 series

	EliteDesk 700 Desktop Mini G4 se		a fallowing approvals and may be		
Eco-Label Certifications	This product has received or is in the process of being certified to the following approvals and may be				
& declarations	labeled with one or more of these marks: • IT ECO declaration				
	• US ENERGY STAR®				
	• EPEAT <sup>®</sup> Gold registered in the Unit	tod Statos, Soo http://www.opos	t not for registration status in		
	your country. Search keyword gene				
	accessories at http://www.hp.com/		ore for solar generator		
System Configuration			oise Emissions data for the		
System comiguration		The configuration used for the Energy Consumption and Declared Noise Emissions data for the Desktop model is based on a "Typically Configured Desktop".			
Energy Consumption		, , ,			
(in accordance with US					
ENERGY STAR® test					
method)	115VAC, 60Hz	230VAC, 50Hz	100VAC, 50Hz		
Normal Operation (Short idle)	10.789	10.858	10.739		
Normal Operation (Long	10.488	10.538	10.458		
idle)					
Sleep	0.815	0.851	0.81		
Off	0.756	0.809	0.74		
	NOTE: Energy efficiency data listed				
	model family. HP computers marke				
	U.S. Environmental Protection Agen				
	family does not offer ENERGY STAR <sup>®</sup> compliant configurations, then energy efficiency data listed is				
	for a typically configured PC featuri		ency power supply, and a		
	Microsoft Windows <sup>®</sup> operating system	em.			
Heat Dissipation*	115VAC, 60Hz	230VAC, 50Hz	100VAC, 50Hz		
Normal Operation (Short idle)	36.7905 37.0258		36.62		
Normal Operation (Long idle)	35.7641	35.9346	35.6618		
Sleep	2.7792	2.9019	2.7621		
Off	2.578	2.7587	2.5234		
		based on the measured watts,	assuming the service level is		
Declared Noice	attained for one hour.	l based on the measured watts, ·			
	attained for one hour. Sound Power	I based on the measured watts,	Sound Pressure		
Emissions	attained for one hour.	l based on the measured watts,			
Emissions (in accordance with	attained for one hour. Sound Power	I based on the measured watts,	Sound Pressure		
Emissions (in accordance with ISO 7779 and ISO 9296) Typically Configured –	attained for one hour. Sound Power	I based on the measured watts,	Sound Pressure		
<b>Emissions (in accordance with ISO 7779 and ISO 9296)</b> Typically Configured – Idle	attained for one hour. Sound Power (LwAd, bels) 3.1	d based on the measured watts,	Sound Pressure (L <sub>pAm</sub> , decibels) 20		
Emissions (in accordance with ISO 7779 and ISO 9296) Typically Configured – Idle Fixed Disk – Random	attained for one hour. Sound Power (L <sub>WAd</sub> , bels)	d based on the measured watts,	Sound Pressure (L <sub>pAm</sub> , decibels)		
Emissions (in accordance with ISO 7779 and ISO 9296) Typically Configured – Idle Fixed Disk – Random writes	attained for one hour. Sound Power (LwAd, bels) 3.1	ibly extending its useful life by s	Sound Pressure (L <sub>pAm</sub> , decibels) 20 33		
Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296) Typically Configured – Idle Fixed Disk – Random writes Longevity and Upgrading	attained for one hour.         Sound Power (LwAd, bels)         3.1         4.4         This product can be upgraded, poss features and/or components contai         Spare parts are available throughou production.	ibly extending its useful life by s ined in the product may include: ut the warranty period and or for	Sound Pressure (L <sub>pAm</sub> , decibels) 20 33 everal years. Upgradeable up to "5" years after the end of		
Emissions (in accordance with ISO 7779 and ISO 9296) Typically Configured – Idle Fixed Disk – Random writes	attained for one hour.         Sound Power (LwAd, bels)         3.1         4.4         This product can be upgraded, poss features and/or components contai         Spare parts are available throughout	ibly extending its useful life by s ined in the product may include: ut the warranty period and or for	Sound Pressure (L <sub>pAm</sub> , decibels) 20 33 everal years. Upgradeable up to "5" years after the end of		
Emissions (in accordance with ISO 7779 and ISO 9296) Typically Configured – Idle Fixed Disk – Random writes Longevity and Upgrading	attained for one hour.         Sound Power (LwAd, bels)         3.1         4.4         This product can be upgraded, poss features and/or components contai         Spare parts are available throughou production.	ibly extending its useful life by s ned in the product may include: ut the warranty period and or for	Sound Pressure (L <sub>pAm</sub> , decibels) 20 33 everal years. Upgradeable up to "5" years after the end of		
Emissions (in accordance with ISO 7779 and ISO 9296) Typically Configured – Idle Fixed Disk – Random writes Longevity and Upgrading	attained for one hour.         Sound Power (LwAd, bels)         3.1         4.4         This product can be upgraded, poss features and/or components contai         Spare parts are available throughou production.         This battery(s) in this product comp	ibly extending its useful life by s ned in the product may include: ut the warranty period and or for ly with EU Directive 2006/66/EC t contain:	Sound Pressure (L <sub>pAm</sub> , decibels) 20 33 everal years. Upgradeable up to "5" years after the end of		



		CR2032 (coin cell) Lithium				
Additional Information	Battery type: Lithium     • This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC.					
	• This HP pro	duct is designed to comply with the Waste Electrical a	nd Electronic Equipment (WEEE)			
	Directive – 20		a of California, Cafe Drinking Water			
		t is in compliance with California Proposition 65 (State forcement Act of 1986).	e of California; Safe Drinking Water			
		t is in compliance with the IEEE 1680 (EPEAT) standar	d at the <gold> level in the U.S.</gold>			
	See http://www.epeat.net for registration status by country. Search keyword generator on HP's party option store for solar generator accessories at http://www.hp.com/go/options					
		ts weighing over 25 grams used in the product are ma				
		t contains 0% post-consumer recycled plastic (by wt.)				
<u> </u>		t is 95.1% recycle-able when properly disposed of at a	end of life.			
Packaging Materials	External:	PAPER/Corrugated				
	Internal:	PLASTIC/EPE (Expanded Polyethylene)				
		PLASTIC/Polyethylene low density				
Material Usage		does not contain any of the following substances in e	xcess of regulatory limits (refer to			
		al Specification for the Environment at				
		np.com/hpinfo/globalcitizenship/environment/pdf/gs	e.pdf):			
	Asbestos     Colorante					
	<ul> <li>Certain Azo Colorants</li> <li>Certain Brominated Flame Retardants – may not be used as flame retardants in plastics</li> </ul>					
	• Calmium					
	Chlorinated Hydrocarbons					
	Chlorinated Paraffins					
	• Formaldehyde					
	Halogenated Diphenyl Methanes					
	Lead carbonates and sulfates					
	Lead and Le	ad compounds				
	<ul> <li>Mercuric Ox</li> </ul>					
		shes must not be used on the external surface design	ed to be frequently handled or			
	carried by the user.					
	Ozone Depleting Substances     A Delubraminated Binkamula (DBBc)					
	<ul> <li>Polybrominated Biphenyls (PBBs)</li> <li>Polybrominated Biphenyl Ethers (PBBEs)</li> </ul>					
	Polybrominated Biphenyl Ethers (PBBES)     Polybrominated Biphenyl Oxides (PBBOs)					
	Polychlorinated Biphenyl (PCB)					
	Polychlorinated Terphenyls (PCT)					
	<ul> <li>Polyvinyl Chloride (PVC) – except for wires and cables, and certain retail packaging has been</li> </ul>					
		moved from most applications.				
	<ul> <li>Radioactive</li> </ul>					
		(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.					
	<ul> <li>Eliminate the use of ozone-depleting substances (ODS) in packaging materials.</li> </ul>					
		aging materials for ease of disassembly.				
		ie use of post-consumer recycled content materials ir	n packaging materials			
		recyclable packaging materials such as paper and cor				
	-		-			
	<ul> <li>Reduce size and weight of packages to improve transportation fuel efficiency.</li> <li>Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.</li> </ul>					



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 0EM customers who integrate and re-sell HP equipment. 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 certificates: http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC_GBU_Product_Design_ISO_14K_
	Certificate.pdf and http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf

#### Environmental Data HP EliteDesk 700 Slim Form Factor G4 series

Eco-Label Certifications & declarations System Configuration	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®         • EPEAT® Gold registered in the United States. See <a href="http://www.epeat.net">http://www.epeat.net</a> for registration status in your country. Search keyword generator on HP's 3rd party option store for solar generator accessories at <a href="http://www.hp.com/go/options">http://www.hp.com/go/options</a> .         The configuration used for the Energy Consumption and Declared Noise Emissions data for the Desktop model is based on a "Typically Configured Desktop".			
Energy Consumption (in accordance with US ENERGY STAR® test method)	115VAC, 60Hz	230VAC, 50Hz	100VAC, 50Hz	
Normal Operation (Short idle)	22.49	22.24	22.35	
Normal Operation (Long idle)	21.1	21.25	20.87	
Sleep	1.05	1.06	1.05	
Off	1.08	1.09	1.08	
	<b>NOTE:</b> Energy efficiency data listed is for an ENERGY STAR <sup>®</sup> compliant product if offered within the model family. HP computers marked with the ENERGY STAR <sup>®</sup> Logo are compliant with the applicable U.S. Environmental Protection Agency (EPA) ENERGY STAR <sup>®</sup> specifications for computers. If a model family does not offer ENERGY STAR <sup>®</sup> compliant configurations, then energy efficiency data listed is for a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows <sup>®</sup> operating system.			
Heat Dissipation*	115VAC, 60Hz	230VAC, 50Hz	100VAC, 50Hz	
Normal Operation (Short idle)	76.6909	75.8384	76.2135	
Normal Operation (Long idle)	71.951	72.4625	71.1667	
Sleep	3.5805	3.6146	3.5805	
Off	3.6828	3.7169	3.6828	
	<b>NOTE:</b> Heat dissipation is calculate attained for one hour.	ed based on the measured watts, a	ssuming the service level is	



Declared Noise Emissions (in accordance with		Sound Power (L <sub>WAd</sub> , bels)		Sound Pressure (L <sub>pAm</sub> , decibels)	
ISO 7779 and ISO 9296)					
Typically Configured – Idle		3.9		28	
Fixed Disk – Random writes	4.4 33				
Active Mode *Pinnacle Ridge with GT730 graphic card		3.7		28	
Longevity and Upgrading		can be upgraded, possibly exten /or components contained in the		eral years. Upgradeable	
	production.	are available throughout the war		o to "5" years after the end of	
Batteries	This battery	(s) in this product comply with EU	Directive 2006/66/EC		
	Batteries used in the product do not contain: Mercury greater the1ppm by weight Cadmium greater than 20ppm by weight Battery size: CR2032 (coin cell)				
	Battery type: Lithium				
Additional Information	<ul> <li>This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC.</li> <li>This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive - 2002/96/EC.</li> <li>This product is in compliance with California Proposition 65 (State of California; Safe Drinking Wate and Toxic Enforcement Act of 1986).</li> <li>This product is in compliance with the IEEE 1680 (EPEAT) standard at the <gold> level in the U.S. See http://www.epeat.net for registration status by country. Search keyword generator on HP's 3rd party option store for solar generator accessories at http://www.hp.com/go/options</gold></li> <li>Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043.</li> <li>This product contains 0% post-consumer recycled plastic (by wt.)</li> <li>This product is 95.1% recycle-able when properly disposed of at end of life.</li> </ul>			Electronic Equipment (WEEE) California; Safe Drinking Water the <gold> level in the U.S. eyword generator on HP's 3rd om/go/options d per ISO11469 and ISO1043.</gold>	
Packaging Materials	External:	PAPER/Corrugated			
	Internal:	PLASTIC/EPE (Expanded Polye	thylene)		
		PLASTIC/Polyethylene low der			
Material Usage	the HP Gener http://www.l • Asbestos • Certain Azo • Certain Bro • Cadmium • Chlorinated • Chlorinated • Formaldeh • Halogenate • Lead carbo • Lead and Lo	minated Flame Retardants – may I Hydrocarbons I Paraffins yde ed Diphenyl Methanes nates and sulfates ead compounds kide Batteries	nent at /environment/pdf/gse.po y not be used as flame ref	If): tardants in plastics	
	<ul> <li>Nickel – finishes must not be used on the external surface designed to be frequently handled or carried by the user.</li> </ul>				



	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.				
	<ul> <li>Reduce size and weight of packages to improve transportation fuel efficiency.</li> <li>Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.</li> </ul>				
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. 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 certificates:				
	http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC_GBU_Product_Design_ISO_14K_				
	Certificate.pdf				
	and				
	http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf				

#### Environmental Data HP EliteDesk 700 MicroTower G4 series

	EliteDesk 700 MicroTower G4 se				
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®				
	• EPEAT <sup>®</sup> Gold registered in the Ur	nited States. See htt	n://www.eneat.n	et for registration status in	
	your country. Search keyword generator on HP's 3rd party option store for solar generator accessories at <a href="http://www.hp.com/go/options">http://www.hp.com/go/options</a> .				
System Configuration	The configuration used for the En		nd Declared Nois	e Emissions data for the	
2	Desktop model is based on a "Typically Configured Desktop".				
Energy Consumption			-		
(in accordance with US					
ENERGY STAR <sup>®</sup> test					
method)	115VAC, 60Hz	230VAC,	50Hz	100VAC, 50Hz	
Normal Operation (Short idle)	22.22	22.68	32	23.569	
Normal Operation (Long idle)	21.409	21.43	32	21.753	
Sleep	1.3327	1.257	79	1.2692	
Off	0.9518 NOTE: Energy efficiency data liste	0.882		0.9171	
	model family. HP computers mark U.S. Environmental Protection Age family does not offer ENERGY STA for a typically configured PC featu Microsoft Windows® operating sys	ency (EPA) ENERGY S R® compliant confi <u>c</u> Iring a hard disk driv	STAR® specifications, then er	ons for computers. If a model nergy efficiency data listed is	
Heat Dissipation*	115VAC, 60Hz	230VAC,	5047	100VAC, 50Hz	
Normal Operation (Short					
idle) Normal Operation (Long	75.7702	77.34	56	80.3703	
idle)	73.0047	73.08	-	74.1777	
Sleep	4.5445	4.289		4.328	
Off	3.2456	3.009		3.1273	
	<b>NOTE:</b> Heat dissipation is calculat attained for one hour.	ed based on the me		-	
Declared Noise	Sound Power			Sound Pressure	
Emissions	(L <sub>WAd</sub> , bels)			(L <sub>pAm</sub> , decibels)	
(in accordance with					
ISO 7779 and ISO 9296)					
Typically Configured – Idle	3.9			28	
Fixed Disk – Random writes	4.4			33	
Longevity and Upgrading	This product can be upgraded, pos features and/or components cont			eral years. Upgradeable	
	Spare parts are available through production.			to "5" years after the end of	
Batteries	This battery(s) in this product com	nply with EU Directiv	e 2006/66/EC		
	Batteries used in the product do n	ot contain:			
	Mercury greater the1ppm by weig				
	Cadmium greater than 20ppm by				
	Battery size: CR2032 (coin cell)				



	Battery type: Lithium		
Additional Information	<ul> <li>This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC.</li> <li>This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive - 2002/96/EC.</li> <li>This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986).</li> <li>This product is in compliance with the IEEE 1680 (EPEAT) standard at the <gold> level in the U.S. See http://www.epeat.net for registration status by country. Search keyword generator on HP's 3rd party option store for solar generator accessories at http://www.hp.com/go/options</gold></li> <li>Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043.</li> <li>This product is 95.1% recycle-able when properly disposed of at end of life.</li> </ul>		
Packaging Materials	External:	PAPER/Corrugated	
	Internal:	PLASTIC/EPE (Expanded Polyethylene)	
		PLASTIC/Polyethylene low density	
Material Usage	the HP Gener http://www.l Asbestos Certain Azo Certain Bro Cadmium Chlorinated Formaldehy Halogenate Lead carbon Lead and Le Mercuric Ox Nickel – fini carried by the Ozone Depl Polybromin Polybromin Polybromin Polychlorin Polychlorin Radioactive	minated Flame Retardants – may not be used as flame ret Hydrocarbons Paraffins yde d Diphenyl Methanes nates and sulfates ead compounds tide Batteries shes must not be used on the external surface designed to e user. eting Substances hated Biphenyls (PBBs) hated Biphenyl Ethers (PBBEs) hated Biphenyl Oxides (PBBOs) ated Biphenyl (PCB) ated Terphenyls (PCT) nloride (PVC) – except for wires and cables, and certain retar	f): ardants in plastics o be frequently handled or



	1
Packaging Usage	HP follows these guidelines to decrease the environmental impact of product packaging:
	<ul> <li>Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials.</li> </ul>
	• Eliminate the use of ozone-depleting substances (ODS) in packaging materials.
	<ul> <li>Design packaging materials for ease of disassembly.</li> </ul>
	<ul> <li>Maximize the use of post-consumer recycled content materials in packaging materials.</li> </ul>
	• 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 0EM customers who integrate and re-sell HP equipment. 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 certificates: http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC_GBU_Product_Design_ISO_14K_
	Certificate.pdf
	and
	http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf

#### HP EliteDesk 705 G4 Microtower Business PC

Eco-Label Certifications	This product has received or is in t	he process of being certified to the	following approvals and may be		
& declarations	labeled with one or more of these	labeled with one or more of these marks:			
	IT ECO declaration				
	US ENERGY STAR®				
	• EPEAT <sup>®</sup> Gold registered in the Ur	nited States. See http://www.epeat	.net for registration status in		
	your country. Search keyword gen	your country. Search keyword generator on HP's 3rd party option store for solar generator			
	accessories at http://www.hp.com	n/go/options.			
System Configuration	The configuration used for the Ene	ergy Consumption and Declared No	ise Emissions data for the		
	Notebook model is based on a Typically Configured Notebook.				
Energy Consumption					
(in accordance with US					
ENERGY STAR <sup>®</sup> test					
method)	115VAC, 60Hz	230VAC, 50Hz	100VAC, 60Hz		
Normal Operation	22.22 W	22.68 W	23.57 W		
(Short idle)					
Normal Operation	21.41 W	21.43 W	21.75 W		
(Long idle)					
Sleep	1.33 W	1.26 W	1.27 W		
Off	0.95 W	0.88 W	0.92 W		



	<b>NOTE:</b> Energy efficiency data listed is for an ENERGY STAR <sup>®</sup> compliant product if offered within the model family. HP computers marked with the ENERGY STAR <sup>®</sup> Logo are compliant with the applicable U.S. Environmental Protection Agency (EPA) ENERGY STAR <sup>®</sup> specifications for computers. If a mode family does not offer ENERGY STAR <sup>®</sup> compliant configurations, then energy efficiency data listed is for a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows <sup>®</sup> operating system.			
Heat Dissipation*	115VAC, 60Hz	230VAC, 50Hz	100VAC, 60Hz	
Normal Operation (Short idle)	76 BTU/hr	78 BTU/hr	81 BTU/hr	
Normal Operation (Long idle)	73 BTU/hr	73 BTU/hr	74 BTU/hr	
Sleep	5 BTU/hr	4 BTU/hr	4 BTU/hr	
Off	3 BTU/hr NOTE: Heat dissipation is calculate attained for one hour.	3 BTU/hr ed based on the measured wa		
Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)	Sound Power (L <sub>WAd</sub> , bels)		Sound Pressure (L <sub>pAm</sub> , decibels)	
Typically Configured – Idle	3.3		25	
Fixed Disk – Random writes	3.3 25			
Batteries	features and/or components contained in the product may include: • 3 USB ports • 1 PC card slot (type I/II) • 1 ExpressCard/54 slot • 1 IEEE 1394 Port • 2 SODIMM memory slots • Optional expansion base docking station • 1 multi-bay II storage port • Interchangeable HDD 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 the1ppm by weight Cadmium greater than 20ppm by weight Battery size: CR2032 (coin cell) Battery type: Lithium			
Additional Information	Directive – 2002/96/EC. • This product is in compliance wit and Toxic Enforcement Act of 198 • This product is in compliance wit See http://www.epeat.net for reginners party option store for solar generation	omply with the Waste Electrica th California Proposition 65 (Si 6). th the IEEE 1680 (EPEAT) stand istration status by country. Se ator accessories at http://www grams used in the product are	al and Electronic Equipment (WEEE) tate of California; Safe Drinking Water dard at the <gold> level in the U.S. earch keyword generator on HP's 3rd w.hp.com/go/options marked per ISO11469 and ISO1043.</gold>	



