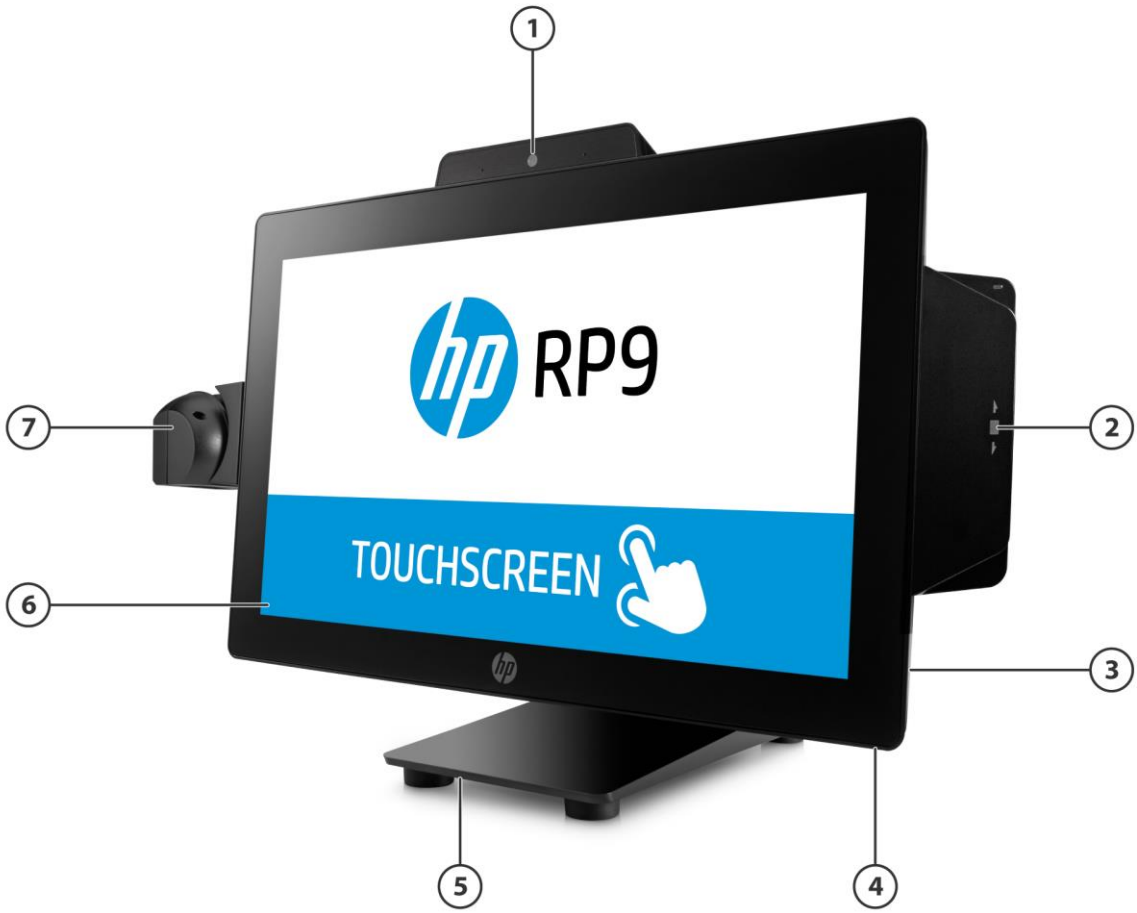
Overview

HP RP9 G1 Retail System, Models 9015 and 9018

FRONT VIEW



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

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

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:
  - 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™ i3-6100 (3.9GHz, 4M Cache, 2 Cores)
  - Intel® Pentium® G4400 (3.3GHz, 3M Cache, 2 Cores)
  - Intel® Celeron® G3900 (2.8GHz, 2M Cache, 2 Cores)
- Operating System choices:
  - Windows Embedded Industry 8.1 Pro Retail 64-bit
  - POSReady 7 32-bit
  - POSReady 7 64-bit
  - Windows 10 IoT Enterprise for Retail 64-bit
  - 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)
  - Windows 8.1 Pro 64-bit (Available through downgrade rights from Windows 10 Pro)
  - 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
- ENERGY STAR® certified, EU Compliant, RoHS2 Compliant, EPEAT® Gold
- 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

