

Illustrated Parts & Service Map

HP RP5 Retail System



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Cables

1	Front I/O cable and power switch assembly	766699-001
2	SATA cable, 19.5 inch, 2 straight ends	638813-001
*	SATA power cable	636923-001
*	SATA cable, 25.2 inch, 1 straight end, 1 angled end	638814-001
*	Powered serial cable	653023-001
*	DisplayPort cable	487562-001
*	Adapter, DMS-59 to dual VGA	463023-001
*	Adapter, DMS-59 to dual DVI	463024-001
*	Adapter, DisplayPort to HDMI	617450-001
*	Adapter, DisplayPort to DVI	662723-001
*	Adapter, DisplayPort to VGA	632484-001
*	Adapter, mini DisplayPort to DisplayPort	708463-001

*Not shown

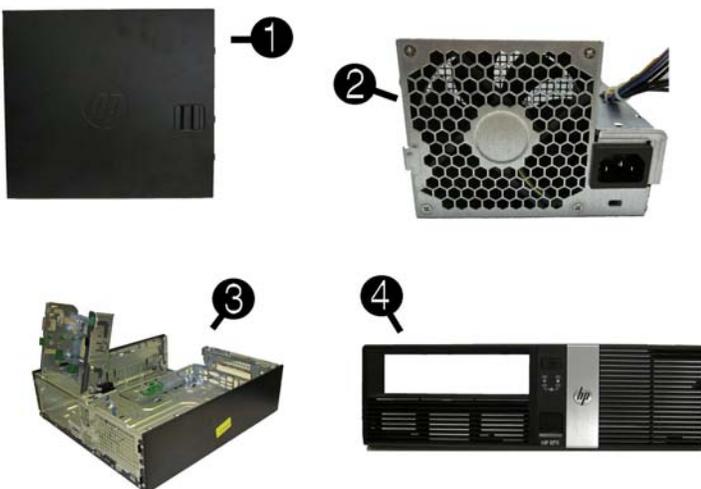
Key Specifications

Processor Type	Intel® Core i7, i5, i3 (4th generation), Pentium, Celeron
RAM Type	Non-ECC DDR3/DDR3L PC3-12800
Maximum RAM	32 GB
Expansion Slots (Low profile)	<ul style="list-style-type: none"> (1) half-height PCIe x16 (wired as x16) (1) half-height PCIe x16 (wired as x4) (2) full-height PCI x1 or PCIe x1
Chipset	Intel Q87 Express
Graphics Adapter	<ul style="list-style-type: none"> Integrated: Intel HD Graphics or Intel HD Graphics 4600, (dependent upon processor selection) Discrete: NVIDIA NVS 315 (1 GB), NVIDIA NVS 510 (2 GB)
Bays	<ul style="list-style-type: none"> (1) external 5.25-inch (2) internal 3.5-inch
I/O Interfaces	(5) USB 2.0, (2) USB 3.0, (1) 24V USB, (2) RS-232 powered-configurable serial (5V/12V), (1) PS/2 keyboard, (1) PS/2 mouse, (1) VGA, (1) DisplayPort 1.2, (1) audio in, (1) audio out, (1) RJ-45, (1) RJ-12 (cash drawer). Additional optional ports: (1) parallel, (1) eSATA, up to (6) 12V, USB, additional DisplayPort 1.2, and (2) RS-232 powered-configurable serial ports (5V/12) via serial card
Preinstalled Operating Systems	<ul style="list-style-type: none"> Microsoft Windows 8.1 Pro 64-bit Microsoft Windows Embedded 8.1 Industry Pro Retail 64-bit Windows 7 Professional 32/64-bit Windows Embedded POSReady 7 32/64-bit FreeDOS

Keyboards (not illustrated)

