


Illustrated Parts & Service Map

HP ProDesk 405 G1 Microtower



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Document Number 742430-001. 1st Edition November 2013.



Key Specifications

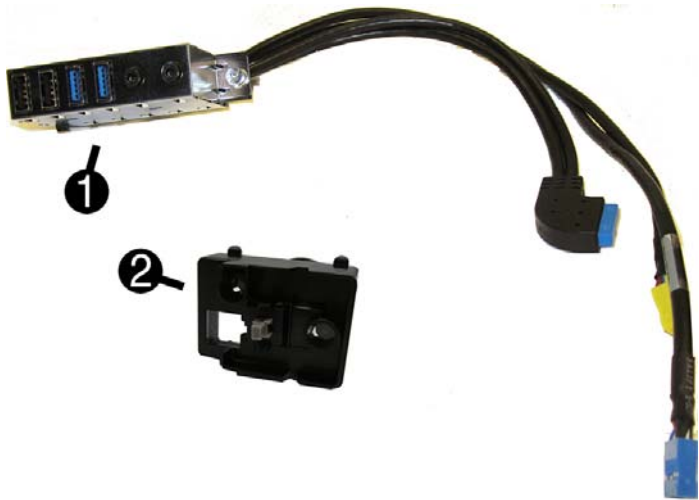
Processor Type	AMD Quad-Core A6-5200 and A4-5000, AMD Dual-Core E1-2500 Processors with AMD Radeon™ HD Graphics
RAM Type	1600 MHz DDR3 SDRAM
Maximum RAM	16 GB (2 slots)
Expansion Slots	<ul style="list-style-type: none">(1) PCI Express x16 graphics connectors(3) PCI Express x1 accessory connectors
Internal Storage	Up to 2 TB SATA hard drive Up to 1 TB solid state hybrid drive Up to 256 GB self-encrypting solid state drive Up to 128 GB solid state drive
Removable Storage	<ul style="list-style-type: none">DVD-ROM driveSuperMulti DVD driveBDXL Blu-ray Writer driveMedia Card Reader
Graphics Adapter	AMD Radeon HD Graphics (integrated on processor), AMD Radeon HD 8240, 8330 or 8400 Graphics depending on processor; Optional discrete graphics
I/O Interfaces	Front: (2) USB 2.0 ports; (2) USB 3.0 ports microphone; head-phone Rear: (4) USB 2.0 ports; (1) VGA video port; (1) DVI-D video port; (1) RJ-45 network connector; (1) RS-232 serial port; (1) RS-232 serial (optional 2nd port); LPT port; 3.5mm audio in/out jacks; PS/2 keyboard and mouse ports
Preinstalled Operating Systems	<ul style="list-style-type: none">Windows 8.1Windows 7Novell SUSE Linux Enterprise Desktop 11FreeDOS 2.0

Spare Parts



System Unit		
1	Front bezel for use in all countries and regions except for the People's Republic of China	745047-001
*	Front bezel for use in the People's Republic of China	745048-001
2	Access panel	745046-001
3	Power supply, 300W, Energy Star 5.0	712298-001
*	Power supply, 300W, Energy Star 6.0	748824-001
*	Power supply, 300W, active PFC	715184-001
*	Power supply, 300W, regular	715185-001
*	5.25-inch bezel blank	745036-001

* Not shown



Cables		
1	Front I/O assembly	745049-001
2	Power switch/LED assembly	745050-001
*	SATA data cable, 14 inch, 2 straight ends	745051-001
*	DMS-59 to dual VGA cable	463023-001
*	DMS-59 to dual DVI cable	463024-001
*	Adapter, DisplayPort to VGA	632484-001
*	Adapter, DisplayPort to DVI	662723-001
*	Adapter, DisplayPort to HDMI	617450-001
*	Adapter, DVI to VGA	657401-001
*	Adapter, DVI-I to VGA (BFR/PVC free)	720216-001
*	Adapter, DVI-I to VGA (standard)	202997-001
*	DisplayPort cable	487562-001