Preinstalled	Windows Embedded 8.1 Industry Pro Retail 64-bit POSReady 7 32-bit POSReady 7 64-bit Windows 10 IoT Enterprise for Retail 64-bit* 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)** Windows 8.1 Pro 64-bit (Available through downgrade rights from Windows 10 Pro)*** FreeDOS 2.0
Supported	Ubuntu
Certified	SUSE Linux Enterprise Desktop YES Certified[1]

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

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

- 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™ i3-6100 (3.9GHz, 4M Cache, 2 Cores)*
- Intel® Pentium® G4400 (3.3GHz, 3M Cache, 2 Cores)
- Intel® Celeron® G3900 (2.8GHz, 2M Cache, 2 Cores)

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

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® Advanced Management Technology (AMT) v11.0 – An advanced set of remote management features and functionality which provides network administrators the latest and most effective tools to remotely discover, heal, and protect networked client systems regardless of the system's health or power state. AMT 11.0 includes the following advanced management functions:

- Power Management (on, off, reset)
- Hardware Inventory (includes BIOS and firmware revisions
- Hardware Alerting
- Agent Presence
- System Defense Filters
- SOL/USBR
- Cisco NAC/SDN Support
- ME Wake-on-LAN
- DASH 1.1 compliance
- IPv6 Support
- Fast Call for Help - a client inside or outside the firewall may initiate a call for help via BIOS screen, periodic connections, or alert triggered connection
- Remote Scheduled Maintenance - pre-schedule when the PC connects to the IT or service provider console for maintenance. Remote PCs can get required patches, be inventoried, etc. by connecting to their IT console or Service Provider when it's convenient.
- Remote Alerts - automatically alert IT or service provider if issues arise
- Access Monitor - Provides oversight into Intel® AMT actions to support security requirements
- PC Alarm Clock
- Microsoft NAP Support
- Host Base set-up and configuration
- Management Engine (ME) firmware roll back
- Wireless AMT functionality on Desktop (WoDT)
- Enhanced KVM resolution

CHIPSET

Intel® Q170 Chipset

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 is S5 (when turned off). When S5 Max Power Savings feature is enabled power to slots is turned off along with WOL functionality.

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

- Intel Data Protection Technology for Transactions technology
- HP RP9 Biometric Fingerprint reader (optional)
- HP BIOSphere with Sure Start
- HP Touchpoint Manager

Standard and Configurable Components

- Security lock slot
- TPM 1.2 (Trusted Platform Module)
- Hood sensor
- Optional Kensington Lock
- 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)

SOFTWARE

HP Client Management Solutions (available for free download from 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)

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

Graphics/Video API Support

6th 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)

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

MEMORY

Type

DDR4-2133 Memory DIMMs, Transfer rates up to 2133 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.

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

120GB SATA 2.5 Non-SED SSD
120GB SATA 2.5 Opal2 SED SSD
128GB SATA 2.5 3D SSD
128GB SATA 2.5 Opal2 SED SSD
1TB SATA 6G 2.5 8G SSHD
256GB SATA 2.5 3D SSD
500GB 7200 RPM SATA 2.5 HDD
500GB 7200 RPM SATA 2.5 SED HDD

M.2 Storage:

M.2 SATA

128GB M.2 SATA 3D SSD
256GB M.2 SATA 3D SSD

PCIe (AHCI)

128GB Turbo Drive SSD - M.2 PCIe
256GB Turbo Drive SSD - M.2 PCIe

NVMe

128GB Turbo Drive G2 SSD- M.2 PCIe
256GB Turbo Drive G2 SSD- M.2 PCIe

Standard and Configurable Components

OPERATOR DISPLAY

15.6" Diagonal Wide-Aspect Operator Display

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

18.5" Diagonal Wide Aspect Projective Capacitive Operator Display

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

Technical Specifications - Audio

High Definition Audio*

Type	Integrated
HD Stereo Codec	Conexant CX5001 Audio codec.
Audio I/O Ports	Side Headphone/Line out Side Microphone/Line-In All ports are 3.5mm
Internal Speaker Amplifier	2.2W amplifier for the internal speaker only. External speakers must be powered externally.
Sampling	44.1 kHz - 192 kHz
Analog Audio	Yes
# of Channels on Line-Out	Stereo (Left & Right channels)
Internal Speaker	Yes
External Speaker Jack	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.