	• This produ	ct is 95.1% recycle-able when properly disposed of	f at end of life.
Packaging Materials	External:	PAPER/Corrugated	1272 g
	Internal:	PLASTIC/Polyethylene Expanded - EPE	280 g
		PLASTIC/Polyethylene low density – LDPE	28 g
Material Usage	the HP Gene http://www. • Asbestos • Certain Azo • Certain Bro • Cadmium • Chlorinate • Chlorinate • Chlorinate • Formaldeh • Halogenat • Lead carbo • Lead and L • Mercuric O • Nickel – fir carried by th • Ozone Dep • Polybromi • Polybromi • Polybromi • Polybromi • Polybromi • Polybromi • Polybromi • Polybromi • Polychlorir • Polychlorir • Polychlorir • Polyvinyl O voluntarily r	<ul> <li>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):</li> <li>Asbestos</li> <li>Certain Azo Colorants</li> <li>Certain Brominated Flame Retardants – may not be used as flame retardants in plastics</li> </ul>	
Packaging Usage	<ul> <li>HP follows these guidelines to decrease the environmental impact of product packaging:</li> <li>Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials.</li> <li>Eliminate the use of ozone-depleting substances (ODS) in packaging materials.</li> <li>Design packaging materials for ease of disassembly.</li> <li>Maximize the use of post-consumer recycled content materials in packaging materials.</li> <li>Use readily recyclable packaging materials such as paper and corrugated materials.</li> <li>Reduce size and weight of packages to improve transportation fuel efficiency.</li> <li>Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.</li> </ul>		ercury and cadmium in packaging ckaging materials. als in packaging materials. I corrugated materials. on fuel efficiency. 69 and DIN 6120 standards.
End-of-life Managemen and Recycling	recycle your sales office. manner. The EU WEE each produc is posted on may be used integrate an	rs end-of-life HP product return and recycling progr product, please go to: http://www.hp.com/go/reu Products returned to HP will be recycled, recovere E directive (2002/95/EC) requires manufacturers to t type for use by treatment facilities. This informat the Hewlett Packard web site at: http://www.hp.co d by recyclers and other WEEE treatment facilities a d re-sell HP equipment. enship Report	se-recycle or contact your nearest HP of or disposed of in a responsible o provide treatment information for tion (product disassembly instructions) om/go/recyclers. These instructions



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 certificates: http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC_GBU_Product_Design_ISO_14K_ Certificate.pdf and
http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf

#### HP EliteDesk 705 G4 Small Form Factor Business PC

Eco-Label Certifications	This product has received or is in the process of being certified to the following approvals and may be				
& declarations	labeled with one or more of these marks:				
	<ul> <li>IT ECO declaration</li> <li>US ENERGY STAR<sup>®</sup></li> <li>EPEAT<sup>®</sup> Gold registered in the United States. See <a href="http://www.epeat.net">http://www.epeat.net</a> for registration status</li> </ul>				
	your country. Search keyword gene				
	accessories at http://www.hp.com	1 2 1	tore for solar generator		
System Configuration	The configuration used for the Ener		Noise Emissions data for the		
	Notebook model is based on a Typi				
Energy Consumption					
(in accordance with US					
ENERGY STAR® test					
method)	115VAC, 60Hz	230VAC, 50Hz	100VAC, 60Hz		
Normal Operation	22.49 W	22.24 W	23.35 W		
(Short idle)	22.15		23.35 W		
Normal Operation	21.10 W	21.25 W	20.87 W		
(Long idle)	21110 W	21.23 11	20.07 1		
Sleep	1.05 W	1.06 W	1.05 W		
Off	1.08 W	1.09 W	1.08 W		
•••	<b>NOTE:</b> Energy efficiency data listed				
	family does not offer ENERGY STAF for a typically configured PC featur Microsoft Windows® operating syst	ing a hard disk drive, a high effi			
Heat Dissipation*	115VAC, 60Hz	230VAC, 50Hz	100VAC, 60Hz		
Normal Operation (Short idle)	77 BTU/hr	76 BTU/hr	80 BTU/hr		
Normal Operation	72 BTU/hr	73 BTU/hr	71 BTU/hr		
(Long idle)					
Sleep	4 BTU/hr	4 BTU/hr	4 BTU/hr		
Off	4 BTU/hr	4 BTU/hr	4 BTU/hr		
	NOTE: Heat dissipation is calculated based on the measured watts, assuming the service level is				
	attained for one hour.				
Declared Noise	Sound Power		Sound Pressure		
Emissions	(L <sub>WAd</sub> , bels)		(L <sub>pAm</sub> , decibels)		
(in accordance with					
ISO 7779 and ISO 9296)					
Typically Configured – Idle	3.4		26		
Fixed Disk – Random writes	3.4		26		
Longevity and Upgrading	This product can be upgraded, pose features and/or components conta • 3 USB ports				



	• 1 PC card sl		
	• 1 ExpressCa		
	• 1 IEEE 1394		
	<ul> <li>2 SODIMM r</li> </ul>	nemory slots	
	<ul> <li>Optional ex</li> </ul>	pansion base docking station	
	• 1 multi-bay	II storage port	
	<ul> <li>Interchange</li> </ul>	eable HDD	
	Spare parts a	re 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 use	d in the product do not contain:	
		ter the 1ppm by weight	
		ater than 20ppm by weight	
	Battery size:	CR2032 (coin cell)	
	Battery type:		
Additional Information		t is in compliance with the Restrictions of Hazardous Subs	stances (RoHS) directive -
	2011/65/EC.	dust is designed to comply with the Waste Electrical and E	loctropic Equipmont (WEEE)
	Directive – 20	duct is designed to comply with the Waste Electrical and E	tectionic Equipment (WEEE)
			California: Safo Drinking Water
		t is in compliance with California Proposition 65 (State of forcement Act of 1986).	California; Sale Drinking Water
		-	the could lovel in the U.C.
		t is in compliance with the IEEE 1680 (EPEAT) standard at	
		ww.epeat.net for registration status by country. Search ke	
		store for solar generator accessories at http://www.hp.co	
		ts weighing over 25 grams used in the product are marked	a per 150 i 1469 and 150 i 043.
		t contains 0% post-consumer recycled plastic (by wt.)	of 1:fo
		t is 95.1% recycle-able when properly disposed of at end	
Packaging Materials	External:	PAPER/Corrugated	1170 g
	Internal:	PLASTIC/Polyethylene low density – LDPE	17 g
		PAPER/Paper	378 g
Material Usage		does not contain any of the following substances in exces	s of regulatory limits (refer to
		al Specification for the Environment at	
		np.com/hpinfo/globalcitizenship/environment/pdf/gse.pd	lf):
	<ul> <li>Asbestos</li> </ul>		
	<ul> <li>Certain Azo</li> </ul>		
	<ul> <li>Certain Bro</li> </ul>	minated Flame Retardants – may not be used as flame ret	ardants in plastics
	<ul> <li>Cadmium</li> </ul>		
		Hydrocarbons	
	<ul> <li>Chlorinated</li> </ul>		
	<ul> <li>Formaldehy</li> </ul>		
		d Diphenyl Methanes	
		nates and sulfates	
		ead compounds	
	<ul> <li>Mercuric Ox</li> </ul>		
		shes must not be used on the external surface designed t	o be frequently handled or
	carried by the		
	Ozone Depl	eting Substances	
	Polybromin	ated Biphenyls (PBBs)	
	Polybromin	ated Biphenyls (PBBs) ated Biphenyl Ethers (PBBEs)	
	<ul><li>Polybromin</li><li>Polybromin</li></ul>		
	<ul> <li>Polybromin</li> <li>Polybromin</li> <li>Polybromin</li> <li>Polychlorin</li> </ul>	ated Biphenyl Ethers (PBBEs) ated Biphenyl Oxides (PBBOs) ated Biphenyl (PCB)	
	<ul> <li>Polybromin</li> <li>Polybromin</li> <li>Polybromin</li> <li>Polychlorin</li> </ul>	ated Biphenyl Ethers (PBBEs) ated Biphenyl Oxides (PBBOs)	



	<ul> <li>Polyvinyl Chloride (PVC) – except for wires and cables, and certain retail packaging has been</li> </ul>
	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:
	<ul> <li>Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials.</li> </ul>
	<ul> <li>Eliminate the use of ozone-depleting substances (ODS) in packaging materials.</li> </ul>
	• 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 0EM customers who integrate and re-sell HP equipment. 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 certificates:
	http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC_GBU_Product_Design_ISO_14K_
	Certificate.pdf
	and
	http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf

#### HP EliteDesk 705 G4 Desktop Mini Business PC

Eco-Label Certifications	This product has received or is in the process of being certified to the following approvals and may be					
& declarations	labeled with one or more of these	marks:				
	<ul> <li>IT ECO declaration</li> </ul>					
	<ul> <li>US ENERGY STAR<sup>®</sup></li> </ul>					
	• EPEAT <sup>®</sup> Gold registered in the Ur	nited States. See http://www.epeat	.net for registration status in			
	your country. Search keyword generator on HP's 3rd party option store for solar generator					
	accessories at http://www.hp.com/go/options.					
System Configuration	The configuration used for the Energy Consumption and Declared Noise Emissions data for the					
	Notebook model is based on a Typically Configured Notebook.					
Energy Consumption						
(in accordance with US						
ENERGY STAR® test						
method)	115VAC, 60Hz	230VAC, 50Hz	100VAC, 60Hz			
Normal Operation	10.79 W	10.86 W	10.74 W			
(Short idle)						
Normal Operation	10.49 W	10.54 W	10.46 W			
(Long idle)						
Sleep	0.82 W	0.85 W	0.81 W			



Off	0.76 W 0.81 W 0.74W				
	NOTE: Energy efficiency data liste model family. HP computers mark U.S. Environmental Protection Age family does not offer ENERGY STA for a typically configured PC featu Microsoft Windows® operating sys	ed with the ENERGY ency (EPA) ENERGY S R <sup>®</sup> compliant confi <u>c</u> ring a hard disk driv stem.	YSTAR® Logo are c STAR® specificatio gurations, then energy re, a high efficiency	ompliant with the applicable ns for computers. If a model ergy efficiency data listed is	
Heat Dissipation*	115VAC, 60Hz	230VAC,	50Hz	100VAC, 60Hz	
Normal Operation (Short idle)	37 BTU/hr	37 BTL		37 BTU/hr	
Normal Operation (Long idle)	36 BTU/hr	36 BTL		36 BTU/hr	
Sleep	3 BTU/hr	3 BTU,		3 BTU/hr	
Off	3 BTU/hr	3 BTU		3 BTU/hr	
	<b>NOTE:</b> Heat dissipation is calculate attained for one hour.	ed based on the mea		-	
Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)	Sound Power (L <sub>WAd</sub> , bels)			ound Pressure <sub>-pAm</sub> , decibels)	
Typically Configured – Idle	3.1			20	
Fixed Disk – Random writes	3.4			23	
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: • 3 USB ports • 1 PC card slot (type I/II) • 1 ExpressCard/54 slot • 1 IEEE 1394 Port • 2 SODIMM memory slots • Optional expansion base docking station • 1 multi-bay II storage port • Interchangeable HDD 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 com Batteries used in the product do n Mercury greater the1ppm by weig Cadmium greater than 20ppm by Battery size: CR2032 (coin cell) Battery type: Lithium	ot contain: ht	e 2006/66/EC		



Additional Information	• This product 2011/65/EC.	ct is in compliance with the Restrictions of Hazard	ous Substances (RoHS) directive -	
	• This HP pro Directive – 2	duct is designed to comply with the Waste Electri 002/96/EC.	ical and Electronic Equipment (WEEE)	
		ct is in compliance with California Proposition 65 (	State of California; Safe Drinking Wate	
		forcement Act of 1986).		
		ct is in compliance with the IEEE 1680 (EPEAT) sta		
		ww.epeat.net for registration status by country.		
		store for solar generator accessories at <a href="http://www.store.com">http://www.store.com</a> store 25 grams used in the product ar		
		ct contains 0% post-consumer recycled plastic (by		
		ct is 95.1% recycle-able when properly disposed of		
Packaging Materials	External:	PAPER/Corrugated	322 g	
	Internal:	PLASTIC/Polyethylene low density – LDPE	5 g	
		PLASTIC/Polyethylene Expanded - EPE	33 g	
Material Usage		does not contain any of the following substances	in excess of regulatory limits (refer to	
		ral Specification for the Environment at		
		hp.com/hpinfo/globalcitizenship/environment/po	Jf/gse.pdf):	
	Asbestos			
	Certain Azo			
	Certain Brominated Flame Retardants – may not be used as flame retardants in plastics     Certain Brominated Flame Retardants – may not be used as flame retardants in plastics			
	Cadmium     Chlorinated Hydrocarbons			
	Chlorinated Hydrocarbons     Chlorinated Paraffins			
	• Formaldehyde			
	Halogenated Diphenyl Methanes			
	Lead carbonates and sulfates			
	Lead and Lead compounds			
	Mercuric 0	Mercuric Oxide Batteries		
	<ul> <li>Nickel – finishes must not be used on the external surface designed to be frequently have</li> </ul>			
	carried by th			
		leting Substances		
		nated Biphenyls (PBBs)		
	<ul> <li>Polybrominated Biphenyl Ethers (PBBEs)</li> <li>Polybrominated Biphenyl Oxides (PBBOs)</li> </ul>			
	<ul> <li>Polychlorinated Biphenyl (PCB)</li> <li>Polychlorinated Terphenyls (PCT)</li> </ul>			
	<ul> <li>Polychlorinated Terphenyls (PCT)</li> <li>Polyvinyl Chloride (PVC) – except for wires and cables, and certain retail packaging has been</li> </ul>			
	voluntarily removed from most applications.			
	Radioactive Substances			
	• Tributyl Tir	ı (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TB	ТО)	
Packaging Usage	HP follows t	nese guidelines to decrease the environmental im	pact 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.			
		kaging materials for ease of disassembly.		
	5 1	he use of post-consumer recycled content materi	als in packaging materials	
	-	recyclable packaging materials such as paper an	-	
	<ul> <li>Reduce size</li> </ul>	e and weight of packages to improve transportati	on ruel efficiency.	
	Diantin	in a material and marked according to ICO 114	ICO and DIN C130 standards	
	<ul> <li>Plastic pack</li> </ul>	kaging materials are marked according to ISO 114	169 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 0EM customers who integrate and re-sell HP equipment. 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 certificates:
	http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC_GBU_Product_Design_ISO_14K_ Certificate.pdf
	and http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf

#### SERVICE AND SUPPORT

On-site Warranty<sup>15</sup>: Three-year (3-3-3) limited warranty delivers three years of on-site, next business day<sup>16</sup> service for parts and labor and includes free support 24 x 7<sup>17</sup>. Three-year onsite and labor are not available in all countries. Service offers terms up to 5 years by choosing an optional HP Care Pack. To choose the right level of service for your HP product, visit HP Care Pack Central: http://www.hp.com/go/cpc.<sup>18</sup>

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

16. 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.

17. Technical telephone support applies only to HP-configured and third-party HP qualified hardware and software. Toll-free calling and 24 x 7 support may not be available in some countries.

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

# Standard Features and Configurable Components (availability may vary by country)

### GRAPHICS

### AMD® Radeon™ 5 Graphics (Integrated on AMD® PRO A6-9500E & PRO A6-9500 APUs) AMD® Radeon™ R7 Graphics (Integrated on AMD® PRO A10-9700E & PRO A10-9700 APUs) AMD Radeon™ Vega 8 Graphics (Integrated on AMD® Ryzen™ 3 PRO 2200GE & Ryzen™ 3 PRO 2200G APUs) AMD Radeon™ Vega 11 Graphics (Integrated on AMD® Ryzen™ 5 PRO 2400GE & Ryzen™ 5 PRO 2400G APUs)

Multi Display Support	Maximum of 3 displays supported by the integrated graphics
DisplayPort	Two DisplayPort outputs are standard. One DisplayPort output is optional. AMD® PRO APUs and AMD® Ryzen™ APUs support DP1.2 features including DP++, Audio, MST, HBR2, HDCP1.4 and a maximum resolution of 5128x3880@30Hz or 3840x2160@60Hz.
VGA Port (Optional)	Maximum Resolution of 2048x1536 at 60Hz
HDMI (Optional)	AMD® PRO APUs support HDMI 2.0 features and AMD® Ryzen™ APUs support HDMI 2.0a features. All support HDCP1.4, audio and a maximum resolution of 4096x2160@60Hz
USB-C (Optional)	Supports DisplayPort Alt Mode
Memory	512MB when less than 8GB of system memory is installed 1GB when 8GB or more of system memory is installed
Maximum Color Depth	up to 10 bits
Graphics/Video API Support	AMD® PRO APUs: DirectX 12 OpenCL 1.2 OpenGL 4.1 Dedicated decoding of the H.264 format at up to 4K and 60Hz. Encoding H.264 video supported at 1080p120, 1440p60, and 2160p60
	AMD <sup>®</sup> Ryzen <sup>™</sup> APUs: DirectX 12 Vulkan 1.0 OpenCL 2.0 OpenGL 4.5 Hardware-based decode of HEVC/H.265 main10 profile videos at resolutions up to 3840x2160 at 60Hz with 10-bit color for HDR content. Dedicated decoding of the H.264 format at up to 4K and 60Hz. Decoding the VP9 format at resolutions up to 3840x2160 using a hybrid approach where the video and shader engines collaborate to offload work from the CPU. Encode HEVC/H.265 at 1080p240, 1440p120, and 2160p60. Encoding H.264 video is also supported at 1080p120, 1440p60, and 2160p60

# Standard Features and Configurable Components (availability may vary by country)

### AMD<sup>®</sup> Radeon<sup>™</sup> RX550 4GB FH PCIe x16

Engine Clock	1183MHz
Memory Clock	7 Gbps
Memory Size(width)	4 GB(128-bit)
Memory Type	GDDR5
Max. Resolution(HDMI)	4096x2160 @ 60Hz
Max. Resolution(DP)	5120x2880 @ 60Hz
Multi Display Support	3 displays
HDCP Compliance	Yes
Rear I/O connectors(bracket)	HDMI, DPx2
Cooling(active/passive)	Active fan-sink(Active cooling with dynamic speed)
Total power consumption(W)	<62W
PCB form-factor with bracket	ATX (Full height) PCB with ATX single slot bracket
AMD® Radeon™ RX 560	
Architecture	Discrete GPU AMD® GPU drives the integrated panel and all of the graphics output ports
DisplayPort	Multimode capable; supports HDCP, HDR, Display Port Audio (6 streams max), DisplayPort HBR3 link rates and Multi-Stream Technology for a maximum of 5 displays (including the integrated panel and all attached displays)
HDMI	Supports HDMI 2.0b features Supports HDCP 2.2, HDR
Memory	4GByte, 128bit wide GDDR5
Maximum Color Depth	up to 12 bits/color
Graphics/Video API Support	DirectX 12 OpenCL 2.0 OpenGL 4.5 AMD® Unified Video Decoder (UVD)
Rear I/O connector	1 DP
Max. Resolution (VGA)	2048 x 1536@60Hz
Max. Resolution (HDMI)	4096 x 2160@60Hz
Max. Resolution (DP)	5120 x 2880@60Hz

### AMD® Radeon™ RX580 4GB FH PCIe x16

Engine Clock	1266 MHz
Memory Clock	8gbs
Memory Size(width)	4 GB(256-bit)
Memory Type	128M x 32 GDDR5
Max. Resolution(HDMI)	4096x2160@60Hz
Max. Resolution(DP)	5120x3200@60Hz
Multi Display Support	4 displays
HDCP Compliance	Yes
Rear I/O connectors(bracket)	DP*3 + HDMI
Cooling(active/passive)	Active fan-sink (Active cooling with dynamic speed)



# Standard Features and Configurable Components (availability may vary by country)

Total power consumption(W)<150W</th>PCB form-factor with bracketATX (Full height) PCB with ATX dual slot bracket

### AMD® Radeon™ RX580 8GB GDDR5 Graphics Card

Engine Clock	1266 MHz
Memory Clock	4000 MHz
Memory Size(width)	8 GB (256-bit)
Memory Type	256M x 32 GDDR5
Max. Resolution(HDMI)	4096x2160@60Hz
Max. Resolution(DP)	5120x3200@60Hz
Multi Display Support	4 displays
HDCP Compliance	Yes
Rear I/O connectors(bracket)	HDMI + DPx3
Cooling(active/passive)	Active fan-sink (Active cooling with dynamic speed)
Total power consumption(W)	<150W
PCB form-factor with bracket	ATX (Full height) PCB with ATX dual slot bracket

#### AMD® Radeon™ R7 430 2GB VGA+DP Graphics Card

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

Standard Features and Configurable Components (availability may vary by country)

#### AMD<sup>®</sup> Radeon<sup>™</sup> R7 430 2GB GDDR5 DP+VGA Graphics Card

Engine Clock	780 MHz
Memory Clock	1100 MHz
Memory Size(width)	2 GB(64-bit)
Memory Type	256M x 32 GDDR5
Max. Resolution(VGA)	2048x1536
Max. Resolution(DP)	4096x2160@60Hz
Multi Display Support	2 displays
HDCP Compliance	yes
Rear I/O connectors(bracket)	DP+VGA
Cooling(active/passive)	Active fan-sink (Active cooling with dynamic speed)
Total power consumption(W)	<50W
PCB form-factor with bracket	LP PCB with FH/LP bracket