PS/2, Basic*	701428-xx1	701429-xx1	
Arabic	-17x	Japanese	-29x
F Arabic	-DEx	LA Spanish	-16x
BHCSY	-B4x	Norwegian	-09x
Belgian	-18x	People's Republic of China	-AAx
Brazilian Portuguese	-20x	Portuguese	-13x
Bulgaria	-26x	Romanian	-27x
Czech and Slovakian	-22x	Russian	-25x
Danish	-08x	Slovenian	-23x
French	-05x	South Korea	-KDx
French Canadian	-12x	Spanish	-07x
German	-04x	Swedish	-10x
Greek	-15x	Swiss	-11x
Hebrew	-BBx	Taiwanese	-ABx
Hungarian	-21x	Thai	-28x
India	-D6x	Turkish	-14x
International English	-L3x	U.S.	-00x
International - Asia/Pacific	-37x	U.K.	-03x
Italian	-06x		

Spare Parts



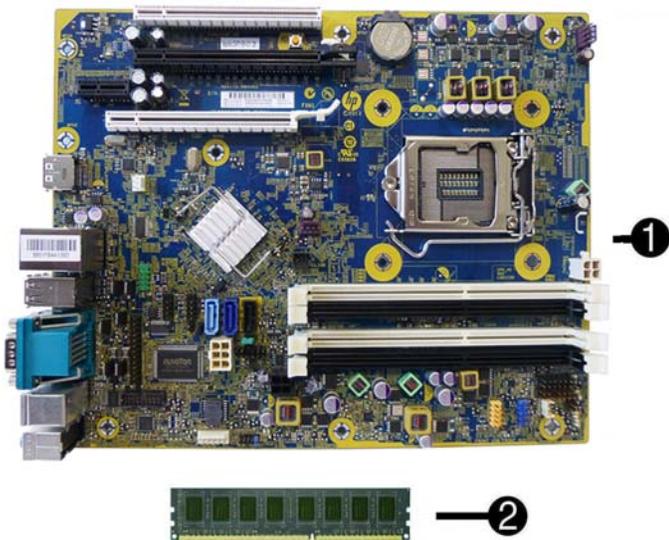
Mass Storage Devices (not illustrated)

16X SATA DVD-ROM drive	682550-001
2 TB, 7200 rpm, 3.5" hard drive,	747993-001
1 TB, 7200 rpm, 3.5" hard drive,	747992-001
500 GB, 7200 rpm, 2.5", self-encrypting hard drive	745136-001
500 GB, 7200, 2.5" rpm hard drive	745135-001
512 GB Solid State Drive (SSD)	767486-001
256 GB Solid State Drive (SSD)	746141-001
128 GB Solid State Drive (SSD)	746140-001
64 GB Solid State Drive (SSD), 2.5"	711906-001
32 GB Solid State Drive (SSD)	686616-001

System Unit

1	Access panel	653026-001
2	Power supply, 90% efficient	659246-001
3	Chassis	Not spared
4	Front bezel	766700-001
*	Stand	688952-001

* Not shown



Miscellaneous Parts

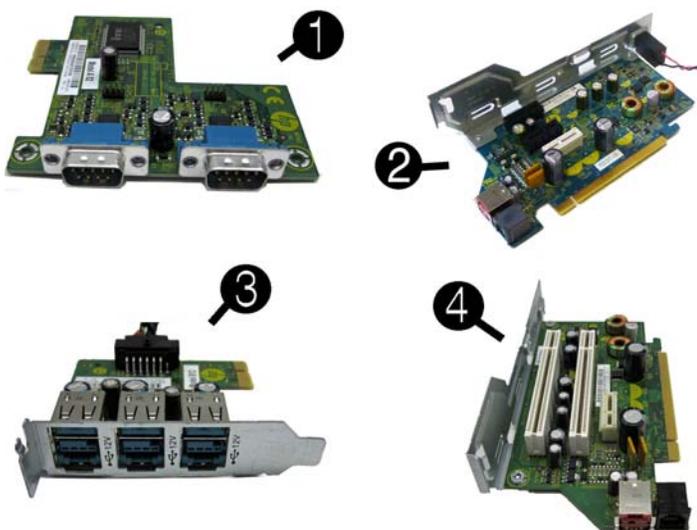
1	Heat sink (includes replacement thermal material)	645326-001
2	Chassis fan	653024-001
3	Speaker	636925-001
4	Printer port, PCI card	638817-001
5	Fan duct	636921-001
6	Serial port expansion card	752917-001
*	Rubber feet	583654-001
*	Cover, powered serial port	353054-001
*	Drive adapter, 2.5-inch	586721-001
*	Hard drive grommet, blue	450712-001 594220-001
*	Antenna for use with WLAN module	583345-001
*	Mouse, PS2, optical	674315-001
*	Mouse, USB, optical	674316-001