*Not shown

Keyboards (not illustrated)			
PS/2		724718-xx1	
USB		724720-xx1	
USB, unbranded Katydid*		729339-xx1	
Smart card, CCID		701671-001	
Wireless kit (keyboard, mouse, dongle)		730323-xx1	
Washable**		700510-xx1	
Arabic	-17x	LA Spanish	-16x
Belgian	-18x	Norwegian	-09x
Brazilian Portuguese	-20x	People's Republic of China	-AAx
Bulgaria	-26x	Portuguese	-13x
Czech	-22x	Romanian	-27x
Danish	-08x	Russian	-25x
Finnish	-35x	Saudi Arabia	-DEx
French	-05x	Slovakian	-23x
French Canadian	-12x	South Korea	-KDx
German	-04x	Spanish	-07x
Greek	-15x	Swedish	-10x
Hebrew	-BBx	Swiss	-11x
Hungarian	-21x	Taiwanese	-ABx
International	-37x	Thai	-28x
International English	-L3x	Turkish	-14x
Italian	-06x	U.S.	-00x
Japanese	-29x	U.K.	-03x

*-001, -161, -201, -281, -291, -AA1, -AB1only

** -001, -121, -161, -201 only

Mass Storage Devices (not illustrated)	
DVD-ROM drive	682550-001
DVD±RW drive	690418-001
Blu-ray BD-RW SuperMulti XL Drive	682219-001
2 TB, 7200 rpm hard drive, 3.5 inch	747993-001
1 TB, hybrid SSD, 2.5-inch hard drive	724937-001
1 TB, 7200 rpm hard drive, 3.5 inch	747992-001
500 GB hard drive, hybrid SSD, 2.5-inch hard drive	724938-001
500 GB, 7200 rpm hard drive, 3.5-inch	747991-001
256 GB Solid State Drive (SSD), self-encrypting (SED)	680020-001
128 GB Solid State Drive (SSD)	665961-001

