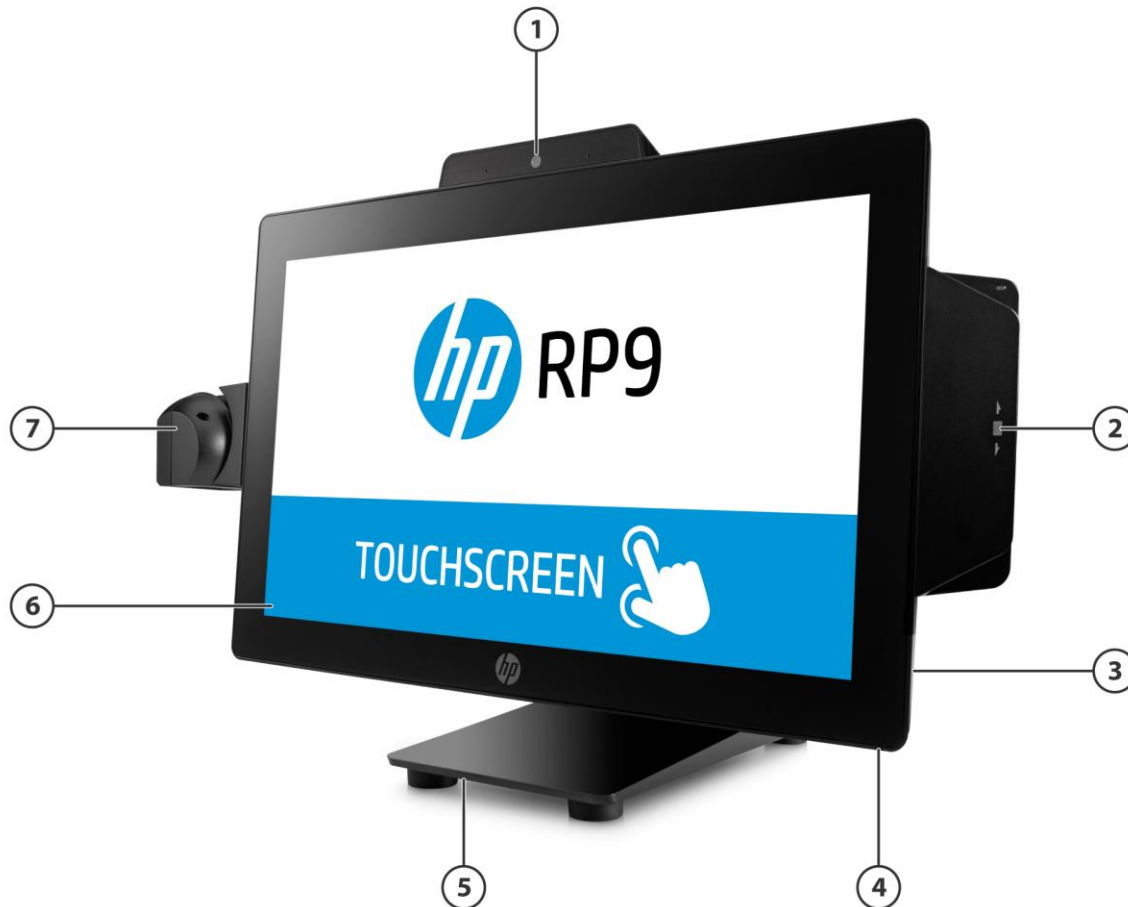


### Overview

### HP RP9 G1 Retail System, Models 9015, 9018, 9115 & 9118

#### FRONT VIEW



- |   |  |
|---|--|
| 1. Optional HP Retail Integrated Webcam                     | 5. Compact Stand with pass through cable cover   |
| 2. Optional HP Retail Integrated Integrated Single-Head MSR | 6. Touchscreen Assembly                          |
| 3. On-screen display LED's                                  | 7. Optional HP Retail Integrated Barcode Scanner |
| 4. Recessed Power button                                    |  |

### Overview



#### **REAR VIEW with HP 2x20 Display (Bottom Mount option)**

1. Dual Integrated Speakers (Left and right)
2. HP RP9 Integrated 2x20 Display (bottom mount) with extension arm (Optional)

### Overview

#### HP RP9 G1 Retail System I/O panel



#### Image shown with ergonomic stand

- |                              |                              |
|------------------------------|------------------------------|
| 1. DC in power port          | 7. USB 2.0 ports (2)         |
| 2. COM/serial ports (2)      | 8. USB 3.0 ports (2)         |
| 3. DisplayPort 1.2 (1)       | 9. Ethernet port 10/100/1000 |
| 4. 12V Powered USB ports (3) | 10. Audio line-in            |
| 5. 24V Powered USB ports (1) | 11. Audio line-out           |
| 6. Cash Drawer port (1)      |                              |

### Overview

#### At A Glance

- Long lifecycle performance All-in-One (AiO) Retail System for retail and hospitality markets Choice of operator display:
  - 15.6" Diagonal, wide aspect (16:9), projected capacitive touchscreen (1366 x 768 HD resolution) Anti-Glare
  - 18.5" Diagonal, wide aspect (16:9), projected capacitive touchscreen (1366 x 768 HD resolution) Anti-Glare

- Processor choices:

##### **Models 9015 & 9018**

- Intel® Core™ i7-6700 with vPro™ (3.4GHz, 8M Cache, 4 Cores)
- Intel® Core™ i5-6500 with vPro™ (3.2GHz, 6M Cache, 4 Cores)
- Intel® Core™ i5-6500TE with vPro™ (2.3GHz, 6M Cache, 4 Cores)
- Intel® Core™ i3-6100 (3.7GHz, 3M Cache, 2 Cores)
- Intel® Pentium® G4400 (3.3GHz, 3M Cache, 2 Cores)
- Intel® Celeron® G3900 (2.8GHz, 2M Cache, 2 Cores)

##### **Models 9115 & 9118**

- Intel® Core™ i7-7700 with vPro™ (8M Cache, 3.6 GHz, , 4 cores)
- Intel® Core™ i5-7600 with vPro™ (6M Cache, 3.5 GHz, 4 cores)
- Intel® Core™ i3-7101E (3M Cache, 3.90 GHz, 2 cores)
- Intel® Celeron® Processor G3930E (2M Cache, 2.90 GHz, 2 cores )

- Operating System choices:

##### **Models 9015 & 9018**

- Windows Embedded Industry 8.1 Pro Retail 64-bit
- POSReady 7 32-bit
- POSReady 7 64-bit
- Windows 10 IoT Enterprise 2016 LTSC
- Windows 10 Pro 64-bit
- Windows 7 Professional 32-bit (Available through downgrade rights from Windows 10 Pro)
- Windows 7 Professional 64-bit (Available through downgrade rights from Windows 10 Pro)
- FreeDOS 2.0

##### **Models 9115 & 9118**

- Windows 10 IoT Enterprise 2016 LTSC
- Windows 10 Pro 64-bit
- FreeDOS 2.0

- Integrated peripheral options (can also be purchased and installed separately):
  - HP Retail Integrated MSR - Encryption – Capable
  - HP Retail Integrated Fingerprint Reader
  - HP Retail Integrated Webcam
  - HP Retail Integrated Barcode Scanner, side mount and bottom mount options
  - Customer-facing 2 line LED Display (2x20); supports complex and non-complex characters
  - Customer-facing 7" Diagonal non-Touch LCD Display
- Industry-standard 100mm VESA mounting pattern allows for flexible use without the optional stand (Mounting hardware sold separately)
- Choice of Compact stand, Ergonomic stand or no stand (display – head unit only)
- (2) Two DDR4 Memory Slots (32 GB Maximum)
- Intel Ethernet Connection I219-LM
- Trusted Platform Module (TPM 1.2)
- HP BIOSphere with HP Sure Start technology
- (2) Two M.2 drive bays, and (1) one 2.5" drive bay for Hard Drive and Solid-State Drive Options
- RAID level 0,1 capable
- Cable Management Features

### Overview

- ENERGY STAR® certified configurations available, EU Compliant, RoHS2 Compliant, EPEAT® Silver registered configurations available
- 230 W, up to 89% efficient, active PFC power supply (enclosed in stand on Ergonomic stand, external with Compact stand)
- HP Limited Warranty, 3/3/3 standard: 3 years parts, 3 years labor, and 3 years on-site services

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

### Standard and Configurable Components

#### OPERATING SYSTEM

<b>Preinstalled</b>	Windows Embedded 8.1 Industry Pro Retail 64-bit**** POSReady 7 32-bit**** POSReady 7 64-bit**** Windows 10 IoT Enterprise 2016 LTSB* Windows 10 Pro 64-bit*, **** Windows 7 Professional 32-bit (Available through downgrade rights from Windows 10 Pro)**, **** Windows 7 Professional 64-bit (Available through downgrade rights from Windows 10 Pro)**, **** FreeDOS 2.0
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**Supported** Ubuntu

**Certified** SUSE Linux Enterprise Desktop YES Certified<sup>1</sup>

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

\*\* This system is preinstalled with Windows 7 Professional software and also comes with a license and media for Windows 10 Pro software. You may only use one version of the Windows software at a time. Switching between versions will require you to uninstall one version and install the other version. You must back up all data (files, photos, etc.) before uninstalling and installing operating systems to avoid loss of your data. See <http://www.microsoft.com>

\*\*\* This system is preinstalled with Windows 8.1 Pro software and also comes with a license and media for Windows 10 Pro software. You may only use one version of the Windows software at a time. Switching between versions will require you to uninstall one version and install the other version. You must back up all data (files, photos, etc.) before uninstalling and installing operating systems to avoid loss of your data. See <http://www.microsoft.com>

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

**Note 1:** Certification in late 2016.

The following features are not supported by Novell SUSE Linux Enterprise Desktop:

- HP ProtectTools (Available with Windows 7 only)
- Power Management features
- Multi-touch capabilities
- Systems configured with Linux do not qualify for ENERGY STAR®

#### PROCESSORS

##### Models 9015 & 9018

- Intel® Core™ i7-6700 with vPro (3.4GHz, 8M Cache, 4 Cores)\*
- Intel® Core™ i5-6500 with vPro (3.2GHz, 6M Cache, 4 Cores)
- Intel® Core™ i5-6500TE with vPro (2.3GHz, 6M Cache, 4 Cores)
- Intel® Core™ i3-6100 (3.7GHz, 3M Cache, 2 Cores)\*

### Standard and Configurable Components

- Intel® Pentium® G4400 (3.3GHz, 3M Cache, 2 Cores)
- Intel® Celeron® G3900 (2.8GHz, 2M Cache, 2 Cores)

#### **Models 9115 & 9118**

- Intel® Core™ i7-7700 with vPro™ (8M Cache, 3.6 GHz, , 4 cores)
- Intel® Core™ i5-7600 with vPro™ (6M Cache, 3.5 GHz, 4 cores)
- Intel® Core™ i3-7101E (3M Cache, 3.90 GHz, 2 cores)
- Intel® Celeron® Processor G3930E (2M Cache, 2.90 GHz, 2 cores )

**NOTE:** Core™ i5 and Core™ i7 Turbo Boost technology – performance can be increased through the BIOS

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### Standard and Configurable Components

#### **CORE™ vPRO™ PROCESSORS**

##### **INTEL® 6th GENERATION CORE™ vPRO™ PROCESSORS**

The HP RP9 Retail System features this technology, and includes processors that are part of the Intel® Stable Image Platform Program (SIPP) designed to ensure the stability promise inherent in the value proposition of the HP RP9 Retail System, thus making these models the most stable, secure, and manageable platforms available to retailers today.

##### **INTEL® 7th GENERATION CORE™ vPRO™ PROCESSORS**

The HP ElitePOS Retail System features this technology, and includes processors that are part of the Intel® Stable Image Platform Program (SIPP) designed to ensure the stability promise inherent in the value proposition of the HP ElitePOS Retail System. This makes these models the most stable, secure, and manageable platforms available to retailers today.

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#### **CHIPSET**

Intel® Q170 Chipset (Models 9015 & 9018) Intel® Multi-Chip Package – MCP (Models 9115 & 9118)

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### Standard and Configurable Components

#### HP BIOS

##### Key features of the HP BIOS include:

- Deployment and manageability – HP BIOS provides several technologies that help integrate the HP RP9 G1 Retail System into a business environment, such as PXE, remote configuration, remote control, and F10 Setup support for 12 languages.
- Update your BIOS via the cloud or standardize on a BIOS version hosted on Enterprise network.
- Select models feature either Intel® Standard Manageability or Intel® Core™ vPro™ Processor Technology.
- Stability – HP BIOS supports the HP stable product roadmap by releasing only critical BIOS changes to the factory and advanced change notification.
- UEFI specification 2.1
- Absolute Persistence agent – For tracking and tracing services, available in select countries, separate software and purchase of a subscription is required.
- Thermal and power management – The HP BIOS provides and enables thermal and power management technologies so component temperatures are managed for high reliability and to assist in operating the RP9 1 Retail System in any retail environment.
- Acoustic performance – Industry leading acoustic emissions across the range of operating conditions.
- Serviceability – HP BIOS provides diagnostic and detailed service information.
- Upgrades and recovery – HP BIOS provides numerous ways to upgrade the HP RP9, including BIOS updates from within DOS (DOSFlash), BIOS updates from within Windows (HPQFlash), HP Client Manager, and fail-safe recovery. In addition, the HP RP9 BIOS Utilities tool enables replicated BIOS setup throughout the Enterprise; it is available from within the BIOS software and from the support website.
- HP BIOS uses PKI signing of the BIOS for trusted BIOS upgrades and recovery.

##### Additional HP BIOS Features:

- Power-On password – Helps prevent an unauthorized user from powering on the system.
- Administrator password – Also known as the setup password, this helps prevent unauthorized changes to the system configuration. If the administrator password is not known, the BIOS version cannot be changed and changes cannot be made to BIOS settings using F10 setup or under the OS.
- Advanced Configuration and Power Interface (ACPI) – Represents a significant innovation in power and configuration management, allowing operating systems and applications to manage power based on activity and usage. The HP RP9 G1 Retail System uses ACPI to provide power conservation features.
- S5 Max Power Savings setting supports EU Lot6 requirement and allows the computer to power down below 1W in S5 (when turned off). When S5 Max Power Savings feature is enabled power to slots is turned off along with WOL functionality.

