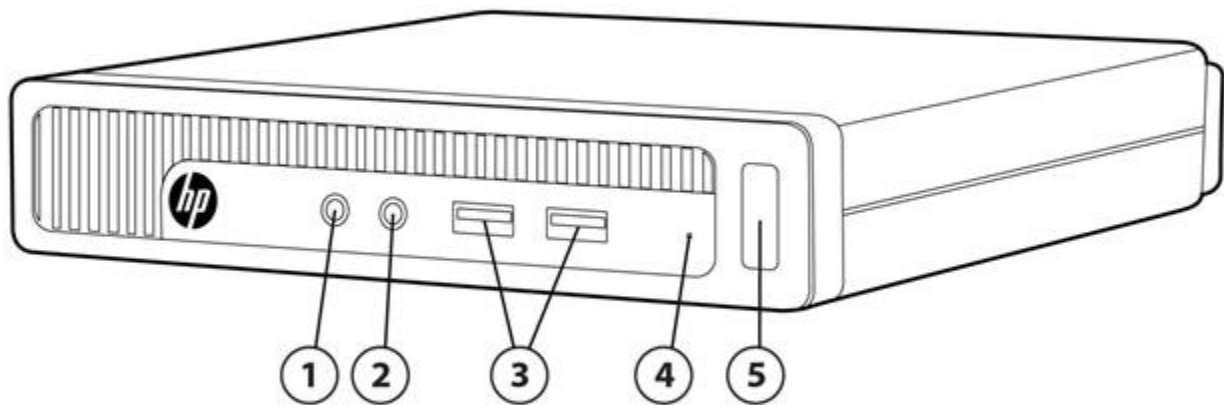


### Overview

### HP MP9 Retail System, Model 9000

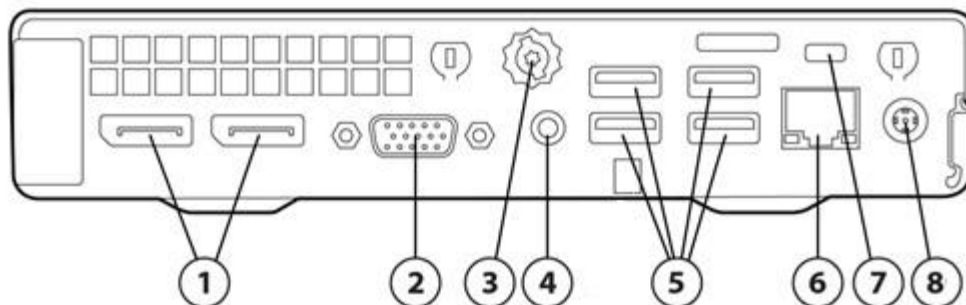
#### Front View



1. 3.5mm headphone output
2. 3.5mm microphone jack
3. (2) Front USB 3.0 ports
4. PC status LED
5. Power button

### Overview

### Back View



1. (2) Display Port outputs
2. (1) VGA video port
3. Thumb screw
4. 3.5mm audio out jack
5. (4) USB 3.0 ports
6. (1) RJ-45 network connector
7. Cable lock slot
8. Security screw

#### **Not Shown**

**Slots** (1) internal M.2 connector for optional wireless NIC  
(1) internal M.2 connector for optional SSD drive

**Bays** (1) 2.5" internal storage drive bay

**VESA** Support for VESA 100 mounting system on bottom of PC chassis

### Overview

### At A Glance

#### Product features

- PC Chassis and all internal components and modules are manufactured with low halogen<sup>1</sup> content
- Intel® Q87 chipset supporting Intel 4th generation Core processors, featuring integrated Intel HD Graphics and Intel® vPro™ technology (available with select processors)
- Intel® Ethernet Connection I217L GbE LOM integrated network connection
- DDR3 Synchronous Dynamic Random Access Memory (SDRAM)
- Independent monitor support via VGA and dual Display Port video interfaces
- Standard and high efficiency energy saving power supply options
- Optional Intel Smart Response Technology disk cache modules

<sup>1</sup> External power supplies, power cords, cables and peripherals are not low halogen. Service parts obtained after purchase may not be low halogen.

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

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

### OPERATING SYSTEMS

#### Preinstalled When Purchased

Microsoft Windows 10 Pro 64-bit OS\*  
Microsoft Windows 10 Pro Downgrade Win 7 Pro 32-bit OS\*\*\*  
Microsoft Windows 10 Pro Downgrade Win 7 Pro 64-bit OS\*\*\*  
Microsoft Windows Embedded 8.1 Industry Pro Retail (64-bit)\*\*  
Microsoft Windows 8.1 Pro (64-bit)\*\*  
Microsoft Windows Embedded Standard 7P (64-bit)\*  
Microsoft Windows 7 Pro (32 bit) Pro (available through downgrade rights from to Windows 8.1 Pro) Pro \*\*\*  
Microsoft Windows 7 Pro (64 bit) Pro (available through downgrade to Windows 78.1 Pro) \*\*\*  
Microsoft Windows Embedded POSReady 7 (32-bit)\*\*\*  
Microsoft Windows Embedded POSReady 7 (64-bit)\*\*\*  
FreeDOS 2.0

\* 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>.

\*\* 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. 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.”