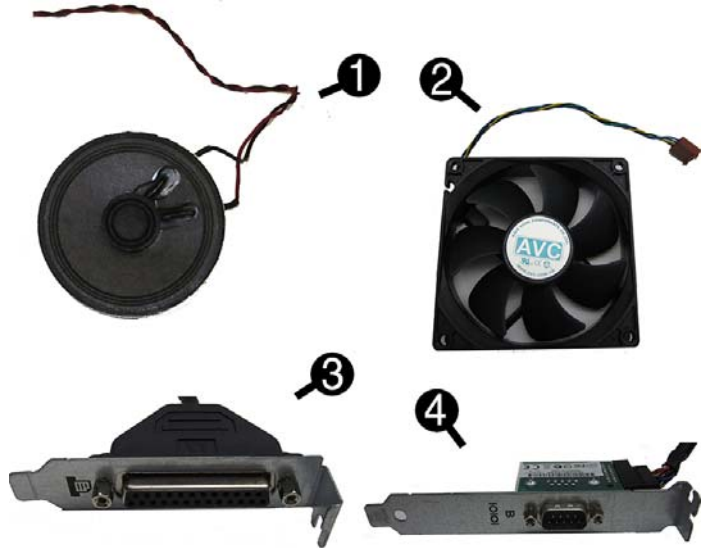
Standard and Optional Boards

System boards (includes AMD E1-2500 processor; includes replacement thermal material)		
*	Models without Windows 8	729725-001
*	Windows 8 Standard models	729725-501
*	Windows 8 Professional models	729725-601
*	NetClone models (China only)	745242-001
System boards (includes AMD A4-5000 processor; includes replacement thermal material)		
*	Models without Windows 8	729726-001
*	Windows 8 Standard models	729726-501
*	Windows 8 Professional models	729726-601
*	NetClone models (China only)	745241-001
System boards (includes AMD A6-5200 processor; includes replacement thermal material)		
*	Models without Windows 8	736168-001
*	Windows 8 Standard models	736168-501
*	Windows 8 Professional models	736168-601
*	NetClone models (China only)	745243-001
Memory modules (PC3-12800, CL11)		
*	8-GB	689375-001
*	4-GB	671613-001
*	2-GB	671612-001
Other boards		
*	Nvidia NVS315 PCIe x16 graphics card, 1 GB	720837-001
*	Nvidia NVS310 PCIe x16 graphics card, 512 MB	707252-001
*	AMD Radeon HD8490 DP PCIe x16 graphics card, 1 GB	717219-001
*	AMD Radeon HD8470 PCIe x16 graphics card, 2 GB (China only)	729085-001
*	AMD Radeon HD8350 DH PCIe x16 graphics card, 1 GB DDR3	717220-001
*	AMD Radeon HD8350 PCIe x16 graphics card, 1 GB DDR3 (China only)	729084-001
*	Nvidia GeForce GT630 DP PCIe x16 graphics card, 2 GB	702084-001
*	Intel PRO/1000 single port GbE NIC, includes bracket	728562-001
*	Intel Dual Band Wireless-N 7260 802.11 a/b/g/n (2x2) Wireless NIC	745668-001

* Not shown

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.
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-Keybaord error	Keyboard failure.	Check keyboard connection or keys. Check connector for bent of 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. Use F2 Diagnostics to run DPS Self-test. 2. Apply hard drive firmware patch if applicable. 3. Back up contents and replace hard drive.



Miscellaneous Parts

1	Speaker	745053-001
2	Fan	745052-001
3	Parallel port, PCI card	638817-001
4	Serial port, PCI card	638815-001
*	Fan, BFR/PVC free	748825-001
*	Card reader, 14-in-1, USB 3.0, 3.5-inch	716390-001
*	Adapter, USB 3.0 to 2.0	736835-001
*	HP Ultralim Keyed Cable Lock	703372-001
*	Adapter, 2.5-inch hard drive	586721-001
*	Hard drive grommet for use on 3.5-inch drives	450712-001
*	Hard drive carrier, 2.5-inch to 3.5-inch	703597-001
*	Hard drive adapter bracket, 2.5-in or 3.5-in hard drive in 5.25-in bay	397117-001
*	WLAN antennas	583345-001
*	Mouse, PS2, optical	674315-001
*	Mouse, USB, HP Elite	674318-001
*	Mouse, washable	724795-001
*	Mouse, USB, optical	674316-001
*	Mouse, USB, Portia	719901-001

*Not shown

Diagnostic LEDs

LED	Color	LED Activity	State/Message
Power	White	On	Computer on
Power	White	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 over-load)
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	11 blinks, 1 blink every second followed by a 2 second pause	Current processor does not support a feature previously enabled.
none	none	System does not power on and LEDs are not flashing	System unable to power on

System Setup and Boot

Access the Setup Utility during computer boot by pressing the **F10** key. If you do not press **F10** at the appropriate time, you must restart the computer and again press **F10** when the monitor light turns green. NOTE: Not all settings are available for all models.