#### AMD<sup>®</sup> Radeon<sup>™</sup> R7 430 2GB GDDR5 2DP Graphics Card

Engine Clock	780 MHz
Memory Clock	1100 MHz
Memory Size(width)	2 GB(64-bit)
Memory Type	256M x 32 GDDR5
Max. Resolution(DP)	4096x2160@60Hz
Multi Display Support	2 displays
HDCP Compliance	yes
Rear I/O connectors(bracket)	DPx2
Cooling(active/passive)	Active fan-sink (Active cooling with dynamic speed)
Total power consumption(W)	<50W
PCB form-factor with bracket	LP PCB with FH/LP bracket

#### AMD<sup>®</sup> Radeon<sup>™</sup> R7 430 2GB 2DP Graphics Card

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



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

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

# NVIDIA® GeForce® GT730 2GB DP DVI PCIe x8 GFX

Engine Clock	902 MHz
Memory Clock	1250 MHz
Memory Size(width)	2 GB (64-bit)
Memory Type	256Mx32 GDDR5
Max. Resolution(DVI)	2560 x 1600 x 30 bpp @ 60Hz (Dual Link)
Max. Resolution(DP)	4096 x 2160 x 24 bpp @ 60 Hz (DP1.2)
Multi Display Support	Up to 2 displays
HDCP Compliance	Yes
Rear I/O connectors(bracket)	DL DVI-I + DP
Cooling(active/passive)	Active fan-sink (Active cooling with dynamic speed)
Total power consumption(W)	35 W
PCB form-factor with bracket	2-pin fan connector for fan sink power/speed control

Standard Features and Configurable Components (availability may vary by country)

#### STORAGE

#### HP 500 GB 7.2K SATA 6.0Gb/s 2.5" Hard Disk Drive

Capacity	500 GB
Rotational Speed	7,200 rpm
Interface	SATA 6 Gb/s
Buffer Size	16 MB
Logical Blocks	976,773,168
Seek Time	12 ms (Average)
Height	0.267 in/6.8 mm (nominal)
Width	2.75 in/70 mm (nominal)
Operating Temperature	41° to 131° F (5° to 55° C)

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

#### HP 1 TB 7.2K SATA 6.0Gb/s 2.5" Hard Disk Drive

Capacity	1 TB
Rotational Speed	7,200 rpm
Interface	SATA 6 Gb/s
Buffer Size	32 MB
Logical Blocks	1,953,525,168
Seek Time	12 ms (Average)
Height	0.374 in/9.5 mm (nominal)
Width	2.75 in/70 mm (nominal)
Operating Temperature	41° to 131° F (5° to 55° C)

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



Standard Features and Configurable Components (availability may vary by country)

#### HP 500 GB SATA 6G 2.5" 8GB Solid State Hybrid Drive (SSHD)

Capacity	500 GB
Rotational Speed	5,400 rpm
Drive Type	Solid State Hybrid Drive (SSHD) technology with NAND Flash
Interface	SATA 6 Gb/s
Buffer Size	64 MB
NAND Flash	8 GB
Seek Time	12 ms (Average)
Height	0.267 in/6.8 mm (nominal)
Width	2.75 in/70 mm (nominal)

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

#### HP 1 TB SATA 6G 2.5" 8GB Solid State Hybrid Drive (SSHD)

Capacity	1 TB
Rotational Speed	5,400 rpm
Drive Type	Solid State Hybrid Drive (SSHD) technology with NAND Flash
Interface	SATA 6 Gb/s
Buffer Size	64 MB
NAND Flash	8 GB
Seek Time	12 ms (Average)
Height	0.374 in/9.5 mm (nominal)
Width	2.75 in/70 mm (nominal)
Operating Temperature	41° to 131° F (5° to 55° C)

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

#### HP 2 TB SATA 6G 2.5" 8 GB Solid State Hybrid Drive (SSHD)

Capacity	2 TB
Rotational Speed	5,400 rpm
Drive Type	Solid State Hybrid Drive (SSHD) technology with NAND Flash
Interface	SATA 6 Gb/s
Buffer Size	128 MB
NAND Flash	8 GB
Seek Time	12 ms (Average)
Height	0.374 in/9.5 mm (nominal)
Width	2.75 in/70 mm (nominal)
Operating Temperature	41° to 131° F (5° to 55° C)



Standard Features and Configurable Components (availability may vary by country)

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

#### HP 2 TB 5.4K SATA 6.0Gb/s 2.5" Hard Disk Drive

Capacity	2 TB
Rotational Speed	5,400 rpm
Interface	SATA 6 Gb/s
Buffer Size	128 MB
Logical Blocks	3,907,050,336
Seek Time	12 ms (Average)
Height	0.374 in/9.5 mm (nominal)
Width	2.75 in/70 mm (nominal)
Operating Temperature	41° to 131° F (5° to 55° C)

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

#### 500 GB 2.5" FIPS 140-2 SED Solid State Drive

Capacity	500 GB
Architecture	Self-Encrypting (SED) Solid State Drive with SATA interface
Interface	SATA 6 Gb/s
Buffer Size	32 MB
Logical Blocks	976,773,168
Seek Time	12 ms (Average)
Height	0.267 in/6.8 mm (nominal)
Width	2.75 in/70 mm (nominal)
Operating Temperature	41° to 131° F (5° to 55° C)

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



#### **NETWORKING AND COMMUNICATIONS**

#### HP EliteDesk 705 G4 Microtower

Realtek RTL8111EPH 10/100/1000 Integrated NIC	
Connector	RJ-45
System Interface	PCIe + SMBus
Controller	10 Mbit/s operation (10BASE-T; IEEE 802.3i; IEEE 802.3 clauses 13-14)
	100 Mbit/s operation (100BASE-TX; IEEE 802.3u; IEEE 802.3 clauses 21-30)
	1000 Mbit/s operation (1000BASE-T; IEEE 802.3ab; IEEE 8023 clauses 40)
	Auto-Negotiation (Automatic Speed Selection)
	Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/s
Data rates supported	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)
IEEE Compliance	TCP/IP/UDP Checksum Offload (configurable)
	Protocol Offload (ARP & NS)
	Large send offload and Giant send offload
	Receiving Side Scaling
	Jumbo Frame 9K
Performance	Cable Disconnetion: 25mW
	100Mbps Full Run: 450mW
	1000bp Full Run: 1000mW
	WoL Enable(S3/S4/S5): 50mW
	WoL Disable(S3/S4/S5): 25mW
Power	ACPI compliant – multiple power modes
	Situation-sensitive features reduce power consumption
	Advanced link down power saving for reducing link down power consumption
MAC/PHY Interconnect	Auto MDI/MDIX Crossover cable detection
Management Interface	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

Intel® Ethernet I210-T1 Giga	ntel® Ethernet I210-T1 Gigabit Network Adapter	
Connector	RJ-45	
System Interface	PCIe Express x1	
Data rates supported	10 Mbit/s operation (10BASE-T; IEEE 802.3i; IEEE 802.3 clauses 13-14)	
	100 Mbit/s operation (100BASE-TX; IEEE 802.3u; IEEE 802.3 clauses 21-30)	
	1000 Mbit/s operation (1000BASE-T; IEEE 802.3ab; IEEE 8023 clauses 40)	
	Auto-Negotiation (Automatic Speed Selection)	
	Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/s	
IEEE Compliance	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)	
Performance	TCP/IP/UDP Checksum Offload (configurable)	
	Protocol Offload (ARP & NS)	
	Large send offload and Giant send offload	
	Receiving Side Scaling	
	Jumbo Frame 9K	



Power consumption	Cable Disconnection: 25mW 100Mbps Full Run: 450mW 1000bp Full Run: 1000mW WoL Enable(S3/S4/S5): 50mW
	WoL Disable(S3/S4/S5): 25mW
Power	ACPI compliant – multiple power modes
Management	Situation-sensitive features reduce power consumption
	Advanced link down power saving for reducing link down power consumption
Management Interface	Auto MDI/MDIX Crossover cable detection
IT Manageability	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

Intel Thunder Peak 9260 802.11a/b/g/n/ac (2x2) WiFi and Bluetooth® 5.0 Combo¹ Non-vPro		
Wireless LAN Standards	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	
	• 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	
Data Rates	• 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	
	• 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps	
	<ul> <li>802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz)</li> </ul>	
	• 802.11ac : MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, 80MHz & 160MHz)	
Modulation	Direct Sequence Spread Spectrum	
	BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM	
Security <sup>1</sup>	<ul> <li>IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only</li> </ul>	
	AES-CCMP: 128 bit in hardware	
	802.1x authentication	
	<ul> <li>WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.</li> </ul>	
	WPA2 certification	
	• IEEE 802.11i	
	<ul> <li>Cisco Certified Extensions, all versions through CCX4 and CCX Lite</li> </ul>	
	• WAPI	
Network Architecture	Ad-hoc (Peer to Peer)	
Models	Infrastructure (Access Point Required)	
Roaming	IEEE 802.11 compliant roaming between access points	
Output Power <sup>2</sup>	• 802.11b : +18.5dBm minimum	
	• 802.11g : +17.5dBm minimum	
	• 802.11a : +18.5dBm minimum	
	• 802.11n HT20(2.4GHz) : +15.5dBm minimum	

		+4 dBm for BR and EDR.
Transmit Power	864 kbps symmetr	
		us Connection Oriented links up to 3, 64 kbps, voice channels ous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or
		ate; throughput up to 0.2 Mbps
Data Rates and Throughput		ta rate; throughput up to 2.17 Mbps
	BLE: 0~39 (2 MHz/CH)	
Number of Available Channels	Legacy: 0~79 (1 Mł	Hz/CH)
Frequency Band	2402 to 2480 MHz	
Bluetooth® Specification	4.0/4.1/4.2/5.0 Co	
HP Integrated Module with Blueto		/ireless Technology
for 802.11a/g (0FDM mod		
		or rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10%
<ol> <li>Check latest software/dri</li> <li>Maximum output power n</li> </ol>		s on supported security features.
LED Activity		o OFF; LED White – Radio ON
	Non-operating	0 to 50,000 ft (15,240 m)
Altitude	Operating	0 to 10,000 ft (3,048 m)
	Non-operating	5% to 95% (non-condensing)
Humidity	Operating	10% to 90% (non-condensing)
•	Non-operating	-40° to 176° F (-40° to 80° C)
Temperature	Operating	14° to 158° F (–10° to 70° C)
Operating Voltage	3.3v +/- 9%	
Weight	Type 2230: 2.8g	
Dimensions	Type 2230: 2.3 x 2	
Form Factor	PCI-Express M.2 MiniCard	
		tions and Bluetooth communications
	Two embedded di	ual band 2.4/5 GHz antennas are provided to the card to support WLAN
Antenna type	nigh enriciency an	terma with spatial liversity, mounted in the display enclosure
Antonna tupo		tenna with spatial diversity, mounted in the display enclosure
	-	·84dBm maximum ·59dBm maximum
	,	-64dBm maximum -84dBm maximum
		-67dBm maximum
		os: -72dBm maximum
		s: -86dBm maximum
		: -84dBm maximum
Receiver Sensitivity <sup>3</sup>		-93.5dBm maximum
		power saving mode
Power Management	ACPI and PCI Express compliant power management	
	<ul> <li>Radio disabled 8</li> </ul>	-
	Connected Stand	
		N (WLAN unassociated)
		180 mW (WLAN Associated)
Power Consumption	Receive mode	
Dower Concumption	• 802.11ac VH116     • Transmit mode2	50(5GHz) : +11.5dBm minimum
		)(5GHz) : +11.5dBm minimum
		GHz) : +14.5dBm minimum
		GHz) : +15.5dBm minimum

(III)

Power Consumption	Peak (Tx) 330 mW
· · · · · · · · · · · · · · · · · · ·	Peak (Rx) 230 mW
	Selective Suspend 17 mW
Electrical Interface	USB 2.0 compliant
Bluetooth® Software Supported Link Topology	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
	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)

Realtek 802.11a/b/g/n/ac (2x	Realtek 802.11a/b/g/n/ac (2x2) WiFi and Bluetooth® 4.2 Combo <sup>1</sup>	
Wireless LAN Standards	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	
	• 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	
Data Rates	• 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	
Security <sup>3</sup>	<ul> <li>IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only</li> </ul>	
	AES-CCMP: 128 bit in hardware	
	802.1x authentication	
	<ul> <li>WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.</li> </ul>	

	WPA2 certification	n
	• IEEE 802.11i	
		tensions, all versions through CCX4 and CCX Lite
AL	• WAPI	
Network Architecture	Ad-hoc (Peer to Peer)	
Models	Infrastructure (Access Point Required)	
Roaming	IEEE 802.11 compliant roaming between access points	
Output Power <sup>2</sup>	• 802.11b: +14dBr	
	• 802.11g: +12dBr	
	• 802.11a: +12dBr	
		4GHz): +12dBm minimum
		4GHz): +12dBm minimum
		GHz): +10dBm minimum
		GHz): +10dBm minimum
Derver Concurrentian		(5GHz): +10dBm minimum
Power Consumption	Transmit mode2     Receive mode	
		1.0 w 180 mW (WLAN Associated)
		/ (WLAN unassociated)
	Connected Stand	
	Radio disabled 8	•
Power Management		ess compliant power management
rower management		power saving mode
Receiver Sensitivity <sup>3</sup>		93.5dBm maximum
Receiver Sensitivity		-84dBm maximum
		: -86dBm maximum
	<u> </u>	s: -72dBm maximum
	802.11n, MCS07: -	
	802.11n, MCS15: -	
	802.11ac, MCS0: -84dBm maximum	
Antenna type	802.11ac, MCS9: -59dBm maximum 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 M	iniCard
Dimensions	Type 2230 : 2.3 x 2	
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	
		s on supported security features.
2. Maximum output power ma		
		or rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10%
for 802.11a/g (OFDM modu		
HP Integrated Module with Bluetoot		
Bluetooth <sup>®</sup> Specification	4.0/4.1/4.2 Complia	ant
Frequency Band	2402 to 2480 MHz	
Number of Available Channels	Legacy: 0~79 (1 MH	z/CH)



	BLE: 0~39 (2 MHz/CH)
Data Rates and Throughput	Legacy: 3 Mbps data rate; throughput up to 2.17 Mbps
bata kates and i moughput	
	BLE: 1 Mbps data rate; throughput up to 0.2 Mbps
	Legacy: Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or
	864 kbps symmetric (3-EV5)
	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 Topology	Microsoft Windows Bluetooth® Software
Power Management	Microsoft Windows ACPI, and USB Bus Support
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
	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)
	,

Realtek RTL8111EPH 10/100/1000 Integrated NIC		
Connector	RJ-45	
System Interface	PCIe + SMBus	
Controller	10 Mbit/s operation (10BASE-T; IEEE 802.3i; IEEE 802.3 clauses 13-14) 100 Mbit/s operation (100BASE-TX; IEEE 802.3u; IEEE 802.3 clauses 21-30) 1000 Mbit/s operation (1000BASE-T; IEEE 802.3ab; IEEE 8023 clauses 40) Auto-Negotiation (Automatic Speed Selection) Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/s	
Data rates supported	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)	
IEEE Compliance	TCP/IP/UDP Checksum Offload (configurable) Protocol Offload (ARP & NS) Large send offload and Giant send offload Receiving Side Scaling Jumbo Frame 9K	
Performance	Cable Disconnection: 25mW 100Mbps Full Run: 450mW 1000bp Full Run: 1000mW WoL Enable(S3/S4/S5): 50mW WoL Disable(S3/S4/S5): 25mW	
Power	ACPI compliant – multiple power modes Situation-sensitive features reduce power consumption Advanced link down power saving for reducing link down power consumption	
MAC/PHY Interconnect	Auto MDI/MDIX Crossover cable detection	
Management Interface	Wake-on-LAN from standby and hibernation (Magic Packet and Microsoft Wake-Up Frame); Wake-on-LAN from off (Magic Packet only)	

#### HP EliteDesk 705 G4 Small Form Factor Business PC



Intel® Ethernet I210-T1 Gigabit Network Adapter		
Connector	RJ-45	
System Interface	PCI (Intel® proprietary) + SMBus	
Data rates supported	10 Mbit/s operation (10BASE-T; IEEE 802.3i; IEEE 802.3 clauses 13-14)	
	100 Mbit/s operation (100BASE-TX; IEEE 802.3u; IEEE 802.3 clauses 21-30)	
	1000 Mbit/s operation (1000BASE-T; IEEE 802.3ab; IEEE 8023 clauses 40)	
	Auto-Negotiation (Automatic Speed Selection)	
	Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/s	
IEEE Compliance	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)	
Performance	TCP/IP/UDP Checksum Offload (configurable)	
	Protocol Offload (ARP & NS)	
	Large send offload and Giant send offload	
	Receiving Side Scaling	
	Jumbo Frame 9K	
Power consumption	Cable Disconnection: 25mW	
	100Mbps Full Run: 450mW	
	1000bp Full Run: 1000mW	
	WoL Enable(S3/S4/S5): 50mW	
	WoL Disable(S3/S4/S5): 25mW	
Power	ACPI compliant – multiple power modes	
Management	Situation-sensitive features reduce power consumption	
	Advanced link down power saving for reducing link down power consumption	
Management Interface	Auto MDI/MDIX Crossover cable detection	
IT Manageability	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	
Security & Manageability	Intel <sup>®</sup> vPro™ support with appropriate Intel <sup>®</sup> chipset components	



Intel® Thunder Peak 9260 802.	11a/b/g/n/ac (2x2) WiFi and Bluetooth® 5.0 Combo <sup>1</sup> Non-vPro	
Wireless LAN Standards	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	
	• 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	
Data Rates	• 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	
	• 802.11a: 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, 80MHz & 160MHz)	
Modulation	Direct Sequence Spread Spectrum	
	BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM	
Security <sup>1</sup>	<ul> <li>IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only</li> </ul>	
	AES-CCMP: 128 bit in hardware	
	802.1x authentication	
	<ul> <li>WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.</li> </ul>	
	WPA2 certification	
	• IEEE 802.11i	
	<ul> <li>Cisco Certified Extensions, all versions through CCX4 and CCX Lite</li> </ul>	
	• WAPI	
Network Architecture	Ad-hoc (Peer to Peer)	
Models	Infrastructure (Access Point Required)	
Roaming	IEEE 802.11 compliant roaming between access points	
Output Power <sup>2</sup>	• 802.11b : +18.5dBm minimum	
	• 802.11g : +17.5dBm minimum	
	• 802.11a : +18.5dBm minimum	
	• 802.11n HT20(2.4GHz) : +15.5dBm minimum	
	• 802.11n HT40(2.4GHz) : +14.5dBm minimum	
	• 802.11n HT20(5GHz) : +15.5dBm minimum	
	• 802.11n HT40(5GHz) : +14.5dBm minimum	
	• 802.11ac VHT80(5GHz) : +11.5dBm minimum	
Dec	• 802.11ac VHT160(5GHz) : +11.5dBm minimum	
Power Consumption	• Transmit mode2.0 W	
	Receive mode 1.6 W	
	<ul> <li>Idle mode (PSP) 180 mW (WLAN Associated)</li> <li>Idle mode 50 mW (WLAN unassociated)</li> </ul>	
	Connected Standby 10mW     Radio disabled 8 mW	
Dowor Managoment		
Power Management	ACPI and PCI Express compliant power management	
Passiver Constitutes	802.11 compliant power saving mode	
Receiver Sensitivity <sup>3</sup>	802.11b, 1Mbps : -93.5dBm maximum	
	802.11b, 11Mbps : -84dBm maximum	

		: -86dBm maximum
	802.11a/g, 54Mbps : -72dBm maximum 802.11n, MCS07 : -67dBm maximum	
	-	
	802.11n, MCS15: -	
	802.11ac, MCS0 : -	
	802.11ac, MCS9 : -59dBm maximum	
Antenna type	High efficiency antenna with spatial diversity, mounted in the display enclosure	
	Two embedded du	al band 2.4/5 GHz antennas are provided to the card to support WLAN
	MIMO communicat	ions and Bluetooth communications
Form Factor	PCI-Express M.2 M	iniCard
Dimensions	Type 2230 : 2.3 x 2	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
1. Check latest software/drive	r release for updates	s on supported security features.
2. Maximum output power ma		
3. Receiver sensitivity is meas	ured at a packet erro	r rate of 8% for 802.11b (CKK modulation) and a packet error rate of
10% for 802.11a/g (OFDM n	nodulation).	
HP Integrated Module with Bluetoot	h 4.0/4.1/4.2/5.0 W	ireless Technology
Bluetooth <sup>®</sup> Specification	4.0/4.1/4.2/5.0 Cor	npliant
Frequency Band	2402 to 2480 MHz	
Number of Available Channels	Legacy: 0~79 (1 MHz/CH)	
	BLE: 0~39 (2 MHz/C	Ή)
Data Rates and Throughput	Legacy: 3 Mbps data rate; throughput up to 2.17 Mbps	
2 1		te; throughput up to 0.2 Mbps
		us Connection Oriented links up to 3, 64 kbps, voice channels
	3 7 7	bus Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or
	864 kbps symmetri	
Transmit Power		mponent shall operate as a Class II Bluetooth® device with a maximum
		-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		Bluetooth® Software
Link Topology		
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 3	00 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark
Bluetooth Profiles Supported	BT4.1-ESR 5/6/7 Cc	ompliance
····	LE Link Layer Ping	•
	LE Dual Mode	
	LE Link Laver	
	LE Link Layer LE Low Duty Cycle D	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)