-

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

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

120 GB SATA 2.5 Non-SED SSD

Unformatted Capacity	120 GB	
Architecture	Multi-Level Cell (MLC) NAND	
Interface	Serial ATA 3.0 (6.0 Gb/s)	
Form Factor	2.5 inch	
Height	Low profile, 7mm height	
Width	69.85 mm ± 0.25	
Length	100.45 mm max	
Weight	Up to 78 g	
Bandwidth Performance	**Sustained Sequential Read:**	Up to 540 MB/s
	Sustained Sequential Write:	Up to 480 MB/s
Power	**Power consumption:**	Average: Read <3.7W; Write 3.7W; Standby <55mW
Environmental (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

Technical Specifications – Storage

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

Unformatted Capacity	120 GB, 234,441,648 (Total Logical Sectors)	
Architecture	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	
Interface	Serial ATA 3.0 (6.0 Gb/s)	
Form Factor	2.5 inch	
Height	Low profile, 7mm height	
Width	69.85 mm ± 0.25	
Length	100.45 mm max	
Weight	Up to 78 g	
Bandwidth Performance	**Sustained Sequential Read:**	Up to 540 MB/s
	Sustained Sequential Write:	Up to 480 MB/s
Power	**Power consumption:**	Average: Read <3.7W; Write 3.7W; Standby <55mW
Environmental (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

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

Unformatted Capacity	128 GB 250,069,680 (User Addressable Sectors)	
Architecture	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	
Interface	Serial ATA (6.0 Gb/s)	
Form Factor	2.5 inch	
Height	6.80 mm ± 0.20	
Width	69.85 mm ± 0.25	
Length	100.20 mm ± 0.25	
Weight	Up to 54 g	
Bandwidth Performance	**Sustained Sequential Read:**	Up to 530 MB/s

Technical Specifications – Storage

	Sustained Sequential Write:	Up to 140 MB/s
Power	**Power consumption:**	Active: Typical 250mW; Idle: Typical 50mW
Mean Time Between Failure (MTBF)	1,500,000 hours	
Environmental (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

128GB SATA 2.5" Opal2 SED Solid State Drive

Unformatted Capacity	128 GB	
Architecture	250,069,680 (User Addressable Sectors) Self-Encrypting (SED) Solid State Drive with NAND Flash and SATA interface. Trusted Computing Group(TCG) OPAL compliant encrypted solid state drive	
Interface	Serial ATA (6.0 Gb/s)	
Form Factor	2.5 inch	
Height	6.80 mm ± 0.20	
Width	69.85 mm ± 0.25	
Length	100.20 mm ± 0.25	
Weight	Up to 73 g	
Bandwidth Performance	**Sustained Sequential Read:**	Up to 520 MB/s
	Sustained Sequential Write:	Up to 340 MB/s
Power	**Power consumption:**	Active: 0.78A / 3.891W; Idle: 0.005A / 0.026W
Mean Time Between Failure (MTBF)	1,500,000 hours	
Environmental (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

Technical Specifications – Storage

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

Unformatted Capacity	256 GB	
Architecture	500,118,192 (User Addressable Sectors) 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	
Interface	Serial ATA (6.0 Gb/s)	
Form Factor	2.5 inch	
Height	6.80 mm ± 0.20	
Width	69.85 mm ± 0.25	
Length	100.20 mm ± 0.25	
Weight	Up to 54 g	
Bandwidth Performance	**Sustained Sequential Read:**	Up to 540 MB/s
	Sustained Sequential Write:	Up to 280 MB/s
Power	**Power consumption:**	Active: Typical 250mW; Idle: Typical 50mW
Mean Time Between Failure (MTBF)	1,500,000 hours	
Environmental (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