Computer Setup Menu	
Heading	Option/Description
File	System Information - Lists the following main system specifications: <ul style="list-style-type: none">Product nameManufacturerSKU number (some models)Processor type/speedInstalled memory size/speed/chChassis serial numberAsset tracking numberBorn on dateSystem BIOS
	About - Displays copyright notice.
	Set Time and Date - Allows you to set system time and date.
	Default Setup - Allows you to save current settings as default or 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	Device Configuration - Lists all installed BIOS-controlled storage devices. The following options may display depending on configuration: <ul style="list-style-type: none">CD-ROMHard DiskSMART (ATA disks only)Diskette
	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 or IDE.
	Boot Order - Specify boot order for UEFI and legacy boot sources. Also specify hard drive boot order. <ul style="list-style-type: none">Shortcut to Temporarily Override Boot Order
Security	Setup Password - Set and enable the setup (Admin) password.
	Power-On Password - Set and enable power-on password.
	Device Security - Set Device Available/Device Hidden for: embedded security device, system audio, network controller, USB controller, and SATA ports.
	USB Security - Set Device Available/Device Hidden for front USB ports, rear USB ports, accessory USB ports.
	Slot Security - Disable the PCI and PCIe slots.
	Network Boot - Enables/disables boot from OS (NIC models only).
	System IDs - Allows you to update asset tag, ownership tag, UUID, keyboard locale setting.
	System Security - Allows you to set: <ul style="list-style-type: none">Data Execution Prevention (enable/disable)Virtualization Technology (enable/disable)Embedded Security Device (enable/disable)
	Secure Boot Configuration (Windows 8 only) <ul style="list-style-type: none">Legacy Support (enable/disable)Secure Boot (enable/disable).Key Management<ul style="list-style-type: none">Clear Secure Boot Keys (Don't clear/Clear)Key Ownership (HP Keys/Custom keys)Fast Boot (enable/disable)
Power	Hardware Power Management - Enable/disable S5 maximum power savings, S5 Wake-on LAN.
	Thermal - Control minimum fan speed.
Advanced	Power-On Options - Allows you to set: <ul style="list-style-type: none">POST messages (enable/disable)After Power Loss (off/on/previous state)POST Delay (none, 5, 10, 15, 20, or 60 seconds)
	BIOS Power-On - Set the computer to turn on at a preset time.
	Bus Options - Allows you to enable/disable PCI SERR# Generation and PCI VGA palette snooping.
	Onboard Devices - Allows you to set resources for or disable on-board system devices.
	Device Options - Allows you to set: <ul style="list-style-type: none">Printer mode (Bi-Directional, EPP + ECP, Output Only)Num Lock State at Power-on (off/on)Internal Speaker (enable/disable)NIC PXE Option ROM Download (enable/disable)
	Option ROM Launch Policy - lets you set the launch policy for option ROMs.

Password Security

Establishing a Setup or Power-On password:

- Turn on or restart the computer.
- 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.
- Press the **F10** key to enter Computer Setup.
- 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
- Before exiting, click **File > Save Changes and Exit**.

Changing a Setup or Power-On password:

- Turn on or restart the computer.

To change the Setup password, go to step 2.
To change the Power-on password, go to step 3.
- To change the Setup password, as soon as the computer turns on:
 - Press the **Esc** key while “Press the ESC key for Startup Menu” message is displayed.
 - Press the **F10** key to enter Computer Setup.
- When the key icon appears, type your current password, a slash (/) or alternate delimiter character, your new password, another slash (/) or alternate delimiter character, and your new password again as shown:
current password/new password/new password.
NOTE: Type the new password carefully since the characters do not appear on the screen.
- Press **Enter**.

The new password will take effect the next time the computer is restarted.