**NOTE:** Models 9015 & 9018 will have BIOS Family N30 vx.xx Models 9115 & 9118 will have BIOS Family P35 vx.xx

##### Sure Start

- BIOS Integrity checking – Sure Start protection ensures that only trusted BIOS code is executed and not rootkits, viruses and malware. Verification is done upon boot up, shutdown and while on.
- Sure Start is set by default to automatically repair the BIOS if corrupted or compromised but is policy driven for better manageability.
- Protecting beyond BIOS – Integrity checking and repair is extended to other data that should be protected such as network configuration parameters (network name), platform specific information (i.e. system IDs) and other code the system needs to boot.
- Audit enabled – System Audit via Sure Start Event Logs capture data such as incident, repair date and time for troubleshooting and investigating.
- Touch-down and lift-off, individual disable of BIOS

##### Security

- HP RP9 Biometric Fingerprint reader (optional)
- HP BIOSphere with Sure Start

### Standard and Configurable Components

- Security lock slot
- Serial, USB enable/disable (via BIOS)
- Power-on password (via BIOS)
- Setup password (via BIOS)
- Automatic Drive Lock
- Secure erase (via BIOS)
- Device Guard (via BIOS)
- Self Encrypting Drives
- HP Client Security Manager
- HP Multi-Factor Authenticate
- HP MIK (SCCM Integration)
- HP Image Assistant
- HP vPRO Support<sup>1,2</sup>

1. vPRO support requires either an Intel Core i5 or Core i7 processor
  2. vPRO enablement is a separate option on some products
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### Standard and Configurable Components

#### SOFTWARE

**HP Client Management Solutions** (available for free download from [hp.com/go/easydeploy](http://hp.com/go/easydeploy))

HP SoftPaq Download Manager

HP Client Catalog for Microsoft SMS

HP Systems Software Manager

HP Client Automation Starter

#### GRAPHICS

##### Intel® HD Graphics (integrated)

**Integrated graphics** Intel Integrated HD Graphics 510 (Celeron & Pentium, Models 9015/9018); Intel Integrated HD Graphics 530 (Core i3, Core i5, Core i7, Models 9015/9018); Intel Integrated HD Graphics 610 (Celeron, Models 9115/9118), Intel Integrated HD Graphics 630 (Core i3, Core i5, Core i7, Models 9115/9118)

**DisplayPort** Multimode capable; supports HDCP, Display Port Audio (2 streams), HBR2 link rates and Multi-Stream Technology for a maximum of 3 displays (including the integrated panel)

**Memory** The BIOS has options for selecting the dedicated memory size of 128MB, 256MB or 512MB. Additional memory is allocated for graphics as needed using Intel's Dynamic Video Memory Technology (DVMT), to provide an optimal balance between graphics and system memory use.

Maximum Graphics Memory	Microsoft Windows 7	Windows 8.1	Windows 10
	Up to 1.7GB	Up to 1.8GB	>4 GB

Note: the actual amount of maximum graphics memory can be less than the amounts listed above depending upon your computer's configuration.

**Maximum Color Depth** 32 bits/pixel

6<sup>th</sup> & 7<sup>th</sup> Generation Core™ processors:

- Next Generation Intel® Clear Video Technology HD Support is a collection of video playback and enhancement features that improve the end user's viewing experience
  - Encode/transcode HD content
  - Playback of high definition content including Blu-ray Disc
  - Superior image quality with sharper, more colorful images
- DirectX Video Acceleration (DXVA) support for accelerating video processing
  - Full AVC/VC1/MPEG2/HEVC HW Decode
- Advanced Scheduler 2.0, 1.0
- Windows 7, Windows 8.1, Windows 10, Linux OS Support
- DirectX 12.1
- OpenGL 4.4
- Open CL 1.2 (Intel® HD Graphics 510)
- Open CL 1.2/2.0 (Intel® HD Graphics 530)

##### Graphics/Video API Support

### Standard and Configurable Components

#### Supported Display Resolutions and Refresh Rates

**Note:** Other resolutions may be available but are not recommended as they may not have been tested and qualified by HP

Resolution	Refresh Rates
800x600	60 Hz
1024x768	60 Hz
1152x864*	60 Hz
1280x600	60 Hz
1280x720	60 Hz
1280x800*	60 Hz
1280x960*	60 Hz
1280x1024*	60 Hz
1360x768	60 Hz
1366x768	60 Hz
1400x1050*	60 Hz
1440x900*	60 Hz
1600x900*	60 Hz
1600x1200*	60 Hz
1680x1050*	60 Hz
1920x1080*	60 Hz
1920x1200*	60 Hz
1920x1440*	60 Hz
2560x1440*	60 Hz
2560x1600*	60 Hz
3840x2160**	60 Hz

\* Only supported on displays connected to the external DisplayPort connector.

\*\* 3840x2160 is not supported for Pentium and Celeron series processors

### Standard and Configurable Components

#### MEMORY

**Type**

DDR4-2133 & DDR4-2400 Memory DIMMs, Transfer rates up to 2400 MT/s

**Maximum**

32 GB

**# of Slots**

2 SODIMM

**Memory Upgrades**

Both slots are customer accessible / upgradeable.

- 4,096 MB (4096 MB x 1)
- 8,192 MB (4096 MB x 2)
- 8,192 MB (8192 MB x 1)
- 16,384 MB (8192 MB x 2)
- 32,768 (16,384 MB x 2)

**Key Benefits of DDR4 Memory:**

- Dual channel configuration – HP RP9 features motherboards designed with two memory channels instead of a single channel.
- Reduce system latencies and significantly improve your system performance with dual channel memory configurations by utilizing the theoretical bandwidth of two memory modules instead of one.
- Expect fast start-up times with reduced delays during routine operations and system maintenance functions. Meet everyday workloads head on, and run more programs simultaneously. Easily toggle back and forth between several open applications with noticeable speed.

**NOTE:** For systems configured with more than 3 GB of memory and a 32-bit operating system, all memory may not be available due to system resource requirements. Addressing memory above 4 GB requires a 64-bit operating system.

Memory modules support data transfer rates up to 2133 MT/s; actual data rate is determined by the system's configured processor. See processor specifications for supported memory data rate.

**CAUTION:** You must shut down the Retail System and disconnect the power cord before adding or removing memory modules. Regardless of the power-on state, voltage is always supplied to the memory modules as long as the Retail System is plugged in to an active AC outlet. Adding or removing memory modules while voltage is present may cause irreparable damage to the memory modules or system board.

### Standard and Configurable Components

#### **HARD DISK AND SOLID STATE STORAGE**

##### **Drive Bays**

3 (three) Storage Bays:

1 (one) 2.5" HDD/SSD Bay

- SATA

2 (two) M.2 SSD Bays

- SATA
- PCIe (AHCI)
- PCIe (NVME)

##### **Options:**

###### **2.5" Drives**

64GB SATA SSD

128GB SATA 2.5 3D SSD

HP 128GB SATA TLC 2.5" SSD Drive

128GB SATA 2.5 Opal2 SED SSD

1TB SATA 6G 2.5 8G SSHD

256GB SATA 2.5 3D SSD

HP 256GB SATA TLC 2.5" SD Drive

500GB 7200 RPM SATA 2.5 HDD

500GB 7200 RPM SATA 2.5 SED HDD

256GB SATA 2.5 Opal2 TLC SED SSD

512GB SATA 3D Solid State Drive

##### **M.2 Storage:**

###### **M.2 SATA**

128GB M.2 SATA 3D SSD

256GB M.2 SATA 3D SSD

###### **NVMe**

128GB Turbo Drive G2 SSD- M.2 PCIe

256GB Turbo Drive G2 SSD- M.2 PCIe

256GB Turbo Drive G2 TLC SSD - M.2 PCIe

128GB Turbo Drive G2 TLC SSD - M.2 PCIe

### Standard and Configurable Components

#### OPERATOR DISPLAY

##### 15.6" Diagonal Wide-Aspect Operator Display

<b>Touch Technology</b>	Projected Capacitive Touchscreen
<b>Resolution</b>	1366 x 768 Resolution
<b>Aspect Ratio</b>	16:9
<b>Max Color</b>	16.7M
<b>Contrast Ratio</b>	Typical 500:1
<b>Pixel Pitch</b>	252um
<b>Viewing Angle</b>	Horizontal 170°, Vertical 160°
<b>Response rate</b>	8ms (Typical On/Off)
<b>Backlight</b>	LED
<b>Operating Temperature range</b>	0 to 60°C (+ 60°C as panel surface temperature)

##### 18.5" Diagonal Wide Aspect Projective Capacitive Operator Display

<b>Touch Technology</b>	Projected Capacitive Touchscreen
<b>Resolution</b>	1366 x 768
<b>Aspect Ratio</b>	16:9
<b>Max Color</b>	16.7M
<b>Contrast Ratio</b>	Typical 1000
<b>Pixel Pitch</b>	300um
<b>Viewing Angle</b>	Horizontal 170°, Vertical 160°
<b>Response rate</b>	5ms (Typical On / Off)
<b>Backlight</b>	LED
<b>Operating Temperature range</b>	0 to 60°C (+ 60°C as panel surface temperature)

### Technical Specifications - Audio

#### High Definition Audio\*

<b>Type</b>	Integrated
<b>HD Stereo Codec</b>	Conexant CX5001 Audio codec.
<b>Audio I/O Ports</b>	Side Headphone/Line out Side Microphone/Line-In All ports are 3.5mm
<b>Internal Speaker Amplifier</b>	2.2W amplifier for the internal speaker only. External speakers must be powered externally.
<b>Sampling</b>	44.1 kHz - 192 kHz
<b>Analog Audio</b>	Yes
<b># of Channels on Line-Out</b>	Stereo (Left & Right channels)
<b>Internal Speaker</b>	Yes
<b>External Speaker Jack</b>	Yes
	Conexant CX5001 Audio codec. Integrated high-performance 2x2.2W internal speakers, stereo headphone jack re-taskable for line-out, microphone jack-in, re-taskable for line-in.

**NOTE:** Audio input ports are re-taskable as a Line-in or Microphone-in port. External speakers must be powered externally. Multi-streaming can be enabled to allow independent audio streams to be sent to/from the internal speakers and headphone/Line out jack. This allows for different audio applications to use separate audio ports on the system. For example, the Headphone jack could be used with a headphone for a communications application while the internal speakers for a multimedia application.



### Technical Specifications – Storage

#### Introduction:

HP Serial Advanced Technology Attachment (SATA) Hard Drives maximize the performance by providing the technologies to meet your increasing storage demands with high-capacity drives offering superior reliability and performance. SATA provides faster data transfer speeds, better system cooling airflow, more bandwidth, more headroom for speed increases in future generations and better data integrity. A next-generation technology, the SATA interface connects hard drives to the Platform, enabling easy aggregation of multiple hard drives into a single Retail Point of Sale system. This offers you the additional benefits of dedicated bandwidth, the ability to more easily identify device failures and scalability. The HP RP9 G1 Retail System supports the latest SATA 6.0Gb/s specification.

#### HP Drive Lock

HP Serial ATA Hard Drives offer enhanced security via a new Drive Lock. When enabled, this ATA security feature set prevents software access to user data on the drive until one or two user-defined passwords are provided.

#### SMART IV Technology

Self-Monitoring Analysis and Reporting Technology (SMART) hard drive technology allows hard drives to monitor their own health and to raise flags if imminent failures are predicted. If the drive determines that a failure is imminent, the SMART hard drive technology enables the intelligent manageability or management software to generate a fault alert. While the current versions of SMART hard drives do a good job monitoring the data on the hard drive media, the ever increasing emphasis on reliability and quality has promoted HP to implement SMART IV technology which constantly checks that the data flow from host interface to media and media to host interface is not compromised. This is accomplished by inserting a 2 byte parity code into every 512 byte block in the data path of the hard drive's Cache RAM. This unique parity checking performed by HP's SMART IV technology hard drives, allows for more complete error detection coverage encompassing the entire data path between the host and the hard drive.

Smart IV is also known as IOEDC: I/O Error Detection Code.

#### Native Command Queuing

NCQ or Native Command Queuing is a SATA protocol extension that allows the hard drive to have several write or read commands outstanding at the same time. In contrast, normal non-queued operation requires each command to be completed before the next command is issued by the host system. Queuing allows the drive to complete the commands in the order that allows for best overall throughput. It also involves an advanced method of transferring data to or from the host, called First Party Direct Memory Access (FPDMA), which allows the hard drive and the host controller to manage the data transfers for multiple outstanding commands, without involving the host processor. NCQ can contribute to better performance but the results are dependent on many factors, including the access patterns of the various applications and operating system functions that are initiating drive accesses. Enabling NCQ features in the hard drive requires AHCI support from the host system BIOS, controller, and driver. AHCI support is typically implemented in RAID configurations.

**Note:** GB = 1 billion bytes. Actual available capacity is less.

#### Redundant Array of Independent Drives (RAID)

Flexible implementation:

- DriveLock is supported while in RAID mode. Users can manage the DriveLock password from within F10 Setup. Locked drives will be displayed as such in the RAID option ROM interface.
- Hard drive information can be viewed within F10 Setup while in RAID mode. Previously, the hard drives will not appear in Drive Configuration when switching to RAID mode.
- DPS Self-Test can be executed on physical hard drives while in RAID mode.

The RAID Setup Utility (accessed through CTRL-I) can be protected by the F10 Setup password.