### CHIPSET

Intel® Q87 Express

### PROCESSOR

#### **Intel® Core™ i7-4785T Processor**

Up to 3.2 GHz Max. Turbo Frequency (2.2 GHz base frequency)  
8MB cache, 4 cores, 8 threads  
Intel® HD Graphics 4600  
Supports DDR3 Memory up to 1600 MT/s data rate  
Supports Intel® vPro™ Technology and Intel® Stable Image Platform Program (SIPP)

#### **Intel® Core™ i5-4570T Processor**

Up to 3.6 GHz Max. Turbo Frequency (2.9 GHz base frequency)  
4 MB cache, 4 cores, 4 threads  
Intel HD Graphics 4600  
Supports DDR3 memory up to 1600 MT/s data rate  
Supports Intel® vPro™ Technology and Intel® Stable Image Platform Program (SIPP)

#### **Intel® Core™ i5-4590T Processor**

Up to 3.0 GHz Max. Turbo Frequency (2.0 GHz base frequency), 6 MB cache, 4 cores, 4 threads  
Intel HD Graphics 4600

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

Supports DDR3 memory up to 1600 MT/s data rate

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

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

#### **Intel® Core™ i3-4330T Processor**

Up to 3.0 GHz base frequency  
4 MB cache, 2 cores, 4 threads  
Intel HD Graphics 4600  
Supports DDR3 memory up to 1600 MT/s data rate

#### **Intel® Core™ i3-4160T Processor**

3.1 GHz base frequency, 3 MB cache, 2 cores, 4 threads  
Supports DDR3 memory 1600 MT/s data rate  
Intel HD Graphics 4400

#### **Intel® Core™ i3-4360T Processor**

3.2 GHz base frequency, 4 MB cache, 2 cores, 4 threads  
Supports DDR3 memory 1600 MT/s data rate  
Intel HD Graphics 4600

#### **Intel® Pentium™ G3250T**

Up to 2.8 GHz Base Frequency  
3 MB cache, 2 cores, 2 threads  
Intel HD Graphics  
Supports DDR3 memory up to 1333 MT/s data rate

#### **Intel® Pentium™ G3450T**

2.9 GHz base frequency, 3 MB cache, 2 cores, 2 threads  
Intel HD Graphics  
Supports DDR3 memory 1600 MT/s data rate

#### **Intel® Celeron™ G1840T**

2.5 GHz base frequency  
2 MB cache, 2 cores, 2 threads  
Intel® HD Graphics  
Supports DDR3 memory up to 1600 MT/s data rate

**NOTE:** Processor speed denotes maximum performance mode; processors will run at lower speeds in battery optimization mode.

**NOTE:** Multi-Core is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. 64-bit computing system required. Performance will vary depending on your hardware and software configurations. Intel's numbering is not a measurement of higher performance.

**NOTE:** Some vPro functionality, such as Intel® Active management technology and Intel Virtualization technology, requires additional 3rd party software in order to run. Availability of future "virtual appliances" applications for Intel vPro technology is dependent on 3rd party software providers. Microsoft Windows required.

## GRAPHICS

### **System Integrated Graphics**

Intel® HD Graphics, Intel® HD graphics 4400 or Intel® HD Graphics 4600 depending on CPU model installed (integrated on processor)

### **Adapters and Cables**

HP DisplayPort to DisplayPort Cable  
HP DisplayPort to DVI-D Adapter  
HP DisplayPort to HDMI Adapter  
HP DisplayPort to VGA Adapter  
HP USB to Serial Port Adapter

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

### STORAGE\*

#### Hard Disk Drives (HDD)

500 GB 7200 rpm HDD

#### Solid State Drives (SSD)

120 GB SSD

128GB M.2 PCIe SSD

#### Self-Encrypting Solid State Drives (SED SSD)

128 GB SED SSD

180GB SATA 2.5 Opal2 SED SSD (optional)

256GB SED SSD

#### Solid State Hybrid Drive (SSHD)

1TB SSHD

\* For Solid State Drives (SSD), GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and up to 30 GB (for Windows 8 and 10) is reserved for system recovery software

### MEMORY

1600 MHz DDR3 SDRAM; (2) SODIMM slots enabling up to 16GB, dual channel memory support

**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 1600 MT/s; actual data rate is determined by the system's configured processor. See processor specifications for supported memory data rate.

### NETWORKING/COMMUNICATIONS

#### Ethernet (RJ-45)

Intel I217LM Gigabit Network Connection (standard)

#### Wireless

Intel Wireless-N 7260 802.11 M.2 a/b/g/n NIC Card<sup>1</sup>

<sup>1</sup> 802.11a/b/g/n wireless network card is an optional or add-on feature and requires separately purchased wireless access point and internet service. Availability of public wireless access points limited.

**NOTE:** Either the integrated network connection or the Intel Centrino wireless NIC is required to support Intel vPro Technology features.

### AUDIO/MULTIMEDIA

HD audio with Realtek ALC221 codec (all ports are stereo)

DTS Studio Sound™ audio management technology

Microphone and headphone front ports (3.5mm)

Line-out rear Port (3.5mm)

Multi-streaming capable

Internal speaker (standard)

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

### KEYBOARDS AND POINTING DEVICES

#### Keyboard\*

HP USB Keyboard (optional)

\*Keyboard contains 25% post-consumer recycled plastic material.

#### Mice

HP USB Mouse (optional)

### Weights & Dimensions

<b>Chassis (W x D x H)</b>	6.9 x 7.0 x 1.3 in 175 x 177 x 34 mm
<b>System Volume</b>	62.79 cu in 1.05 L
<b>System Weight*</b>	2.9 lb 1.3 kg
<b>Packaging (H x W x D)</b>	<i>Pending</i>
<b>Shipping Weight</b>	<i>Pending</i>
<b>Palletization Profile</b>	<i>Pending</i>

\*Weight may vary per configuration

### PORTS

<b>USB 3.0</b>	<b>Front:</b>	2
	<b>Rear:</b>	4
<b>Video</b>	<b>VGA:</b>	1
	<b>DisplayPort:</b>	2 (with multi-stream)
<b>PS/2</b>		
<b>Video</b>		

**NOTE:** When configured with a4th generation Intel Core i3 CPU only two of the available video output ports are active

<b>Audio</b>	<b>Front:</b>	headphone/mic
	<b>Rear:</b>	line in/out
	<b>Diameter:</b>	3.5mm
<b>Network Interface</b>	<b>RJ-45</b>	