*Not shown

System Boards, Memory, Processors

System boards with thermal grease, alcohol pad, and CPU socket cover		
1	System board, non-Windows 8 models	748612-001
*	System board, Windows 8 Professional	748612-601
*	System board, Windows Embedded 8.1	748612-701
Memory modules (PC3-10600, CL9)		
2	8 GB	689375-001
*	4 GB	671613-001
Processors (include thermal replacement material)		
*	Intel Core i7-4770s, 3.1 GHz, 8-MB L3 cache, 65W	732507-001
*	Intel Core i5-4570s, 2.9 GHz, 6-MB L3 cache, 65W	732505-001
*	Intel Core i3-4330, 3.5 GHz, 4-MB L3 cache, 54W	742561-001
*	Intel Pentium G3420, 3.2 GHz, 3-MB L3 cache, 54W	742565-001
*	Intel Celeron G1820, 2.7 GHz, 2-MB L3 cache, 54W	758756-001

* Not shown



Expansion cards

1	2-port powered serial card	638947-001
2	PCIe riser expansion card (contains 2 PCIe x1 slots)	749249-001
3	Powered USB card, 12V	638945-001
4	PCI riser expansion card (contains 2 PCI slots)	749250-001
*	Intel 7260, 802.11a/b/g/n wireless module	745668-001
*	Intel 7260NB, 802.11a/g/n wireless module (Indonesia only)	750147-001
*	Intel PRO/1000CT NIC, includes bracket	728562-001
Graphics cards		
*	NVIDIA NVS 315 1 GB PCIe x16 Graphics Card	720837-001
*	NVIDIA NVS 510 2 GB PCIe x16 Graphics Card	721795-001

* Not shown

Password Security

Establishing a Setup or Power-On password:

1. Turn on or restart the computer.
2. As soon as the computer turns on, press the **Esc** key while "Press the ESC key for Startup Menu" message is displayed at the bottom of the screen.
3. Press the **F10** key to enter Computer Setup.
4. To establish Setup password, select **Security > Setup Password** and follow the instructions.
- or -
To establish a Power-On password, select **Security > Power-On Password** and follow the instructions on the screen
5. Before exiting, click **File > Save Changes and Exit**.

Resetting a Setup or Power-On password:

1. Turn off the computer and disconnect the power cord from the power outlet.
2. Remove the access panel.
3. On the system board, locate the header labeled E49.
4. Remove the jumper from the header.
5. Replace the jumper.
6. Replace the chassis access panel and reconnect the power cord.
7. Turn on the computer and allow it to start.

Clearing CMOS

1. Turn off the computer and disconnect the power cord from the power outlet.
2. Remove the access panel.
3. On the system board, press and hold the CMOS button for 5 seconds.
4. Replace the chassis access panel and reconnect the power cord.
5. Turn on the computer and allow it to start.

Diagnostic LEDs

LED	Color	LED Activity	State/Message
Power	Green	On	Computer on
Power	Green	1 blink every 2 seconds.	Normal Suspend Mode.
Power	Red	1 blink every second followed by a 2 second pause.	CPU thermal shutdown.
Power	Red	3 blinks, 1 blink every second followed by a 2 second pause.	Processor not installed.
Power	Red	4 blinks, 1 blink every second followed by a 2 second pause.	Power failure (power supply overload).
Power	Red	5 blinks, 1 blink every second followed by a 2 second pause.	Pre-video memory error.
Power	Red	6 blinks, 1 blink every second followed by a 2 second pause.	Pre-video graphics error.
Power	Red	7 blinks, 1 blink every second followed by a 2 second pause.	System board failure (ROM).
Power	Red	8 blinks, 1 blink every second followed by a 2 second pause.	Invalid ROM based on Checksum.
Power	Red	9 blinks, 1 blink every second followed by a 2 second pause.	System powers on but is unable to boot.
Power	Red	10 blinks, 1 blink every second followed by a 2 second pause.	Bad option card.
Power	Red	12 blinks, 1 blink every second followed by a 2 second pause. Beeps stop after a third iteration and computer reboots.	Health timer expired.
none	none	System does not power on and LEDs are not flashing.	System unable to power on.