Intel® Sandy Peak 3168 802.11	I a/b/g/n/ac (1x1) WiFi and Bluetooth® 4.2 Combo <sup>1</sup>		
Wireless LAN Standards	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		
Frequency Banu	• 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		
Data Rates	• 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		
Security <sup>3</sup>	• 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	Ad-hoc (Peer to Peer)		
Models	Infrastructure (Access Point Required)		
Roaming	IEEE 802.11 compliant roaming between access points		
Output Power <sup>2</sup>	802.11b : +18.5dBm minimum		
output Power-			
	• 802.11g : +17.5dBm minimum		
	• 802.11a : +18.5dBm minimum		
	• 802.11n HT20(2.4GHz) : +15.5dBm minimum		
	• 802.11n HT40(2.4GHz) : +14.5dBm minimum		
	• 802.11n HT20(5GHz) : +15.5dBm minimum		
	• 802.11n HT40(5GHz) : +14.5dBm minimum		
	• 802.11ac VHT80(5GHz) : +11.5dBm minimum		
Power Consumption	• Transmit mode2.0 W		
	Receive mode 1.6 W		
	• Idle mode (PSP) 180 mW (WLAN Associated)		
	<ul> <li>Idle mode 50 mW (WLAN unassociated)</li> </ul>		
	Connected Standby 10mW		
	Radio disabled 8 mW		
Power Management	ACPI and PCI Express compliant power management		
	802.11 compliant power saving mode		
Receiver Sensitivity <sup>3</sup>	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		
		al 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 M		
Dimensions	Type 2230 : 2.3 x 2		
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)	
inality	Non-operating	5% to 95% (non-condensing)	
Altitude	Operating	0 to 10,000 ft (3,048 m)	
mmuu	Non-operating	0 to 50,000 ft (15,240 m)	
LED Activity		o OFF; LED White – Radio ON	
		s on supported security features.	
2. Maximum output power ma			
		or rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10%	
for 802.11a/g (OFDM modu	•		
HP Integrated Module with Bluetoot		ass Technology	
Bluetooth® Specification	4.0/4.1/4.2 Complia	ant	
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		
	864 kbps symmetri		
Transmit Power		mponent shall operate as a Class II Bluetooth® device with a maximum	
		+4 dBm for BR and EDR.	
	· · · · · · · · · · · · · · · · · · ·	<sup>4</sup> UDIII 101 DK aliu EDK.	
Power Consumption	Peak (Tx) 330 mW		
	Peak (Rx) 230 mW	17	
	Selective Suspend	17 mw	
Electrical Interface	USB 2.0 compliant		
Bluetooth <sup>®</sup> Software Supported	Microsoft Windows	Bluetooth® Software	
Link Topology			
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 Direct	ive IEC950 UL, CSA, and CE Mark	
Bluetooth Profiles Supported	BT4.1-ESR 5/6/7 Co	ompliance	
	LE Link Layer Ping	Sinplance	
	LE Dual Mode		
	LE Link Layer		
		Directed Advertising	
		on Oriented Channels	
	Train Nudging & Int		
	BT4.2 ESR08 Comp		
	LE Secure Connectio		



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)

Intel® Stone Peak 2 7265 802.	.11a/b/g/n/ac (2x2) WiFi and Bluetooth® 4.2 Combo <sup>1</sup> Non-vPro		
Wireless LAN Standards	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		
	• 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		
Data Rates	• 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)		
Madulation	802.11ac : MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, and 80MHz)		
Modulation	Direct Sequence Spread Spectrum		
Security <sup>3</sup>	BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM  • IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only		
Security	• AES-CCMP: 128 bit in hardware		
	• 802.1x authentication		
	• WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.		
	• WPA2 certification		
	<ul> <li>IEEE 802.11i</li> <li>Cisco Certified Extensions, all versions through CCX4 and CCX Lite</li> </ul>		
	• WAPI		
Network Architecture	Ad-hoc (Peer to Peer)		
Models	Infrastructure (Access Point Required)		
Roaming	IEEE 802.11 compliant roaming between access points		
Output Power <sup>2</sup>	• 802.11b : +18.5dBm minimum		
	• 802.11g : +17.5dBm minimum		
	• 802.11a : +18.5dBm minimum		
	• 802.11n HT20(2.4GHz) : +15.5dBm minimum		
	• 802.11n HT40(2.4GHz) : +14.5dBm minimum		
	• 802.11n HT20(5GHz) : +15.5dBm minimum		
	• 802.11n HT40(5GHz) : +14.5dBm minimum		
	• 802.11ac VHT80(5GHz) : +11.5dBm minimum		
Power Consumption	• Transmit mode2.0 W		
	Receive mode 1.6 W		
	• Idle mode (PSP) 180 mW (WLAN Associated)		
	<ul> <li>Idle mode 50 mW (WLAN unassociated)</li> </ul>		
	Connected Standby 10mW		



	<ul> <li>Radio disabled 8</li> </ul>	mW
Power Management	ACPI and PCI Express compliant power management	
	802.11 compliant	power saving mode
Receiver Sensitivity <sup>3</sup>		-93.5dBm maximum
	802.11b, 11Mbps : -84dBm maximum	
	802.11a/g, 6Mbps : -86dBm maximum	
		s : -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	
		al band 2.4/5 GHz antennas are provided to the card to support WLAN
Forme Forston		ions and Bluetooth communications
Form Factor	PCI-Express M.2 M	
Dimensions	Type 2230 : 2.3 x 2	22.0 X 30.0 MM
Weight	Type 2230 : 2.8g 3.3v +/- 9%	
Operating Voltage		14° to 158° F (–10° to 70° C)
Temperature	Operating Non-operating	$-40^{\circ}$ to 176° F (-40° to 80° C)
Humidity	Operating	10% to 90% (non-condensing)
numary	Non-operating	5% to 95% (non-condensing)
Altitude	Operating	0 to 10,000 ft (3,048 m)
Attitude	Non-operating	0 to 50,000 ft (15,240 m)
LED Activity		o OFF; LED White – Radio ON
		s on supported security features.
		cording to local regulations.
		or rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10%
for 802.11a/g (OFDM modu		
HP Integrated Module with Bluetoo	th 4.0/4.1/4.2 Wirel	ess Technology
Bluetooth <sup>®</sup> Specification	4.0/4.1/4.2 Compli	ant
Frequency Band	2402 to 2480 MHz	
	Legacy : 0~79 (1 MHz/CH)	
Number of Available Channels	Legacy : 0~79 (1 MI	Hz/CH)
Number of Available Channels	Legacy : 0~79 (1 MI BLE : 0~39 (2 MHz/	
Number of Available Channels Data Rates and Throughput	BLE : 0~39 (2 MHz/	CH)
	BLE : 0~39 (2 MHz/ Legacy : 3 Mbps dat	CH) a rate; throughput up to 2.17 Mbps
	BLE : 0~39 (2 MHz/ Legacy : 3 Mbps dat BLE : 1 Mbps data r	CH) ca rate; throughput up to 2.17 Mbps ate; throughput up to 0.2 Mbps
	BLE : 0~39 (2 MHz/ Legacy : 3 Mbps data BLE : 1 Mbps data r Legacy : Synchrono	CH) a rate; throughput up to 2.17 Mbps ate; throughput up to 0.2 Mbps us Connection Oriented links up to 3, 64 kbps, voice channels
	BLE : 0~39 (2 MHz/ Legacy : 3 Mbps dat BLE : 1 Mbps data r Legacy : Synchrono Legacy : Asynchrono	CH) a rate; throughput up to 2.17 Mbps ate; throughput up to 0.2 Mbps us Connection Oriented links up to 3, 64 kbps, voice channels ous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or
Data Rates and Throughput	BLE : 0~39 (2 MHz/ Legacy : 3 Mbps data BLE : 1 Mbps data r Legacy : Synchrono Legacy : Asynchron 864 kbps symmetri	CH) a rate; throughput up to 2.17 Mbps ate; throughput up to 0.2 Mbps us Connection Oriented links up to 3, 64 kbps, voice channels ous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or c (3-EV5)
	BLE : 0~39 (2 MHz/ Legacy : 3 Mbps data BLE : 1 Mbps data r Legacy : Synchrono Legacy : Asynchrono 864 kbps symmetri The Bluetooth® co	CH) aa rate; throughput up to 2.17 Mbps ate; throughput up to 0.2 Mbps us Connection Oriented links up to 3, 64 kbps, voice channels ous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or c (3-EV5) mponent shall operate as a Class II Bluetooth® device with a maximum
Data Rates and Throughput Transmit Power	BLE : 0~39 (2 MHz/ Legacy : 3 Mbps data r BLE : 1 Mbps data r Legacy : Synchrono Legacy : Asynchron 864 kbps symmetri The Bluetooth® co transmit power of	CH) a rate; throughput up to 2.17 Mbps ate; throughput up to 0.2 Mbps us Connection Oriented links up to 3, 64 kbps, voice channels ous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or c (3-EV5)
Data Rates and Throughput	BLE : 0~39 (2 MHz/ Legacy : 3 Mbps data r BLE : 1 Mbps data r Legacy : Synchrono Legacy : Asynchrono 864 kbps symmetri The Bluetooth® co transmit power of - Peak (Tx) 330 mW	CH) aa rate; throughput up to 2.17 Mbps ate; throughput up to 0.2 Mbps us Connection Oriented links up to 3, 64 kbps, voice channels ous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or c (3-EV5) mponent shall operate as a Class II Bluetooth® device with a maximum
Data Rates and Throughput Transmit Power	BLE : 0~39 (2 MHz/ Legacy : 3 Mbps data BLE : 1 Mbps data r Legacy : Synchrono Legacy : Asynchrono 864 kbps symmetri The Bluetooth® co transmit power of Peak (Tx) 330 mW Peak (Rx) 230 mW	CH) at a rate; throughput up to 2.17 Mbps ate; throughput up to 0.2 Mbps us Connection Oriented links up to 3, 64 kbps, voice channels ous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or c (3-EV5) mponent shall operate as a Class II Bluetooth® device with a maximum -4 dBm for BR and EDR.
Data Rates and Throughput Transmit Power	BLE : 0~39 (2 MHz/ Legacy : 3 Mbps data r BLE : 1 Mbps data r Legacy : Synchrono Legacy : Asynchrono 864 kbps symmetri The Bluetooth® co transmit power of - Peak (Tx) 330 mW	CH) at rate; throughput up to 2.17 Mbps ate; throughput up to 0.2 Mbps us Connection Oriented links up to 3, 64 kbps, voice channels ous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or c (3-EV5) mponent shall operate as a Class II Bluetooth® device with a maximum -4 dBm for BR and EDR.
Data Rates and Throughput Transmit Power Power Consumption Electrical Interface	BLE : 0~39 (2 MHz/ Legacy : 3 Mbps data BLE : 1 Mbps data r Legacy : Synchrono Legacy : Asynchrono 864 kbps symmetri The Bluetooth® co transmit power of Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend USB 2.0 compliant	CH) ca rate; throughput up to 2.17 Mbps ate; throughput up to 0.2 Mbps us Connection Oriented links up to 3, 64 kbps, voice channels ous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or c (3-EV5) mponent shall operate as a Class II Bluetooth® device with a maximum 4 dBm for BR and EDR. 17 mW
Data Rates and Throughput Transmit Power Power Consumption Electrical Interface Bluetooth® Software Supported	BLE : 0~39 (2 MHz/ Legacy : 3 Mbps data BLE : 1 Mbps data r Legacy : Synchrono Legacy : Asynchrono 864 kbps symmetri The Bluetooth® co transmit power of Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend USB 2.0 compliant	CH) at rate; throughput up to 2.17 Mbps ate; throughput up to 0.2 Mbps us Connection Oriented links up to 3, 64 kbps, voice channels ous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or c (3-EV5) mponent shall operate as a Class II Bluetooth® device with a maximum -4 dBm for BR and EDR.
Data Rates and Throughput Transmit Power Power Consumption Electrical Interface Bluetooth® Software Supported Link Topology	BLE : 0~39 (2 MHz/ Legacy : 3 Mbps data r BLE : 1 Mbps data r Legacy : Synchrono Legacy : Asynchrono 864 kbps symmetri The Bluetooth® co transmit power of - Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend USB 2.0 compliant Microsoft Windows	CH) ata rate; throughput up to 2.17 Mbps ate; throughput up to 0.2 Mbps us Connection Oriented links up to 3, 64 kbps, voice channels ous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or c (3-EV5) mponent shall operate as a Class II Bluetooth® device with a maximum +4 dBm for BR and EDR. 17 mW Bluetooth® Software
Data Rates and Throughput Transmit Power Power Consumption Electrical Interface Bluetooth® Software Supported Link Topology Power Management	BLE : 0~39 (2 MHz/ Legacy : 3 Mbps data BLE : 1 Mbps data r Legacy : Synchrono Legacy : Synchrono 864 kbps symmetri The Bluetooth® co transmit power of - Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend USB 2.0 compliant Microsoft Windows	CH) ca rate; throughput up to 2.17 Mbps ate; throughput up to 0.2 Mbps us Connection Oriented links up to 3, 64 kbps, voice channels ous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or c (3-EV5) mponent shall operate as a Class II Bluetooth® device with a maximum +4 dBm for BR and EDR. 17 mW Bluetooth® Software ACPI, and USB Bus Support
Data Rates and Throughput Transmit Power Power Consumption Electrical Interface Bluetooth® Software Supported Link Topology Power Management	BLE : 0~39 (2 MHz/ Legacy : 3 Mbps data BLE : 1 Mbps data r Legacy : Synchrono Legacy : Synchrono 864 kbps symmetri The Bluetooth® co transmit power of - Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend USB 2.0 compliant Microsoft Windows	CH) ata rate; throughput up to 2.17 Mbps ate; throughput up to 0.2 Mbps us Connection Oriented links up to 3, 64 kbps, voice channels ous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or c (3-EV5) mponent shall operate as a Class II Bluetooth® device with a maximum +4 dBm for BR and EDR. 17 mW Bluetooth® Software
Data Rates and Throughput Transmit Power Power Consumption Electrical Interface Bluetooth® Software Supported Link Topology Power Management Certifications	BLE : 0~39 (2 MHz/ Legacy : 3 Mbps data BLE : 1 Mbps data r Legacy : Synchrono Legacy : Synchrono 864 kbps symmetri The Bluetooth® co transmit power of Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend USB 2.0 compliant Microsoft Windows FCC (47 CFR) Part 1	CH) ca rate; throughput up to 2.17 Mbps ate; throughput up to 0.2 Mbps us Connection Oriented links up to 3, 64 kbps, voice channels ous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or c (3-EV5) mponent shall operate as a Class II Bluetooth® device with a maximum -4 dBm for BR and EDR. 17 mW Bluetooth® Software ACPI, and USB Bus Support 5C, Section 15.247 & 15.249
Data Rates and Throughput Transmit Power Power Consumption Electrical Interface Bluetooth® Software Supported Link Topology Power Management	BLE : 0~39 (2 MHz/ Legacy : 3 Mbps data BLE : 1 Mbps data r Legacy : Synchrono Legacy : Synchrono 864 kbps symmetri The Bluetooth® co transmit power of - Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend USB 2.0 compliant Microsoft Windows FCC (47 CFR) Part 1 ETS 300 328, ETS 3	CH) ca rate; throughput up to 2.17 Mbps ate; throughput up to 0.2 Mbps us Connection Oriented links up to 3, 64 kbps, voice channels ous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or c (3-EV5) mponent shall operate as a Class II Bluetooth® device with a maximum -4 dBm for BR and EDR. 17 mW Bluetooth® Software ACPI, and USB Bus Support 5C, Section 15.247 & 15.249



Bluetooth Profiles Supported	BT4.1-ESR 5/6/7 Compliance
	LE Link Layer Ping
	LE Dual Mode
	LE Link Layer
	LE Low Duty Cycle Directed Advertising
	LE L2CAP Connection Oriented Channels
	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)

Realtek 802.11a/b/g/n/ac (1x	1) WiFi and Bluetooth® 4.2 Combo <sup>1</sup>		
Wireless LAN Standards	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		
	• 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		
Data Rates	• 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		
Security <sup>1</sup>	• 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	Ad-hoc (Peer to Peer)		
Models	Infrastructure (Access Point Required)		
Roaming	IEEE 802.11 compliant roaming between access points		
Output Power <sup>2</sup>	• 802.11b : +14dBm minimum		
-	• 802.11g : +12dBm minimum		
	• 802.11a : +12dBm minimum		
	• 802.11n HT20(2.4GHz) : +12dBm minimum		



		4GHz) : +12dBm minimum		
		GHz) : +10dBm minimum		
		GHz) : +10dBm minimum		
		• 802.11ac VHT80(5GHz) : +10dBm minimum     • Transmit mode2.0 W		
Power Consumption	Receive mode 1.6 W			
		180 mW (WLAN Associated)		
		V (WLAN unassociated)		
	Connected Stance     Radio disabled 8	-		
Power Management				
Power Management	ACPI and PCI Express compliant power management			
Receiver Sensitivity <sup>3</sup>	802.11 compliant power saving mode 802.11b, 1Mbps : -93.5dBm maximum			
Receiver Sensitivity		: -84dBm maximum		
		: -86dBm maximum		
		is : -72dBm maximum		
		-67dBm maximum		
		-64dBm maximum		
		-84dBm maximum		
	-			
Antenna type	802.11ac, MCS9 : -59dBm maximum High efficiency antenna.			
		al band 2.4/5 GHz antenna is provided to the card to support WLAN		
		nd Bluetooth communications		
Form Factor	PCI-Express M.2 MiniCard			
Dimensions	Type 2230 : 2.3 x 2			
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	o OFF; LED White – Radio ON		
1. Check latest software/dri	ver release for update	s on supported security features.		
<ol><li>Maximum output power r</li></ol>	nay vary by country ac	cording to local regulations.		
		or rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10%		
for 802.11a/g (OFDM mod	Julation).			
HP Integrated Module with Blueto	oth 4.0/4.1/4.2 Wirel	ess Technology		
Bluetooth <sup>®</sup> 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			
	3 , 1	ate; 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 symmetri			
Transmit Dower				
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.			
		r4 udiii 101 BK dilu EUK.		
Power Consumption	Peak (Tx) 330 mW			
	Peak (Rx) 230 mW	17 14		
	Selective Suspend	I / MW		



Electrical Interface	USB 2.0 compliant
Bluetooth® Software Supported Link Topology	Microsoft Windows Bluetooth® Software
Power Management	Microsoft Windows ACPI, and USB Bus Support
Certifications Power Management Certifications	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
Bluetooth Profiles Supported	BT4.1-ESR 5/6/7 Compliance LE Link Layer Ping LE Dual Mode LE Link Layer LE Low Duty Cycle Directed Advertising LE L2CAP Connection Oriented Channels 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)