### SLOTS

<b>M.2</b>	(1) internal M.2 connector for optional wireless NIC module (1) internal M.2 connector for optional SSD drive
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### BAYS

<b>2.5" internal storage drive</b>	1 ea.
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### Standard Features and Configurable Components (availability may vary by country)

#### HP BIOS

Key features of the HP BIOS include:

- Deployment and manageability – HP BIOS provides several technologies that help integrate the MP9 Retail System into the enterprise, such as PXE, remote configuration, remote control, and F10 Setup support for 12 languages.
- 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
- Computrace 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 HP computer in any enterprise 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 HP computers, including BIOS updates from within DOS (DOSFlash), BIOS updates from within Windows (HPQFlash), HP Client Manager, and fail-safe recovery. In addition, the HP 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. HP MP9 Retail System models use 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 m is turned off along with WOL functionality.

#### SECURITY

Trusted Platform Module (TPM) 1.2

SATA port disablement (via BIOS)

Drive lock

Intel® Identity Protection Technology (IPT)<sup>1</sup>

Serial, parallel, USB enable/disable (via BIOS)

Optional USB Port Disable at factory (user configurable via BIOS)

Removable media write/boot control

Power-On password (via BIOS)

Setup password (via BIOS)

Support for chassis padlocks and cable lock devices

<sup>1</sup>Models configured with Intel Core processors have the ability to utilize advanced security protection for online transactions.

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

IPT, used in conjunction with participating web sites, provides double identity authentication by adding a hardware component in addition to the usual user name and password. IPT is initialized through an HP Client Security module.

### ENVIRONMENTAL & REGULATORY

ENERGY STAR® certified models available

EPEAT® registered where applicable. EPEAT registration varies by country. See <http://www.epeat.net> for registration status by country.

Low halogen<sup>1</sup> (chassis, all internal components and modules)

TAA compliant

<sup>1</sup> External power supplies, power cords, cables and peripherals are not low halogen. Service parts obtained after purchase may not be low halogen.

### SERVICE AND SUPPORT

On-site Warranty <sup>1</sup>: Three-year (3-3-3) limited warranty delivers three years of on-site, next business day <sup>2</sup> service for parts and labor and includes free telephone support <sup>3</sup> 24 x 7. Three-year onsite and labor are not available in all countries. Service offers terms up to 5 years by choosing a Care Pack. To choose the right level of service for your HP product, visit HP Care Pack Central: [www.hp.com/go/cpc](http://www.hp.com/go/cpc)

**NOTE 1:** Terms and conditions may vary by country. Certain restrictions and exclusions apply. Other warranty variations may be offered in your region.

**NOTE 2:** On-site service may be provided pursuant to a service contract between HP and an authorized HP third-party provider, and is not available in certain countries. Global service response times are based on commercially reasonable best effort and may vary by country.

**NOTE 3:** Technical telephone support applies only to HP-configured and third-party HP qualified hardware and software. Toll-free calling and 24 x 7 support may not be available in some countries.

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

#### OPERATING SYSTEMS

##### Preinstalled

Microsoft Windows 10 Pro 64-bit OS\*  
Microsoft Windows 10 Pro Downgrade Win 7 Pro 32-bit OS\*  
Microsoft Windows 10 Pro Downgrade Win 7 Pro 64-bit OS\*  
Microsoft Windows Embedded 8.1 Industry Pro Retail (64-bit)\*\*  
Microsoft Windows 8.1 Pro (64-bit)\*\*  
Microsoft Windows Embedded Standard 7P (64-bit)\*  
Microsoft Windows 7 Pro (32 bit) Pro (available through downgrade rights from to Windows 8.1 Pro) Pro \*\*\*  
Microsoft Windows 7 Pro (64 bit) Pro (available through downgrade to Windows 8.1 Pro) \*\*  
Microsoft Windows Embedded POSReady 7 (32-bit)\*\*\*  
Microsoft Windows Embedded POSReady 7 (64-bit)\*\*\*  
FreeDOS 2.0

\* 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>.

\*\* 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. 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.”

#### **INTEL 4th GENERATION CORE vPRO PROCESSORS**

All HP MP9 Retail System models featuring this technology include processors that are part of the Intel 2013 Stable Image Platform Program (SIPP) designed to ensure the stability promise inherent in the value proposition of the HP MP9 Retail System, thus making these models the most stable, secure, and manageable platforms available to enterprises today.

**Intel Advanced Management Technology (AMT) v9.0** – 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 9.0 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/IDER
- 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

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

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

## Intel HD Graphics

**VGA Controller** 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)

**Bus Type** N/A

**RAMDAC** N/A

**Memory** Intel graphics do not have dedicated memory but utilizes some of the computer's system memory. The amount of memory used for graphics depends on the amount of system memory installed, BIOS settings, operating system, and system load. 32 MB is pre-allocated for graphics use at system boot time. Additional memory can be allocated at boot time by the BIOS for PAVP (Protected Audio Video Playback) support for playback of protected video content.

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.

<b>Maximum Graphics Memory</b>	Microsoft Windows 7	Windows 8
	Up to 1.7GB	Up to 1.8GB

**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** 4th Generation Core processors:

- The Processor Graphics contains a refresh of the seventh generation graphics core enabling substantial gains in performance and lower power consumption. Up to 16 EU support.
- 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 HW Decode
- Advanced Scheduler 2.0, 1.0
- Windows 7, Windows 8, Linux OS Support
- DirectX 11.1
- OpenGL 4.0
- Open CL 1.2

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

#### 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.

### Technical Specifications – Hard Disk and Solid State Storage

#### Introduction:

HP Serial Advanced Technology Attachment (SATA) Hard Drives maximize the performance of HP Business PCs 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 PC platform enabling easy aggregation of multiple hard drives into a single PC. This offers you the additional benefits of dedicated bandwidth, the ability to more easily identify device failures and scalability. The MP9 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.