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### Technical Specifications – Storage

#### HP 500-GB 7200 RPM SATA 2.5” Self-Encrypting (SED) Hard Disk Drive

<b>Capacity</b>	500,107,862,016 bytes	
<b>Rotational Speed</b>	7,200 rpm	
<b>Drive Type</b>	Self-Encrypting Drive (SED) with SATA interface	
<b>Interface</b>	SATA 6 Gb/s	
<b>Segmented Buffer with write cache</b>	32768 KB - A portion of buffer capacity used for firmware	
<b>Number of Sectors</b>	976,773,168	
<b>Seek Time</b> (typical reads)	<b>Single Track:</b>	1.0 ms
	<b>Average:</b>	13 ms
	<b>Full-Stroke:</b>	25 ms
<b>Media Diameter</b>	2.5 in/63.5 mm	
<b>Height</b>	0.267 in/6.8 mm, ±0.2mm	
<b>Width</b>	2.75 in/69.85 mm, ±0.25mm	
<b>Length</b>	3.945 in/100.2 mm, ±0.25mm	
<b>Weight</b>	3.35 oz/95 g (max)	
<b>Operating Temperature</b>	32° to 140° F (0° to 60° C)	

#### 120 GB SATA 2.5 Non-SED SSD

<b>Unformatted Capacity</b>	120 GB	
<b>Architecture</b>	Multi-Level Cell (MLC) NAND	
<b>Interface</b>	Serial ATA 3.0 (6.0 Gb/s)	
<b>Form Factor</b>	2.5 inch	
<b>Height</b>	Low profile, 7mm height	
<b>Width</b>	69.85 mm ± 0.25	
<b>Length</b>	100.45 mm max	
<b>Weight</b>	Up to 78 g	
<b>Bandwidth Performance</b>	<b>Sustained Sequential Read:</b>	Up to 540 MB/s
	<b>Sustained Sequential Write:</b>	Up to 480 MB/s
<b>Power</b>	<b>Power consumption:</b> Average: Read <3.7W; Write 3.7W; Standby <55mW	
<b>Environmental</b> (all conditions, non-condensing)	<b>Operating Temperature:</b>	32° to 158° F (0° to 70° C)
	<b>Relative Humidity:</b>	5% to 95%
	<b>Shock:</b>	1,500 G/0.5 ms

### Technical Specifications – Storage

#### 120GB SATA 2.5” Opal2 SED Solid State Drive (Pro 2500)

<b>Unformatted Capacity</b>	120 GB, 234,441,648 (Total Logical Sectors)	
<b>Architecture</b>	ATA 8 Compliant and SATA 3.0 compliant Supports Mode 2 Multiword DMA Supports Drive Failure Prediction Supports SMART Offline Read Scan Supports Mode 4 PIO Supports Mode 5 UDMA Supports HP Drive Protection System ATA 8 ACS-2 Data / TRIM Support Support DEVSLP feature Supports TRIM Command per ATA8 / ACS 2 Supports FIPS-197 features Support TCG Storage Architecture Core Specification 2.0	
<b>Interface</b>	Serial ATA 3.0 (6.0 Gb/s)	
<b>Form Factor</b>	2.5 inch	
<b>Height</b>	Low profile, 7mm height	
<b>Width</b>	69.85 mm ± 0.25	
<b>Length</b>	100.45 mm max	
<b>Weight</b>	Up to 78 g	
<b>Bandwidth Performance</b>	<b>Sustained Sequential Read:</b>	Up to 540 MB/s
	<b>Sustained Sequential Write:</b>	Up to 480 MB/s
	<b>Power consumption:</b>	Average: Read <3.7W; Write 3.7W; Standby <55mW
<b>Power</b>		
<b>Environmental</b> (all conditions, non-condensing)	<b>Operating Temperature:</b>	32° to 158° F (0° to 70° C)
	<b>Relative Humidity:</b>	5% to 95%
	<b>Shock:</b>	1,500 G/0.5 ms

#### 128GB SATA 2.5” 3D Non-SED Solid State Drive

<b>Unformatted Capacity</b>	128 GB 250,069,680 (User Addressable Sectors)	
<b>Architecture</b>	Self-Encrypting (SED) Solid State Drive with NAND Flash and SATA interface. Fully complies with ATA/ATAPI-7 Standard (Partially Complies with ATA/ATAPI-8) Power Saving Modes: DIPM (Partial / Slumber mode) Support NCQ : Up to 32 depth Synchronous Signal Recovery	
<b>Interface</b>	Serial ATA (6.0 Gb/s)	
<b>Form Factor</b>	2.5 inch	
<b>Height</b>	6.80 mm ± 0.20	
<b>Width</b>	69.85 mm ± 0.25	
<b>Length</b>	100.20 mm ± 0.25	
<b>Weight</b>	Up to 54 g	
<b>Bandwidth Performance</b>	<b>Sustained Sequential Read:</b>	Up to 530 MB/s

### Technical Specifications – Storage

<b>Power</b>	<b>Sustained Sequential Write:</b>	Up to 140 MB/s
<b>Mean Time Between Failure (MTBF)</b>	<b>Power consumption:</b>	Active: Typical 250mW; Idle: Typical 50mW
<b>Environmental</b> (all conditions, non-condensing)	<b>Operating Temperature:</b>	32° to 158° F (0° to 70° C)
	<b>Relative Humidity:</b>	5% to 95%
	<b>Shock:</b>	1,500 G/0.5 ms

### 128GB SATA 2.5” Opal2 SED Solid State Drive

<b>Unformatted Capacity</b>	128 GB
	250,069,680 (User Addressable Sectors)
<b>Architecture</b>	Self-Encrypting (SED) Solid State Drive with NAND Flash and SATA interface. Trusted Computing Group(TCG) OPAL compliant encrypted solid state drive
<b>Interface</b>	Serial ATA (6.0 Gb/s)
<b>Form Factor</b>	2.5 inch
<b>Height</b>	6.80 mm ± 0.20
<b>Width</b>	69.85 mm ± 0.25
<b>Length</b>	100.20 mm ± 0.25
<b>Weight</b>	Up to 73 g
<b>Bandwidth Performance</b>	<b>Sustained Sequential Read:</b> Up to 520 MB/s <b>Sustained Sequential Write:</b> Up to 340 MB/s
<b>Power</b>	<b>Power consumption:</b> Active: 0.78A / 3.891W; Idle: 0.005A / 0.026W
<b>Mean Time Between Failure (MTBF)</b>	1,500,000 hours
<b>Environmental</b> (all conditions, non-condensing)	<b>Operating Temperature:</b> 32° to 158° F (0° to 70° C) <b>Relative Humidity:</b> 5% to 95% <b>Shock:</b> 1,500 G/0.5 ms

### Technical Specifications – Storage

#### HP 256GB SATA TLC Solid State Drive, 2.5”

<b>Unformatted Capacity</b>	256 GB*	
<b>Architecture</b>	TLC NAND Flash	
<b>Interface</b>	SATA 3.2 (6.0 Gb/s)	
<b>Dimensions (W x H x D)</b>	6.98 x 0.7 x 10.05 cm	
<b>Weight</b>	36.5 g	
<b>Bandwidth Performance</b>	Sustained Sequential Read:	Up to 498 MB/s
	Sustained Sequential Write:	Up to 455 MB/s
	Random Read:	Up to 84K IOPs
	Random Write:	Up to 49K IOPs
	<b>Power</b>	DC power requirement:
	Total power consumption:	95mW (active); 70mW (idle)
<b>Useful Drive Life</b>	72TB written, up to 40GB/day for 5 years	
<b>Environmental</b> (all conditions, non-condensing)	Operating Temperature:	32° to 158° F (0° to 70° C)
	Relative Humidity:	5% to 95%
	Shock:	1,500 G/0.5 ms

\* For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and 36 GB (for Windows 8.1/10) of system disk is reserved for the system recovery software.

#### 256GB SATA 2.5” 3D Non-SED Solid State Drive

<b>Unformatted Capacity</b>	256 GB	
	500,118,192 (User Addressable Sectors)	
<b>Architecture</b>	Self-Encrypting (SED) Solid State Drive with NAND Flash and SATA interface.	
	Fully complies with ATA/ATAPI-7 Standard (Partially Complies with ATA/ATAPI-8)	
	Power Saving Modes: DIPM (Partial / Slumber mode)	
	Support NCQ : Up to 32 depth	
<b>Interface</b>	Synchronous Signal Recovery	
	Serial ATA (6.0 Gb/s)	
<b>Form Factor</b>	2.5 inch	
<b>Height</b>	6.80 mm ± 0.20	
<b>Width</b>	69.85 mm ± 0.25	
<b>Length</b>	100.20 mm ± 0.25	
<b>Weight</b>	Up to 54 g	
<b>Bandwidth Performance</b>	<b>Sustained Sequential Read:</b>	Up to 540 MB/s
	<b>Sustained Sequential Write:</b>	Up to 280 MB/s
	<b>Power consumption:</b>	Active: Typical 250mW; Idle: Typical 50mW
<b>Power</b>		
<b>Mean Time Between Failure (MTBF)</b>	1,500,000 hours	

### Technical Specifications – Storage

<b>Environmental</b> (all conditions, non-condensing)	<b>Operating Temperature:</b>	32° to 158° F (0° to 70° C)
	<b>Relative Humidity:</b>	5% to 95%
	<b>Shock:</b>	1,500 G/0.5 ms

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

<b>Capacity</b>	500,107,862,016 bytes	
<b>Rotational Speed</b>	7,200 rpm	
<b>Interface</b>	SATA 6 Gb/s	
<b>Buffer Size</b>	16 MB	
<b>Logical Blocks</b>	976,773,168	
<b>Seek Time</b> (typical reads)	<b>Single Track:</b>	2.0 ms
	<b>Average:</b>	12 ms
	<b>Full-Stroke:</b>	25 ms
<b>Height</b> (nominal)	0.267 in/6.8 mm	
<b>Width</b> (nominal)	Media diameter: 2.5 in/63.5 mm	
	Physical size: 2.75 in/70 mm	
<b>Operating Temperature</b>	41° to 131° F (5° to 55° C)	

### HP 128 GB Turbo Drive SSD-M.2 PCIe Card\*

<b>Unformatted Capacity</b>	128 GB*	
<b>Interface</b>	M.2 PCIe x4 Gen 2	
<b>Architecture</b>	Solid State Drive M.2 PCIe Gen 2 x4 AHCI; NCQ Command Set	
<b>Form Factor</b>	M.2 2280	
<b>Dimensions</b> (Width x Length x Thickness)	0.899 x 3.149 x .146 in (22 x 80 x 3.73 mm)	
<b>Weight</b>	0.017 lb (8 g) Max	
<b>Bandwidth Performance -</b> Performance measured using IOMeter 2008 on Windows 8 64bit. Actual performance may vary depending on use conditions and environment.	<b>Sustained Sequential Read</b> (128KB):	Up to 920 MB/ss
	<b>Sustained Sequential Write</b> (128KB):	Up to 430 MB/s
	<b>Random Read</b> (4KB):	up to 8500 IOPs
	<b>Random Write</b> (4KB):	up to 32000 IOPs
	<b>Allowable voltage</b>	3.3V ± 5%
<b>Power</b>	<b>Total power consumption:</b>	5.8 W (Active) ; 80 mW; (Idle)
<b>MTBF</b>	1.5 M hours	
<b>Environmental</b> (all conditions, non-condensing)	<b>Operating Temperature:</b>	32° to 158° F (0° to 70° C)
	<b>Relative Humidity</b> (operating):	5% to 95%
	<b>Shock:</b>	1,500 G TUV
<b>Regulations</b>	Safety TUV UL CB c-UL-us	UL CB c-UL-us TUV
	EMC/EMI	CE (EU)

### Technical Specifications – Storage

BSMI (Taiwan)  
 KCC (South Korea)  
 VCCI (Japan)  
 C-Tick (Australia)  
 FCC (USA)

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#### HP 256 GB Turbo Drive SSD-M.2 PCIe Card\*

<b>Formatted Capacity</b>	256 GB		
<b>Architecture</b>	Solid State Drive M.2 PCIe Gen 2 x4 AHCI; NCQ Command Set		
<b>Interface</b>	M.2 PCIe Gen 2 x4		
<b>Form Factor</b>	M.2 2280		
<b>Height</b>	7 mm ± 0.20		
<b>Width</b>	.8 mm ± 0.08		
<b>Length</b>	50 mm ± 0.15		
<b>Weight (typical)</b>	Up to 10 g		
<b>Data Transfer Rate (128k Sequential)</b>	<b>Sequential Read</b>	Up to 2150 MB/s	
	<b>Sequential Write</b>	Up to 1200 MB/s	
<b>Power</b>	<b>Power consumption (avg):</b>	Power-Up: N/A	
		Read: 4 W	
		Write: 5.1 W	
		Standby: 700 mW	
<b>Environmental (all conditions, non-condensing)</b>	<b>Operating Temperature:</b>	Idle: 70 mW	
		32° to 158° F (0° to 70° C)	
		<b>Relative Humidity (operating):</b>	5% to 95%
		<b>Shock:</b>	1,500 G

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### Technical Specifications – Storage

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

<b>Formatted Capacity</b>	1 TB	
<b>Spindle Speed</b>	5,400 rpm +/- 0.2%	
<b>Drive Type</b>	Solid State Hybrid Drive (SSHD) technology with NAND Flash	
<b>Interface</b>	SATA 6 Gb/s	
<b>Cache Buffer</b>	64 MB	
<b>NAND Flash</b>	8 GB	
<b>Commercial Multilevel Cell (cMLC)</b>		
<b>Number of Sectors</b>	976,773,168	
<b>Seek Time</b> (typical reads)	Single Track:	2.0 ms
	Average:	12 ms
<b>Height</b>	0.374 +/- .008 in (9.5 +/- 0.2 mm)	
<b>Width</b>	2.750 +/- 0.010 in (69.85 +/- 0.25 mm)	
<b>Length</b>	3.951 +0.008 / -0.010 in (100.35 +0.20 / -0.25 mm)	
<b>Weight</b>	0.254 lb/115 g (max)	
<b>Operating Temperature</b>	32° to 140° F (0° to 60° C)	

#### HP 64GB SATA Solid State Drive, 2.5" SSD

<b>Capacity</b>	63,023,063,040 bytes
<b>Interface</b>	Serial ATA (SATA) 3.0
<b>Synchronous Transfer Rate</b> (maximum)	Up to 6 Gb/s
<b>Logical Blocks</b>	123,091,920
<b>Height</b> (nominal)	7mm
<b>Width</b> (nominal)	Physical size: 70mm
<b>Operating Temperature</b>	0° to 70° C

#### 128GB 2280 M2 SATA-3 SSD

<b>Drive Weight</b>	0.022 lb (10 g)	
<b>Capacity</b>	128 GB	
<b>Height</b>	0.14 in (3.7 mm)	
<b>Width</b>	0.87 in (22 mm)	
<b>Interface</b>	SATA 3.0	
<b>Performance</b>	<b>Maximum Sequential Read</b>	<b>Maximum Sequential Write</b>
	Up to 520 MB/s	Up to 140 MB/s
<b>Logical Blocks</b>	250,069,680	
<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [ambient temp]	
<b>Features</b>	DIPM; TRIM; DEVSLP	
<b>Security Features</b>	ATA Security	

#### 256GB 2280 M2 SATA-3

<b>Drive Weight</b>	0.022 lb (10 g)
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### Technical Specifications – Storage