Common POST Error Messages

Screen Message	Probable Cause	Recommended Action
101-Option ROM Error	1. System ROM checksum error. 2. Expansion board option ROM checksum	1. Verify ROM, reflash if required 2. Remove suspected card, reboot 3. Clear CMOS memory, reboot 4. Replace system board
103-System Board Failure	DMA, timers	1. Clear CMOS memory. 2. Remove expansion boards. 3. Replace system board.
163-Time & Date Not Set	Invalid time or date in configuration memory. RTC battery may need to be replaced.	Reset the date and time under Control Panel (Computer Setup can also be used). If the problem persists, replace the RTC battery.
164-Memory Size Error and 201-Memory Error	Incorrect memory configuration	1. Run Setup (F10). 2. Check DIMMs for proper seating, type, and HP compatibility. 3. Remove DIMMs singularly and reboot to isolate faulty DIMM. 4. Replace system board.
214-DIMM Configuration Warning	Populated DIMM configuration is not optimized	Rearrange the DIMMs so that each channel has the same amount of memory.
301-, 304-Keyboard error	Keyboard failure.	Check keyboard connection or keys. Check connector for bent or missing pins. Replace keyboard. If 304, possible system board problem.
501-Display Adapter Failure	Graphics display controller.	1. Reseat graphics card. 2. Clear CMOS. 3. Check monitor connection. 4. Replace graphics card.
1720-SMART Hard Drive Detects Imminent Failure	Hard drive is about to fail.	1. Determine if hard drive is giving correct error message. Enter Computer Setup and run the Drive Protection System test under Storage > DPS Self-test . 2. Apply hard drive firmware patch if applicable. 3. Back up contents and replace hard drive.
The system is violating the thermal environment requirement.	Improper processor installed or add-in card installed in 50C mode.	1. Replace the processor with a 65W processor. 2. Remove any add-in cards.

System Setup and Boot

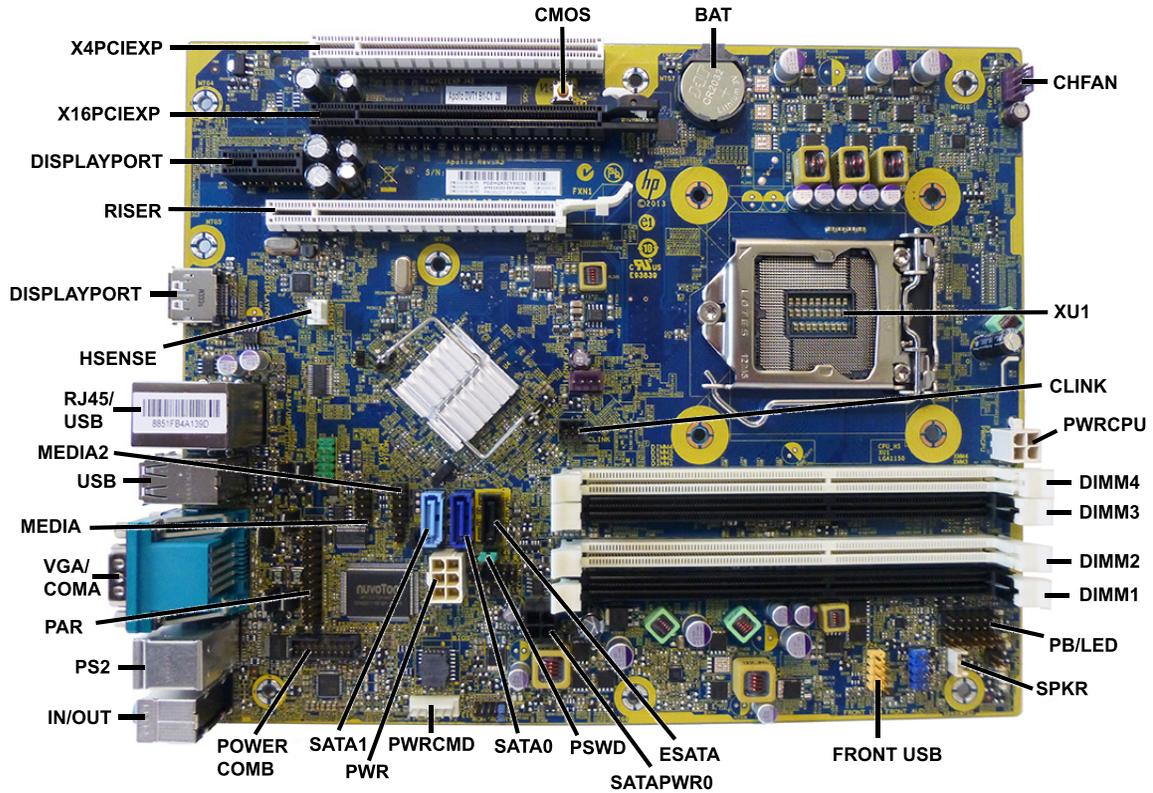
Access the Setup Utility during the computer boot sequence by pressing the **Esc** key while "Press the ESC key for Startup Menu" message is displayed at the bottom of the screen, and then pressing the **F10** key. If you do not press **Esc** at the appropriate time, you must restart the computer and again press **Esc** when the monitor light turns green to access the utility.