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

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

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

Unformatted Capacity	128 GB*
Interface	M.2 PCIe x4 Gen 2

Technical Specifications – Storage

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

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

Formatted Capacity	256 GB	
Architecture	Solid State Drive M.2 PCIe Gen 2 x4 AHCI; NCQ Command Set	
Interface	M.2 PCIe Gen 2 x4	
Form Factor	M.2 2280	
Height	7 mm ± 0.20	
Width	.8 mm ± 0.08	
Length	50 mm ± 0.15	
Weight (typical)	Up to 10 g	
Data Transfer Rate (128k Sequential)	**Sequential Read**	Up to 2150 MB/s
	Sequential Write	Up to 1200 MB/s
Power	**Power consumption** (avg):	Power-Up: N/A Read: 4 W Write: 5.1 W Standby: 700 mW Idle: 70 mW

Technical Specifications – Storage

Environmental (all conditions, non-condensing)	**Operating Temperature:**	32° to 158° F (0° to 70° C)
	Relative Humidity (operating):	5% to 95%
	Shock:	1,500 G

Technical Specifications – Storage

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

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

HP 64GB SATA Solid State Drive, 2.5” SSD

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

128GB 2280 M2 SATA-3 SSD

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

256GB 2280 M2 SATA-3

Drive Weight	0.022 lb (10 g)

Technical Specifications – Storage

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

HP 128 GB Turbo G2 Drive SSD-M.2

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

HP 256 GB Turbo G2 Drive SSD-M.2

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

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.

Intel® I219LM Gigabit Network Connection LOM (standard)

Connector	RJ-45
System Interface	PCIe + SMBus
Controller	Intel® I219LM Gigabit Ethernet Controller
Data rates supported	Supports operation at 10/100/1000 Mb/s data rates
IEEE Compliance	IEEE 802.3 Ethernet interface for 1000BASE-T, 100BASETX, and 10BASET applications (802.3ab, 802.3u, and 802.3i, respectively). EEE 802.3az support [Low Power Idle (LPI) mode] IEEE 802.3u auto-negotiation conformance
Performance	Jumbo Frames (up to 9 kB) 802.1Q & 802.1p Receive Side Scaling (RSS) Two Queues (Tx & Rx)
Power	• Ultra Low Power at cable disconnect (<1 mW) enables platform support for connected standby • Reduced power consumption during normal operation and power down modes • Integrated Intel® Auto Connect Battery Saver (ACBS) • Single-pin LAN Disable for easier BIOS implementation • Fully integrated Switching Voltage Regulator (iSVR) • Low Power Link-Up (LPLU)
MAC/PHY Interconnect	• PCIe-based interface for active state operation (S0 state) • SMBus-based interface for host and management traffic (Sx low power state)
Management Interface	• MDC/MDIO management interface
Security & Manageability	• Intel® vPro™ support with appropriate Intel chipset components
Power Consumption	• 1G:900mW/272mA • 10/100M:450mW/136.3mA

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

Wireless LAN Standards	IEEE 802.11 ac/a/b/g/n	
Interoperability	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	
Frequency 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)
Antenna Interface	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.	
Data Rates	• 802.11b: 1, 2, 5.5, 11 Mbps • 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11n: 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.	

- 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

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.

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

Wireless LAN Standards

IEEE 802.11a
IEEE 802.11b
IEEE 802.11g
IEEE 802.11n

Interoperability

Wi-Fi certified

Frequency Band

802.11b/g/n

- 2.402 – 2.482 GHz

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

- 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 no support this band

Antenna Structure

2 transmit; 2 receive (2x2)

Data Rates

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)

Modulation

Direct Sequence Spread Spectrum
CCK, BPSK, QPSK, 16-QAM, 64-QAM

Security[1]

- IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only
- AES-CCMP: 128 bit in hardware
- 802.1x authentication
- WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.
- WPA2 certification
- IEEE 802.11i
- Cisco Certified Extensions, all versions through CCX4 and CCX Lite
- WAPI

Sub-channels

Multinational support with frequency bands and channels compliant to local regulations.