<b>Capacity</b>	256 GB	
<b>Height</b>	0.14 in (3.58 mm)	
<b>Width</b>	0.87 in (22 mm)	
<b>Interface</b>	SATA 3.0	
<b>Performance</b>	<b>Maximum Sequential Read</b> Up to 520 MB/s	<b>Maximum Sequential Write</b> Up to 270 MB/s
<b>Logical Blocks</b>	500,118,192	
<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [ambient temp]	
<b>Features</b>	DIPM; TRIM; DEVSLP	
<b>Security Features</b>	ATA Security	

### HP 128 GB Turbo G2 Drive SSD-M.2

<b>Formatted Capacity</b>	128 GB	
<b>Architecture</b>	PCIe NVMe Gen3 (8Gb/s) Interface, up to 4 Lanes	
<b>Interface</b>	PCIe Gen3 x 4	
<b>Form Factor</b>	M.2 2280	
<b>Height</b>	(Double Side) Max. 3.73 mm (Single Side) Max. 2.38 mm	
<b>Width</b>	Width 22.00 ± 0.15 mm	
<b>Length</b>	Length 80.00 ± 0.15 mm	
<b>Weight (typical)</b>	Up to 8 g	
<b>Data Transfer Rate (128k Sequential)</b>	<b>Sequential Read</b>	Up to 2070 MB/s
	<b>Sequential Write</b>	Up to 680 MB/s
<b>Power consumption (avg):</b>	<b>Allowable Voltage</b>	3.3V ± 5%
	<b>Total Power Consumption</b>	6.5 W (Active); 50mW (Idle)
<b>MTBF</b>	1,500,000 hours	
<b>Environmental (all conditions, non-condensing)</b>	<b>Operating Temperature:</b>	0°C to 70°C
	<b>Relative Humidity:</b>	5% to 95%
	<b>Shock (Linear 2 m/Sec half-sine):</b>	1500 G peak (operating)

### HP 256 GB Turbo G2 Drive SSD-M.2

<b>Formatted Capacity</b>	256 GB	
<b>Architecture</b>	PCIe NVMe Gen3 (8Gb/s) Interface, up to 4 Lanes	
<b>Interface</b>	PCIe Gen3 x 4	
<b>Form Factor</b>	M.2 2280	
<b>Height</b>	(Double Side) Max. 3.73 mm (Single Side) Max. 2.38 mm	
<b>Width</b>	Width 22.00 ± 0.15 mm	
<b>Length</b>	Length 80.00 ± 0.15 mm	
<b>Weight (typical)</b>	Up to 8 g	
<b>Data Transfer Rate (128k Sequential)</b>	<b>Sequential Read</b>	Up to 2260 MB/s
	<b>Sequential Write</b>	Up to 1260 MB/s
<b>Power consumption (avg):</b>	<b>Allowable Voltage</b>	3.3V ± 5%
	<b>Total Power Consumption</b>	6.5 W (Active); 50mW (Idle)
<b>MTBF</b>	1,500,000 hours	
<b>Environmental (all conditions, non-condensing)</b>	<b>Operating Temperature:</b>	0°C to 70°C
	<b>Relative Humidity:</b>	5% to 95%
	<b>Shock (Linear 2 m/Sec half-sine):</b>	1500 G peak (operating)

### Technical Specifications – Storage

#### **Hard Disk and Solid State Storage notes**

For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and 36 GB (for Windows 8.1/10) of system disk is reserved for the system recovery software.

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### Technical Specifications – Networking and Communications

#### Intel® I219LM Gigabit Network Connection LOM (standard)

<b>Connector</b>	RJ-45
<b>System Interface</b>	PCIe + SMBus
<b>Controller</b>	Intel® I219LM Gigabit Ethernet Controller
<b>Data rates supported</b>	Supports operation at 10/100/1000 Mb/s data rates
<b>IEEE Compliance</b>	IEEE 802.3 Ethernet interface for 1000BASE-T, 100BASE-TX, and 10BASE-T applications (802.3ab, 802.3u, and 802.3i, respectively). IEEE 802.3az support [Low Power Idle (LPI) mode] IEEE 802.3u auto-negotiation conformance
<b>Performance</b>	Jumbo Frames (up to 9 kB) 802.1Q & 802.1p Receive Side Scaling (RSS) Two Queues (Tx & Rx)
<b>Power</b>	<ul style="list-style-type: none"> <li>Ultra Low Power at cable disconnect (&lt;1 mW) enables platform support for connected standby</li> <li>Reduced power consumption during normal operation and power down modes</li> <li>Integrated Intel® Auto Connect Battery Saver (ACBS)</li> <li>Single-pin LAN Disable for easier BIOS implementation</li> <li>Fully integrated Switching Voltage Regulator (iSVR)</li> <li>Low Power Link-Up (LPLU)</li> </ul>
<b>MAC/PHY Interconnect</b>	<ul style="list-style-type: none"> <li>PCIe-based interface for active state operation (S0 state)</li> <li>SMBus-based interface for host and management traffic (Sx low power state)</li> </ul>
<b>Management Interface</b>	<ul style="list-style-type: none"> <li>MDC/MDIO management interface</li> </ul>
<b>Security &amp; Manageability</b>	<ul style="list-style-type: none"> <li>Intel® vPro™ support with appropriate Intel chipset components</li> </ul>
<b>Power Consumption</b>	<ul style="list-style-type: none"> <li>1G:900mW/272mA</li> <li>10/100M:450mW/136.3mA</li> </ul>

#### Intel® 8260 2x2 Dual Band 802.11ac WLAN/ Bluetooth® Combo\*

<b>Wireless LAN Standards</b>	IEEE 802.11 ac/a/b/g/n												
<b>Interoperability</b>	Wi-Fi certification WLAN + Bluetooth® Combo M.2 Card device shall meet all of the requirements to support Bluetooth® 4.1 and backwards compatible with 2.1 with EDR												
<b>Frequency Band</b>	<table border="0"> <tr> <td>802.11b/g/n</td> <td>2.402-2.482 GHz</td> </tr> <tr> <td>802.11a/n/ac</td> <td>4.9 – 4.95 GHz (Japan)</td> </tr> <tr> <td></td> <td>5.15 – 5.25 GHz</td> </tr> <tr> <td></td> <td>5.25 – 5.35 GHz</td> </tr> <tr> <td></td> <td>5.47 – 5.725 GHz</td> </tr> <tr> <td></td> <td>5.825 – 5.850 GHz (Note: Indonesia does not support this band)</td> </tr> </table>	802.11b/g/n	2.402-2.482 GHz	802.11a/n/ac	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 (Note: Indonesia does not support this band)
802.11b/g/n	2.402-2.482 GHz												
802.11a/n/ac	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 (Note: Indonesia does not support this band)												
<b>Antenna Interface</b>	With antennas installed in the system, the antenna peak gain is less than +3dBi in the 2.4GHz band and less than +4dBi in the 5GHz band to allow the device to meet regulatory limits.												
<b>Data Rates</b>	<ul style="list-style-type: none"> <li>802.11b: 1, 2, 5.5, 11 Mbps</li> <li>802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps</li> <li>802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps</li> <li>802.11n: card will support rates for NSS=1 and NSS=2 for RX and TX for 20 and 40 MHz channels. Short and long guard interval shall be supported.</li> </ul>												

### Technical Specifications – Networking and Communications

- 802.11ac: card will support rates for NSS=1 and NSS=2 for RX and TX for 80 MHz channels. 433Mbps for 1x1 and 867Mbps for 2x2.

#### Security

- 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 V5
- WAPI

#### Notes:

1. [Check latest software/driver release for updates on supported security features.](#)

#### Roaming

802.11r Fast Roaming

#### Output Power (Transmitting)

- 802.11b: +16dBm minimum
- 802.11g: +14dBm minimum
- 802.11a: +14dBm minimum
- 802.11n HT20 (2.4GHz) : +14dBm minimum
- 802.11n HT40 (2.4GHz) : +12dBm minimum
- 802.11n HT20 (5GHz) : +14dBm minimum
- 802.11n HT40 (5GHz) : +12dBm minimum
- 802.11ac 80MHz (5GHz) : +12dBm minimum

#### Notes:

1. RF Tx power have to meet minimum criteria and with +1.5dBm tolerance but -1.5dBm.
2. RF Parameter will be verified by R&S CMW500 via link mode. .

#### Power Consumption

Transmit: 2.0 Watts

Receive: 1.6 Watts

Idle mode (PSP): 180 mW (WLAN associated)

Idle mode: 50 mW (WLAN unassociated)

Connect Standby 10mW (WLAN+BT)

Radio off: 5 mW

#### Bluetooth® Power Consumption

Peak operating: 330 mW

Receive: 230 mW

USB selective suspend: 17 mW

#### Power Management

The product conforms to the ACPI and PCI Express M.2 bus methods to manage power of the WLAN components.

Supports all 802.11 compliant power-save modes. These include the basic Power Save Polling (PSP) in 802.11 and Automatic Power Save Delivery (APSD) defined in 802.11e.

#### Receiver Sensitivity for FER <10%

802.11b, 1Mbps: -94dBm maximum

802.11b, 11Mbps: -86dBm maximum

802.11a/g, 6Mbps: -88dBm maximum

802.11a/g, 54Mbps : -74dBm maximum

802.11n, MCS07 : -69dBm maximum

802.11n, MCS15 : -66dBm maximum

802.11ac, 1SS, MCS-0 : -86dBm maximum

802.11ac, 1SS, MCS-9 : -61dBm maximum

### Technical Specifications – Networking and Communications

802.11ac, 2SS, MCS-0 : -83dBm maximum  
 802.11ac, 2SS, MCS-9 : -58dBm maximum

**Notes:**

1. Rx sensitivity have to meet maximum criteria and with -1.5dBm tolerance but +1.5dBm.
2. Note: RF Parameter will be verified by R&S CMW500 via link mode.

**Form Factors**

PCI Express M.2 form factor

**Operating Voltage**

The card will be powered by a 3.3V, ± 9% supply from the host system.

**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)

\* Wireless access point and Internet service required and not included. Availability of public wireless access points limited.

### Intel® Dual Band Wireless-AC 7260 802.11 ac 2x2 WiFi + BT 4.0 Combo Adapter

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

### Technical Specifications – Networking and Communications

	<ul style="list-style-type: none"> <li>• WPA, WPA2: 802.1x, WPA-PSK, WPA2-PSK, TKIP, and AES.</li> <li>• WPA2 certification</li> <li>• IEEE 802.11i</li> <li>• Cisco Certified Extensions, all versions through CCX4 and CCX Lite</li> <li>• WAPI</li> </ul>
<b>Network Architecture Models</b>	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
<b>Roaming</b>	IEEE 802.11 compliant roaming between access points
<b>Output Power<sup>2</sup></b>	<ul style="list-style-type: none"> <li>• 802.11b : +16dBm minimum</li> <li>• 802.11g : +14dBm minimum</li> <li>• 802.11a : +14dBm minimum</li> <li>• 802.11n HT20(2.4GHz) : +13dBm minimum</li> <li>• 802.11n HT40(2.4GHz) : +13dBm minimum</li> <li>• 802.11n HT20(5GHz) : +12dBm minimum</li> <li>• 802.11n HT40(5GHz) : +12dBm minimum</li> <li>• 802.11ac 80MHz(5GHz) : +11dBm minimum</li> </ul>
<b>Power Consumption</b>	Transmit: 2.0 W (max) Receive: 1.6 W (max) Idle mode (PSP): 180 mW (WLAN Associated) Idle mode: 60 mW (WLAN unassociated) Radio disabled: 30 mW
<b>Power Management</b>	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
<b>Receiver Sensitivity<sup>3</sup></b>	802.11b, 1Mbps : -94dBm maximum 802.11b, 11Mbps : -86dBm maximum 802.11g, 6Mbps : -88dBm maximum 802.11g, 54Mbps : -74dBm maximum 802.11a, 6Mbps : -86dBm maximum 802.11a, 54Mbps : -72dBm maximum 802.11n, MCS07 : -69dBm maximum 802.11n, MCS15 : -66dBm maximum 802.11ac, 1SS, MCS-0 : -86dBm maximum 802.11ac, 1SS, MCS-9 : -61dBm maximum 802.11ac, 2SS, MCS-0 : -83dBm maximum 802.11ac, 2SS, MCS-9 : -58dBm maximum
<b>Antenna type</b>	High efficiency antenna with spatial diversity, mounted in the display enclosure Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth communications
<b>Form Factor</b>	PCI-Express Half-MiniCard
<b>Dimensions</b>	0.134 x 1.06 x 1.18 in (3.4 x 26.8 x 30 mm)
<b>Weight</b>	3.1g
<b>Operating Voltage</b>	3.3v +/- 9%
<b>Temperature</b>	Operating 14° to 158° F (–10° to 70° C) Non-operating –40° to 176° F (–40° to 80° C)
<b>Humidity</b>	Operating 10% to 90% (non-condensing) Non-operating 5% to 95% (non-condensing)
<b>Altitude</b>	Operating 0 to 10,000 ft (3,048 m) Non-operating 0 to 50,000 ft (15,240 m)

### Technical Specifications – Networking and Communications

<b>LED Activity</b>	LED Amber – Radio OFF; LED White – Radio ON
<b>Notes</b>	<ol style="list-style-type: none"> <li>3. Check latest software/driver release for updates on supported security features.</li> <li>4. Maximum output power may vary by country according to local regulations.</li> <li>5. 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> </ol>

#### HP Integrated Module with Bluetooth 4.0+EDR Wireless Technology

<b>Bluetooth Specification</b>	4.0+EDR Compliant		
<b>Frequency Band</b>	2402 to 2480 MHz		
<b>Number of Available Channels</b>	79 (1 MHz) available channels		
<b>Data Rates and Throughput</b>	3 Mbps data rate; throughput up to 2.17 Mbps		
	Synchronous Connection Oriented links up to 3, 64 kbps, voice channels		
	Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric or 1306.9 kbps symmetric		
<b>Transmit Power</b>	The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of +4 dBm for BR and EDR.		
<b>Receiver Sensitivity</b>	<b>Modulation</b>	<b>0.01% BER</b>	<b>0.001% BER</b>
	GFSK	-80 dBm	-70 dBm
	$\pi/4$ -DQPSK	-80 dBm	-70 dBm
	8DPSK	-80 dBm	-70 dBm
<b>Power Consumption</b>	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW		
<b>Range</b>	Up to 33 ft (10 m)		
<b>Electrical Interface</b>	USB 2.0 compliant		
<b>Bluetooth Software Supported</b>	Microsoft Windows Bluetooth Software		
<b>Link Topology</b>	Point to Point, Multipoint Pico Nets up to 7 slaves		
<b>Electrical Interface Bluetooth Software Supported</b>	Full support of Bluetooth Security Provisions		
<b>Security</b>	All necessary regulatory approvals for supported countries, including:		
<b>Certifications</b>	FCC (47 CFR) Part 15C, Section 15.247 & 15.249		
<b>Bluetooth Profiles Supported</b>			
<b>Power Management Certifications</b>	ETS 300 328, ETS 300 826		
<b>Certifications</b>	Low Voltage Directive IEC950		
<b>Bluetooth Profiles Supported</b>	UL, CSA, and CE Mark		
	Serial Port Profile (SPP) <sup>1</sup>		
	Service Discovery Application Profile (SDAP)		
	Dial-Up Networking (DUN) <sup>1,2</sup>		