Computer Setup Menu

Heading	Option/Description
File	System Information - Lists the following main system specifications: <ul style="list-style-type: none"> Product name Manufacturer SKU number Processor type/speed/stepping Installed memory size/speed/chan Integrated MAC Address Chassis serial number Asset tracking number System Board ID System Board CT Number BIOS Version & Date ME Firmware Version
	About - Displays copyright notice.
	Set Time and Date - Allows you to set system time and date.
	Flash System ROM - Allows you to select a drive containing a new BIOS.
	Replicated Setup - Save to Removable Media and Restore from Removable Media.
	Default Setup <ul style="list-style-type: none"> Save Current Settings as Default Restore Factory Settings as Default
	Apply Defaults and Exit - Applies the selected default settings and clears any established passwords.
	Ignore Changes and Exit - Exits Computer setup without saving changes.
	Save Changes and Exit - Saves changes to system configuration or default settings and exits Computer Setup.
	Storage
Storage Options - Allows you to set: <ul style="list-style-type: none"> SATA Emulation - Choose how the SATA controller and devices are accessed by the OS. SATA Emulation choices are AHCI, RAID, or IDE. Removable Media Boot - Enables/disables ability to boot the system from removable media or USB port. 	
Boot Order - Specify boot order for UEFI and legacy boot sources. <ul style="list-style-type: none"> Shortcut to Temporarily Override Boot Order 	
Security	Setup Password - Allows you to set and enable the setup (Admin) password.
	Power-On Password - Allows you to set and enable power-on password.
	Password Options - When any password exists allows you to lock legacy resources, enable/disable Setup Browse Mode, set password prompt, enable/disable network server mode, specify password requirement for warm boot, and set stringent passwords.
	Smart Cover (some models) - Allows you to lock/unlock cover lock and set status of cover removal sensor.