Deleting a Power-On or Setup password

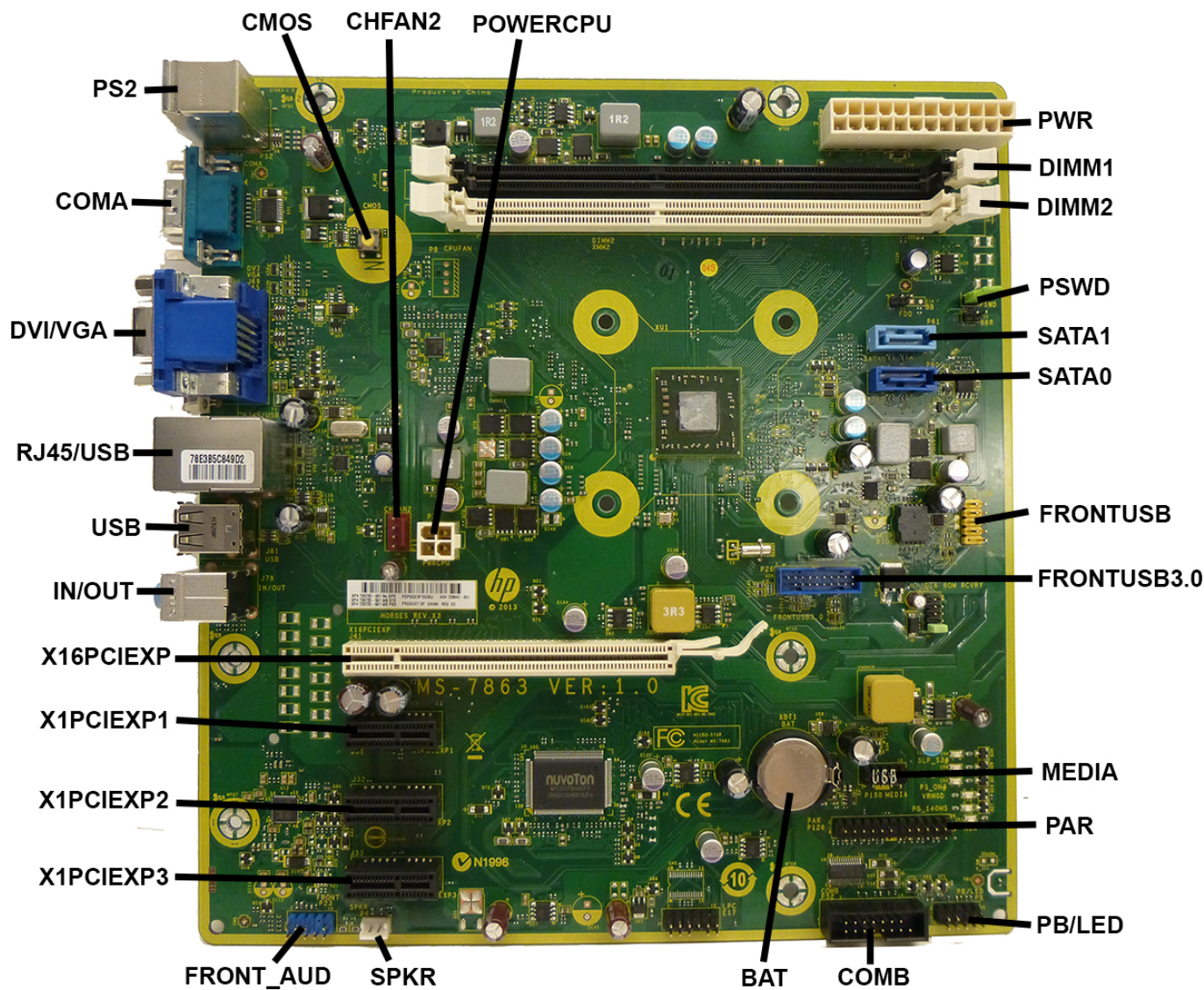
- Turn on or restart the computer.

To delete the Setup password, go to step 2.
To delete the Power-On password, go to step 3.
- To change the Setup password, as soon as the computer turns on:
 - Press the **Esc** key while “Press the ESC key for Startup Menu” message is displayed.
 - Press the **F10** key to enter Computer Setup.
- When the key icon appears, type your current password followed by a slash (/) or alternate delimiter character as shown. Example: currentpassword/
- Press **Enter**.

Clearing CMOS

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

System Board



System Board Connectors and Jumpers (component location may vary)

CMOS	CMOS header	COMB	Optional serial port connector
CHFAN2	System fan connector	BAT	RTC battery socket
PWRCPU	CPU power connector	SPKR	Speaker connector
PWR	Main power connector	FRONT_AUD	Front panel connector
DIMM1	Memory socket	X1PCIEXP3	PCI Express x1 slot
DIMM2	Memory socket	X1PCIEXP2	PCI Express x1 slot
PSWD	Password header	X1PCIEXP1	PCI Express x1 slot
SATA1	Secondary hard drive or optical drive	X16PCIEXP	PCI Express x16 slot
SATA0	Primary hard drive	IN/OUT	Audio connectors
FRONTUSB	1st USB connector	USB	USB connectors
FRONT USB 3.0	Front USB 3.0 port connector	RJ45/USB	Network/USB connectors
MEDIA	USB 2.0 device, such as a media card reader	DVI/VGA	Display connector/DVI connector
PAR	Parallel port connector	COMA	Serial port connector
PB/LED	Power switch connector	PS2	PS/2 keyboard/mouse connectors