### Technical Specifications – Networking and Communications

Generic Object Exchange Profile (GOEP)<sup>1,2</sup>  
 Object Push Profile (OPP)<sup>1,2</sup>  
 File Transfer Profile (FTP)  
 Synchronization Profile (SYNC)  
 Hard Copy Cable Replacement (HCRP)<sup>1,2</sup>  
 Personal Area Networking Profile (PAN)<sup>1,2</sup>  
 Human Interface Device Profile (HID)<sup>1,2</sup>  
 FAX Profile (FAX)  
 Basic Imaging Profile (BIP)<sup>2</sup>  
 Headset Profile (HSP)  
 Hands Free Profile (HFP)  
 Advanced Audio Distribution Profile (A2DP)

### Broadcom BCM943228Z 802.11n 2x2 DualBand Combo PCIe x1 Card\*

<b>Wireless LAN Standards</b>	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n
<b>Interoperability</b>	Wi-Fi certified
<b>Frequency Band</b>	802.11b/g/n <ul style="list-style-type: none"> <li>• 2.402 – 2.482 GHz</li> </ul> <p><b>Note:</b> The FCC has declared as of January 1, 2015 products that utilize passive scanning on channel 12/13 and are capable of transmitting must fully comply with requirements of 15.247 or otherwise disable those channels.</p> 802.11a/n <ul style="list-style-type: none"> <li>• 4.9 - 4.95 GHz (Japan)</li> <li>• 5.15 - 5.25 GHz</li> <li>• 5.25 - 5.35 GHz</li> <li>• 5.47 - 5.725 GHz</li> <li>• 5.825 - 5.850 GHz</li> </ul> <p><b>Note:</b> Indonesia no support this band</p>
<b>Antenna Structure</b>	2 transmit; 2 receive (2x2)
<b>Data Rates</b>	802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz)
<b>Modulation</b>	Direct Sequence Spread Spectrum CCK, BPSK, QPSK, 16-QAM, 64-QAM
<b>Security<sup>1</sup></b>	<ul style="list-style-type: none"> <li>• IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only</li> <li>• AES-CCMP: 128 bit in hardware</li> <li>• 802.1x authentication</li> <li>• WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.</li> <li>• WPA2 certification</li> <li>• IEEE 802.11i</li> <li>• Cisco Certified Extensions, all versions through CCX4 and CCX Lite</li> <li>• WAPI</li> </ul>
<b>Sub-channels</b>	Multinational support with frequency bands and channels compliant to local regulations.
<b>Network Architecture Models</b>	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
<b>Roaming</b>	IEEE 802.11 compliant roaming between band Access Points
<b>Output Power<sup>2</sup></b>	<ul style="list-style-type: none"> <li>• 802.11b : +16dBm minimum</li> </ul>



### Technical Specifications – Networking and Communications

- 802.11g : +14dBm minimum
- 802.11a : +14dBm minimum
- 802.11n HT20(2.4GHz) : +13dBm minimum
- 802.11n HT40(2.4GHz) : +13dBm minimum
- 802.11n HT20(5GHz) : +12dBm minimum
- 802.11n HT40(5GHz) : +12dBm minimum

<b>Power Consumption</b>	Transmit: 2.0 W (max) Receive: 1.6 W (max) Idle mode (PSP): 180 mW (WLAN Associated) Idle mode: 60 mW (WLAN unassociated) Radio disabled: 30 mW
<b>Power Management</b>	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
<b>Receiver Sensitivity<sup>4</sup></b>	802.11b, 1Mbps : -94dBm maximum 802.11b, 11Mbps : -86dBm maximum 802.11g, 6Mbps : -88dBm maximum 802.11g, 54Mbps : -74dBm maximum 802.11a, 6Mbps : -86dBm maximum 802.11a, 54Mbps : -72dBm maximum 802.11n, MCS07 : -69dBm maximum 802.11n, MCS15 : -66dBm maximum
<b>Antenna type</b>	High efficiency antenna with spatial diversity, mounted in the display enclosure Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO and Bluetooth® communications
<b>Form Factor</b>	PCI-Express M.2 MiniCard
<b>Dimensions</b>	Type 2230 : 2.3 x 22.0 x 30.0 mm Or Type 1630 : 2.3 x 16.0 x 30.0 mm
<b>Weight</b>	Type 2230 : 2.8g Or Type 1630 : 2g
<b>Operating Voltage</b>	3.3v +/- 9%
<b>Temperature</b>	<b>Operating</b> 14° to 158° F (-10° to 70° C) <b>Non-operating</b> -40° to 176° F (-40° to 80° C)
<b>Humidity</b>	<b>Operating</b> 10% to 90% (non-condensing) <b>Non-operating</b> 5% to 95% (non-condensing)
<b>Altitude</b>	<b>Operating</b> 0 to 10,000 ft (3,048 m) <b>Non-operating</b> 0 to 50,000 ft (15,240 m)
<b>LED Activity</b>	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. In Power Save Polling mode and on battery power.
4. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CCK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).
5. WLAN supplier's client utility is required for Cisco Compatible Extensions support with Microsoft Windows XP. WLAN may also be compatible with certain third-party software supplicants. WLAN supplier IHV extensions required for Cisco Compatible Extensions support for Microsoft Windows Vista.

### Intel 7265 802.11ac 2x2 Dual Band Combo PCIe x1 Card

<b>Wireless LAN Standards</b>	IEEE 802.11a IEEE 802.11b IEEE 802.11g
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### Technical Specifications – Networking and Communications

<b>Interoperability</b>	IEEE 802.11n
<b>Frequency Band</b>	IEEE 802.11ac
	Wi-Fi certified
	802.11b/g/n
	<ul style="list-style-type: none"> <li>• 2.402 – 2.482 GHz</li> </ul>
	Note:
	The FCC has declared as of January 1, 2015 products that utilize passive scanning on channel 12/13 and are capable of transmitting must fully comply with requirements of 15.247 or otherwise disable those channels.
	802.11a/n
	<ul style="list-style-type: none"> <li>• 4.9 – 4.95 GHz (Japan)</li> <li>• 5.15 – 5.25 GHz</li> <li>• 5.25 – 5.35 GHz</li> <li>• 5.47 – 5.725 GHz</li> <li>• 5.825 – 5.850 GHz</li> </ul>
	Note: Indonesia no support this band)
<b>Data Rates</b>	<ul style="list-style-type: none"> <li>• 802.11b: 1, 2, 5.5, 11 Mbps</li> <li>• 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps</li> <li>• 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps</li> <li>• 802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz)</li> <li>• 802.11ac : MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, and 80MHz)</li> </ul>
<b>Modulation</b>	Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM
<b>Security<sup>1</sup></b>	<ul style="list-style-type: none"> <li>• IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only</li> <li>• AES-CCMP: 128 bit in hardware</li> <li>• 802.1x authentication</li> <li>• WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.</li> <li>• WPA2 certification</li> <li>• IEEE 802.11i             <ul style="list-style-type: none"> <li>• Cisco Certified Extensions, all versions through CCX4 and CCX Lite</li> </ul> </li> <li>• WAPI</li> </ul>
<b>Network Architecture Models</b>	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
<b>Roaming</b>	IEEE 802.11 compliant roaming between access points
<b>Output Power<sup>2</sup></b>	<ul style="list-style-type: none"> <li>• 802.11b : +16dBm minimum</li> <li>• 802.11g : +14dBm minimum</li> <li>• 802.11a : +14dBm minimum</li> <li>• 802.11n HT20(2.4GHz) : +13dBm minimum</li> <li>• 802.11n HT40(2.4GHz) : +13dBm minimum</li> <li>• 802.11n HT20(5GHz) : +12dBm minimum</li> <li>• 802.11n HT40(5GHz) : +12dBm minimum</li> <li>• 802.11ac 80MHz(5GHz) : +11dBm minimum</li> </ul>
<b>Power Consumption</b>	Transmit: 2.0 W (max) Receive: 1.6 W (max) Idle mode (PSP): 180 mW (WLAN Associated) Idle mode: 60 mW (WLAN unassociated) Radio disabled: 30 mW
<b>Power Management</b>	ACPI and PCI Express compliant power management
<b>Receiver Sensitivity<sup>3</sup></b>	802.11b, 1Mbps : -94dBm maximum 802.11b, 11Mbps : -86dBm maximum

### Technical Specifications – Networking and Communications

802.11g, 6Mbps : -88dBm maximum  
802.11g, 54Mbps : -74dBm maximum  
802.11a, 6Mbps : -86dBm maximum  
802.11a, 54Mbps : -72dBm maximum  
802.11n, MCS07 : -69dBm maximum  
802.11n, MCS15 : -66dBm maximum  
802.11ac, 1SS, MCS-0 : -86dBm maximum  
802.11ac, 1SS, MCS-9 : -61dBm maximum  
802.11ac, 2SS, MCS-0 : -83dBm maximum  
802.11ac, 2SS, MCS-9 : -58dBm maximum

**Antenna type**

High efficiency antenna with spatial diversity, mounted in the display enclosure  
Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth communications

**Form Factor**

PCI-Express M.2 MiniCard on a M.2 PCIe x1 carrying card

**Dimensions**

Type 2230 : 2.3 x 22.0 x 30.0 mm  
Or  
Type 1630 : 2.3 x 16.0 x 30.0 mm

**Weight**

Type 2230 : 2.8g  
Or  
Type 1630 : 2g

**Operating Voltage**

3.3v +/- 9%

**Temperature**

Operating 14° to 158° F (-10° to 70° C)  
Non-operating -40° to 176° F (-40° to 80° C)

**Humidity**

Operating 10% to 90% (non-condensing)  
Non-operating 5% to 95% (non-condensing)

**Altitude**

Operating 0 to 10,000 ft (3,048 m)  
Non-operating 0 to 50,000 ft (15,240 m)

**LED Activity**

LED Amber – Radio OFF; LED White – Radio ON

6. [Check latest software/driver release for updates on supported security features.](#)
7. [Maximum output power may vary by country according to local regulations.](#)
8. [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 \(OFDM modulation\).](#)

### Technical Specifications

#### POWER

<b>Power Supply</b>	230W (Slim) for Ergonomic stand, 230W (Regular) for Compact Stand 230W, up to 89% efficient, active PFC
<b>Operating Voltage Range</b>	90V~264VAC
<b>Rated Voltage Range</b>	100V~240AC
<b>Rated Line Frequency</b>	50~60HZ
<b>Operating Line Frequency Range</b>	47~63HZ
<b>Rated Input Current</b>	≤ 3.2A
<b>Power Supply Fan</b>	N/A
<b>ENERGY STAR® Compliant</b>	ENERGY STAR® certified configurations available
<b>Power Cord Length</b>	800mm (Ergonomic Stand), 1800mm (Compact Stand)
<b>Current Leakage (NFPA99)</b>	Less than 500 microamps of leakage current at 120 Vac with the ground wire disconnected, as required for Non-patient Electrical Appliances and Equipment used in a patient care facility or that contact patients in normal use. Per section 10.3.5.1.  Less than 100 microamps of leakage current at 120 Vac with the ground wire intact with normal polarity, as required for Non-patient Electrical Appliances and Equipment used in a patient care facility or that contact patients in normal use. Per section 10.3.5.1.

**NOTE:** This power supply meets ENERGY STAR® compliance in conjunction with a select range of processors and modules.

#### WEIGHTS & DIMENSIONS

**NOTE:** Weight and dimensions below do not include MSR, Biometric Reader, Webcam, or CFD.

Model 9015/9115	
<b>Product Dimensions</b>	249.8mm (H) x 395.6mm (W) x 65.9mm (D), 9.8in x 15.6in x 2.6in
<b>Dimension Note</b>	Without stand
Model 9015/9115 with compact Stand	
<b>Product Dimensions</b>	292.5mm (H) x 395.6mm (W) x 222.3mm (D), 11.5in (H) x 15.6in (W) x 8.8in (D)
<b>Dimension Note</b>	Compact Stand
Model 9015/9115 with ergonomic stand	
<b>Product Dimensions</b>	310.80mm (H) x 395.6mm (W) x 249mm (D), 12.2in (H) x 15.6in (W) x 9.8in (D)
<b>Dimension Note</b>	Ergonomic Stand
Model 9018/9118	
<b>Product Dimensions</b>	290mm (H) x 462.2mm (W) x 70mm (D), 11.4in (H) x 18.2in (W) x 2.8in (D)
<b>Dimension Note</b>	Without stand

### Technical Specifications

Model 9018/9118 with compact Stand	
<b>Product Dimensions</b>	332.8mm (H) x 462.2mm (W) x 223.3mm (D), 13.1in (H) x 18.2in (W) x 8.8in (D), 13.1in (H) x 18.2in (W) x 8.8in (D)
<b>Dimension Note</b>	Compact Stand

Model 9018/9118 with ergonomic stand	
<b>Product Dimensions</b>	351.1mm (H) x 462.2mm (W) x 249mm (D), 13.8in (H) x 18.2in (W) x 9.8in (D)
<b>Dimension Note</b>	Ergonomic Stand

Model 9015/9115	
<b>Weight</b>	4.4 kg / 9.7 lbs
<b>Weight Note</b>	Starting weight without stand. Exact weight depends on configuration.

Model 9018/9118	
<b>Weight</b>	5.6 kg / 12.3 lbs
<b>Weight Note</b>	Starting weight without stand. Exact weight depends on configuration.

Compact stand	
<b>Weight</b>	2.6 kg / 5.7 lbs
<b>Weight Note</b>	Weight includes power supply

Ergonomic Stand	
<b>Weight</b>	3.62 kg / 8 lbs
<b>Weight Note</b>	Weight includes power supply

### Technical Specifications

#### 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.
- Intel® Wired for Management support; industry wide initiative to make Intel® architecture based PCs, servers and mobile computers more inherently manageable out-of-the-box and over the network
- 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  
Diagnostic LED Explanation Table:

Number of long beeps/blinks	Error category
1	Not used*
2	BIOS
3	Hardware
4	Thermal
5	System board

\*Single beep/blink codes are not used.