Intel® Thunder Peak 9260 802	.11a/b/g/n/ac (2x2) WiFi and Bluetooth® 5.0 Combo <sup>1</sup> Non-vPro
Wireless LAN Standards	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
	• 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
Data Rates	• 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
	• 802.11a: 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, 80MHz & 160MHz)
Modulation	Direct Sequence Spread Spectrum
	BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM
Security <sup>1</sup>	• 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 802.111         • Cisco Certified Extensions, all versions through CCX4 and CCX Lite           • WAPI         • Ad-hoc (Peer to Peer)           Models         Infrastructure (Access Point Required)           Reaming         IEEE 802.110.*18.580m minimum           • 082.119.*18.580m minimum         • 082.119.*17.560m minimum           • 082.119.*17.560m minimum         • 082.119.*15.560m minimum           • 082.119.*17.2050m inimum         • 082.111.*15.560m minimum           • 082.111.*1202.47012.*15.560m minimum         • 082.111.*162.46012.*15.560m minimum           • 082.111.*17202.47012.*15.560m minimum         • 082.111.*1720.46012.*15.560m minimum           • 082.111.*1720.47012.*15.560m minimum         • 082.111.*1720.46012.*15.560m minimum           • 082.111.*1720.47012.*11.55.560m minimum         • 082.111.*1720.46012.*11.55.60m minimum           • 082.110.*1720.47012.*11.55.60m minimum         • 082.110.*1720.46012.*11.50m minimum           • 082.110.*1720.47012.*11.50m minimum         • 082.110.*1720.46012.*11.50m           • 082.110.*1720.47012.*11.*5.60m minimum         • 082.110.*1720.46012.*11.50m           • 082.110.*1720.47012.*11.50m         • 082.110.*1720.46012.*11.50m           • 082.110.*1720.47012.*11.50m         • 082.110.*1720.46012.*11.50m           • 082.110.*1720.47012.*11.50m         • 082.110.*1720.46012.*11.50m           • 082.110.*1720.*2000m         • 082.					
• WAPI           Achoc (Peer to Peer)           Models           Infrastructure (Access Point Required)           Market           Reaming           IEEE 802.11 compliant roaming between access points           Output Power*           • 802.110 : +18.5GBm minimum           • 802.111 : +13.5GBm minimum           • 802.111 : +13.5GBm minimum           • 802.111 : +13.5GBm minimum           • 802.111 HT20(2.4GH2) : +15.5GBm minimum           • 802.111 HT40(2.4GH2) : +11.5GBm minimum           • 802.111 HT40(2.5GH2) : +11.5GBm minimum           • 802.112 VHT80(5GH2) : +11.5GBm minimum           • 101e mode (PSP) 180 mW (WLAN Associated)           • 101e mode (PSP) 180 mW (WLAN associated)           • 101e mode (PSP) 180 mW (WLAN associated)           • 102.112 (SAMDS) : -52.5BBm maximum           802.111, 11Mbps : -84.3Bm maximum           802.1112 (SAM		• IEEE 802.11i			
Network Architecture         Ad-hoc (Peer to Peer)           Models         Infrastructure (Access Point Required)           Reaning         IEEE 802.11 compliant roaming between access points           Output Power <sup>2</sup> + 802.11b : +18.5dBm minimum           802.11b : +18.5dBm minimum         + 802.11b : +18.5dBm minimum           802.11a : +18.5dBm minimum         + 802.11n HT402(-46Hz) : +14.5dBm minimum           802.11n HT402(-46Hz) : +14.5dBm minimum         + 802.11n HT402(-46Hz) : +11.5dBm minimum           802.11n HT401(5GHz) : +11.5dBm minimum         + 802.11n HT401(5GHz) : +11.5dBm minimum           902.11a (VHT60(5GHz) : +11.5dBm minimum         + 802.11a (VHT60(5GHz) : +11.5dBm minimum           902.11a (VHT160(5GHz) : +11.5dBm minimum         + 802.11a (VHT160(5GHz) : +11.5dBm minimum           902.11a (VHT160(5GHz) : +11.5dBm minimum         + 802.11a (VHT160(5GHz) : +11.5dBm minimum           902.11a (VHT160(5GHz) : +11.5dBm minimum         + 802.11a (VHT160(5GHz) : +11.5dBm minimum           902.11a (VHT160(5GHz) : +11.5dBm minimum         + 802.11a (VHT160(5GHz) : +11.5dBm minimum           902.11a (VHT160(5GHz) : +11.5dBm minimum         + 802.11a (Mz) maximum           902.11a (VHT160(5GHz) : +11.5dBm maximum         802.11a (Mz) = +802.11a (Mz) maximum           902.11a (MS) : +93.5dBm maximum         802.11a (MS) : +93.5dBm maximum           802.11a (MS) : +93.5dBm maximum         802.11a (MS) : +93.5d					
Models         Infrastructure (Access Point Required)           Reaming         IEEE 802.11 compliant roaming between access points           Output Power'         + 802.11 b; +18.5dBm minimum           802.11 b; +13.5dBm minimum         + 802.11 b; +13.5dBm minimum           802.11 b; +13.5dBm minimum         + 802.11 b; +13.5dBm minimum           802.11 h; HT402.4GH2); +14.5dBm minimum         + 802.11 c; +13.5dBm minimum           802.11 h; HT402.5GH2); +11.5dBm minimum         + 802.11 c; +13.5dBm minimum           802.11 h; HT402.5GH2); +11.5dBm minimum         + 802.11 c; +13.5dBm minimum           802.11 c; VHT160(5GH2); +11.5dBm minimum         + 802.11 c; VHT160(5H2); +11.5dBm minimum           802.11 c; VHT160(5H2); +11.5dBm minimum         + 802.11 c; VHT160(5H2); +11.5dBm minimum           802.11 c; VHT160(5H2); +11.5dBm minimum         + 802.11 c; VHT160(5H2); +11.5dBm minimum           802.11 c; VHT160(5H2); +11.5dBm minimum         + 802.11 c; VHT160(5H2); +11.5dBm minimum           802.11 c; VHT160(5H2); +11.5dBm maximum         + 802.11 c; VHT160(5H2); +11.5dBm maximum           802.11 c; VHT160(5H2); +11.5dBm maximum         + 802.11 c; MpS1; +32.5dBm maximum           802.11 c; VHT160(5H2); +15.5dBm maximum         + 802.11 c; MpS1; +32.5dBm maximum           802.11 c; VHT160(5HB); +22.6dBm maximum         + 802.11 c; MpS1; +32.5dBm maximum           802.11 c; MS1; + 5.4dBm maximum         + 802.11 c; MS1; + 5.4					
Reaming         IEEE 802.11 compliant reaming between access points           Output Power'         • 802.11 b: +18.5dBm minimum           • 802.11 g: +17.5dBm minimum         • 802.11 h: +18.5dBm minimum           • 802.11 h: +18.5dBm minimum         • 802.11 h: +18.5dBm minimum           • 802.11 h: H120(E4,6Hz): +15.5dBm minimum         • 802.11 h: H120(E4,2Hz): +15.5dBm minimum           • 802.11 h: H120(E4,2Hz): +15.5dBm minimum         • 802.11 h: H120(E4,2Hz): +11.5dBm minimum           • 802.11 h: VH120(E5,Hz): +11.5dBm minimum         • 802.11 h: H120(E4,2Hz): +11.5dBm minimum           • 802.11 h: VH120(E5,Hz): +11.5dBm minimum         • 802.11 h: H02(E4,Hz): +11.5dBm minimum           • 802.11 h: VH120(E5,Hz): +11.5dBm minimum         • 802.11 h: WH20(E5,Hz): +11.5dBm minimum           • 802.11 h: VH150(E5,Hz): +11.5dBm minimum         • 802.11 h: WH20(E5,Hz): +11.5dBm minimum           • 802.11 h: VH20(E5,Hz): +11.5dBm minimum         • 802.11 h: WH20(E5,Hz): +11.5dBm minimum           • 802.11 h: WH20(E5,Hz): +11.5dBm minimum         • 802.11 h: WH20(E5,Hz): +11.5dBm minimum           • Kadd oisabled B m W         Radio disabled B mW           Power Management         ACPI and PCE Express compliant power management           802.11 h; MINDs: -93.5dBm maximum         802.11 h; MINDs: -93.5dBm maximum           802.11 h; MINDs: -93.5dBm maximum         802.11 h; MINDs: -93.5dBm maximum           802.11 h; MCS15: -64dBm maximum </th <th></th> <th></th> <th></th>					
Output Power*       • 802.11b: +18.5dBm minimum         • 802.11b: +18.5dBm minimum         • 802.11a: +18.5dBm minimum         • 802.11n HT202.4GHz): +15.5dBm minimum         • 802.11n HT202.4GHz): +15.5dBm minimum         • 802.11n HT202(5Hz): +14.5dBm minimum         • 802.11ac VHT180(5Hz): +11.5dBm minimum         • 802.11ac VHT180(5Hz): +11.5dBm minimum         • 802.11ac VHT180(5Hz): +11.5dBm minimum         • 802.11ac VHT80(5Hz): +11.5dBm minimum         • 802.11ac VHT80(5Hz): +10.5dBm minimum         • 802.11ac VHT80(5Hz): +10.5dBm minimum         • 902 Hz       +100 HZ         • 16le mode 50 mW (WLAN Associated)         • 16le mode 50 mW (WLAN massociated)         • 16le mode 50 mW (WLAN massociated)         • 10le mode 50 mW (WLAN massociated)         • 10le mode 50 mW (MLAN massociated)         02le 11d, MSSS -58 dBm maximum					
+ 802.11g : +17.5dBm minimum         + 802.11g : +18.5dBm minimum         + 802.11n HT20(54; : +15.5dBm minimum         + 802.11n HT40(54; : +15.5dBm minimum         + 802.11n HT40(54; : +15.5dBm minimum         + 802.11n HT40(54; : +11.5dBm minimum         + 802.11n HT40(54; : +11.5dBm minimum         + 802.11a (VH160(56H2) : +11.5dBm maximum         802.11b (TMbp : -940Bm maximum         802.11b (TMbp : -940Bm maximum         802.11b (TMbp : -942Bm maximum         802.11a (M53) : 544Bm maximum <t< th=""><th></th><th></th><th></th></t<>					
+ 802.11a : +18.5dBm minimum         + 802.11a H T202 (4Fb) : +15.5dBm minimum         + 802.11n HT40(2.4GFb) : +14.5dBm minimum         + 802.11n HT40(2.4GFb) : +14.5dBm minimum         + 802.11n HT40(5GFb) : +14.5dBm minimum         + 802.11a CWT160(5GFb2) : +11.5dBm minimum         + 802.11a CWT160(5Fb2) : +11.5dBm minimum         + 802.11a CWT160(5Fb2) : +11.5dBm minimum         + 802.11a CWT160(5Fb2) : +11.5dBm minimum         * 101e mode (PSP) 180 mW (WLAN Associated)         + 101e mode (PSP) 180 mW (WLAN unassociated)         + 101e mode (PSP) 180 mW (WLAN unassociated)         * 102e mode add PDE Express compliant power management         802.11a (CMPS) * 595.6dBm maximum         802.11a (MSD) * 595.6dBm maximum         802.11a (MSD) * 595.6dBm maxi	Output Power <sup>2</sup>	<ul> <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> </ul>			
<ul> <li>e02.11n HT20(2.4GH2): 115.5dBm minimum</li> <li>e02.11n HT40(2.4GH2): 115.5dBm minimum</li> <li>e02.11n HT40(2.5GH2): 115.5dBm minimum</li> <li>e02.11n HT40(5GH2): 115.5dBm minimum</li> <li>e02.11n VH1160(5GH2): 11.5dBm maximum</li> <li>e02.11n VH1160(5GH2): 10.90W</li> <li>e02.1</li></ul>					
<ul> <li>e02.11n HT40(2.4GH2): +14.5dBm minimum</li> <li>e02.11n HT20(5GH2): +14.5dBm minimum</li> <li>e02.11a (VHT80(5GH2): +15.5dBm minimum</li> <li>e02.11a (VHT80(5GH2): +13.5dBm minimum</li> <li>e02.11a (VHT80(5GH2): +14.5dBm minimum</li> <li>e02.11a (VHT80(5GH2): +13.5dBm minimum</li> <li>e1de mode (PSP) 180 mW (WLAN Associated)</li> <li>e1de mode SD mW (WLAN unassociated)</li> <li>e1de MCE STRESS compliant maximum</li> <li>e02.11a (MSO0 : -67dBm maximum</li> <li>e02.11a (MSO1 : -67dBm maximum</li> <li>e02.11a (MSO2 : -84dBm maximum</li> <li>e02.11a (MSO2 : -84dBm</li></ul>					
<ul> <li> <ul> <li>e02.11n HT20(5GH2) : 115.5dBm minimum</li> <li>e02.11a CVHT90(5GH2) : 11.5dBm minimum</li> </ul> </li> <li>Power Consumption         <ul> <li>rtansmit mode 20 W</li> <li>Receive mode 1.6 W</li> <li>idle mode (PSP) 180 mW (WLAN Associated)</li> <li>idle mode S0 mW (WLAN unassociated)</li> <li>connected Standby 10mW</li> <li>Radio disabled B mW</li> </ul> </li> <li>Power Management         <ul> <li>ACPI and PCI Express compliant power management</li> <li>802.11b, 1Mbps : -93.5dBm maximum</li> <li>802.11a/g, 6Mbps : -93.5dBm maximum</li> <li>802.11a/g, 6Mbps : -72dBm maximum</li> <li>802.11a/g, 6Mbps : -64dBm maximum</li> <li>802.11a/g, 6Mbps : -72dBm maximum</li> <li>802.11a/g, 6Mbps : -72dBm maximum</li> <li>802.11a/g, 6Mbps : -72dBm maximum</li> <li>802.11a, MCS1 : -64dBm maximum</li> <li>802.11a, CCS2 : -59dBm maximum</li> <li>802.11a/g, CS2 : -59dBm maximum</li> <li>802.11a/g, CS2 : -59dBm maximum</li> </ul> </li> <li>Antenna type         <ul> <li>High efficiency antenna with spatial diversity, mounted in the display enclosure</li> <li>Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIM0 communications and Bluetooth communications</li> </ul> </li> <li>Form Factor         <ul> <li>POI-Express N.2 MiniCard</li> <li>Diperating Voltage</li> <li>3.3 w / - 9.4 MiniCard</li> <li>Diperating Voltage</li> <li>A * 105* F (-10* to 70* C)<!--</th--><th></th></li></ul></li></ul>					
<ul> <li> <ul> <li>e02.11a LT40(5GH2): ±11.5dBm minimum</li> <li>e02.11a VHT80(5GH2): ±11.5dBm minimum</li> <li>e02.11a VHT80(5GH2): ±11.5dBm minimum</li> <li>e02.11a VHT80(5GH2): ±11.5dBm minimum</li> </ul> </li> <li>Power Consumption         <ul> <li>Transmit mode2.0 W</li> <li>Receive mode 1.6 W</li> <li>Idle mode (PSP) 180 mW (WLAN Associated)</li> <li>Idle mode (PSP) 180 mW (WLAN Associated)</li> <li>Connected Standby 10mW</li> <li>Receiver Sensitivity<sup>3</sup></li> </ul> </li> <li>Power Management         <ul> <li>ACPI and PCI Express compliant power management</li> <li>802.11b, 1Mbps: -93.5dBm maximum</li> <li>802.11b, 1Mbps: -93.5dBm maximum</li> <li>802.11a/g, 5Mbps: -93.6dBm maximum</li> <li>802.11a/g, 5Mbps: -72dBm maximum</li> <li>802.11a/g, 5Mbps: -84dBm maximum</li> <li>802.11a/g, 5Mbps: -84dBm maximum<th></th></li></ul></li></ul>					
• 802.11ac VHT80(SGHz) : +11.5dBm minimum         • Power Consumption       • Transmit mode2.0 W         • Receive mode 1.6 W       • Idle mode (FSP) 180 mW (WLAN Associated)         • Idle mode (FSP) 180 mW (WLAN Associated)       • Idle mode 50 mW (WLAN unassociated)         • Connected Standby 10mW       • Radio disabled B mW         Power Management       ACPI and PCI Express compliant power management         802.11a. (JII)       110 mpliant power saving mode         Receiver Sensitivity <sup>3</sup> 802.11b, 1Mbps : -93.5dBm maximum         802.11a/g, GMbps : -72.dBm maximum       802.11a/g, GMbps : -72.dBm maximum         802.11a/g, S4Mbps : -72.dBm maximum       802.11a, MCS0 : -64dBm maximum         802.11a, MCS0 : -64dBm maximum       802.11a, MCS0 : -64dBm maximum         802.11ac, MCS9 : -59dBm maximum       802.11ac, MCS9 : -59dBm maximum         802.11ac, MCS9 : -59dBm maximum       802.11ac, MCS9 : -59dBm maximum         802.11ac, MCS9 : -59dBm maximum       802.11ac, MCS9 : -59dBm maximum         802.11ac, MCS9 : -59dBm maximum       802.11ac, MCS9 : -59dBm maximum         802.11ac, MCS9 : -59dBm maximum       802.11ac, MCS9 : -59dBm maximum         802.11ac, MCS9 : -59dBm maximum       802.11ac, MCS9 : -59dBm maximum         802.11ac, MCS9 : -59dBm maximum       802.11ac, MCS9 : -59dBm maximum         802.11ac, MCS9 : -59dBm maximum       802.11ac,					
• 802.11ac VHT160(SGH2) : +11.5dBm minimum         Power Consumption       • Transmit mode2.0 W         • Receive mode       1.6 W         • Idle mode (PSP) 180 mW (WLAN Associated)         • Idle mode S0 mW (WLAN unassociated)         • Connected Standby 10mW         • Radio disabled 8 mW         Power Management       ACPI and PCI Express compliant power management         802.11a (PI and PCI Express compliant power saving mode         Receiver Sensitivity <sup>3</sup> 802.11b, 11Mbps : -93.5dBm maximum         802.11a/g, 6Mbps : -72dBm maximum         802.11a/g, 54Mbps : -72dBm maximum         802.11a/g, 6Mbps : -72dBm maximum         802.11a/g, 54Mbps : -72dBm maximum         802.11a/g 54Mbc					
Power Consumption <ul> <li>Transmit mode2.0 W</li> <li>Receive mode</li> <li>1.6 W</li> <li>idle mode (FSP) 180 mW (WLAN Associated)</li> <li>idle mode (FSP) 180 mW (WLAN unassociated)</li> <li>Connected Standby 10mW</li> <li>Radio disabled 8 mW</li> </ul> <li>Power Management</li> <li>ACPI and PCI Express compliant power management</li> <li>802.111 cmpliant power saving mode</li> <li>Receiver Sensitivity<sup>3</sup></li> <li>802.111 and Standby 10mW</li> <li>802.111 and Standby 10mW</li> <ul> <li>802.111 and Standby 10mW</li> <li>802.111 and Standby 10mW</li></ul>					
• Receive mode 1.6 W         • Idle mode (PSP) 180 mW (WLAN Associated)         • Idle mode (PSP) 180 mW (WLAN unassociated)         • Connected Standby 10mW         • Radio disabled 8 mW         Power Management       ACPI and PCI Express compliant power management 802.11 b, 11Mbps : -93.5dBm maximum 802.11 b, 11Mbps : -93.5dBm maximum 802.11 b, 11Mbps : -84dBm maximum 802.11 a/g, 6Mbps : -72dBm maximum 802.11 a, MCS0 : -64dBm maximum 802.11 a, MCS0 : -64dBm maximum 802.11 a, MCS0 : -59dBm maximum 802.11 a, MCS0 : -50 and maximum 800.11 a, MC onequating -40 'to 158 °F (-10 ° to 70 °C) Non-operating -40 'to 178 °F (-40 'to 80 °C)         Pimeprature       Operating -40 'to 178 °F (-40 'to 80 °C)         Humidity       Operating -40 'to 178 °F (-40 'to 80 °C)         Humidity       Operating -40 'to 178 °F (-40 'to 80 °C)         Humidity       Operating -40 'to 178 °F (-40 'to 80 °C)         Humidity       Operating -40 'to 178 °F (-40					
<ul> <li>idle mode (PSP) 180 mW (WLAN Associated)         <ul> <li>idle mode 50 mW (WLAN Associated)</li> <li>connected Standby 10mW</li> <li>Radio disabled 8 mW</li> </ul> </li> <li>Power Management         <ul> <li>ACPI and PCI Express compliant power management</li> <li>802.111 compliant power saving mode</li> </ul> </li> <li>Receiver Sensitivity<sup>3</sup> <ul> <li>802.111 ompliant power saving mode</li> <li>802.111 difference</li> <li>802.112 difference</li></ul></li></ul>	Power Consumption	<ul> <li>Transmit mode2</li> </ul>	.0 W		
<ul> <li>Idle mode 50 mW (WLAN unassociated)         <ul> <li>Connected Standby 10mW</li> <li>Radio disabled 8 mW</li> </ul> </li> <li>Power Management             <ul> <li>ACPI and PCI Express compliant power management 802.111 compliant power saving mode</li> <li>Receiver Sensitivity<sup>3</sup></li> <li>802.11b, 11Mbps : -93.5dBm maximum 802.11a/g, 6Mbps : -864Bm maximum 802.11a/g, 6Mbps : -864Bm maximum 802.11a/g, 54Mbps : -72dBm maximum 802.11a/g, 54Mbps : -72dBm maximum 802.11n, MCS0 : -67dBm maximum 802.11a/g, 54Mbps : -844Bm maximum 802.11a, MCS9 : -935, Mon-condensing 90</li></ul></li></ul>					
<ul> <li>Connected Standby 10mW</li> <li>Radio disabled 8 mW</li> <li>Power Management</li> <li>ACPI and PCI Express compliant power management</li> <li>802.11 compliant power saving mode</li> <li>Receiver Sensitivity<sup>3</sup></li> <li>802.11b, 1Mbps : -93.5dBm maximum</li> <li>802.11a/g, 6Mbps : -86dBm maximum</li> <li>802.11a/g, 6Mbps : -86dBm maximum</li> <li>802.11a/g, 5Mbps : -86dBm maximum</li> <li>802.11n, MCS15 : -67dBm maximum</li> <li>802.11a, MCS0 : -67dBm maximum</li> <li>802.11a, MCS0 : -64dBm maximum</li> <li>802.11ac, MCS0 : -64dBm maximum</li> <li>802.11ac, MCS0 : -64dBm maximum</li> <li>802.11ac, MCS0 : -84dBm maximum</li> <li>802.11ac, MCS0 : -84dBm maximum</li> <li>802.11ac, MCS0 : -259dBm maximum</li> <li>802.11ac, MCS0 : -259dBm maximum</li> <li>802.11ac, MCS0 : -259dBm maximum</li> <li>802.11ac, MCS0 : -254dBm maximum</li> <li>802.11ac, MCS0 : -254BM Maximum</li> <li>802.11ac, MCS0 : -254BM Maximum</li> <li>802.11ac, MCS0 : -264BM Maximum</li> <li>802.110 (CK modulation) and a packet error rate of 10% for 802.110 (</li></ul>		<ul> <li>Idle mode (PSP)</li> </ul>	180 mW (WLAN Associated)		
• Radio disabled 8 mW         Power Management       ACPI and PCI Express compliant power management         802.11 compliant power saving mode         Receiver Sensitivity <sup>3</sup> 802.11b, 1Mbps : -93.5dBm maximum         802.11a/g, 64Mbps : -864Bm maximum         802.11n, MCS07 : -674Bm maximum         802.11n, MCS07 : -674Bm maximum         802.11a, MCS0 : -84dBm maximum         802.11a, MCS0 : -84dBm maximum         802.11a, MCS0 : -84dBm maximum         802.11a, MCS9 : -593Bm maximum         802.11ac, MCS9 : -594Bm maximum         802.11ac, MCS9 : -84dBm maximum         802.11ac,					
Power Management         ACPI and PCI Express compliant power management 802.11 tompliant power saving mode           Receiver Sensitivity <sup>3</sup> 802.11b, 11 Mbps : -93.26Bm maximum 802.11a/g, 6Mbps : -93.26Bm maximum 802.11a/g, 6Mbps : -93.24Bm maximum 802.11a/g, 6Mbps : -93.24Bm maximum 802.11n, MCS07 : -67dBm maximum 802.11n, MCS07 : -67dBm maximum 802.11ac, MCS9 : -59dBm maximum 802.11ac, MCS9 : -259dBm maximum 802.11ac, MCS9 : -269dBm maximum 800.000 ft (15,240 m) 80.0000 ft (15,240 m) 91. Check latest software/driver release for updates on supported security features. 92. Maximum output power may vay by country ac		Connected Stand	lby 10mW		
802.11 compliant power saving mode         Receiver Sensitivity <sup>3</sup> 802.11b, 1Mbps : -93.5dBm maximum         802.11b, 1Mbps : -93.5dBm maximum       802.11a/g, 6Mbps : -72dBm maximum         802.11a/g, 54Mbps : -72dBm maximum       802.11a/g, 54Mbps : -72dBm maximum         802.11a/g, 54Mbps : -72dBm maximum       802.11a/g, 54Mbps : -72dBm maximum         802.11a/g, 54Mbps : -72dBm maximum       802.11a, MCS0 : -64dBm maximum         802.11ac, MCS0 : -59dBm maximum       802.11ac, MCS9 : -59dBm maximum         802.11ac, MCS9 : -59dBm maximum       802.11ac, MCS9 : -59dBm maximum         Retenat 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         MIM0 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 : 2.3 x 22.0 x 30.0 mm         Weight       Type 2230 : 1.3 x 4/- 9%         Temperature       Operating       14° to 158° F (-10° to 70° C)         Non-operating       10% to 90% (non-condensing)         Non-operating       10% to 90% (non-condensing)         Non-operating       10% to 90% (non-condensing)         Non-operating       10 to 50,000 ft (13,240 m)					
Receiver Sensitivity <sup>3</sup> 802.11b, 1Mbps : -93.5dBm maximum 802.11a/g, 6Mbps : -94dBm maximum 802.11a/g, 6Mbps : -92dBm maximum 802.11a/g, 5Mbps : -72dBm maximum 802.11n, MCS07 : -67dBm maximum 802.11a, CS15 : -64dBm maximum 802.11a, CS15 : -64dBm maximum 802.11a, CS15 : -64dBm maximum 802.11a, CS15 : -59dBm maximum 802.11ac, MCS9 : -29dBm maximum 802.11ac, MCS9 : -20dBm maximum 802.11ac, MCS9 : -29dBm maximum 800 : -2000 ft (15,240 m) 800 : -2000 ft (16,240 m) 800 : -2	Power Management	ACPI and PCI Express compliant power management			
802.11b, 11Mbps : -84dBm maximum         802.11a/g, 6Mbps : -72dBm maximum         802.11a/g, 54Mbps : -72dBm maximum         802.11n, MCS07 : -67dBm maximum         802.11n, MCS07 : -67dBm maximum         802.11n, MCS07 : -67dBm maximum         802.11ac, MCS9 : -84dBm maximum         Rotenat type         High efficiency ant=nna 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 : 2.3 x 22.0 x 30.0 mm         Weight       Type 2230 : 2.3 x 22.0 x 30.0 mm         Minitity       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)         Altitude       Operating       0 to 50.000 ft (15,240 m)         LED Activity       LED Amber - Radio OFF; LED White - Radio 0N         1.       Check latest software/driver release for updates on supported security features.         <					
802.11a/g, 6Mbps : -86dBm maximum         802.11a/g, 54Mbps : -72dBm maximum         802.11n, MCS07 : -67dBm maximum         802.11n, MCS15 : -64dBm maximum         802.11n, MCS07 : -67dBm maximum         802.11n, MCS15 : -64dBm maximum         802.11ac, MCS0 : -84dBm maximum         80.11ac       Type 2230 : 2.3 x 20.0 x 30.0 mm         Weigh	Receiver Sensitivity <sup>3</sup>				
802.11a/g, 54Mbps:-72dBm maximum         802.11n, MCS07:-67dBm maximum         802.11n, MCS15:-64dBm maximum         802.11ac, MCS9:-59dBm 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: 2.3 x 22.0 x 30.0 mm         Operating Voltage       3.3v +/- 9%         Temperature       Operating         Non-operating       14° to 158° F (-10° to 70° C)         Non-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         1.       Check latest software/driver release for updates on supported security features.         2.       Maximum output power may vary by country according to local regulations.         3.       Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CKK modulation) and		802.11b, 11Mbps : -84dBm maximum			
802.11n, MCS07: -67dBm maximum         802.11n, MCS07: -67dBm maximum         802.11n, MCS0: -84dBm maximum         802.11ac, MCS0: -84dBm 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: 2.3 x 22.0 x 30.0 mm         Operating Voltage       3.3 x +f-9%         Temperature       Operating         14° to 158° F (-10° to 70° C)         Non-operating       14° to 158° F (-40° to 80° C)         Humidity       Operating         00 perating       10% to 90% (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         1.       Check latest software/driver release for updates on supported security features.         2.       Maximum output power may vary by country according to local regulations.         3.       Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CKK modula					
802.11n, MCS15:-64dBm maximum         802.11ac, MCS0:-84dBm maximum         802.11ac, MCS9:-59dBm maximum         Antenna type         High efficiency ant=nna 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: 2.3 x 22.0 x 30.0 mm         Operating Voltage       3.3 v +/- 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 OFFF; LED White – Radio ON         1.       Check latest software/driver release for updates on supported security features.         2.       Maximum output power may vary by country according to local regulations.         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 (0FDM modulation). <td colspan="2"></td> <td>os : -72dBm maximum</td>			os : -72dBm maximum		
802.11ac, MCS0 : -84dBm maximum         802.11ac, MCS9 : -59dBm maximum         Antenna type         High efficiency anterna 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 : 2.3 x 22.0 x 30.0 mm         Operating Voltage       3.3 v +/- 9%         Temperature       Operating       14° to 158° F (-10° to 70° C) Non-operating         Mumidity       Operating       10% to 90% (non-condensing) Non-operating         Attitude       Operating       0 to 10,000 ft (3,048 m) Non-operating         Non-operating       0 to 50,000 ft (15,240 m)         LED Activity       LED Amber – Radio OFF; LED White – Radio ON         1.       Check latest software/driver release for updates on supported security features.         2.       Maximum output power may vary by country according to local regulations.         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 (0FDM modulation).         HP Integrated Module with Bluetoot+ 4.0/4.1/4.2/5.0 Compliant       4/0/4.1/4.2/5.0 Compliant					
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 × 22.0 × 30.0 mm         Weight       Type 2230 : 2.3 × 22.0 × 30.0 mm         Operating Voltage       3.3 v +/ - 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)         Non-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         1.       Check latest software/driver release for updates on supported security features.         2.       Maximum output power may vary by country according to local regulations.         3.       Receiver sensitivity is measured at a packet error rate of 8% for 802.116 (CKK modulation) and a packet error rate of 10% for 802.111 a/g (OFDM modulation).         HIP Integrated Module with Bluetooth 4.0/4.1/4.2/5.0 Compliant       2402 to 2480 MHz		802.11n, MCS15 : -64dBm maximum 802.11ac, MCS0 : -84dBm 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 : 2.3 x 22.0 x 30.0 mm         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 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         1.       Check latest software/driver release for updates on supported security features.         2.       Maximum output power may vary by country according to local regulations.         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 4.0/4.1/4.2/5.0 Compliant       Frequency Band					
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 : 2.3 x 22.0 x 30.0 mm         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         Non-operating       10% to 95% (non-condensing)         Non-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         1. Check latest software/driver release for updates on supported security features.         2. Maximum output power may vary by country according to local regulations.         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 Bluetoott 4.0/4.1/4.2/5.0 Compliant         Forquency Band       2402 to 2480 MHz					
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       3.3 v +/- 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 0N       LED Amber - Radio OFF; LED White - Radio 0N         1       Check latest software/driver release for updates on supported security features.       2.         2.       Maximum output power may vary by country according to local regulations.       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 (0FDM modulation).         HP Integrated Module with Bluetooth 4.0/4.1/4.2/5.0 Compliant       4.0/4.1/4.2/5.0 Compliant         Frequency Band       2402 to 2480 MHz       Compliant	Antenna type				
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       3.3 v +/- 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 0N       LED Amber - Radio OFF; LED White - Radio 0N         1       Check latest software/driver release for updates on supported security features.       2.         2.       Maximum output power may vary by country according to local regulations.       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 (0FDM modulation).         HP Integrated Module with Bluetooth 4.0/4.1/4.2/5.0 Compliant       4.0/4.1/4.2/5.0 Compliant         Frequency Band       2402 to 2480 MHz       Compliant					
Form FactorPCI-Express M.2 MiniCardDimensionsType 2230 : 2.3 x 22.0 x 30.0 mmWeightType 2230 : 2.8gOperating Voltage3.3v +/- 9%TemperatureOperating14° to 158° F (-10° to 70° C) Non-operatingMunidityOperating10% to 90% (non-condensing) S% to 95% (non-condensing)AltitudeOperating Non-operating0 to 10,000 ft (3,048 m) Non-operatingLED ActivityLED Amber – Radio OFF; LED White – Radio ON1Check latest software/driver release for updates on supported security features. 2. Maximum output power may vary by country according to local regulations. 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 4.0/4.1/4.2/5.0 Wireless TechnologyBluetooth® Specification4.0/4.1/4.2/5.0 CompliantFrequency Band2402 to 2480 MHz					
DimensionsType 2230 : 2.3 x 22.0 x 30.0 mmWeightType 2230 : 2.8gOperating Voltage3.3v +/- 9%TemperatureOperating14° to 158° F (-10° to 70° C) -40° to 176° F (-40° to 80° C)HumidityOperating Non-operating10% to 90% (non-condensing) 5% to 95% (non-condensing)AltitudeOperating Non-operating0 to 10,000 ft (3,048 m) 0 to 50,000 ft (15,240 m)LED ActivityLED Amber – Radio OFF; LED White – Radio 0N1.Check latest software/driver release for updates on supported security features.2.Maximum output power may vary by country according to local regulations.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 Bluetooth4.0/4.1/4.2/5.0 Wireless TechnologyBluetooth® Specification4.0/4.1/4.2/5.0 CompliantFrequency Band2402 to 2480 MHz		MIMO communicat			
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       0 to 176° F (-40° to 80° C)         Humidity       Operating       10% to 90% (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 Activity       LED Amber – Radio OFF; LED White – Radio 0N         1.       Check latest software/driver release for updates on supported security features.       Z.         2.       Maximum output power may vary by country according to local regulations.       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 4.0/4.1/4.2/5.0 Wireless Technology         Bluetooth® Specification       4.0/4.1/4.2/5.0 Compliant         Frequency Band       2402 to 2480 MHz	Form Factor	PCI-Express M.2 M			
Operating Voltage       3.3 v +/- 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         1.       Check latest software/driver release for updates on supported security features.         2.       Maximum output power may vary by country according to local regulations.         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 4.0/4.1/4.2/5.0 Wireless Technology         Bluetooth® Specification       4.0/4.1/4.2/5.0 Compliant         Frequency Band       2402 to 2480 MHz	Dimensions	Type 2230 : 2.3 x 2			
Operating Voltage       3.3 v +/- 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         1.       Check latest software/driver release for updates on supported security features.         2.       Maximum output power may vary by country according to local regulations.         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 4.0/4.1/4.2/5.0 Wireless Technology         Bluetooth® Specification       4.0/4.1/4.2/5.0 Compliant         Frequency Band       2402 to 2480 MHz	Weight				
TemperatureOperating Non-operating14° to 158° F (-10° to 70° C) -40° to 176° F (-40° to 80° C)HumidityOperating Non-operating10% to 90% (non-condensing) 5% to 95% (non-condensing)AltitudeOperating Non-operating0 to 10,000 ft (3,048 m) 0 to 50,000 ft (15,240 m)LED ActivityLED Amber – Radio OFF; LED White – Radio ON1.Check latest software/driver release for updates on supported security features.2.Maximum output power may vary by country according to local regulations.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 4.0/4.1/4.2/5.0 Wireless TechnologyBluetooth® Specification4.0/4.1/4.2/5.0 CompliantFrequency Band2402 to 2480 MHz					
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         1.       Check latest software/driver release for updates on supported security features.         2.       Maximum output power may vary by country according to local regulations.         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 4.0/4.1/4.2/5.0 Wireless Technology         Bluetooth® Specification       4.0/4.1/4.2/5.0 Compliant         Frequency Band       2402 to 2480 MHz			14° to 158° F (–10° to 70° C)		
Humidity       Operating Non-operating       10% to 90% (non-condensing)         Altitude       Operating 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         1.       Check latest software/driver release for updates on supported security features.         2.       Maximum output power may vary by country according to local regulations.         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 4.0/4.1/4.2/5.0 Wireless Technology         Bluetooth® Specification       4.0/4.1/4.2/5.0 Compliant         Frequency Band       2402 to 2480 MHz	•				
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         1. Check latest software/driver release for updates on supported security features.         2. Maximum output power may vary by country according to local regulations.         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 4.0/4.1/4.2/5.0 Wireless Technology         Bluetooth® Specification       4.0/4.1/4.2/5.0 Compliant         Frequency Band       2402 to 2480 MHz	Humidity				
Altitude       Operating Non-operating       0 to 10,000 ft (3,048 m) 0 to 50,000 ft (15,240 m)         LED Activity       LED Amber – Radio OFF; LED White – Radio ON         1. Check latest software/driver release for updates on supported security features.         2. Maximum output power may vary by country according to local regulations.         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 Bluetoott + 4.0/4.1/4.2/5.0 Wireless Technology         Bluetooth® Specification       4.0/4.1/4.2/5.0 Compliant         Frequency Band       2402 to 2480 MHz	<b>-</b>				
Non-operating       0 to 50,000 ft (15,240 m)         LED Activity       LED Amber – Radio OFF; LED White – Radio ON         1. Check latest software/driver release for updates on supported security features.         2. Maximum output power may vary by country according to local regulations.         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 4.0/4.1/4.2/5.0 Wireless Technology         Bluetooth® Specification       4.0/4.1/4.2/5.0 Compliant         Frequency Band       2402 to 2480 MHz	Altitude				
LED Activity       LED Amber – Radio OFF; LED White – Radio ON         1.       Check latest software/driver release for updates on supported security features.         2.       Maximum output power may vary by country according to local regulations.         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 4.0/4.1/4.2/5.0 Wireless Technology         Bluetooth® Specification       4.0/4.1/4.2/5.0 Compliant         Frequency Band       2402 to 2480 MHz					
1. Check latest software/driver release for updates on supported security features.         2. Maximum output power may vary by country according to local regulations.         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 4.0/4.1/4.2/5.0 Wireless Technology         Bluetooth® Specification       4.0/4.1/4.2/5.0 Compliant         Frequency Band       2402 to 2480 MHz	LED Activity				
<ol> <li>Maximum output power may vary by country according to local regulations.</li> <li>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).</li> <li>HP Integrated Module with Bluetooth 4.0/4.1/4.2/5.0 Wireless Technology</li> <li>Bluetooth® Specification 4.0/4.1/4.2/5.0 Compliant</li> <li>Frequency Band 2402 to 2480 MHz</li> </ol>					
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 4.0/4.1/4.2/5.0 Wireless Technology         Bluetooth® Specification       4.0/4.1/4.2/5.0 Compliant         Frequency Band					
for 802.11a/g (OFDM modulation).         HP Integrated Module with Bluetooth 4.0/4.1/4.2/5.0 Wireless Technology         Bluetooth® Specification       4.0/4.1/4.2/5.0 Compliant         Frequency Band       2402 to 2480 MHz					
HP Integrated Module with Bluetooth 4.0/4.1/4.2/5.0 Wireless TechnologyBluetooth® Specification4.0/4.1/4.2/5.0 CompliantFrequency Band2402 to 2480 MHz					
Bluetooth® Specification4.0/4.1/4.2/5.0 CompliantFrequency Band2402 to 2480 MHz			lireless Technology		
Frequency Band 2402 to 2480 MHz					
	•		πραστι		
Number of Available Channels  Legacy: 0~79 (1 MHz/CH)					
	Number of Available Channels	Legacy: 0~79 (1 MH	Iz/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 Topology	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		
	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)		