Technical Specifications – Networking and Communications

Network Architecture	Ad-hoc (Peer to Peer)	
Models	Infrastructure (Access Point Required)	
Roaming	IEEE 802.11 compliant roaming between band Access Points	
Output Power[2]	• 802.11b : +16dBm minimum • 802.11g : +14dBm minimum • 802.11a : +14dBm minimum • 802.11n HT20(2.4GHz) : +13dBm minimum • 802.11n HT40(2.4GHz) : +13dBm minimum • 802.11n HT20(5GHz) : +12dBm minimum • 802.11n HT40(5GHz) : +12dBm minimum	
Power Consumption	Transmit: 2.0 W (max) Receive: 1.6 W (max) Idle mode (PSP): 180 mW (WLAN Associated) Idle mode: 60 mW (WLAN unassociated) Radio disabled: 30 mW	
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode	
Receiver Sensitivity[4]	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	
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 and Bluetooth® communications	
Form Factor	PCI-Express M.2 MiniCard	
Dimensions	Type 2230 : 2.3 x 22.0 x 30.0 mm Or Type 1630 : 2.3 x 16.0 x 30.0 mm	
Weight	Type 2230 : 2.8g Or Type 1630 : 2g	
Operating Voltage	3.3v +/- 9%	
Temperature	**Operating**	14° to 158° F (-10° to 70° C)
	Non-operating	-40° to 176° F (-40° to 80° C)
Humidity	**Operating**	10% to 90% (non-condensing)
	Non-operating	5% to 95% (non-condensing)
Altitude	**Operating**	0 to 10,000 ft (3,048 m)
	Non-operating	0 to 50,000 ft (15,240 m)
LED Activity	LED Amber - Radio OFF; LED White - Radio ON	

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.

Technical Specifications

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

Wireless LAN Standards	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac
Interoperability	Wi-Fi certified
Frequency Band	802.11b/g/n • 2.402 – 2.482 GHz 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 • 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 no support this band)
Data Rates	• 802.11b: 1, 2, 5.5, 11 Mbps • 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz) • 802.11ac : MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, and 80MHz)
Modulation	Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM
Security[1]	• IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only • AES-CCMP: 128 bit in hardware • 802.1x authentication • WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES. • WPA2 certification • IEEE 802.11i • Cisco Certified Extensions, all versions through CCX4 and CCX Lite • WAPI
Network Architecture	Ad-hoc (Peer to Peer)
Models	Infrastructure (Access Point Required)
Roaming	IEEE 802.11 compliant roaming between access points
Output Power[2]	• 802.11b : +16dBm minimum • 802.11g : +14dBm minimum • 802.11a : +14dBm minimum • 802.11n HT20(2.4GHz) : +13dBm minimum • 802.11n HT40(2.4GHz) : +13dBm minimum • 802.11n HT20(5GHz) : +12dBm minimum • 802.11n HT40(5GHz) : +12dBm minimum • 802.11ac 80MHz(5GHz) : +11dBm minimum
Power Consumption	Transmit: 2.0 W (max) Receive: 1.6 W (max) Idle mode (PSP): 180 mW (WLAN Associated) Idle mode: 60 mW (WLAN unassociated)

Technical Specifications

	Radio disabled: 30 mW	
Power Management	ACPI and PCI Express compliant power management	
Receiver Sensitivity[3]	802.11b, 1Mbps : -94dBm maximum 802.11b, 11Mbps : -86dBm maximum 802.11g, 6Mbps : -88dBm maximum 802.11g, 54Mbps : -74dBm maximum 802.11a, 6Mbps : -86dBm maximum 802.11a, 54Mbps : -72dBm maximum 802.11n, MCS07 : -69dBm maximum 802.11n, MCS15 : -66dBm maximum 802.11ac, 1SS, MCS-0 : -86dBm maximum 802.11ac, 1SS, MCS-9 : -61dBm maximum 802.11ac, 2SS, MCS-0 : -83dBm maximum 802.11ac, 2SS, MCS-9 : -58dBm maximum	
Antenna type	High efficiency antenna with spatial diversity, mounted in the display enclosure Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth communications	
Form Factor	PCI-Express M.2 MiniCard 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 Non-operating	14° to 158° F (–10° to 70° C) –40° to 176° F (–40° to 80° C)
Humidity	Operating Non-operating	10% to 90% (non-condensing) 5% to 95% (non-condensing)
Altitude	Operating Non-operating	0 to 10,000 ft (3,048 m) 0 to 50,000 ft (15,240 m)
LED Activity	LED Amber – Radio OFF; LED White – Radio ON	

1. Check latest software/driver release for updates on supported security features.
2. Maximum output power may vary by country according to local regulations.
3. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).