### Technical Specifications – Hard Disk and Solid State Storage

#### 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>	Serial ATA 2.0 (6.0 Gb/s)	
<b>Buffer Size</b>	16 MB	
<b>Logical Blocks</b>	976,773,168	
<b>Seek Time</b> (typical reads, includes controller overhead, including settling)	Single Track:	2.0 ms
	Average:	11 ms
	Full-Stroke:	25 ms
<b>Height</b> (nominal)	0.374 in/9.5 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 120-GB Solid State Drive\*

<b>Capacity</b>	120 GB	
<b>Architecture</b>	Multi-Level Cell (MLC) NAND Flash with wear leveling 10 channel controller	
<b>Interface</b>	Serial ATA 2.0 (3.0 Gb/s)	
<b>Dimensions</b> (W x H x D)	2.74 x 0.37 x 4 in (6.98 x 0.95 x 10.2 cm)	
<b>Weight</b>	0.18 lb (80g)	
<b>Bandwidth Performance</b>	<b>Sustained Sequential Read:</b>	Up to 250 MB/s
	<b>Sustained Sequential Write:</b>	Up to 70 MB/s
	<b>Random Read:</b>	Up to 35K IOPs
	<b>Random Write:</b>	Up to 6.6K IOPs
<b>Latency</b>	<b>Read:</b>	65 -ms
	<b>Write:</b>	85 -ms
<b>Power</b>	<b>DC power requirements:</b>	5 VDC 5% -100 m V ripple p-p
	<b>Total power consumption:</b>	0.1 5W (active); 0.075 W (idle)
<b>Useful Drive Life</b>	35TB written, up to 20GB/day for 5 years	
<b>Environmental (all conditions, non-condensing)</b>	<b>Operating Temperature:</b>	32° to 158° F (0° to 70° C)
	<b>Relative Humidity:</b>	5% to 95%
	<b>Maximum Wet Bulb Temperature (operating):</b>	84° F (29°C)
	<b>Shock:</b>	1,500 G/0.5 -ms

#### HP 128 GB M.2 PCIe Solid State Drive\*

<b>Capacity</b>	128 GB	
<b>Architecture</b>	Multi-Level Cell (MLC) NAND	
<b>Interface</b>	SATA 6 GB/sec	
<b>Dimensions</b> (W x H x D)	2.75 x 0.276 x 3.96 in (6.985 x 0.7 x 10.05 cm)	
<b>Weight</b>	0.16 lb (73 g)	
<b>Bandwidth Performance</b>	<b>Sustained Sequential Read:</b>	Up to 450 MB/s
	<b>Sustained Sequential Write:</b>	Up to 260 MB/s

### Technical Specifications – Hard Disk and Solid State Storage

<b>Latency</b>	<b>Random Read:</b>	up to 46K IOPs
	<b>Random Write:</b>	up to 56K IOPs
	<b>Read:</b>	55ms (TYP)
	<b>Write:</b>	55ms (TYP)
<b>Power</b>	<b>DC power requirement:</b>	Min 4.5 V; Max 5.5 V
	<b>Total power consumption:</b>	160 mW (Active) ; <85 mW; (Idle)
<b>Useful Drive Life</b>		1.2 million device 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>Maximum Wet Bulb Temperature (operating):</b>	84° F (29° C)
	<b>Shock:</b>	1,500 G/1.0 msec

### HP 128 GB Self-Encrypting Solid State Drive\*

<b>Capacity</b>	128GB	
<b>Architecture</b>	Multi-Level Cell (MLC) NAND Flash with wear leveling 10 channel controller	
<b>Interface</b>	Serial ATA 2.0 (3.0 Gb/s)	
<b>NAND Flash</b>	25nm MLC NAND Flash	
<b>Dimensions (W x H x D)</b>	2.74 x 0.37 x 4 in (6.98 x 0.95 x 10.2 cm)	
<b>Weight</b>	0.18 lb (80 g)	
<b>Bandwidth Performance</b>	<b>Sustained Sequential Read:</b>	Up to 250 MB/s
	<b>Sustained Sequential Write:</b>	Up to 70 MB/s
	<b>Random Read:</b>	up to 35K IOPs
	<b>Random Write:</b>	up to 6.6K IOPs
<b>Latency</b>	<b>Read:</b>	65ms (TYP)
	<b>Write:</b>	85ms (TYP)
<b>Power</b>	<b>DC Power requirement</b>	160 mW (Active) ; <85 mW; (Idle average)
	<b>Total Power consumption</b>	0.15W (active); 0.075W (idle)
<b>Useful Drive Life</b>	35TB written, up to 20GB/day for 5 years	
<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/1.0 msec

\* For solid state disk drives, GB means 1 billion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and up to 30 GB (for Windows 8.1 and 10) of system disk is reserved for system recovery software.

\*\* The product achieves a mean time between failure (MTBF) based on population statistics not relevant to individual units.

### HP 256 GB Self-Encrypting Solid State Drive\*

<b>Capacity</b>	256GB	
<b>Architecture</b>	Self-encrypting (SED) Solid State Drive with 25n m MLC NAND Flash and SATA interface	
<b>Interface</b>	Serial ATA 2.0 (3.0 Gb/s)	
<b>NAND Flash</b>	25nm MLC NAND Flash	
<b>Dimensions (W x H x D)</b>	2.75 x 0.275 x 3.95 in (6.985 x 0.7 x 10.05 cm)	
<b>Weight</b>	0.16 lb (73 g)	



### Technical Specifications – Hard Disk and Solid State Storage

<b>Bandwidth Performance</b>	<b>Sustained Sequential Read:</b>	Up to 450 MB/s
	<b>Sustained Sequential Write:</b>	Up to 260 MB/s
	<b>Random Read:</b>	up to 46K IOPs
	<b>Random Write:</b>	up to 56K IOPs
<b>Latency</b>	<b>Read:</b>	55ms (TYP)
	<b>Write:</b>	55ms (TYP)
<b>Power</b>	<b>SATA power consumption</b>	160 mW (Active) ; <85 mW; (Idle average)
<b>Useful Drive Life</b>	72TB written, up to 40GB/day for 5 years	
<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/1.0 msec

\* For hard drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and up to 30 GB (for Windows 8.1 and 10) of system disk is reserved for system recovery software.