#### HP EliteDesk 705 G4 Desktop Mini Business PC

Intel <sup>®</sup> Sandy Peak 3168 802.1	/b/g/n/ac (1x1) WiFi and Bluetooth® 4.2 Combo [1]		
Wireless LAN Standards	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		
	• 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		
Data Rates	• 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)	
M - d-1-4	802.11ac : MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, and 80MHz)	
Modulation	Direct Sequence Spread Spectrum	
Security <sup>3</sup>	<ul> <li>BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM</li> <li>IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only</li> </ul>	
Security	• AES-CCMP: 128 bit in hardware	
	• 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	Ad-hoc (Peer to Peer)	
Models	Infrastructure (Access Point Required)	
Roaming	IEEE 802.11 compliant roaming between access points	
Output Power <sup>2</sup>	• 802.11b : +18.5dBm minimum	
	• 802.11g : +17.5dBm minimum	
	• 802.11a : +18.5dBm minimum	
	• 802.11n HT20(2.4GHz) : +15.5dBm minimum	
	• 802.11n HT40(2.4GHz) : +14.5dBm minimum	
	• 802.11n HT20(5GHz) : +15.5dBm minimum	
	• 802.11n HT40(5GHz) : +14.5dBm minimum	
	• 802.11ac VHT80(5GHz) : +11.5dBm minimum	
Power Consumption	Transmit mode2.0 W	
•	Receive mode 1.6 W	
	Idle mode (PSP) 180 mW (WLAN Associated)	
	<ul> <li>Idle mode 50 mW (WLAN unassociated)</li> <li>Connected Standby 10mW</li> <li>Radio disabled 8 mW</li> </ul>	
Power Management	ACPI and PCI Express compliant power management	
	802.11 compliant power saving mode	
Receiver Sensitivity <sup>3</sup>	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	



- 1. Check latest software/driver release for updates on supported security features.
- 2. Maximum output power may vary by country according to local regulations.
- 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).

for 802.11a/g (OFDM modu		
HP Integrated Module with Bluetoo	th 4.0/4.1/4.2 Wireless Technology	
Bluetooth <sup>®</sup> 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	
J J	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 Topology	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 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)	

Intel® Ethernet I210-T1 Gigabit N	Gigabit Network Adapter		
Connector	RJ-45		
System Interface	PCI (Intel® proprietary) + SMBus		