Technical Specifications

POWER

Power Supply	230W (Slim) for Ergonomic stand, 230W (Regular) for Compact Stand 230W, up to 89% efficient, active PFC
Operating Voltage Range	90V~264VAC
Rated Voltage Range	100V~240AC
Rated Line Frequency	50~60HZ
Operating Line Frequency Range	47~63HZ
Rated Input Current	≤ 3.2A
Power Supply Fan	N/A
ENERGY STAR® Compliant	ENERGY STAR® compliant
Power Cord Length	800mm (Ergonomic Stand), 1800mm (Compact Stand)
Current Leakage (NFPA99)	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	
Product Dimensions	249.8mm (H) x 395.6mm (W) x 65.9mm (D), 9.8in x 15.6in x 2.6in
Dimension Note	Without stand

Model 9015 with compact Stand	
Product Dimensions	292.5mm (H) x 395.6mm (W) x 222.3mm (D), 11.5in (H) x 15.6in (W) x 8.8in (D)
Dimension Note	Compact Stand

Model 9015 with ergonomic stand	
Product Dimensions	310.80mm (H) x 395.6mm (W) x 249mm (D), 12.2in (H) x 15.6in (W) x 9.8in (D)
Dimension Note	Ergonomic Stand

Model 9018	
Product Dimensions	290mm (H) x 462.2mm (W) x 70mm (D), 11.4in (H) x 18.2in (W) x 2.8in (D)
Dimension Note	Without stand

Technical Specifications

Model 9018 with compact Stand	
Product Dimensions	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)
Dimension Note	Compact Stand
Model 9018 with ergonomic stand	
Product Dimensions	351.1mm (H) x 462.2mm (W) x 249mm (D), 13.8in (H) x 18.2in (W) x 9.8in (D)
Dimension Note	Ergonomic Stand

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

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

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

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

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 1-second red LED blinks followed by a 2-second pause, then repeats:
  - 2 - processor thermal protection activated
  - 3 - processor not installed
  - 4 - power supply failure
  - 5 -- memory error
  - 6 - video error
  - 7 - PCA failure (ROM detected failure prior to video)
  - 8 - invalid ROM, boot block recovery mode
  - 9 - system not fetching code
  - 10 - system hang while loading an option ROM

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

TEMPERATURE, HUMIDITY, ALTITUDE

Temperature	**Operating**	50° to 104° F (10 to 40° C)
	Non-operating	-22° to 149° F (-30°to 65° C)
Relative humidity	**Operating**	20 to 85%
Altitude (unpressurized)	**Operating**	0 to 10,000 ft (3,048 m)
	Non-operating	0 to 30,000 ft (9,144 m)

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®
- EPEAT® Gold registered 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_{WAd}, bels)	Sound Pressure (L_{pAm}, decibels)
Typically Configured – Idle	3.3	24
Fixed Disk – Random writes	3.3	25

Technical Specifications

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_{WAd}, bels)	Sound Pressure (L_{pAm}, decibels)
Typically Configured – Idle	3.3	24
Fixed Disk – Random writes	3.5	26

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 the1ppm 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 (EPEAT) standard at the <gold> level, see www.epeat.net
- Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043.
- This product contains 30.2% post-consumer recycled plastic (by wt.)
- This product is 95.8% recycle-able when properly disposed of at end of life.

Packaging Materials

External:	PAPER/Corrugated	1370 g
Internal:	PLASTIC/EPE (Expanded Polyethylene)	1449 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

Hewlett-Packard 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.

Hewlett-Packard 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
and
http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf

SERVICE AND SUPPORT

On-site Warranty [1]: Limited warranty delivers on-site, next business-day [2] service for parts and labor and includes free support[3] 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.