\*\* The product achieves a mean time between failure (MTBF) based on population statistics not relevant to individual units.

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

<b>Capacity</b>	1 TB	
<b>Rotational Speed</b>	5,400 rpm +/- 0.2%	
<b>Interface</b>	Serial ATA (SATA)	
<b>Buffer Size</b>	64 MB	
<b>Logical Blocks</b>	976,773,168	
<b>Seek Time</b> (typical reads, includes controller overhead, including settling)	Single Track:	2.0 ms
	Average:	12 ms
	Full-Stroke:	25 ms
<b>Height</b> (nominal)	0.374 in/9.5 mm	
<b>Width</b> (nominal)	Media diameter: 2.5 in/63.5 mm	
	Physical size: 2.75 in/70 mm	
<b>Operating Temperature</b>	32° to 140° F (0° to 60° C)	

### Technical Specifications - Memory

#### System Memory Support

The HP MP9 Retail System supports the 4th generation Intel® Core™ processor family. Based on a new PC micro-architecture, the processor is designed for a two-chip platform consisting of a processor and Platform Controller Hub (PCH). Unlike previous generations, the 4th generation Intel® Core™ processor includes an Integrated Memory Controller (IMC). The IMC supports DDR3/DDR3L protocols with two independent, 64-bit wide channels each accessing one or two DIMMs.

- Two channels of non-ECC DDR3/DDR3L unbuffered dual in-line memory modules (UDIMM) or DDR3/DDR3L unbuffered small outline dual in-line memory modules (SO-DIMM) with a maximum of two DIMMs per channel
- Single-channel and dual-channel memory organization modes
- Data burst length of eight for all memory organization modes
- Memory data transfer rates of up to 1600 MT/s; actual supported data transfer rate determined by the configured processor.
- 64-bit wide channels
- DDR3/DDR3L system memory I/O voltage of 1.5V
- Theoretical maximum memory bandwidth of:
  - 21.3 GB/s in dual-channel mode assuming 1333 MT/s
  - 25.6 GB/s in dual-channel mode assuming 1600 MT/s

#### Platform Memory Support

- The HP MP9 Retail System supports up to two (2) industry-standard DDR3-SDRAM SO-DIMMs.

**CAUTION:** You must shut down the computer 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 computer 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.

**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.

### Technical Specifications - Networking and Communication

#### Intel® I217LM GbE Network Connection (integrated)

<b>Connector</b>	RJ-45
<b>System Interface</b>	Integrated on PCA
<b>Controller</b>	Intel I217LM GbE platform LAN connect networking controller
<b>Memory</b>	24 KB FIFO packet buffer memory
<b>Data rates supported</b>	10/100/1000 Mbps
	802.1P
	802.1Q
	802.2
<b>IEEE Compliance</b>	802.3
	802.3ab
	802.3az
	802.3u
<b>Bus architecture</b>	PCI Express and SMBus
<b>Data transfer mode</b>	PCIe-based interface for active state operation (S0 state) and SMBus for host and management traffic (Sx low power state)
<b>Power requirement</b>	Requires 3.3V and 0.9V or just 3.3V with integrated regulators Power consumption 0.733 Watts
<b>Boot ROM support</b>	Yes
<b>Network transfer mode</b>	Full-duplex Half-duplex (not supported for the 1000BASE-T transceiver)
<b>Network transfer rate</b>	10BASE-T (half-duplex) 10 Mbps 10BASE-T (full-duplex) 20 Mbps 100BASE-TX (half-duplex) 100 Mbps 100BASE-TX (full-duplex) 200 Mbps 1000BASE-T (full-duplex) 2000 Mbps
<b>Environmental</b>	Operating Temperature: 0° to 85° C Operating Humidity: 60% RH
<b>Management</b>	WOL, auto MDI crossover, PXE, Multi-port teaming, RSS, Advanced cable diagnostic
<b>Alerting</b>	ASF 2.0 support; AMT 9.0 support

#### Intel Wireless-N 7260 802.11 M.2 a/b/g/n NIC Card\*

<b>Wireless LAN standards</b>	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n
<b>Interoperability</b>	Wi-Fi certified Cisco Compatible Extensions Program compliant with Microsoft Windows 7, Windows Vista and XP (details at: <a href="http://www.hp.com/go/notebooks/WLAN">http://www.hp.com/go/notebooks/WLAN</a> )
<b>Frequency band</b>	802.11b/g/n 2.402 - 2.482 GHz 802.11a/n 4.9 - 4.95 GHz (Japan) 5.15 - 5.25 GHz 5.25 - 5.35 GHz 5.47 - 5.725 GHz 5.825 - 5.850 GHz
<b>Antenna structure</b>	2 transmit; 2 receive (2x2)
<b>Data rates</b>	802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps

### Technical Specifications - Networking and Communication

	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</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</b> (approximately)	2.4G: +13.5dBm minimum 5G: +12dBm minimum										
<b>Power consumption</b>	<table border="0"> <tr> <td>Transmit mode</td> <td>2.0 Watts</td> </tr> <tr> <td>Receive Mode</td> <td>1.6Watts</td> </tr> <tr> <td>Idle mode <sup>4</sup></td> <td>250mW (WLAN Associated)</td> </tr> <tr> <td>Idle mode</td> <td>100 mW (WLAN unassociated)</td> </tr> <tr> <td>Radio off</td> <td>75mW</td> </tr> </table>	Transmit mode	2.0 Watts	Receive Mode	1.6Watts	Idle mode <sup>4</sup>	250mW (WLAN Associated)	Idle mode	100 mW (WLAN unassociated)	Radio off	75mW
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Receive Mode	1.6Watts										
Idle mode <sup>4</sup>	250mW (WLAN Associated)										
Idle mode	100 mW (WLAN unassociated)										
Radio off	75mW										
<b>Power management</b>	ACPI and PCI Express compliant power management 802.11 compliant power saving mode										
<b>Receiver sensitivity</b> <sup>5</sup>	<p>802.11g: -90 dBm (6 Mbps), -89 dBm (9 Mbps), -87 dBm (12 Mbps), -85 dBm (18 Mbps), -82 dBm (24 Mbps), -79 dBm (36 Mbps), -76 dBm (48 Mbps), -74 dBm (54 Mbps)</p> <p>802.11b: -95 dBm (1 Mbps), -93 dBm (2 Mbps), -91 dBm (5.5 Mbps), -88 dBm (11 Mbps)</p> <p>802.11g: -90 dBm (6 Mbps), -89 dBm (9 Mbps), -87 dBm (12 Mbps), -85 dBm (18 Mbps), -82 dBm (24 Mbps), -79 dBm (36 Mbps), -76 dBm (48 Mbps), -74 dBm (54 Mbps)</p> <p>802.11n: -69 dBm (150 Mbps), -66 dBm (300 Mbps)</p>										
<b>Antenna connections</b>	2 U.FL type connectors (output impedance of 50 ± 2 ohms)										
<b>Form factor</b>	PCI-Express Half-MiniCard										
<b>Dimensions</b>	0.12 x 1.06 x 1.18 in (3.1 x 26.8 x 30.0 mm)										
<b>Weight</b>	Approx. 0.122 lb (55.7 g)										
<b>Operating voltage</b>	3.3V +/- 9%										
<b>Temperature</b>	<table border="0"> <tr> <td>Operating</td> <td>14° to 158° F (-10° to 70° C)</td> </tr> <tr> <td>Non-operating</td> <td>-40° to 176° F (-40° to 80° C)</td> </tr> </table>	Operating	14° to 158° F (-10° to 70° C)	Non-operating	-40° to 176° F (-40° to 80° C)						
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Non-operating	-40° to 176° F (-40° to 80° C)										
<b>Humidity</b>	<table border="0"> <tr> <td>Operating</td> <td>10% to 90% (non-condensing)</td> </tr> <tr> <td>Non-operating</td> <td>5% to 95% (non-condensing)</td> </tr> </table>	Operating	10% to 90% (non-condensing)	Non-operating	5% to 95% (non-condensing)						
Operating	10% to 90% (non-condensing)										
Non-operating	5% to 95% (non-condensing)										
<b>Altitude</b>	<table border="0"> <tr> <td>Operating</td> <td>0 to 10,000 ft (3,048 m)</td> </tr> <tr> <td>Non-operating</td> <td>0 to 50,000 ft (15,240 m)</td> </tr> </table>	Operating	0 to 10,000 ft (3,048 m)	Non-operating	0 to 50,000 ft (15,240 m)						
Operating	0 to 10,000 ft (3,048 m)										
Non-operating	0 to 50,000 ft (15,240 m)										
<b>LED activity</b>	LED Amber - Radio OFF; LED White - Radio ON										

\*802.11a/b/g/n wireless network card is an optional or add-on feature and requires separately purchased wireless access point and internet service. Availability of public wireless access points limited.

**NOTE:** Either the integrated network connection or the Intel Centrino wireless NIC is required to support Intel vPro Technology features.

### Technical Specifications - Audio

#### High Definition Audio

<b>Type</b>	Integrated
<b>HD Stereo Codec</b>	Realtek 2-channel ALC221 codec
<b>Audio I/O Ports</b>	Front microphone-In (150-K ohm Input Impedance) Rear Line-Out* (190 ohms Output Impedance, expects at least a 10-K ohm load) Front Microphone/Headphone jack is re-task able to provide Microphone input, line-in or Headphone output to support connecting two headphones to the front of the system. When configured as a second front headphone output, both front headphone outputs are always driven with the same signal. All ports are 3.5mm
<b>Internal Speaker Amplifier</b>	1.5W amplifier for the internal speaker only. External speakers must be powered externally.
<b>Multi-streaming Capable</b>	Multi-streaming can be enabled in the Realtek control panel to allow independent audio streams to be sent to/from the front and rear jacks.
<b>Sampling</b>	8 kHz - 192 kHz
<b>Wavetable Syntheses</b>	Yes – Uses OS soft wavetable
<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
<b>Full Duplex</b>	Yes