Data rates supported10 Mbit/s operation (10BASE-T; IEEE 802.3; IEEE 802.3 clauses 13-14) 100 Mbit/s operation (1000BASE-T; IEEE 802.3u; IEEE 802.3 clauses 21-30) 1000 Mbit/s operation (1000BASE-T; IEEE 802.3ab; IEEE 8023 clauses 40) Auto-Negotiation (Automatic Speed Selection) Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/sIEEE ComplianceIEEE 802.1p QoS (Quality of Service) Support IEEE 802.3x Flow Control (IEEE 802.3 clauses 31-32; configurable) IEEE 802.3az EEE (Energy Efficient Ethernet)PerformanceTCP/IP/UDP Checksum Offload (configurable) Protocol Offload (ARP & NS) Large send offload and Giant send offload Receiving Side Scaling Jumbo Frame 9KPower consumptionCable Disconnetion: 25mW 1000bp Full Run: 450mW 1000bp Full Run: 1000mW WoL Enable(S3/S4/S5): 50mW WoL Disable(S3/S4/S5): 25mWPower ManagementACPI compliant – multiple power modes Situation-sensitive features reduce power consumption		
1000 Mbit/s operation (1000BASE-T; IEEE 802.3ab; IEEE 8023 clauses 40)Auto-Negotiation (Automatic Speed Selection)Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/sIEEE ComplianceIEEE 802.1p QoS (Quality of Service) SupportIEEE 802.1q VLAN supportIEEE 802.3x Flow Control (IEEE 802.3 clauses 31-32; configurable)IEEE 802.3az EEE (Energy Efficient Ethernet)PerformanceTCP/IP/UDP Checksum Offload (configurable)Protocol Offload (ARP & NS)Large send offload and Giant send offloadReceiving Side ScalingJumbo Frame 9KPower consumptionCable Disconnetion: 25mW100Mbps Full Run: 450mW1000bp Full Run: 1000mWWoL Enable(S3/S4/S5): 50mWWoL Disable(S3/S4/S5): 25mWPowerManagementSituation-sensitive features reduce power consumption		
Auto-Negotiation (Automatic Speed Selection) Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/sIEEE ComplianceIEEE 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)PerformanceTCP/IP/UDP Checksum Offload (configurable) Protocol Offload (ARP & NS) Large send offload and Giant send offload Receiving Side Scaling Jumbo Frame 9KPower consumptionCable Disconnetion: 25mW 100Mbps Full Run: 450mW 1000bp Full Run: 1000mW WoL Enable(S3/S4/S5): 50mW WoL Disable(S3/S4/S5): 25mWPower ManagementACPI compliant – multiple power modes Situation-sensitive features reduce power consumption		
Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/sIEEE ComplianceIEEE 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)PerformanceTCP/IP/UDP Checksum Offload (configurable) Protocol Offload (ARP & NS) Large send offload and Giant send offload Receiving Side Scaling Jumbo Frame 9KPower consumptionCable Disconnetion: 25mW 100Mbps Full Run: 450mW 1000bp Full Run: 1000mW WoL Enable(S3/S4/S5): 50mW WoL Disable(S3/S4/S5): 25mWPowerACPI compliant – multiple power modes Situation-sensitive features reduce power consumption		
IEEE ComplianceIEEE 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)PerformanceTCP/IP/UDP Checksum Offload (configurable) Protocol Offload (ARP & NS) Large send offload and Giant send offload Receiving Side Scaling Jumbo Frame 9KPower consumptionCable Disconnetion: 25mW 100Mbps Full Run: 450mW 1000bp Full Run: 1000mW WoL Enable(S3/S4/S5): 50mW WoL Disable(S3/S4/S5): 25mWPower ManagementACPI compliant – multiple power modes Situation-sensitive features reduce power consumption		
IEEE 802.1q VLAN supportIEEE 802.3x Flow Control (IEEE 802.3 clauses 31-32; configurable)IEEE 802.3az EEE (Energy Efficient Ethernet)PerformanceTCP/IP/UDP Checksum Offload (configurable)Protocol Offload (ARP & NS)Large send offload and Giant send offloadReceiving Side ScalingJumbo Frame 9KPower consumptionCable Disconnetion: 25mW100Mbps Full Run: 450mW1000bp Full Run: 1000mWWoL Enable(S3/S4/S5): 50mWWoL Disable(S3/S4/S5): 25mWPowerManagementSituation-sensitive features reduce power consumption		
IEEE 802.3x Flow Control (IEEE 802.3 clauses 31-32; configurable)IEEE 802.3az EEE (Energy Efficient Ethernet)PerformanceTCP/IP/UDP Checksum Offload (configurable)Protocol Offload (ARP & NS)Large send offload and Giant send offloadReceiving Side ScalingJumbo Frame 9KPower consumptionCable Disconnetion: 25mW100Mbps Full Run: 450mW1000bp Full Run: 1000mWWoL Enable(S3/S4/S5): 50mWWoL Disable(S3/S4/S5): 25mWPowerACPI compliant – multiple power modesManagementSituation-sensitive features reduce power consumption		
IEEE 802.3az EEE (Energy Efficient Ethernet)PerformanceTCP/IP/UDP Checksum Offload (configurable) Protocol Offload (ARP & NS) Large send offload and Giant send offload Receiving Side Scaling Jumbo Frame 9KPower consumptionCable Disconnetion: 25mW 100Mbps Full Run: 450mW 1000bp Full Run: 1000mW WoL Enable(S3/S4/S5): 50mW WoL Disable(S3/S4/S5): 25mWPowerACPI compliant – multiple power modes Situation-sensitive features reduce power consumption		
PerformanceTCP/IP/UDP Checksum Offload (configurable)Protocol Offload (ARP & NS)Large send offload and Giant send offloadReceiving Side ScalingJumbo Frame 9KPower consumptionCable Disconnetion: 25mW100Mbps Full Run: 450mW1000bp Full Run: 1000mWWoL Enable(S3/S4/S5): 50mWWoL Disable(S3/S4/S5): 25mWPowerACPI compliant – multiple power modesManagementSituation-sensitive features reduce power consumption		
Protocol Offload (ARP & NS)Large send offload and Giant send offloadReceiving Side ScalingJumbo Frame 9KPower consumptionCable Disconnetion: 25mW100Mbps Full Run: 450mW1000bp Full Run: 1000mWWoL Enable(S3/S4/S5): 50mWWoL Disable(S3/S4/S5): 25mWPowerACPI compliant – multiple power modesManagementSituation-sensitive features reduce power consumption		
Power consumption       Cable Disconnetion: 25mW         100Mbps Full Run: 450mW         1000bp Full Run: 1000mW         WoL Enable(S3/S4/S5): 50mW         WoL Disable(S3/S4/S5): 25mW         Power         ACPI compliant – multiple power modes         Situation-sensitive features reduce power consumption		
Power consumption       Receiving Side Scaling Jumbo Frame 9K         Power consumption       Cable Disconnetion: 25mW         100Mbps Full Run: 450mW       100Mbps Full Run: 450mW         1000bp Full Run: 1000mW       WoL Enable(S3/S4/S5): 50mW         WoL Disable(S3/S4/S5): 25mW       WoL Disable(S3/S4/S5): 25mW         Power       ACPI compliant – multiple power modes         Management       Situation-sensitive features reduce power consumption		
Jumbo Frame 9K         Power consumption       Cable Disconnetion: 25mW         100Mbps Full Run: 450mW         1000bp Full Run: 1000mW         WoL Enable(S3/S4/S5): 50mW         WoL Disable(S3/S4/S5): 25mW         Power       ACPI compliant – multiple power modes         Management       Situation-sensitive features reduce power consumption		
Power consumption       Cable Disconnetion: 25mW         100Mbps Full Run: 450mW         1000bp Full Run: 1000mW         WoL Enable(S3/S4/S5): 50mW         WoL Disable(S3/S4/S5): 25mW         Power       ACPI compliant – multiple power modes         Management       Situation-sensitive features reduce power consumption	Receiving Side Scaling	
100Mbps Full Run: 450mW         1000bp Full Run: 1000mW         WoL Enable(S3/S4/S5): 50mW         WoL Disable(S3/S4/S5): 25mW         Power       ACPI compliant – multiple power modes         Management       Situation-sensitive features reduce power consumption		
1000bp Full Run: 1000mW         WoL Enable(S3/S4/S5): 50mW         WoL Disable(S3/S4/S5): 25mW         Power       ACPI compliant – multiple power modes         Management       Situation-sensitive features reduce power consumption		
WoL Enable(S3/S4/S5): 50mW         WoL Disable(S3/S4/S5): 25mW         Power       ACPI compliant – multiple power modes         Management       Situation-sensitive features reduce power consumption		
WoL Disable(S3/S4/S5): 25mW           Power         ACPI compliant – multiple power modes           Management         Situation-sensitive features reduce power consumption		
PowerACPI compliant – multiple power modesManagementSituation-sensitive features reduce power consumption		
Management Situation-sensitive features reduce power consumption		
Advanced link down power saving for reducing link down power consumption		
Management Interface Auto MDI/MDIX Crossover cable detection		
IT Manageability Wake-on-LAN from standby and hibernation (Magic Packet and Microsoft Wake-U	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	0))	
Comprehensive diagnostic and configuration software suite		
Virtual Cable Doctor for Ethernet cable status		
Security & Manageability Intel <sup>®</sup> vPro <sup>™</sup> support with appropriate Intel <sup>®</sup> chipset components		

Intel® Thunder Peak 9260 802.	.11a/b/g/n/ac (2x2) WiFi and Bluetooth® 5.0 Combo <sup>1</sup> Non-vPro		
Wireless LAN Standards	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		
	• 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		
Data Rates	• 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		
	• 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps		
	<ul> <li>802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz)</li> </ul>		
	• 802.11ac: MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, 80MHz & 160MHz)		
Modulation	Direct Sequence Spread Spectrum		
	BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM		
Security <sup>1</sup>	<ul> <li>IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only</li> </ul>		
	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	Ad-hoc (Peer to Peer)		
Models	Infrastructure (Access Point Required)		
Roaming	IEEE 802.11 compliant roaming between access points		
Output Power <sup>2</sup>	• 802.11b : +18.5dBm minimum		
	• 802.11g : +17.5dBm minimum		
	• 802.11a : +18.5dBm minimum • 802.11n HT20(2.4GHz) : +15.5dBm minimum		
	• 802.11n HT40(2.4GHz) : +14.5dBm minimum		
	• 802.11n HT20(5GHz) : +15.5dBm minimum		
	• 802.11n HT40(5GHz) : +14.5dBm minimum		
	• 802.11ac VHT80(5GHz) : +11.5dBm minimum		
	• 802.11ac VHT160(5GHz) : +11.5dBm minimum		
Power Consumption	Transmit mode2.0 W		
Power consumption	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		
Power Management	ACPI and PCI Express compliant power management		
	802.11 compliant power saving mode		
Receiver Sensitivity <sup>3</sup>	802.11b, 1Mbps : -93.5dBm maximum		
	802.11b, 11Mbps : -84dBm maximum		
	802.11a/g, 6Mbps : -86dBm maximum		
	טט <i>ב. ו ומ</i> יָם, האסףs : -אהמשה maximum		



	802.11a/g, 54Mbps : -72dBm maximum 802.11n, MCS07 : -67dBm maximum		
	802.11n, MCS07 : -67dBm maximum 802.11n, MCS15 : -64dBm maximum		
	802.11ac, MCS0 : -84dBm maximum 802.11ac, MCS9 : -59dBm maximum		
Antonio turo			
Antenna type	High efficiency antenna with spatial diversity, mounted in the display enclosure		
		al band 2.4/5 GHz antennas are provided to the card to support WLAN	
		ions and Bluetooth communications	
Form Factor	PCI-Express M.2 M		
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		o OFF; LED White – Radio ON	
	ver release for updates on supported security features.		
2. Maximum output power ma			
	easured at a packet error rate of 8% for 802.11b (CKK modulation) and a packet error rate of		
10% for 802.11a/g (OFDM)			
HP Integrated Module with Bluetoo	th 4.0/4.1/4.2/5.0 W	ireless Technology	
Bluetooth <sup>®</sup> Specification	4.0/4.1/4.2/5.0 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 <sup>®</sup> Software Supported	Microsoft Windows Bluetooth® Software		
Link Topology			
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 LE Dual Mode LE Link Layer LE Low Duty Cycle Directed Adverticing		
	LE Low Duty Cycle Directed Advertising LE L2CAP Connection Oriented Channels		
		או טוכוונכע נוומווווכנס	



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)

Intel <sup>®</sup> Stone Peak 2 7265 802.1	1a/b/g/n/ac (2x2) WiFi and Bluetooth® 4.2 Combo [1] Non-vPro	
Wireless LAN Standards	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	
	• 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	
Data Rates	• 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	
Security <sup>3</sup>	• IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only	
	AES-CCMP: 128 bit in hardware	
	• 802.1x authentication	
	<ul> <li>WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.</li> </ul>	
	WPA2 certification	
	• IEEE 802.11i	
	Cisco Certified Extensions, all versions through CCX4 and CCX Lite	
	• WAPI	
Network Architecture	Ad-hoc (Peer to Peer)	
Models	Infrastructure (Access Point Required)	
Roaming	IEEE 802.11 compliant roaming between access points	
Output Power <sup>2</sup>	• 802.11b : +18.5dBm minimum	
	• 802.11g : +17.5dBm minimum	
	• 802.11a : +18.5dBm minimum	
	• 802.11n HT20(2.4GHz) : +15.5dBm minimum	
	• 802.11n HT40(2.4GHz) : +14.5dBm minimum	
	• 802.11n HT20(5GHz) : +15.5dBm minimum	
	• 802.11n HT40(5GHz) : +14.5dBm minimum	
	• 802.11ac VHT80(5GHz) : +11.5dBm minimum	
Power Consumption	Transmit mode2.0 W	



	Receive mode	-		
		<ul> <li>Idle mode (PSP) 180 mW (WLAN Associated)</li> <li>Idle mode 50 mW (WLAN unassociated)</li> </ul>		
	Connected Standby 10mW     Padio disabled 8 mW			
<b>D</b>	Radio disabled 8 mW     ACPI and PCI Express compliant power management			
Power Management				
Dessiver Constitutes	802.11 compliant power saving mode 802.11b, 1Mbps : -93.5dBm maximum			
Receiver Sensitivity <sup>3</sup>		-93.5dbiri maximum : -84dBm maximum		
		s : -86dBm maximum		
		ps : -72dBm maximum		
		-67dBm maximum		
		-64dBm maximum		
		-84dBm maximum		
		-59dBm maximum		
Antenna type		tenna with spatial diversity, mounted in the display enclosure		
		ual band 2.4/5 GHz antennas are provided to the card to support WLAN		
		tions and Bluetooth communications		
Form Factor	PCI-Express M.2 M			
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			
		s on supported security features.		
2. Maximum output power n				
		or rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10%		
for 802.11a/g (OFDM mod				
HP Integrated Module with Blueto				
Bluetooth <sup>®</sup> 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	ates and ThroughputLegacy: 3 Mbps data rate; throughput up to 2.17 MbpsBLE: 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			
	Microsoft Windows Bluetooth® Software			
Bluetooth® Software Supported Link Topology				
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		

Intel® Sandy Peak 3168 802.11	a/b/g/n/ac (1x1) WiFi and Bluetooth® 4.2 Combo <sup>1</sup>		
Wireless LAN Standards	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		
	• 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		
Data Rates	• 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		
	<ul> <li>802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz)</li> </ul>		
	• 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		
Security <sup>3</sup>	<ul> <li>IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only</li> </ul>		
	AES-CCMP: 128 bit in hardware		
	• 802.1x authentication		
	<ul> <li>WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.</li> </ul>		
	WPA2 certification		
	• IEEE 802.11i		
	<ul> <li>Cisco Certified Extensions, all versions through CCX4 and CCX Lite</li> </ul>		
	• WAPI		
Network Architecture	Ad-hoc (Peer to Peer)		
Models	Infrastructure (Access Point Required)		



Roaming	IEEE 802.11 comp	liant roaming between access points			
Output Power <sup>2</sup>	• 802.11b : +18.5c				
•	• 802.11g : +17.5d	Bm minimum			
	• 802.11a : +18.5dBm minimum				
	• 802.11n HT20(2.	4GHz) : +15.5dBm minimum			
	<ul> <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> </ul>				
Power Consumption	• Transmit mode2.0 W				
-	Receive mode 1.6 W				
	• Idle mode (PSP)	180 mW (WLAN Associated)			
	<ul> <li>Idle mode 50 mW (WLAN unassociated)</li> <li>Connected Standby 10mW</li> </ul>				
	Radio disabled 8	• Radio disabled 8 mW			
Power Management	ACPI and PCI Express compliant power management				
-	802.11 compliant	power saving mode			
Receiver Sensitivity <sup>3</sup>		93.5dBm maximum			
-	802.11b, 11Mbps: -84dBm maximum				
	802.11a/g, 6Mbps	802.11a/g, 6Mbps: -86dBm maximum			
	802.11a/g, 54Mbp	s: -72dBm maximum			
	802.11n, MCS07: -67dBm maximum				
	802.11n, MCS15: -	64dBm maximum			
	802.11ac, MCSO: -	802.11ac, MCS0: -84dBm maximum			
	802.11ac, MCS9: -	59dBm maximum			
Antenna type	High efficiency ant	enna with spatial diversity, mounted in the display enclosure			
	Two embedded du	al 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 M	iniCard			
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				
	ver release for updates	s on supported security features.			
2. Maximum output power m					
3. Receiver sensitivity is mea	isured at a packet erro	or rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10%			
for 802.11a/g (OFDM mod	ulation).				
HP Integrated Module with Blueto	oth 4.0/4.1/4.2 Wireld	ess Technology			
Bluetooth <sup>®</sup> Specification	4.0/4.1/4.2 Compli				
Frequency Band	2402 to 2480 MHz				
Number of Available Channels					
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 cha Legacy: Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asyr 864 kbps symmetric (3-EV5)				



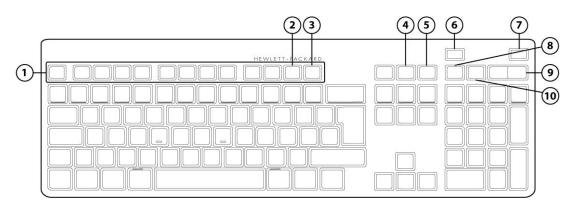
Transmit Power	The Bluetooth® component shall operate as a Class II Bluetooth® device with a maximum			
	transmit power of +4 dBm for BR and EDR.			
Power Consumption	Peak (Tx) 330 mW			
-	Peak (Rx) 230 mW			
	Selective Suspend 17 mW			
Electrical Interface	USB 2.0 compliant			
Bluetooth® Software Supported Link Topology	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			
	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)			

Standard Features and Configurable Components (availability may vary by country)

#### I/O DEVICES

#### HP EliteDesk 705 G4 Microtower

#### **HP Conferencing Keyboard**



- 1. Function Keys
- 2. F11 Lync or Skype for Business Contact list<sup>1</sup>
- 3. F12 Lync or Skype for Business Calendar<sup>2</sup>
- 4. Share Screen
- 5. Stop Webcam

- 6. End/Decline a Call
- 7. Answer a Call
- 8. Microphone Mute
- 9. Volume Up/Down
- 10. Audio Mute

1. Microsoft Lync 2013, or Skype for Business, or Microsoft Outlook 2013 Contact list

2. Microsoft Lync 2013, or Skype for Business, or Microsoft Outlook 2013 Calendar

HP USB Premium Keyboard				
Physical Characteristics	Keys	104, 105 layout (depending upon country)		
	Dimensions (L x W x H)	17.04 x 5.55 x 0.52 in (433 x 141 x13.2 mm)		
	Weight	1.54 lb (698g)		
Electrical	Operating voltage	5 VDC, +/-5%		
	Power consumption	35mA (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		
Mechanical	Keycaps	Low-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)		
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)		
	Non-operating humidity	20% to 80% (non-condensing at ambient)		
	Operating shock	40 g, six surfaces		
	Non-operating shock	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 GS, VCCI	UL, FCC, CE Mark, TUV GS, VCCI, BSMI, C-Tick, KC		
Ergonomic Compliance	TUVGS	TUVGS		
Kit Contents	Keyboard, QSP	Keyboard, QSP		
Warranty Card	Product Notice			

#### **Skylab USB Wired Keyboard** 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± **Physical Characteristics** 1.0 cm) Weight 1.32 lb (0.6± 0.08 kg) 4.4-5.25VDC Operating voltage Power consumption 50-mA maximum (with 5 VDC power supplied and three LEDs ON) Electrical USB System interface 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 Keycaps Low-profile design Switch actuation 60±10g nominal peak force with tactile feedback Switch life 10 million keystrokes (Life tester) Mechanical Contamination-resistant switch membrane Switch type Key-leveling mechanisms For all double-wide and greater-length keys Cable length 6 ft (1.8 m) Microsoft PC 99 - 2001 Mechanically compliant Acoustics 43-dBA maximum sound pressure level 50° to 122° F (10° to 50° C) Operating temperature Environmental Non-operating temperature Minus 30 degress to 60 degress Celsius



10% to 90% (non-condensing at ambient)

Operating humidity

	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 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	Premium	Mouse
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Dimensions (H x L x W)	4.21 x 2.64 x 1.52 in (107 x 67 x 38.7 mmm)		
Weight	0.19lb (90g)		
	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)	
Environmental	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%	
Electrical	Power consumption	12mA	
	Connector	USB 2.0	
Mechanical	Туре	3D mouse (3 keys and wheel)	
methanical	Resolution	800, 1200, 1600 DPI	
	Sensor	Pixart PAN3606DL	
	Tracking acceleration	8G(max), 1G=9.8m/s2	
Tracking speed	Cable length	6 ft (1.8 m)	
	Color	Jack Black	
Regulatory approvals	Compliant UL, FCC, CE Mark, TUV GS, VCCI, BSMI, C-Tick, KC		