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

Retail Integrated Peripherals



Top mount and Bottom Mount Options

Models	HP RP9 Integrated 7" NT CFD Btm w/Arm	N3R59AA / M7E27AV
	HP RP9 Integrated 7" NT CFD Top w/Arm	P5A56AA / M7E28AV
Display type	LCD, LED Backlit	
Brightness	250 cd/m2	
Dimensions	183.8*121.6mm	
	7 Inch	
Temperature Range	**Operating:**	32° to 104° F (0 to 40° C) at 20% to 85% humidity (non-condensing at ambient)
	Non-operating:	32° to 122° F (0° to 50° C) at 5% to 90% humidity (non-condensing at ambient)
Adjustability	Tilt range of motion: 295 degrees	
Weight	Top mount at 560g, long arm at 639g	
Interface	USB	
Power	**Operating voltage**	+5VDC, 496mA
	Idle current	+5VDC, 128mA
Compatibility	**Product**	RP9 G1 Retail System
Operating systems	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**	

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Retail Integrated Peripherals

HP RP9 Retail Ergonomic Stand



Model	HP RP9 Retail Ergonomic Stand	P0Q87AA / M7J40AV
Weight	3.62 kg/ 8 lbs	
	Note: Weight incudes power supply	
Features	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



Model	P6D70AV
Weight	2.6 kg / 5.7 lbs
	Note: Weight incudes power supply
Features	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

HP RP9 Integrated Side Barcode Scanner



Models:	**HP RP9 Integrated Side Barcode Scanner**	N3R61AA, M7E29AV Left / M7E30AV Right * March 2016 availability
General	**Indicators**	Audible and visual read indictors
	Scan direction	Omni-directional
Symbologies	**1D / Linear Codes**	Autodiscriminates all standard 1D codes including GS1 DataBar™ linear codes.
	2D Codes	Aztec Code; China Han Xin Code; Data Matrix; MaxiCode; Micro QR Code; QR Code
	Postal codes	Australian Post; British Post; China Post; IMB; Japanese Post; KIX Post; Korea Post; Planet Code; Postnet; Royal Mail Code (RM4SCC)
	Stacked codes	EAN/JAN Composites; GS1 DataBar Composites; GS1 DataBar Expanded Stacked; GS1 DataBar Stacked GS1 DataBar Stacked Omnidirect
Depth of field (Typical)	**Code 39: 5 mils**	6.5 to 21.0 cm
	Code 39: 20 mils	Up to 50.0 cm
	Data Matrix: 15 mils	4.0 to 25.0 cm
	EAN: 13 mils	5.5 to 39.0 cm
Mechanical	**Dimensions (LxWxH)**	99.3x51.2x59.8 mm
	Weight	138g
	Adjustability	3° to 90° (Tilt range) -180° to +180° (Swivel range)
	Color	HP Black
Interface/ Connection	**Interface**	USB 2.0
	Connection	Type A
Power	**Voltage (typical)**	5.0V +/- 5% supplied by USB
	Current consumption (typical)	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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*** Full support on all x86-based Windows, NO current support drivers for ARM processor platforms.

HP RP9 Integrated Barcode Scanner - Bottom



Models:	**HP RP9Integrated Barcode Scanner - Bottom**	N3R60AA / M7E32AV (Bottom) * March 2016 availability
General	**Indicators**	Audible and visual read indictors
	Scan direction	Omni-directional
Symbologies	**1D / Linear Codes**	Autodiscriminates all standard 1D codes including GS1 DataBar™ linear codes.
	2D Codes	Aztec Code; China Han Xin Code; Data Matrix MaxiCode; Micro QR Code; QR Code
	Postal codes	Australian Post; British Post; China Post; IMB; Japanese Post; KIX Post; Korea Post; Planet Code;

Retail Integrated Peripherals

		Postnet; Royal Mail Code (RM4SCC)
	Stacked codes	EAN/JAN Composites; GS1 DataBar Composites; GS1 DataBar Expanded Stacked; GS1 DataBar Stacked; GS1 DataBar Stacked Omnidirect.
Depth of field (Typical)	**Code 39: 5 mils**	6.5 to 21.0 cm
	Code 39: 20 mils	Up to 50.0 cm
	Data Matrix: 15 mils	4.0 to 25.0 cm
	EAN: 13 mils	5.5 to 39.0 cm
Mechanical	**Dimensions (LxWxH)**	80x52.5x41.37 mm
	Weight	88.8g
	Adjustability	from 0° to 20°
	Color	HP Black
Interface/ Connection	**Interface**	USB 2.0
	Connection	Type A
Power	**Voltage (typical)**	5.0V +/- 5% supplied by USB
	Current consumption (typical)	150mA
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 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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*** Full support on all x86-based Windows, NO current support drivers for ARM processor platforms.