### Technical Specifications - Input

#### HP USB Keyboard (optional)

<b>Physical characteristics</b>	<b>Keys</b>	104, 105, 106, 107, 109 layout (depending upon country)
	<b>Dimensions</b> (L x W x H)	18.12 x 6.47 x 0.96 in (46.03 x 16.43 x 2.44 cm)
<b>Electrical</b>	<b>Weight</b>	2 lb (0.9 kg)
	<b>Operating voltage</b>	+ 5VDC ± 5%
	<b>Power consumption</b>	50-mA maximum (with three LEDs ON)
	<b>System interface</b>	USB Type A plug connector
	<b>ESD</b>	CE level 4, 15-kV air discharge
<b>Mechanical</b>	<b>EMI - RFI</b>	Conforms to FCC rules for a Class B computing device
	<b>Microsoft® PC 99 - 2001</b>	Functionally compliant
	<b>Keycaps</b>	Low-profile design
	<b>Switch actuation</b>	55-g nominal peak force with tactile feedback
	<b>Switch life</b>	20 million keystrokes (using Hasco modified tester)
	<b>Switch type</b>	Contamination-resistant switch membrane
	<b>Key-leveling mechanisms</b>	For all double-wide and greater-length keys
	<b>Cable length</b>	6 ft (1.8 m)
	<b>Microsoft PC 99 - 2001</b>	Mechanically compliant
	<b>Environmental</b>	<b>Acoustics</b>
<b>Operating temperature</b>		50° to 122° F (10° to 50° C)
<b>Non-operating temperature</b>		-22° to 140° F (-30° to 60° C)
<b>Operating humidity</b>		10% to 90% (non-condensing at ambient)
<b>Non-operating humidity</b>		20% to 80% (non-condensing at ambient)
<b>Operating shock</b>		40 g, six surfaces
<b>Non-operating shock</b>		80 g, six surfaces
<b>Operating vibration</b>		2-g peak acceleration
<b>Non-operating vibration</b>		4-g peak acceleration
<b>Drop (out of box)</b>		26 in (66 cm) on carpet, six-drop sequence
<b>Drop (in box)</b>	30 in (76.2 cm) on concrete, 16-drop sequence	
<b>Approvals</b>	UL, CSA, FCC, CE Mark, TUV, TUV GS, VCCI, BSMI, C-Tick, MIC	
<b>Ergonomic compliance</b>	UL, CSA, FCC, CE Mark, TUV, TUV GS, VCCI, BSMI, C-Tick, KC	
<b>Kit contents</b>	Keyboard	Installation Guide
	Warranty Card	Safety and Comfort Guide

#### HP USB Mouse (optional)

<b>Dimensions</b> (H x L x W)	1.5 x 4.5 x 2.5 in (3.8 x 11.6 x 6.3 cm)
<b>Weight</b>	0.22 lb (0.10 kg)
<b>Cable length</b>	70.9 in (180 cm)
<b>System requirements</b>	Available USB port

### Unit Environment and Operating Conditions

### Technical Specifications - Power

#### General Unit Operating Guidelines

- Keep the computer away from excessive moisture, direct moisture and the extremes of heat and cold, to ensure that unit is operated within the specified operating range.
- Leave a 10.2 cm (4 in) clearance on all vented sides of the computer to permit the required airflow.
- Never restrict airflow into the computer by blocking any vents or air intakes.
- Do not stack computers on top of each other or place computers so near each other that they are subject to each other's re-circulated or preheated air.
- Occasionally clean the air vents on the front, back, and any other vented side of the computer. Lint, dust and other foreign matter can block the vents and limit the airflow.
- If the computer is to be operated within a separate enclosure, intake and exhaust ventilation must be provided on the enclosure, and the same operating guidelines listed above will still apply.

<b>Temperature Range</b>	Operating: 50° to 95° F (10° to 35° C)* Non-operating: -22° to 140° F (-30° to 60° C)
<b>Relative Humidity</b>	Operating: 10% to 90% (non-condensing at ambient) Non-operating: 5% to 95% (non-condensing at ambient)
<b>Maximum Altitude</b> (unpressurized)	Operating: 10,000 ft (3048 m) Non-operating: 30,000 ft (9144 m)

\*Operating temperature is de-rated 1.0 degree C per 300 m (1000 ft) to 3000 m (10,000 ft) above sea level, no direct sustained sunlight. Maximum rate of change is 10 degree C/Hr. The upper limit may be limited by the type and number of options installed.

### Power Supply

<b>Standard Efficiency</b>	65W active PFC 87% efficient
<b>Operating Voltage Range</b>	90 - 264 VAC
<b>Rated Voltage Range</b>	100 - 240 VAC
<b>Rated Line Frequency</b>	50/60 Hz
<b>Operating Line Frequency</b>	47 - 63 Hz
<b>Current Leakage</b> (NFPA 99)	< 250 $\mu$ A
<b>External Power Adapter</b>	
<b>Total Cord Length</b>	12 ft 8 in

### 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 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 PC Hardware 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
- 5 Aux Power LED on System PCA
- Processor ZIF Socket for easy Upgrade
- Over-Temp Warning on Screen (Requires IM Agents)
- Clear Password Jumper
- DIMM Connectors for easy Upgrade
- Clear CMOS Button
- NIC LEDs (integrated) (Green & Amber)
- Dual Color Power and HD LED - To Indicate Normal Operations and Fault Conditions
- Color coordinated cables and connectors
- Tool-less Hood Removal
- Front power switch
- System memory can be upgraded without removing the system board or any internal components
- Tool-less Hard Drive, CD & Diskette Removal
- Green Pull Tabs, and Quick Release Latches for easy Identification



### Technical Specifications – Miscellaneous Features

#### Additional Features

	Description
<b>Drive Lock</b>	<p>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.</p> <p>DPS Access through F10 Setup during Boot</p>
<b>Drive Protection System</b>	<p>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</p> <p>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</p> <p>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</p>
<b>SMART Technology</b> (Self-Monitoring, Analysis and Reporting Technology)	<p>Allows hard drives to monitor their own health and to raise flags if imminent failures were predicted</p>
<b>SMART I - Drive Failure Prediction</b>	<p>Predicts failures before they occur. Tracks fault prediction and failure indication parameters such as re-allocated sector count, spin retry count, calibration retry count</p>
<b>SMART II - Off-Line Data Collection</b>	<p>By avoiding actual hard drive failures, SMART hard drives act as "insurance" against unplanned user downtime and potential data loss from hard drive failure</p>
<b>SMART III - Off-Line Read Scanning with Defect Reallocation</b>	<p>IOEDC: I/O Error Detection Circuitry</p> <p>Detects errors in Read/Write buffers on HDD cache RAM</p>
<b>SMART IV - End-to-End CRC for hard drives</b>	<p>Interface in F10 setup provides confirmation of SMART IV support.</p>

### Technical Specifications – Environmental Data

#### 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 where HP registers commercial desktop products. See <http://www.epeat.net> for registration status in your country.