Patterns of blink/beep codes are determined by using the following parameters:

- 1 second pause occurs after the last major blink.
- 2 second pause occurs after the last minor blink.
- Beep error code sequences occur for the first 5 iterations of the pattern and then stop.
- Blink error code sequences continue until the computer is unplugged or the power button is pressed.

**NOTE:** Not all diagnostic lights and audible codes are available on all models.

The red LED blinks to represent the major error category (long blinks). The white LED blinks to represent the minor error category (short blinks). For example, '3.5' indicates 3 long red blinks and 5 short white blinks to communicate the processor is not detected.

Category	Major/minor code	Description
BIOS	2.2	The main area (DXE) of BIOS has become corrupted and there is no recovery binary image available.
	2.3	The embedded controller policy requires the user to enter a key sequence.
	2.4	The embedded controller is checking or recovering the boot block.
Hardware	3.2	The embedded controller has timed out waiting for BIOS to return from memory initialization.
	3.3	The embedded controller has timed out waiting for BIOS to return from graphics initialization.
	3.4	The system board displays a power failure (crowbar).*
	3.5	The processor is not detected.*
	3.6	The processor does not support an enabled feature.
Thermal	4.2	A processor over temperature condition has been detected.*
	4.3	An ambient temperature over temperature condition has been detected.
	4.4	An MXM over temperature condition has been detected.

### Technical Specifications

System board	5.2	The embedded controller cannot find valid firmware.
	5.3	The embedded controller has timed out waiting for the BIOS.
	5.4	The embedded controller has timed out waiting for BIOS to return from system board initialization.
	5.5	The embedded controller rebooted the system after a possible lockup condition had been detected through the use of a System Health Timer, Automated System Recovery Timer, or other mechanism.
* Indicates hardware triggered event; all other events are controlled by the BIOS.		

#### HP Point of Sale Diagnostics UEFI:

- This utility enables hardware level testing outside the operating system on many components. The diagnostics can be invoked by pressing F2 at POST, and is available as a download from HP Support
- System/Emergency ROM
- Flash ROM
- CMOS Battery Holder for easy replacement
- Flash Recovery with Video Configuration Record Software
- Processor ZIF Socket for easy Upgrade
- Over-Temp Warning on Screen (Requires IM Agents)
- Clear Password Jumper
- Clear CMOS Button
- Power (dual color) and HD (single color) color LED - To Indicate Normal Operations and Fault Conditions
- Color coordinated cables and connectors
- Tool-less rear cover Removal
- Front power switch
- System memory can be upgraded without removing the system board or any internal components
- Tool-less 2.5" hard drive Removal

#### Additional Features

#### Description

##### Drive Lock

Implementation of the industry standard ATA Security feature set. When enabled, it prevents software access to user data on the drive until one or two user-defined passwords are provided.  
DPS Access through F10 Setup during Boot

A diagnostic hard drive self-test. It scans critical physical components and every sector of the hard drive for physical faults and then reports any faults to the user

##### Drive Protection System

Running independently of the operating system, it can be accessed through a Windows-based diagnostics utility or through the computer's setup procedure. It produces an evaluation on whether the hard drive is the source of the problem and needs to be replaced

The system expands on the Self-Monitoring, Analysis, and Reporting Technology (SMART), a continuously running systems diagnostic that alerts the user to certain types of failures

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

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

##### SMART I - Drive Failure Prediction

Predicts failures before they occur. Tracks fault prediction and failure indication parameters such as re-allocated sector count, spin retry count, calibration retry count

##### SMART II - Off-Line Data Collection

By avoiding actual hard drive failures, SMART hard drives act as "insurance" against unplanned user downtime and potential data loss from hard drive failure

##### SMART III - Off-Line Read Scanning

IOEDC: I/O Error Detection Circuitry

### Technical Specifications

<b>Defect Reallocation</b>	Detects errors in Read/Write buffers on HDD cache RAM
<b>SMART IV - End-to-End CRC for hard drives</b>	Interface in F10 setup provides confirmation of SMART IV support.

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### TEMPERATURE, HUMIDITY, ALTITUDE

<b>Temperature</b>	<b>Operating</b>	50° to 104° F (10 to 40° C)
	<b>Non-operating</b>	-22° to 149° F (-30° to 65° C)
<b>Humidity</b>	<b>Operating</b>	5%-95% relative humidity at max inlet temperature
	<b>Non Operating</b>	5%-95% relative humidity at max inlet temperature
<b>Shock</b>	<b>Operating</b>	40g, six surfaces
	<b>Non Operating</b>	30g, six surfaces
<b>Vibration</b>	<b>Operating</b>	2-g peak acceleration
	<b>Non Operating</b>	3-g peak acceleration
<b>Altitude</b> (unpressurized)	<b>Operating</b>	0 to 10,000 ft (3,048 m)
	<b>Non-operating</b>	0 to 30,000 ft (9,144 m)

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### Technical Specifications

#### ENVIRONMENTAL & INDUSTRY

##### Environmental Data

###### 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® certified configurations available
- EPEAT® Silver registered configurations available in the United States. See <http://www.epeat.net> for registration status in your country.

###### System Configuration

The configuration used for the Energy Consumption and Declared Noise Emissions data for the Ultra-slim Desktop model is based on a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system.

#### HP RP9 G1 Retail System, Model 9015

##### Energy Consumption (in accordance with US ENERGY STAR® test method)

	115VAC, 60Hz	230VAC, 50Hz	100VAC, 60Hz
Normal Operation (Short idle)	19.22 W	19.48 W	18.92 W
Normal Operation (Long idle)	11.76 W	11.24 W	11.77 W
Sleep	1.67 W	1.67 W	1.67 W
Off	0.97 W	0.80 W	0.78 W

**NOTE:** Energy efficiency data listed is for an ENERGY STAR® compliant product if offered within the model family. HP computers marked with the ENERGY STAR® Logo are compliant with the applicable U.S. Environmental Protection Agency (EPA) ENERGY STAR® specifications for computers. If a model family does not offer ENERGY STAR® 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® operating system.

##### Heat Dissipation\*

	115VAC, 60Hz	230VAC, 50Hz	100VAC, 60Hz
Normal Operation (Short idle)	66 BTU/hr	67 BTU/hr	65 BTU/hr
Normal Operation (Long idle)	40 BTU/hr	39 BTU/hr	40 BTU/hr
Sleep	6 BTU/hr	6 BTU/hr	6 BTU/hr
Off	3 BTU/hr	3 BTU/hr	3 BTU/hr

\* Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.

##### Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)

	Sound Power (L <sub>WAd</sub> , bels)	Sound Pressure (L <sub>pAm</sub> , decibels)
Typically Configured – Idle	3.3	24
Fixed Disk – Random writes	3.3	25

#### HP RP9 G1 Retail System, Model 9115

##### Energy Consumption (in accordance with US ENERGY STAR® test method)

	115VAC, 60Hz	230VAC, 50Hz	100VAC, 60Hz
Normal Operation (Short idle)	15.54 W	15.756 W	15.66 W
Normal Operation (Long idle)	9.792 W	9.984 W	9.624 W

### Technical Specifications

Sleep	2.124 W	2.184 W	2.124 W
Off	1.178 W	2.124 W	1.176 W

**NOTE:** Energy efficiency data listed is for an ENERGY STAR® compliant product if offered within the model family. HP computers marked with the ENERGY STAR® Logo are compliant with the applicable U.S. Environmental Protection Agency (EPA) ENERGY STAR® specifications for computers. If a model family does not offer ENERGY STAR® 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® operating system.

Heat Dissipation*	115VAC, 60Hz	230VAC, 50Hz	100VAC, 60Hz
Normal Operation (Short idle)	53.02 BTU/hr	53.76 BTU/hr	53.43 BTU/hr
Normal Operation (Long idle)	33.41 BTU/hr	34.07 BTU/hr	32.84 BTU/hr
Sleep	7.25 BTU/hr	7.45 BTU/hr	7.25 BTU/hr
Off	4.02 BTU/hr	7.25 BTU/hr	4.01 BTU/hr

\* Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.

### HP RP9 G1 Retail System, Model 9018

#### Energy Consumption (in accordance with US ENERGY STAR® test method)

	115VAC, 60Hz	230VAC, 50Hz	100VAC, 60Hz
Normal Operation (Short idle)	18.55 W	17.46 W	18.45 W
Normal Operation (Long idle)	8.75 W	9.32 W	9.10 W
Sleep	1.33 W	1.51 W	1.37 W
Off	0.90 W	0.92 W	0.90 W

**NOTE:** Energy efficiency data listed is for an ENERGY STAR® compliant product if offered within the model family. HP computers marked with the ENERGY STAR® Logo are compliant with the applicable U.S. Environmental Protection Agency (EPA) ENERGY STAR® specifications for computers. If a model family does not offer ENERGY STAR® 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® operating system.

Heat Dissipation*	115VAC, 60Hz	230VAC, 50Hz	100VAC, 60Hz
Normal Operation (Short idle)	63 BTU/hr	60 BTU/hr	63 BTU/hr
Normal Operation (Long idle)	30 BTU/hr	32 BTU/hr	31 BTU/hr
Sleep	5 BTU/hr	5 BTU/hr	5 BTU/hr
Off	3 BTU/hr	3 BTU/hr	3 BTU/hr

\* Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.

#### Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)

	Sound Power (L <sub>WAd</sub> , bels)	Sound Pressure (L <sub>pAm</sub> , decibels)
Typically Configured – Idle	3.3	24
Fixed Disk – Random writes	3.5	26

### Technical Specifications

#### HP RP9 G1 Retail System, Model 9118

##### Energy Consumption (in accordance with US ENERGY STAR® test method)

	115VAC, 60Hz	230VAC, 50Hz	100VAC, 60Hz
Normal Operation (Short idle)	16.66 W	16.94 W	16.67 W
Normal Operation (Long idle)	9.84 W	10.22 W	9.91 W
Sleep	2.02 W	2.06 W	2.02 W
Off	1.08 W	1.12 W	1.08 W

**NOTE:** Energy efficiency data listed is for an ENERGY STAR® compliant product if offered within the model family. HP computers marked with the ENERGY STAR® Logo are compliant with the applicable U.S. Environmental Protection Agency (EPA) ENERGY STAR® specifications for computers. If a model family does not offer ENERGY STAR® 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® operating system.

##### Heat Dissipation\*

	115VAC, 60Hz	230VAC, 50Hz	100VAC, 60Hz
Normal Operation (Short idle)	56.83 BTU/hr	57.82 BTU/hr	56.87 BTU/hr
Normal Operation (Long idle)	33.58 BTU/hr	34.89 BTU/hr	33.82 BTU/hr
Sleep	6.88 BTU/hr	7.04 BTU/hr	6.88 BTU/hr
Off	3.69 BTU/hr	3.81 BTU/hr	3.69 BTU/hr

\* Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.

##### 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:

- 2 memory slots
- M.2 2230 slot for WLAN
- (2) M.2 2280 slot for SSD
- (4) USB Ports (2 – USB 2.0; 2 – USB 3.0)
- (3) USB Ports for Peripheral Integration around display head (Top, Left, Right)
- 1 2.5" internal bay (HDD/SSD/SED/SSHD)

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 the 1ppm by weight

Cadmium greater than 20ppm by weight

Battery size: CR2032 (coin cell)

Battery type: Lithium

### Technical Specifications

#### Additional Information

- This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC.
- This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive – 2002/96/EC.
- This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986).
- This product is in compliance with the IEEE 1680.1 (EPEAT) standard at the <Silver> level, see [www.epeat.net](http://www.epeat.net)
- Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043.
- This product contains 45.21% post-consumer recycled plastic (by wt.)
- This product is 96.1% recycle-able when properly disposed of at end of life.

#### Packaging Materials

<b>External:</b>	PAPER/Paperboard	1209 g
	PAPER/Paper	105 g
<b>Internal:</b>	PLASTIC/Polyethylene Expanded - EPE	641 g
	PLASTIC/Polyethylene high density - HDPE	39 g

The EPE foam packaging material is made from 0% recycled content.

The corrugated paper packaging materials contains at least 25% recycled content.

#### Material Usage

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>):

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

### Technical Specifications

#### Packaging Usage

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

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

#### End-of-life Management and Recycling

HP Inc. offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: <http://www.hp.com/go/reuse-recycle> or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: <http://www.hp.com/go/recyclers>. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

#### HP Inc. Corporate Environmental Information

For more information about HP's commitment to the environment

Global Citizenship Report

<http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html>

Eco-label certifications

<http://www8.hp.com/us/en/hp-information/environment/ecolabels.html>

ISO 14001 certificates:

[http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC\\_GBU\\_Product\\_Design\\_ISO\\_14K\\_Certificate.pdf](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>

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## SERVICE AND SUPPORT

On-site Warranty<sup>1</sup>: Limited warranty delivers on-site, next business-day<sup>2</sup> service for parts and labor and includes free support<sup>3</sup> 24 x 7. The warranty terms vary by region and onsite and labor are not available in all countries. Depending on region and warranty terms, extended service offers terms up to 3 years by choosing an optional HP Carepack. To choose the right level of extended service for your HP product, visit HP Care Pack Central: <http://www.hp.com/go/cpc>

#### NOTES:

1. Terms and conditions may vary by country. Certain restrictions and exclusions apply. Other warranty variations may be offered in your region.
2. On-site service may be provided pursuant to a service contract between HP and an authorized HP third-party provider, and is not available in certain countries. Global service response times are based on commercially reasonable best effort and may vary by country.
3. Technical support applies only to HP-configured Compaq and third-party HP-qualified hardware and software. 24 x 7 support may not be available in some countries.