Retail Integrated Peripherals

HP RP9 Integrated Fingerprint Reader



Model	**HP RP9 Integrated Fingerprint Reader**	N3R64AA / M7E36AV (Right)/ M7E31AV (Left)
General	**Scan Data**	8-bit grayscale (256 levels of gray)
	Pixel resolution	508 DPI
	Scan capture area	18mm x 12.80mm
Mechanical	**Dimensions (LxWxH)**	59x63.23x37.43 (mm)
	Weight	44.8g
	Color	HP Black
Interface/Connection	**Interface**	USB 2.0
Power	**Supply Voltage**	5.0V ±5% supplied by USB
	Supply Current Imaging mode	80 mA @ 3.3V
	Supply Current Sleep mode	1350 uA @ 3.3V
Environmental	**Temperature**	- 20 C to + 70 C
	Humidity	5% to 93% RH w/o condensation
Drivers		Windows Native
Operating Systems	**Compatibility**	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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*** Full support on all x86-based Windows, NO current support drivers for ARM processor platforms.

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



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

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** Not all features are available in all editions of Windows. This system may require upgraded and/or separately purchased hardwar 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 Retail Integrated 2x20 Display without Arm (Complex and Non-Complex)





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

Retail Integrated Peripherals

Temperature Range	**Operating:**	32° to 104° F (0 to 40° C) at 20% to 85% humidity (non-condensing at ambient)
	Non-operating:	32° to 122° F (0° to 50° C) at 5% to 90% humidity (non- condensing at ambient)
Adjustability	None	
Weight	top mount arm at 245g, and 400g with packaging	
Interface	USB	
Power	**Operating voltage**	+5VDC
	Idle current	230mA
	Full Load Current	300mA
Drivers	Windows Native	
Compatibility	**Product**	HP RP9 G1 Retail System
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 Integrated Single-Head MSR



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



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

Options and Accessories (sold separately)

Printers	
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

Integrated Peripherals	**Part Number**
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 Btm w/Arm	N3R59AA
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 Webcam	P0Q86AA

Customer Facing Displays and Display Options	
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)

Cable kits for Retail Customer Facing Displays

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

Graphics Video Adapters & Cables

HP DisplayPort Cable Kit	VN567AA
HP DisplayPort to DVID Adapter	FH973AA
HP DisplayPort to HDMI 4k Adapter	K2K92AA
HP DisplayPort to VGA Adapter	AS615AA

IO Devices, I/O Adapters

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

Memory (DDR4 2133)

HP 16GB DDR42133 SODIMM	P1N55AA
HP 4GB DDR42133 SODIMM	P1N53AA
HP 8GB DDR42133 SODIMM	P1N54AA

Options and Accessories (sold separately)

Scanners

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

Cash Drawers

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

Pole Displays

HP Graphical POS Pole Display	QZ704AA
HP LCD Pole Display	F7A93AA
HP POS Pole Display	FK225AA

Locks and physical security devices

HP Business PC Security Lock Kit	N3R93AA
HP Keyed Cable Lock Kit	H4D73AA

Storage 2.5" Solid State Drives

HP 128GB SATA Solid State Drive Desktop	QV063AA
HP 256GB SATA 3D Non-SED Solid State Drive	N1M49AA

Storage SED Solid State Drives

HP 128GB SATA SED Opal2 Solid State Drive	G1K24AA

Storage M.2 Drives

HP Turbo Drive 256GB M.2 PCIe Solid State Drive	T4E65AA

Summary of Changes

Date of change:	Version History:		Description of change:
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

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