**NOTE:** This product conforms to the examination standards (2003 version) under JEITA's 'PC Green Label System.

##### System Configuration

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

Model	Energy Consumption (typically configured)	115 VAC	230VAC	100VAC
MP9	Normal Operation	Pending	Pending	Pending
	Sleep (ENERGY STAR® low power mode)	Pending	Pending	Pending
	Off	Pending	Pending	Pending

**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.

Model	Heat Dissipation*	115 VAC	230VAC	100VAC
MP9	Normal Operation	Pending	Pending	Pending
	Sleep	Pending	Pending	Pending
	Off	Pending	Pending	Pending

**\*NOTE:** 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)

Model	(Typically configured)	Sound Power (LWAd, bels)	Sound Pressure (LpAm, decibels)
MP9	Idle	Pending	Pending
	Fixed Disk (random writes)	Pending	Pending

### Technical Specifications – Environmental Data

#### Longevity and Upgrading

This product can be upgraded, possibly extending its useful life by several years.

#### Batteries

This battery(s) in this product comply with EU Directive 2006/66/EC

Batteries used in the product do not contain:

- Mercury greater than 1ppm by weight
- Cadmium greater than 20ppm by weight

**Battery Size** CR2032 (coin cell)

**Battery Type** Lithium

#### RoHS Compliance

Hewlett-Packard is committed to compliance with all applicable environmental laws and regulations, including the European Union Restriction of Hazardous Substances (RoHS) Directive. HP's goal is to exceed compliance obligations by meeting the requirements of the RoHS Directive on a worldwide basis. By July 1, 2006, RoHS substances will be virtually eliminated (virtually = to levels below legal limits) for all HP electronic products subject to the RoHS Directive, except where it is widely recognized that there is no technically feasible alternative (as indicated by an exemption under the EU RoHS Directive).

#### 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)

#### 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.

### Technical Specifications – Environmental Data

- 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](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>

After-Market Options (availability may vary by region)

### Communication Devices

	Part Number
Intel Ethernet I210 - T1 Gbe NIC	E0X95AA
Intel Wireless-N 7260 802.11 M.2 a/b/g/n NIC Card	F2P07AA

### Graphics Solutions

	Part Number
HP DisplayPort Cable Kit	VN567AA
HP DisplayPort To DVI-D Adapter	FH973AA
HP DisplayPort to HDMI Adapter	BP937AA
HP DisplayPort to VGA Adapter	AS615AA

### Data Storage Drives and Accessories

	Part Number
HP 500-GB 7.2K rpm SATA 6.0Gb/s 3.5" Hard Disk Drive	QK554AA
HP 128-GB SATA 3.0Gb/s Solid State Drive	QV063AA

### SATA Slim Optical Drive

	Part Number
HP USB External DVDRW Drive	F2B56AA

### Input Devices

	Part Number
HP USB Keyboard	QY776AA
HP USB Mouse	QY777AA

### System Memory

	Part Number
HP 4GB DDR3-1600 (PC3-12800) SODIMM	B4U39AA
HP 8GB DDR3-1600 (PC3-12800) SODIMM	B4U40AA

### Stands and Accessories

	Part Number
HP DM Chassis Tower Stand	G1K23AA
Belkin USB to Serial Adapter	EM449AA

### LANDesk Software (E-Delivery)

	Part Number
LANDesk Management Suite License - 1-499 Nodes E-Delivery	QY369AAE
LANDesk Management Suite License - 500-999 Nodes E-Delivery	QY370AAE
LANDesk Management Suite License - 1000-1999 Nodes E-Delivery	QY371AAE
LANDesk Management Suite License - 2000-4999 Nodes E-Delivery	QY372AAE
LANDesk Management Suite License - 5000-9999 Nodes E-Delivery	QY373AAE
LANDesk Security Suite License E-Delivery	QY379AAE
LANDesk Management Suite 1 Year Maintenance - 1-499 Nodes E-Delivery	HZ825AAE
LANDesk Management Suite 1 Year Maintenance - 500-999 Nodes E-Delivery	HZ826AAE
LANDesk Management Suite 1 Year Maintenance - 1000-1999 Nodes E-Delivery	HZ827AAE
LANDesk Management Suite 1 Year Maintenance - 2000-4999 Nodes E-Delivery	HZ828AAE

### After-Market Options (availability may vary by region)

LANDesk Management Suite 1 Year Maintenance - 5000-9999 Nodes E-Delivery	HZ829AAE
LANDesk Security Suite 1 Year Subscription	HZ830AAE
LANDesk Patch Management 1 Year Subscription - 1-499 Nodes E-Delivery	HZ831AAE
LANDesk Patch Management 1 Year Subscription - 500-999 Nodes E-Delivery	HZ832AAE
LANDesk Patch Management 1 Year Subscription - 1000-1999 Nodes E-Delivery	HZ833AAE
LANDesk Patch Management 1 Year Subscription - 2000-4999 Nodes E-Delivery	HZ834AAE
LANDesk Patch Management 1 Year Subscription - 5000-9999 Nodes E-Delivery	HZ835AAE

### Summary of Changes

<b>Date of change:</b>	<b>Version History:</b>		<b>Description of change:</b>
June 2, 2015	From v1 to v2	<b>Added</b>	180GB SATA 2.5 Opal2 SED SSD, Display resolution 3840x2160/60 Hz
August 25, 2015	From v2 to v3	<b>Added</b>	Windows 10 Preinstalled Support and disclaimers

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