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## HP RP9 Integrated 7-inch Non-Touch Customer Facing Display

### Technical Specifications



#### Top mount and Bottom Mount Options

<b>Models</b>	HP RP9 Integrated 7" NT CFD Btm w/Arm	M7E27AV
	HP RP9 Integrated 7" NT CFD Top w/Arm	P5A56AA / M7E28AV
<b>Display type</b>	LCD, LED Backlit	
<b>Brightness</b>	250 cd/m2	
<b>Dimensions</b>	183.8*121.6mm	
	7 Inch	
<b>Temperature Range</b>	<b>Operating:</b>	32° to 104° F (0 to 40° C) at 20% to 85% humidity (non-condensing at ambient)
	<b>Non-operating:</b>	32° to 122° F (0° to 50° C) at 5% to 90% humidity (non-condensing at ambient)
<b>Adjustability</b>	Tilt range of motion: 295 degrees	
<b>Weight</b>	Top mount at 560g, long arm at 639g	
<b>Interface</b>	USB	
<b>Power</b>	<b>Operating voltage</b>	+5VDC, 496mA
	<b>Idle current</b>	+5VDC, 128mA
<b>Compatibility</b>	<b>Product</b>	RP9 G1 Retail System
<b>Operating systems</b>	Windows 10 IoT Enterprise for Retail 64-bit*	
	Windows 10 Professional 64-bit*	
	Windows Embedded 8.1 Industry Pro Retail 64-bit**	
	Windows Embedded 8.1 Industry Pro Retail 32-bit**	
	Windows 8.1 Professional 64-bit**	
	Windows 7 Professional 64-bit**	
	Windows 7 Professional 32-bit**	
	Windows Embedded POSReady 7 64-bit**	
	Windows Embedded POSReady 7 32-bit**	

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

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### Technical Specifications

#### HP RP9 Integrated Dual-Head MSR



<b>Models</b>	<b>HP RP9 Integrated Dual-Head MSR</b>	Y3U27AA / Y5H53AV (Left)
<b>General</b>	<b>Magnetic stripe formats</b>	ISO 7811, AAMVA
	<b>Card thickness</b>	0.015 to 0.045 in (0.38 to 1.14 mm)
	<b>Indicators</b>	Bi-Colored LED, beeper
<b>Mechanical</b>	<b>Dimensions (LxWxH)</b>	152.61 x 39.49 x 39.91 (mm)
	<b>Weight</b>	187g
	<b>Slot width</b>	0.045 in (1.14 mm)
	<b>Color</b>	HP Black
<b>Interface/Connection</b>	<b>Interface</b>	USB 2.0
	<b>Connection</b>	Type A
<b>Power</b>	<b>Voltage (typical)</b>	5 VDC +/- 10%, 50mV ripple max
	<b>Current consumption (typical)</b>	40mA max
<b>Drivers</b>	Windows native, OPOS, JPOS	
<b>Operating Systems</b>	<b>Compatibility</b>	Windows 10 IoT Enterprise for Retail 64-bit
		Windows 10 Professional 64-bit
		Windows Industry 8.1 Pro Retail 64-bit
		Windows 8.1 Professional 64-bit
		Windows 7 Professional 64-bit
		Windows 7 Professional 32-bit
		Windows Embedded POSReady 7 64-bit
	Windows Embedded POSReady 7 32-bit	
	Linux Redhat SUSE	

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\*\*\* Full support on all x86-based Windows, NO current support drivers for ARM processor platforms.

### Technical Specifications

#### HP Retail Integrated 2x20 Display without Arm (Complex and Non-Complex)



<b>Models:</b>	HP RP9 Integrated 2x20 Display without Arm	X3K01AA /X1H17AV
<b>Display type</b>	LCD, LED Backlit	
<b>Brightness</b>	250 nit	
<b>Character Number</b>	2x20	
<b>Viewing Direction</b>	12 O'Clock	
<b>Viewing Area (L x W)</b>	14.48 x 2.24 cm	
<b>Active Area (L x W)</b>	14.27 x 1.98 cm	
<b>Dimensions (L x W x H)</b>	<b>cm</b>	21.75 x 6.00 x 3.93 cm
	<b>Inches</b>	8.56 x 2.36 x 1.55 in
<b>Temperature Range</b>	<b>Operating:</b>	32° to 104° F (0 to 40° C) at 20% to 85% humidity (non-condensing at ambient)
	<b>Non-operating:</b>	32° to 122° F (0° to 50° C) at 5% to 90% humidity (non-condensing at ambient)
<b>Adjustability</b>	None	
<b>Weight</b>	top mount arm at 245g, and 400g with packaging	
<b>Interface</b>	USB	
<b>Power</b>	<b>Operating voltage</b>	+5VDC
	<b>Idle current</b>	230mA
	<b>Full Load Current</b>	300mA
<b>Drivers</b>	Windows Native	
<b>Compatibility</b>	<b>Product</b>	HP RP9 G1 Retail System



### Technical Specifications

#### Operating systems

Windows 10 IoT Enterprise for Retail 32-bit and 64-bit\*  
Windows 10 Professional 32-bit and 64-bit\*  
Windows Embedded 8.1 Industry Pro Retail 32-bit and 64-bit\*\*  
Windows 8.1 Professional 32-bit and 64-bit\*\*  
Windows 7 Professional 32-bit and 64-bit\*\*  
Windows 7 Professional 32-bit\*\*  
Windows Embedded POSReady 7 32-bit and 64-bit

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### HP RP9 Retail Ergonomic Stand



<b>Model</b>	HP RP9 Retail Ergonomic Stand	P0Q87AA / M7J40AV
<b>Weight</b>	3.62 kg/ 8 lbs	<b>Note:</b> Weight includes power supply
<b>Features</b>	Industry-standard 100mm VESA pattern Concealed power supply Dual-hinge mechanism Built-in cable-management Bolt-down capabilities allow the terminal to be secured to the counter Quick Release mechanism for tool-less removal	

### Retail Integrated Peripherals

#### HP RP9 Retail Compact Stand



<b>Model</b>	P6D70AV
<b>Weight</b>	2.6 kg / 5.7 lbs <b>Note:</b> Weight includes power supply
<b>Features</b>	Industry-standard 100mm VESA pattern External power supply Single-hinge mechanism Built-in cable-management Bolt-down capabilities allow the terminal to be secured to the counter Quick Release mechanism for tool-less removal

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### Retail Integrated Peripherals

#### HP RP9 Integrated Side Barcode Scanner



<b>Models:</b>	<b>HP RP9 Integrated Side Barcode Scanner</b>	N3R61AA, M7E29AV Left / M7E30AV Right * <a href="#">March 2016 availability</a>
<b>General</b>	<b>Indicators</b>	Audible and visual read indicators
	<b>Scan direction</b>	Omni-directional
<b>Symbologies</b>	<b>1D / Linear Codes</b>	Autodiscriminates all standard 1D codes including GS1 DataBar™ linear codes.
	<b>2D Codes</b>	Aztec Code; China Han Xin Code; Data Matrix; MaxiCode; Micro QR Code; QR Code
	<b>Postal codes</b>	Australian Post; British Post; China Post; IMB; Japanese Post; KIX Post; Korea Post; Planet Code; Postnet; Royal Mail Code (RM4SCC)
	<b>Stacked codes</b>	EAN/JAN Composites; GS1 DataBar Composites; GS1 DataBar Expanded Stacked; GS1 DataBar Stacked GS1 DataBar Stacked Omnidirect
<b>Depth of field (Typical)</b>	<b>Code 39: 5 mils</b>	6.5 to 21.0 cm
	<b>Code 39: 20 mils</b>	Up to 50.0 cm
	<b>Data Matrix: 15 mils</b>	4.0 to 25.0 cm
	<b>EAN: 13 mils</b>	5.5 to 39.0 cm
<b>Mechanical</b>	<b>Dimensions (LxWxH)</b>	99.3x51.2x59.8 mm
	<b>Weight</b>	138g
	<b>Adjustability</b>	3° to 90° (Tilt range) -180° to +180° (Swivel range)
	<b>Color</b>	HP Black
<b>Interface/ Connection</b>	<b>Interface Connection</b>	USB 2.0 Type A
<b>Power</b>	<b>Voltage (typical)</b>	5.0V +/- 5% supplied by USB
	<b>Current consumption (typical)</b>	150mA

### Retail Integrated Peripherals

**Drivers**

Windows Native, OPOS, JPOS

**Operating Systems Compatibility**

Windows 10 IoT Enterprise for Retail 64-bit\*, \*\*

Windows 10 Professional 64-bit\*, \*\*\*

Windows Embedded 8.1 Industry Pro Retail 64-bit\*\*

Windows 8.1 Professional 64-bit\*\*

Windows Embedded POSReady 7 64-bit\*\*

Windows Embedded POSReady 7 32-bit\*\*

Windows 7 Professional 64-bit\*\*

Windows 7 Professional 32-bit\*\*

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\*\* Not all features are available in all editions of Windows. This system may require upgraded and/or separately purchased hardware to take full advantage of Windows functionality. See <http://www.microsoft.com>.

\*\*\* Full support on all x86-based Windows, NO current support drivers for ARM processor platforms.

### HP RP9 Integrated Barcode Scanner - Bottom



<b>Models:</b>	<b>HP RP9 Integrated Barcode Scanner - Bottom</b>	N3R60AA / M7E32AV (Bottom) * March 2016 availability
<b>General</b>	<b>Indicators</b>	Audible and visual read indicators
	<b>Scan direction</b>	Omni-directional
<b>Symbologies</b>	<b>1D / Linear Codes</b>	Autodiscriminates all standard 1D codes including GS1 DataBar™ linear codes.
	<b>2D Codes</b>	Aztec Code; China Han Xin Code; Data Matrix MaxiCode; Micro QR Code; QR Code
	<b>Postal codes</b>	Australian Post; British Post; China Post; IMB; Japanese Post; KIX Post; Korea Post; Planet Code;

### Retail Integrated Peripherals

	<b>Stacked codes</b>	Postnet; Royal Mail Code (RM4SCC) EAN/JAN Composites; GS1 DataBar Composites; GS1 DataBar Expanded Stacked; GS1 DataBar Stacked; GS1 DataBar Stacked Omnidirect.
<b>Depth of field (Typical)</b>	<b>Code 39: 5 mils</b>	6.5 to 21.0 cm
	<b>Code 39: 20 mils</b>	Up to 50.0 cm
	<b>Data Matrix: 15 mils</b>	4.0 to 25.0 cm
	<b>EAN: 13 mils</b>	5.5 to 39.0 cm
<b>Mechanical</b>	<b>Dimensions (LxWxH)</b>	80x52.5x41.37 mm
	<b>Weight</b>	88.8g
	<b>Adjustability</b>	from 0° to 20°
	<b>Color</b>	HP Black
<b>Interface/ Connection</b>	<b>Interface</b>	USB 2.0
	<b>Connection</b>	Type A
<b>Power</b>	<b>Voltage (typical)</b>	5.0V +/- 5% supplied by USB
	<b>Current consumption (typical)</b>	150mA
<b>Drivers</b>		Windows Native, OPOS, JPOS
<b>Operating Systems</b>	<b>Compatibility</b>	Windows 10 IoT Enterprise for Retail 64-bit*, *** Windows 10 Professional 64-bit*, *** Windows Embedded 8.1 Industry Pro Retail 64-bit** Windows 8.1 Professional 64-bit** Windows 7 Professional 64-bit** Windows 7 Professional 32-bit** Windows Embedded POSReady 7 64-bit** Windows Embedded POSReady 7 32-bit**

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\*\* Not all features are available in all editions of Windows. This system may require upgraded and/or separately purchased hardware to take full advantage of Windows functionality. See <http://www.microsoft.com>.

\*\*\* Full support on all x86-based Windows, NO current support drivers for ARM processor platforms.

### Retail Integrated Peripherals

#### HP RP9 Integrated Fingerprint Reader



<b>Model</b>	<b>HP RP9 Integrated Fingerprint Reader</b>	N3R64AA / M7E36AV (Right)/ M7E31AV (Left)
<b>General</b>	<b>Scan Data</b>	8-bit grayscale (256 levels of gray)
	<b>Pixel resolution</b>	508 DPI
	<b>Scan capture area</b>	18mm x 12.80mm
<b>Mechanical</b>	<b>Dimensions (LxWxH)</b>	59x63.23x37.43 (mm)
	<b>Weight</b>	44.8g
	<b>Color</b>	HP Black
<b>Interface/Connection</b>	<b>Interface</b>	USB 2.0
<b>Power</b>	<b>Supply Voltage</b>	5.0V ±5% supplied by USB
	<b>Supply Current Imaging mode</b>	80 mA @ 3.3V
	<b>Supply Current Sleep mode</b>	1350 uA @ 3.3V
<b>Environmental</b>	<b>Temperature</b>	- 20 C to + 70 C
	<b>Humidity</b>	5% to 93% RH w/o condensation
<b>Drivers</b>		Windows Native
<b>Operating Systems</b>	<b>Compatibility</b>	Windows 10 IoT Enterprise for Retail 64-bit*,***
		Windows 10 Professional 64-bit*,***
		Windows 8.1 Professional 64-bit**
		Windows Industry 8.1 Pro Retail 64-bit**
		Windows 7 Professional 64-bit**
		Windows 7 Professional 32-bit**
		Windows Embedded POSReady 7 64-bit**
		Windows Embedded POSReady 7 32-bit**
Ubuntu 12.04/13.04/14.04		

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\*\* Not all features are available in all editions of Windows. This system may require upgraded and/or separately purchased hardware to take full advantage of Windows functionality. See <http://www.microsoft.com>.

\*\*\* Full support on all x86-based Windows, NO current support drivers for ARM processor platforms.

### Retail Integrated Peripherals

#### HP RP9 Integrated 2x20 Display (Complex and Non-Complex)



<b>Models:</b>	HP RP9 Integrated 2x20 Display Btm w/Arm	N3R58AA /M7E25AV
	HP RP9 Integrated 2x20 Display Top w/Arm	P5A55AA /M7E26AV
<b>Display type</b>	LCD, LED Backlit	
<b>Brightness</b>	250 nit	
<b>Character Number</b>	2x20	
<b>Viewing Angle</b>	45°	
<b>Dimensions</b>	<b>mm</b>	150.0 (L) * 34.9(w) * 6.4(H)
	<b>Inches</b>	5.5
<b>Temperature Range</b>	<b>Operating:</b>	32° to 104° F (0 to 40° C) at 20% to 85% humidity (non-condensing at ambient)
	<b>Non-operating:</b>	32° to 122° F (0° to 50° C) at 5% to 90% humidity (non-condensing at ambient)
<b>Adjustability</b>	Horizontal Rotation Max 355°	
<b>Weight</b>	top mount arm at 379g, long arm at 476g	
<b>Interface</b>	USB	
<b>Power</b>	<b>Operating voltage</b>	+5VDC
	<b>Idle current</b>	230mA
	<b>Full Load Current</b>	300mA
<b>Drivers</b>	Windows Native	
<b>Compatibility</b>	<b>Product</b>	HP RP9 G1 Retail System
<b>Operating systems</b>		Windows 10 IoT Enterprise for Retail 64-bit*,*** Windows 10 Professional 64-bit*,*** Windows Embedded 8.1 Industry Pro Retail 64-bit** Windows 8.1 Professional 64-bit** Windows 7 Professional 64-bit** Windows 7 Professional 32-bit**

### Retail Integrated Peripherals

Windows Embedded POSReady 7 64-bit\*\*

Windows Embedded POSReady 7 32-bit\*\*

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

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\*\*\* Full support on all x86-based Windows, NO current support drivers for ARM processor platforms.