## Standard Features and Configurable Components (availability may vary by country)

HP USB Mouse		
Dimensions (H x L x W)	37mm*115mm*62.9mm	
Weight	90 +10g/- 5 g	
Color	Black	
Connector	USB	
Mashawiaal	Resolution	800 DPI sensitivity
Mechanical	Buttons	Two primary buttons and clickable scroll wheel

#### AUDIO/MULTIMEDIA

#### HP EliteDesk 705 G4 Microtower

Туре	Integrated
HD Stereo Codec	Synaptics CX20632
Audio I/O Ports	Front: 1 - Headset connector supports a CTIA style headset and is re-taskable as a Line-in, Line- out, Microphone-in or Headphone-out port 1 - Headphone port Rear: Line-out Line-in which is retaskable as a Microphone Input All ports are 3.5mm and support stereo
Internal Speaker Amplifier	2W class D mono amplifier for the internal speaker only. External speakers must be powered externally
Multi-streaming Capable	Playback multi-streaming can be enabled in the audio control panel to allow independent audio streams to be sent to/from the front and rear jacks or integrated speaker.
Sampling	Independent sampling rates for DAC's and ADC's; supports resolutions from 16 to 24-bit; 44.1 kHz to 192 kHz for DAC and 44.1 kHz to 96 kHz for ADC
Wavetable Syntheses	Yes - Uses OS soft wavetable
Analog Audio	Yes
# of Channels on Line-Out	Stereo (Left & Right channels)
Internal Speaker	Yes



## HP EliteDesk 705 G4 Small Form Factor Business PC

Integrated
Conexant CX20632
Front: 1 - Headset connector supports a CTIA style headset and is re-taskable as a Line-in, Line- out, Microphone-in or Headphone-out port 1 - Headphone port Rear: Line-out Line-in which is retaskable as a Microphone Input All ports are 3.5mm and support stereo
2W class D mono amplifier for the internal speaker only. External speakers must be powered externally
Playback multi-streaming can be enabled in the audio control panel to allow independent audio streams to be sent to/from the front and rear jacks or integrated speaker.
Independent sampling rates for DAC's and ADC's; supports resolutions from 16 to 24-bit; 44.1 kHz to 192 kHz for DAC and 44.1 kHz to 96 kHz for ADC
Yes - Uses OS soft wavetable
Yes
Stereo (Left & Right channels)
Yes

#### HP EliteDesk 705 G4 Desktop Mini Business PC

Туре	Integrated
HD Stereo Codec	Conexant CX20632
	Front: 1 - Headset connector supports a CTIA style headset and is re-taskable as a Line-in, Line- out, Microphone-in or Headphone-out port 1 - Headphone port
Audio I/O Ports	All ports are 3.5mm and support stereo
Internal Speaker Amplifier	2W class D mono amplifier for the internal speaker only. External speakers must be powered
Multi-streaming Capable	Playback multi-streaming can be enabled in the audio control panel to allow independent audio streams to be sent to/from the front and rear jacks or integrated speaker.
Sampling	Independent sampling rates for DAC's and ADC's; supports resolutions from 16 to 24-bit; 44.1 kHz to 192 kHz for DAC and 44.1 kHz to 96 kHz for ADC
Wavetable Syntheses	Yes – Uses OS soft wavetable
Analog Audio	Yes
# of Channels on Line-Out	Stereo (Left & Right channels)
Internal Speaker	Yes



#### POWER

#### HP EliteDesk 705 G4 Microtower UNIT ENVIRONMENT AND OPERATING CONDITIONS

Temperature Range	Operating : 5°C ~45°C Non-Operating : -40°C ~66°C
Relative Humidity	Operating: 5% to 90% relative humidity at max inlet temperature Non Operating: 5% to 90% relative humidity at max inlet temperature
Maximum Altitude	Operating: 5000m
(unpressurized)	Non-operating: 50000ft (15240 m)

#### HP EliteDesk 705 G4 Small Form Factor Business PC UNIT ENVIRONMENT AND OPERATING CONDITIONS

Temperature Range	Operating : 5°C ~50°C Non-Operating : -40°C ~66°C
Relative Humidity	Operating 5% to 90% relative humidity at max inlet temperature Non-Operating 5% to 90% relative humidity at max inlet temperature
Maximum Altitude (unpressurized)	Operating: 5000m Non-operating: 50,000 ft (15240 m)

### HP EliteDesk 705 G4 Desktop Mini Business PC

#### UNIT ENVIRONMENT AND OPERATING CONDITIONS

Temperature Range	Operating : 5°C ~35°C Non-Operating : -40°C ~66°C
Relative Humidity	Operating 5% to 90% relative humidity at max inlet temperature Non-Operating 5% to 90% relative humidity at max inlet temperature
Maximum Altitude (unpressurized)	Operating: 5000m Non-operating: 50,000 ft (15240 m)

	DM	SFF	МТ
80 PLUS Platinum		180W active PFC 90/92/89% efficient at 20/50/100% load (115V) 91/93/90% efficient at 20/50/100% load (230V	250W active PFC / 80 PLUS Platinum 400W active PFC / 80 PLUS Platinum 90/92/89% efficient at 20/50/100% load (115V) 91/93/90% efficient at 20/50/100% load (230V)
Operating Voltage Range	90Vac~264Vac	90Vac~264Vac	90Vac~264Vac
Rated Voltage Range	100Vac~240Vac	100Vac~240Vac	100Vac~240Vac
Rated Line Frequency	50HZ~60HZ	50HZ~60HZ	50HZ~60HZ
Operating Line Frequency	47HZ~63HZ	47HZ~63HZ	47HZ~63HZ
Rated Input Current	65W≦1.6A 90W≦1.2A 150WW≦2.2A	250W≦3A 400W≦5.2A	250W≦3A 400W≦5.2A
Rated Input Current with Energy Efficient* Power Supply	65W≦1.6A 90W≦1.2A 150WW≦2.2A	250W≦3A 400W≦5.2A	250W≦3A 400W≦5.2A
DC Output	+19.5V	+12V	+12V
	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.	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	Less than 500 microamps of leakage current at 120 Vac with the ground wire disconnected, as required for Non-patient Electrical Appliances and Equipment used in a patient care facility or that contact patients in normal use. Per section 10.3.5.1. Less than 100 microamps of leakage current at 120 Vac with the ground wire intact with normal polarity, as required for Non-patient Electrical Appliances and Equipment used in a patient care facility or that contact patients in normal use. Per section 10.3.5.1.
Power Supply Fan	N/A	50mm variable speed	70mm variable speed
Power cord length	6.0 ft. (1.83 m)	6.0 ft. (1.83 m)	6.0 ft. (1.83 m)
External Power Adapter	External power supply 65W EPS, 89% average efficiency at 115V & 230Vac 90W EPS, 89% average efficiency at 115V & 230Vac 150W EPS, 89% average efficiency at 115V & 230Vac	Internal power supply	Internal power supply
Dimensions	65W : 113.5mm x 55mm x 30mm 90W : 132.5mm x 57mm x	200mm x 85mm x 53mm	165mm x 95mm x 73mm



## Standard Features and Configurable Components (availability may vary by country)

30.3mm 150W : 167.5mm x 80mm x 40.5mm		
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#### **WEIGHTS & DIMENSIONS**

	DM	<u>SFF</u>	<u>MT</u>	
Chassis (W x D x H) Not including bezel	6.97 x 6.89 x 1.35 in 177 x 175 x 34.2mm	3.7 10.6 x 11.7 in 95 x 270 x 296 mm	6.69 x10.79 x 13.3 in 170 x 274 x 338 mm	
System Volume	64 cu in 1.05 L	463 cu in 7.6 L	960 cu in 15.74 L	
Max System Weight	1.265kg	5.88 KG	7.14 KG	
Max Supported Weight (desktop orientation)	0	77 lb 35kg	77 lb 35kg	
Stand Dimensions	160x117x18.5mm			
Packaging (W x D x H)	19.57 x 5.04 x 8.78 in 497 x 128 x 223 mm	15.71 x 9.06 x 19.65 in 399 x 230 x 499 mm	15.35 x 11.73 x 19.65 x in 390 x 298 x 499 mm	
Shipping Weight	2.95 kg 6.49 lb	16.12 lb. 7.32 kg	22.64 lb. 10.28kg	
Shipping Weight (Molded Pulp)		16.62 lb 7.54kg	23.15 lb 10.5kg	
Multipack Packaging (10 units)	20.28x16.54x25 in 515x420x636 mm			
Palletization Profile	18-units per layer 5 or 6 layers max depending on details of air freight 90 or 108 units per pallet depending on details of air freight 45.354 x 39.13 x 57.80 in, 1152 x 994 x 1468 mm (include pallet)	6-units per layer 60 per pallet 47.24 x 39.37 x 94.49 in (including pallet) 10 layer max	6-units per layer 42 per pallet 47.24 x 39.37 x 86.85 in (including pallet) 7 layer max	

Technical Specifications – Miscellaneous Features

#### **MISCELLANEOUS FEATURES**

#### **Management Features**

- Advanced Configuration and Power Management Interface (ACPI). Allows the system to wake from a low power mode. Controls system power consumption, making it possible to place individual cards and peripherals in a low-power or powered-off state without affecting other elements of the system.
- Dual State Power Button; acts as both an on/off button and a suspend-to-sleep button

#### **Serviceability Features**

- Dual colored power LED on front of computer to indicate either normal or fault condition
- System/Emergency ROM
- Flash ROM
- CMOS Battery Holder for easy replacement
- Flash Recovery with Video Configuration Record Software
- 5 Aux Power LED on System PCA
- Processor ZIF Socket for easy Upgrade
- Over-Temp Warning on Screen (Requires IM Agents)
- Clear Password Jumper
- DIMM Connectors for easy Upgrade
- Clear CMOS Button
- NIC LEDs (integrated) (Green & Amber)
- Dual Color Power and HD LED To Indicate Normal Operations and Fault Conditions
- Color coordinated cables and connectors
- Tool-less Hood Removal
- Front power switch
- System memory can be upgraded without removing the system board or any internal components
- Tool-less Hard Drive, CD & Diskette Removal
- Green Pull Tabs, and Quick Release Latches for easy Identification

#### **Additional Features**

• Product can be oriented as either a desktop (horizontal) or a tower (vertical)



Technical Specifications – After Market Options

### AFTER MARKET OPTIONS

Graphics Solutions	DM	<u>SFF</u>	TWR	Part Number
AMD® Radeon™ R7 430 2GB 2DP Card		X		3TK71AA
AMD <sup>®</sup> Radeon™ RX550 4GB 2DP Card			X	3MQ82AA
HP DisplayPort™ To HDMI True 4k Adapter	X	X	X	2JA63AA
HP DVI Cable Kit		X	X	DC198A
HP HDMI Standard Cable Kit	X	X	X	T6F94AA
HP DisplayPort™ Cable Kit	X	X	X	VN567AA
HP DisplayPort™ To DVI-D Adapter	X	Х	X	FH973AA
HP DisplayPort™ To VGA Adapter	X	X	X	AS615AA
Desktop Mini Accessories	DM	SFF	TWR	Part Number
HP Desktop Mini G3 Port Cover Kit	X	]	1	1ZE52AA
HP G4 Mini 2.5-inch SATA Drive Bay Kit	X			3TK91AA
HP Desktop Mini LockBox V2	X		1	3EJ57AA
HP Desktop Mini 500GB HDD/I/O Expansion Module	X			K9Q82AA
HP Desktop Mini DVD-Writer ODD Expansion Module	X			K9Q83AA
HP Desktop Mini I/O Expansion Module	X			K9Q84AA
HP Desktop Mini Security/Dual VESA Sleeve v2	X			2JA32AA
HP Desktop Mini Vertical Chassis Stand	X			G1K23AA
HP DM VESA Power Supply Holder Kit	X			1RL87AA
Desktop Mini Accessories	<u>DM</u>	SFF	TWR	Part Number
Intel® 9260 802.11ac non-vPro PCIe x1 Card		X	X	ЗТК89АА
Realtek 8822BE 802.11ac PCIe x1 Card		X	X	3TK90AA
Data Storage Drives	DM	<u>SFF</u>	<u>TWR</u>	Part Number
HP 256GB SATA TLC Non-SED Solid State Drive	X	Х	X	P1N68AA
HP PCIe NVME TLC 256GB SSD M.2 Drive	X	X	X	1CA51AA
HP PCIe NVME TLC 512GB SSD M.2 Drive	e NVME TLC 512GB SSD M.2 Drive X X		X	X8U75AA
HP PCIe NVME TLC 512GB SSD PCIe Drive		X	X	Z4L70AA
HP 500GB 7200PRM SATA 6.0Gb/s 3.5" Hard Drive		X	X	QK554AA
HP 1TB 7200rpm SATA 6Gb/s 3.5" Hard Drive		X	X	QK555AA
HP SATA SuperMulti JB Drive			X	QS208AA
HP 9.5mm Slim Removable SATA 500GB		X	X	T7G14AA
HP 9.5mm G3 8/6/4 SFF G4 400 SFF/MT DVD Writer		Х		1CA53AA

### Technical Specifications – After Market Options

Input Devices	DM	<u>SFF</u>	TWR	Part Number
HP USB (Grey) SmartCard CCID Keyboard		X	Х	J7H70AA
HP USB Antimicrobial Business Slim Keyboard and Mouse (China Only)		Х	Х	Z9H50AA
HP USB Buisness Slim CCID SmartCard Keyboard		X	X	Z9H48AA
HP USB Business Slim (Grey) Keyboard (EMEA Only)		Х	Х	Z9H49AA
HP USB Business Slim Keyboard	X	Х	Х	N3R87AA
HP USB Business Slim Keyboard and Mouse and Mousepad	X	X	X	T4E63AA
HP USB Collaboration Keyboard	X	Х	Х	Z9N38AA
HP USB Conferencing Keyboard		X	X	K8P74AA
HP USB Keyboard	X	Х	Х	QY776AA
HP USB Keyboard and Mouse Healthcare Edition				1VD81AA
HP USB Premium Keyboard	X	Х	Х	Z9N40AA
HP USB PS/2 Washable Keyboard & Mouse	X	X	Х	BU207AA
HP Wireless Business Slim Keyboard and Mouse	X	Х	Х	N3R88AA
HP Wireless Collaboration Keyboard	X	Х	Х	Z9N39AA
HP Wireless Premium Keyboard	X	X	Х	Z9N41AA
HP PS/2 Business Slim Keyboard	X	X	Х	N3R86AA
HP USB Grey v2 Mouse (EMEA only)		X	Х	Z9H74AA
HP USB Premium Mouse		X	Х	1JR32AA
HP PS/2 Mouse	X	X	Х	QY775AA
HP USB 1000dpi Laser Mouse	X	Х	Х	QY778AA
HP USB Hardened Mouse		X	Х	P1N77AA
HP USB Mouse	X	Х	X	QY777AA
System Memory	DM	<u>SFF</u>	TWR	Part Number
HP 4GB DDR4-2666 DIMM		X	X	3TK85AA
HP 8GB DDR4-2666 DIMM		X	X	3TK87AA
HP 16GB DDR4-2666 DIMM		Х	Х	ЗТК8ЗАА
HP 4GB DDR4-2666 SODIMM	X			3TK86AA
HP 8GB DDR4-2666 SODIMM	X			3TK88AA
HP 16GB DDR4-2666 SODIMM	X			3TK84AA
Multimedia Devices	DM	<u>SFF</u>	TWR	Part Number
HP Business Headset v2	X	Х	Х	T4E61AA
HP USB Business Speakers v2	X	X	X	N3R89AA
Security Devices	DM	<u>SFF</u>	TWR	Part Number
HP Solenoid Lock & Hood Sensor (MT)			Х	J6L42AA
HP Business PC Security Lock v3 Kit		Х	Х	3XJ17AA
HP Dual Head Keyed Cable Lock	X	X	X	T1A64AA

(IP)

## Technical Specifications – After Market Options

HP Keyed Cable Lock 10mm	X	Х	Х	T1A62AA
HP Master Keyed Cable Lock 10mm	X	X	X	T1A63AA
Stands and Accessories	<u>DM</u>	<u>SFF</u>	TWR	Part Number
HP B300 PC Mounting Bracket	X			2DW53AA
HP B500 PC Mounting Bracket	X			2DW52AA
HP Single Monitor Arm	X			BT861AA
I/O Devices	<u>DM</u>	<u>SFF</u>	TWR	Part Number
HP DisplayPort™ Port Flex IO	X	X	Х	3TK72AA
HP HDMI Port Flex IO (400/600/800)	X	X	X	3TK74AA
HP Type-C™ USB 3.1 Gen2 Port Flex IO	X	Х	Х	3TK78AA
HP VGA Port Flex IO	X	X	X	3TK80AA
HP Serial Port Flex IO	Х	Х	X	3TK76AA
HP Internal Serial Port (400)		X	Х	3TK81AA
HP PCIe x1 Parallel Port Card		X	X	N1M40AA
HP 800/600/400 G3 Serial/ PS/2 Adapter		X	X	1VD82AA



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### Change Log

Date	Version History	Action	Description of Change
June 20, 2018	From v1 to v2	Update	Weights & Dimensions
June 28, 2018	From v2 to v3	Added	Environmental tab
July 19, 2018	From v3 to v4	Added	Note for SATA Drive Bracket added to Internal Slots and Ports section
July 27, 2018	From v4 to v5	Remove	Checkmark off the SFF for the RX550 graphics card in the After Market Options section
July 30, 2018	From v5 to v6	Change	Graphic cards info moved to processors section and graphic removed off QS.
August 1, 2018	From v6 to v7	Add/remove	AMD Ryzer™ CPU added to processors USB mentions formatted to last statement requirements
August 9, 2018	From v7 to v8	Update	Processors order re-arranged
August 20, 2018	From v8 to v9	Update	Shipping weight (Molded Pulp) added to to weight and dimensions for SFF and MT Palletization profile updated
August 21, 2018	From v9 to v10	Update	Windows Home removed
August 27, 2018	From v10 to v11	Update	Windows Home re-attached
August 30, 2018	From v11 to v12	Update	Optional Discrete Graphics Solutions table section added GTX1060 and GT730 graphic cards specs added After market options corrected
September 6, 2018	From v12 to v13	Add	System Integrated Graphics and its specs added on both Graphics sections
September 13, 2018	From v13 to v14	Add	2700X CPU*, 2700 CPU* and 2600 CPU* processors information updated.
September 18, 2018	From v14 to v15	Removal	Duplicated AMD Ryzen™ 7 PRO 2700X CPU* removed from processors
September 19, 2018	From v15 to v16	Add	NVIDIA GeForce GT730 2GB DP DVI PCIe x8 GFX added to Graphics section for MT and SFF
September 27, 2018	From v16 to v17	Update	AMD Radeon RX 560 graphic card added Last bullet added to "At a Glance" section
October 5,2018	From v17 to v18	Update	Memory footnote change from 2400 to 2133
October 9, 2018	From v18 to v19	Update	Max boost and base frequency added to AMD Ryzen and PRO processors
October 11, 2018	From v19 to v20	Update	Footnote 33 updated to Raid 1 configuration
October 17, 2018	From v20 to v21	Update	AMD® Athlon™ PRO 200GE APU with AMD®Radeon added to processors
October 18, 2018	From v21 to v22	Update	VESA Plate Intergrated added to not shown call outs for Desktop Mini Athlon PRO" Processo added to "At a glance" second bullet Foot note no. 4 removed from third bullet at "At a glance"section AMD Athlon™ PRO 200GE Processor put in AMD® Ryzen™ with AMD®Radeon processors section
November 14, 2018	From v22 to v23	Update	Max. Resolution added to AMD Radeon™ 560
November 21, 2018	From v23 to v24	Update	SSD Intel Optane 118GB 2280 PCIe NVME (Optane) removed from storage
November 28, 2018	From v24 to v25	Update	Active Mode Row added to SFF Environmental data table
December 17, 2018	From v25 to v26	Update	AMD Radeon™ R7 430 Graphics 2GB GDDR5 64bit 2DP, AMD Radeon™ R7 430 Graphics 2GB GDDR5 64bit DP+VGA and AMD Radeon™ RX 580 Graphics 8GB GDDR5 Added to graphics
January 2, 2019	From v26 to v27	Update	Max System Weight set for MT and SFF
January 23, 2019	From v27 to v28	Update	AMD <sup>®</sup> PRO A6-9500 APU Graphics processor added for SFF



## Change Log

February 1, 2019	From v28 to v29	Update	HP PhoneWise, HP WorkWise and HP ePrinter + Jet advantage removed.
February 11, 2019	From v29 to v30	Update	Support for VESA 100 mounting system on bottom of PC chassis" added to mounting in the call outs section for DM
March 11, 2019	From v30 to v31	Update	Type C port USB port (2.0 or 3.0) and PORTS information charging capability statement update and PORTS information, on USB type C port (15W) added.