Security (continued)	Device Security - Allows you to set Device Available/Device Hidden for available system devices.
	USB Security - Set Device Available/Device Hidden for front USB ports, rear USB ports, accessory USB ports.
	Slot Security - Allows you to disable any PCI or PCI Express slot.
	Network Boot - Enables/disables boot from the network (NIC models only).
	System IDs - Allows you to set Asset tag, Ownership tag, UUID, and keyboard language/layout setting.
	Master Boot Record Security - enables/disables MBR.
	System Security (some models) - Allows you to enable/disable: <ul style="list-style-type: none"> Data Execution Prevention (enable/disable) Virtualization Technology (VTx) (enable/disable) Virtualization Technology Directed I/O (VTD) (enable/disable) Embedded Security Device (enable/disable) OS management of Embedded Security Device (enable/disable)
	DriveLock Security - Allows you to assign or modify a master or user password for hard drives.
	Secure Boot Configuration (Windows 8 only) <ul style="list-style-type: none"> Legacy Support (enable/disable) Secure Boot (enable/disable). Key Management (enable/disable) Fast Boot (enable/disable)
	Power
Hardware Power Management - Allows you to enable/disable SATA power management and S5 maximum power savings.	
Thermal - Allows you to control minimum fan speed.	
Advanced	Power-On Options - Allows you to set: <ul style="list-style-type: none"> POST mode-QuickBoot, FullBoot, Clear Memory, FullBoot every x days POST messages - Enable/disable Press the ESC key for Startup Menu - Enable/disable Option ROM prompt - Enable/disable After Power Loss - Off/on/previous state POST Delay - None, 5, 10, 15, or 20 seconds Remote Wakeup Boot Source - Remote server/local hard drive Factory Recovery Boot Support - Enable/disable Bypass F1 Prompt on Configuration Changes - Enable/disable
	BIOS Power-On - Allows you to set the computer to turn on at a preset time.
	Onboard Devices - Allows you to set: <ul style="list-style-type: none"> resources or disable Legacy devices serial port voltage settings - set to 0V, +5V, +12V
	Bus Options (some models) - Allows you to enable/disable PCI SERR# Generation and PCI VGA palette snooping.
	Device Options - Allows you to set: <ul style="list-style-type: none"> Turbo Mode - enable/disable Num Lock State at Power-on - off/on Internal Speaker - enable/disable Integrated Video - enable/disable USB EHCI Port Debug - enable/disable Multi-Processor - enable/disable System Health Timer TimeOut - enable/disable Cash Drawer Port - enable/disable
	VGA Configuration - Displayed only if there are multiple PCI video adapters in the system. Allows you to specify which VGA controller will be the "boot" or primary VGA controller.
	Management Operations - Allows you to set: <ul style="list-style-type: none"> AMT (disable/enable) Unconfigure AMT/ME (enable/disable) Hide Unconfigure ME Confirmation Prompt (enable/disable) Watchdog Timer (enable/disable)
	Option ROM Launch Policy - Allows you to set: <ul style="list-style-type: none"> PXE Option ROMs (UEFI Only/Do Not Launch) Storage Option ROMs (UEFI Only/Do Not Launch) Video Option ROMs (UEFI Only/Do Not Launch)
	Connected BIOS - Lets you configure a proxy server from which to get updates to the BIOS.
	Update BIOS via Network - Lets you update the BIOS over a network.
Ethernet Connection - provides information about the network connection.	

System board



System board connectors and jumpers (component location may vary)

CMOS	CMOS button	PWR	Power supply connector
BAT	RTC battery socket	SATA1	Secondary hard drive or optical drive if an eSATA adapter is present
CHFAN	Chassis fan connector	POWER COMB	Powered serial port connector
XU1	Processor socket	IN/OUT	External audio in/out connectors
CLINK	C-link connector	PS2	PS2 keyboard/mouse connectors
PWRCPU	Power supply connector	PAR	Parallel port connector
DIMM4	Memory socket - Channel B	VGA/COMA	Display and serial port connectors
DIMM3	Memory socket - Channel A	MEDIA	12V USB connector
DIMM2	Memory socket - Channel B	USB	USB 2.0 ports (3)
DIMM1	Memory socket - Channel A	MEDIA2	12V USB connector
PB/LED	Power button assembly connector	RJ45/USB	Network jack and USB 3.0 connectors (2)
SPKR	Speaker connector	HSENSE	Hood sensor connector
FRONT USB	Front I/O panel connector	DISPLAYPORT	External DisplayPort connectors
ESATA	eSATA/optical drive connector	RISER	Riser card slot
SATA PWR0	Hard drive power connector	DISPLAYPORT	Internal HP DisplayPort expansion card slot
PSWD	Password header	X16PCIEXP	PCIe x16 expansion slot
SATA0	Primary hard drive data connector	X4PCIEXP	PCIe x16 expansion slot (downshifted to x4)
PWDCMD	Power supply connector		