### HP Retail Integrated 2x20 Display without Arm (Complex and Non-Complex)



<b>Models:</b>	HP RP9 Integrated 2x20 Display without Arm	X3K01AA
<b>Display type</b>	LCD, LED Backlit	
<b>Brightness</b>	250 nit	
<b>Character Number</b>	2x20	
<b>Viewing Direction</b>	12 O'Clock	
<b>Viewing Area (L x W)</b>	14.48 x 2.24 cm	
<b>Active Area (L x W)</b>	14.27 x 1.98 cm	
<b>Dimensions (L x W x H)</b>	<b>cm</b>	21.75 x 6.00 x 3.93 cm
	<b>Inches</b>	8.56 x 2.36 x 1.55 in



### Retail Integrated Peripherals

<b>Temperature Range</b>	<b>Operating:</b>	32° to 104° F (0 to 40° C) at 20% to 85% humidity (non-condensing at ambient)
	<b>Non-operating:</b>	32° to 122° F (0° to 50° C) at 5% to 90% humidity (non-condensing at ambient)
<b>Adjustability</b>	None	
<b>Weight</b>	top mount arm at 245g, and 400g with packaging	
<b>Interface</b>	USB	
<b>Power</b>	<b>Operating voltage</b>	+5VDC
	<b>Idle current</b>	230mA
	<b>Full Load Current</b>	300mA
<b>Drivers</b>	Windows Native	
<b>Compatibility</b>	<b>Product</b>	HP RP9 G1 Retail System
<b>Operating systems</b>	Windows 10 IoT Enterprise for Retail 32-bit and 64-bit*	
	Windows 10 Professional 32-bit and 64-bit*	
	Windows Embedded 8.1 Industry Pro Retail 32-bit and 64-bit**	
	Windows 8.1 Professional 32-bit and 64-bit**	
	Windows 7 Professional 32-bit and 64-bit**	
	Windows 7 Professional 32-bit**	
Windows Embedded POSReady 7 32-bit and 64-bit		

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### Retail Integrated Peripherals

#### HP RP9 Integrated Single-Head MSR



<b>Models</b>	<b>HP RP9 Integrated Single-Head MSR</b>	N3R63AA / M7E33AV (Left) M7E34AV (Right)
<b>General</b>	<b>Magnetic stripe formats</b>	ISO 7811, AAMVA
	<b>Card thickness</b>	0.015 to 0.045 in (0.38 to 1.14 mm)
	<b>Indicators</b>	Bi-Colored LED, beeper
<b>Mechanical</b>	<b>Dimensions (LxWxH)</b>	129x70.74x36.52 (mm)
	<b>Weight</b>	112.0g
	<b>Slot width</b>	0.045 in (1.14 mm)
	<b>Color</b>	HP Black
<b>Interface/Connection</b>	<b>Interface</b>	USB 2.0
	<b>Connection</b>	Type A
<b>Power</b>	<b>Voltage (typical)</b>	5 VDC +/- 10%, 50mV ripple max
	<b>Current consumption (typical)</b>	40mA max
<b>Drivers</b>		Windows native, OPOS, JPOS
<b>Operating Systems</b>	<b>Compatibility</b>	Windows 10 IoT Enterprise for Retail 64-bit*, *** Windows 10 Professional 64-bit*, *** Windows Industry 8.1 Pro Retail 64-bit** Windows 8.1 Professional 64-bit** Windows 7 Professional 64-bit** Windows 7 Professional 32-bit** Windows Embedded POSReady 7 64-bit** Windows Embedded POSReady 7 32-bit**

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### Retail Integrated Peripherals

#### HP RP9 Integrated Dual-Head MSR



<b>Models</b>	<b>HP RP9 Integrated Dual-Head MSR</b>	Y3U27AA / Y5H53AV (Left)
<b>General</b>	<b>Magnetic stripe formats</b>	ISO 7811, AAMVA
	<b>Card thickness</b>	0.015 to 0.045 in (0.38 to 1.14 mm)
	<b>Indicators</b>	Bi-Colored LED, beeper
<b>Mechanical</b>	<b>Dimensions (LxWxH)</b>	152.61 x 39.49 x 39.91 (mm)
	<b>Weight</b>	187g
	<b>Slot width</b>	0.045 in (1.14 mm)
	<b>Color</b>	HP Black
<b>Interface/Connection</b>	<b>Interface</b>	USB 2.0
	<b>Connection</b>	Type A
<b>Power</b>	<b>Voltage (typical)</b>	5 VDC +/- 10%, 50mV ripple max
	<b>Current consumption (typical)</b>	40mA max
<b>Drivers</b>	Windows native, OPOS, JPOS	
<b>Operating Systems</b>	<b>Compatibility</b>	Windows 10 IoT Enterprise for Retail 64-bit Windows 10 Professional 64-bit Windows Industry 8.1 Pro Retail 64-bit Windows 8.1 Professional 64-bit Windows 7 Professional 64-bit Windows 7 Professional 32-bit Windows Embedded POSReady 7 64-bit Windows Embedded POSReady 7 32-bit Linux Redhat SUSE

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

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### Retail Integrated Peripherals

#### HP RP9 Integrated Webcam



<b>Models:</b>	HP RP9 Integrated Webcam	P0Q86AA / M7E35AV
<b>General</b>	<b>CMOS Sensor</b>	2M
	<b>Resolution</b>	1920 X 1080
	<b>Image Control</b>	AE, AWB, AGC, Brightness, Contrast, Hue, Saturation, Sharpness, Backlight Comp, Power-Line Frequency, Gamma, White balance and Gain
<b>Field of View</b>	77.5°	
<b>Focus Distance</b>	50cm	
<b>Focus Range</b>	31cm-135cm	
<b>Microphone</b>	X 2	
<b>Mechanical</b>	<b>Dimensions (LxWxH)</b>	125x48.76x39.6 (mm)
	<b>Weight</b>	53.2g
	<b>Color</b>	HP Black
<b>Interface/Connection</b>	<b>Interface</b>	USB 2.0
<b>Power</b>	<b>Voltage (typical)</b>	693 mW
	<b>Current consumption (typical)</b>	200 mA
<b>Drivers</b>		Windows Native
<b>Operating Systems</b>	<b>Compatibility</b>	Windows 10 IoT Enterprise for Retail 64-bit*,*** Windows 10 Professional 64-bit*,*** Windows 8.1 Professional 64-bit** Windows Industry 8.1 Pro Retail 64-bit** Windows 7 Professional 64-bit** Windows 7 Professional 32-bit** Windows Embedded POSReady 7 64-bit** Windows Embedded POSReady 7 32-bit**

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### Options and Accessories (sold separately)

<b>Printers</b>	<b>Part Number</b>
HP Hybrid POS Printer with MICR	FK184AA
HP Ethernet Network Receipt Printer	M2D54AA
HP PUSB Thermal Receipt Printer	FK224AA
HP Serial USB Thermal Receipt Printer	BM476AA
HP Value PUSB Receipt Printer	F7M67AA
HP Value Thermal Receipt Printer	F7M66AA
PROMO Epson H2000 PUSB Printer	K3L29AA
Epson H2000 PUSB Printer	K3L29AA
Epson TMH6000IV Hybrid POS Printer	D9Z51AA
Epson TMT88V PUSB Thermal Receipt Printer	E1Q93AA
Epson TMT88V Serial USB Thermal Receipt Printer	D9Z52AA
<b>Integrated Peripherals</b>	
HP RP9 Integrated 2x20 Display Btm w/Arm	N3R58AA
HP RP9 Integrated 2x20 Display Top w/Arm	P5A55AA
HP RP9 Integrated 2x20 Display w/Arm	X3K01AA
HP RP9 Integrated 7" NT CFD Top w/Arm	P5A56AA
HP RP9 Integrated Barcode Scanner -Bottm	N3R60AA
HP RP9 Integrated Barcode Scanner - Side	N3R61AA
HP RP9 Integrated Finger Print Reader	N3R64AA
HP RP9 Integrated Single-Head MSR	N3R63AA
HP RP9 Integrated Dual-Head MSR	Y3U27AA
HP RP9 Integrated Webcam	POQ86AA
<b>Customer Facing Displays and Display Options</b>	
HP Flat Panel Monitor Quick Release	EM870AA
HP Retail 14" CFD (Display Head only) Non -Touch	T6N31AA
HP Retail 14" CFD (Display Head only) Projected Capacitive Touch	T6N32AA
HP Retail 10" CFD (Display Head only) Projected Capacitive Touch	T6N30AA
HP Retail 15.6" CFD (Display Head Only) Projected Capacitive Touch	V1X13AA
HP 45W Smart AC Adapter	H6Y88AA

### Options and Accessories (sold separately)

	<b>Part Number</b>
<b>Cable kits for Retail Customer Facing Displays</b>	
HP 700mm DP+Ycable+USB Pwr+Brkt CFD	V7S63AA
HP 300cm DP + Y Cable L701xt	V4P94AA
HP 300cm DP + USB Pwr Cable	V4P95AA
HP 300cm DP + USB B-A Cable	V4P96AA
HP 300cm DP Cable	V4P97AA
<b>Graphics Video Adapters &amp; Cables</b>	
HP DisplayPort Cable Kit	VN567AA
HP DisplayPort to DVID Adapter	FH973AA
HP DisplayPort to HDMI 4k Adapter	K2K92AA
HP DisplayPort to VGA Adapter	AS615AA
<b>IO Devices, I/O Adapters</b>	
HP USB to Serial Port Adapter (Win7/8/10)	J7B60AA
HP USB (Grey) Keyboard	B6B64AA
HP USB Business Slim Keyboard	N3R87AA
HP USB Keyboard	QY776AA
HP USB SmartCard CCID Keyboard	BV813AA
HP USB 1000dpi Laser Mouse	QY778AA
HP USB Grey Mouse	K7W54AA
HP USB Hardened Mouse	P1N77AA
HP USB Mouse	QY777AA
HP POS Keyboard	FK221AA
HP POS Keyboard with MSR	FK218AA
HP PUSB Y Cable	BM477AA
<b>Memory (DDR4 2133)</b>	
HP 16GB DDR42133 SODIMM	P1N55AA
HP 4GB DDR42133 SODIMM	P1N53AA
HP 8GB DDR42133 SODIMM	P1N54AA

### Options and Accessories (sold separately)

<b>Scanners</b>	<b>Part Number</b>
HP 2D Imaging Wireless Scanner	E6P34AA
HP 2D Value Wireless Scanner	K3L28AA
HP Imaging Barcode Scanner	BW868AA
HP Linear Barcode Scanner	QY405AA
HP Presentation Barcode Scanner	QY439AA
<b>Cash Drawers</b>	
HP Flip Top Cash Drawer	BW867AA
HP HD Cash Drawer AMS	FK182AA#ABA
HP Heavy Duty Cash Drawer	FK182AA
HP Standard Duty Cash Drawer	QT457AA
HP USB Standard Duty Cash Drawer	E8E45AA
<b>Pole Displays</b>	
HP Graphical POS Pole Display	QZ704AA
HP LCD Pole Display	F7A93AA
HP POS Pole Display	FK225AA
<b>Locks and physical security devices</b>	
HP Business PC Security Lock Kit	N3R93AA
HP Keyed Cable Lock Kit	H4D73AA
<b>Storage 2.5" Solid State Drives</b>	
HP 128GB SATA Solid State Drive Desktop	QV063AA
HP 256GB SATA 3D Non-SED Solid State Drive	N1M49AA
<b>Storage SED Solid State Drives</b>	
HP 128GB SATA SED Opal2 Solid State Drive	G1K24AA
<b>Storage M.2 Drives</b>	
HP Turbo Drive 256GB M.2 PCIe Solid State Drive	T4E65AA

### Summary of Changes

<b>Date of change:</b>	<b>Version History:</b>		<b>Description of change:</b>
March 15, 2016	From v1 to v2	Added	Environmental Data for Model 9015, and 9018
June 1, 2016	From v2 to v3	Added	HP Retail Integrated 2x20 Display without Arm (X3K01AA)
		Changed	SUSE Linux certification note from March 2016 to Late 2016
		Changed	Re-ordered options and accessories, moved printers to the top
August 22, 2016	From v3 to v4	Added	HP RP9 Integrated Dual-Head MSR
October 3, 2016	From v4 to v5	Added	Intel Core i5-6500TE Processor, 128GB & 256GB TLC SSD to Storage section; Intel 7260, 802.11ac non-vPro to Networking and Communications, and HP 256GB M2 Solid State Drive in Options and accessories
February 16, 2017	From v5 to v6	Removed	HP 256GB M.2 Solid State Drive/J2V74AA
March 24	From v6 to v7	Changed	Intel® Core™ i3 6100 processor frequency and cache
		Removed	Intel Data Protection Technology references
April 19, 2017	From v7 to v8	Added	Footnote 1 for 1152x864, 1280x800, 1280x960 and 1280x1024 resolutions for external displays and DisplayPort support; Dual - Head MSR and Retail Integrated 2x20:Display to the Integrated peripherals section.
June 1, 2017	From v8 to v9	Changed	Serviceability Features section
November 19, 2017	From v9 to v10	Changed	3.3GHz to 2.3GHz on Intel® Core™ i5-6500TE with vPro
		Removed	N3R59AA model
January 14, 2018	From v10 to v11	Changed	General updates on At a glance, Operating System, Processors, Core vPro processors, Chipset and Weight and dimensions
March 26, 2018	From v11 to v12	Changed	Formatted capacity changed to 256 GB on HP 256 GB Turbo G2 Drive SSD-M.2
October 8, 2018	From v12 to v13	Added	Energy Consumption specs for Model 9115 & Model 9118
September 25, 2019	From v13 to v14	Changed	TEMPERATURE, HUMIDITY, ALTITUDE section
June 26, 2020	From v14 to v15	Changed	Environmental Data section
October 15, 2020	From v15 to v16	Changed	Security section and changed Energy Star and EPEAT certifications



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