

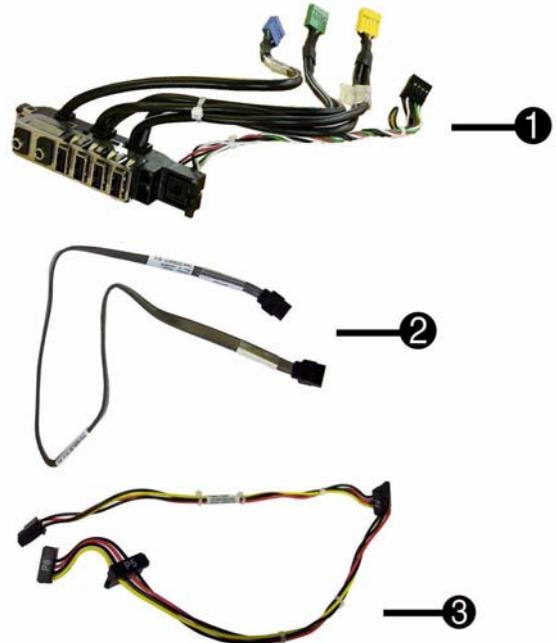
Illustrated Parts & Service Map

HP Compaq 8000 Elite Small Form Factor Business PC



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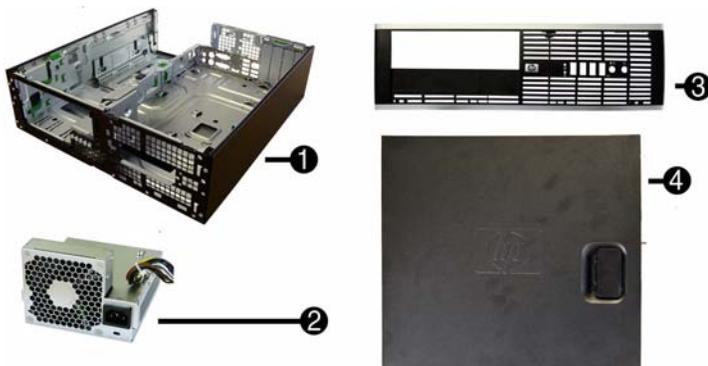
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Key Specifications

Processor Type	Intel® Celeron, Pentium Dual-Core, Core 2, Core2 Duo, Core2 Quad
RAM Type	DDR3-SDRAM DIMMs, PC3-10600 (1333 MHz) non-ECC
Maximum RAM Supported	16 GB
Expansion Slots	<ul style="list-style-type: none"> (1) PCIe-x16 (low profile) (2) PCIe-x1 (low profile) (1) PCI (low profile)
Chipset	Intel Q45 Express
Graphics Adapter	Integrated Intel GMA 4500 graphics
Bays	<ul style="list-style-type: none"> (1) external 5.25-inch (1) external 3.5-inch (1) internal 3.5-inch
I/O Interfaces	Front: (4) USB, microphone, headphone Rear: (6) USB, PS/2 keyboard and mouse, line in, line out, VGA, DisplayPort, RJ-45, (1) serial port
Operating Systems	<ul style="list-style-type: none"> Windows® Vista Windows 7 Windows XP FreeDos

Spare Parts



System Unit

1	Chassis	Not spared
2	Power supply, 240W	508151-001
*	Power supply, 240W, 89% efficient	508152-001
3	Front bezel	581353-001
4	Access panel	581356-001
*	Bezel blank, Jack Black	570838-001

* Not shown

Cables

1	Front I/O cable assembly	581351-001
2	19-inch SATA cable	391739-001
3	SATA power cable	581355-001
*	SATA ODD cable, 25 inch, 1 straight, 1 angled end	461535-001
*	Adapter, DVI-I to VGA	202997-001
*	Adapter, Display Port (DP) to DVI	484156-001
*	Adapter, Display Port (DP) to VGA	484155-001
*	Modem RJ-11 cable	198220-001

Keyboards (not illustrated)

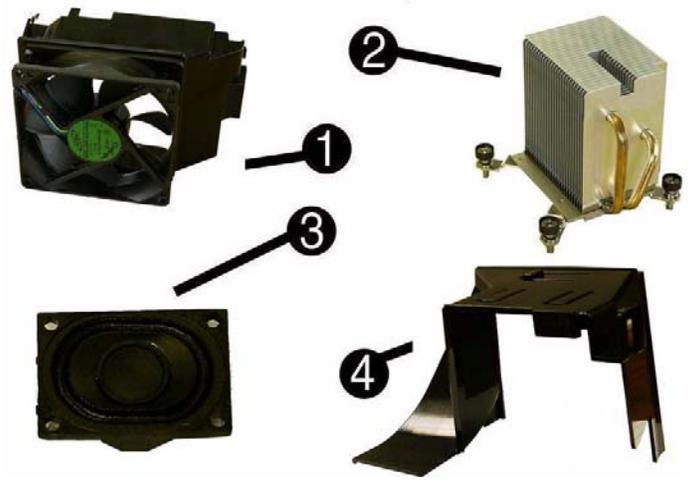
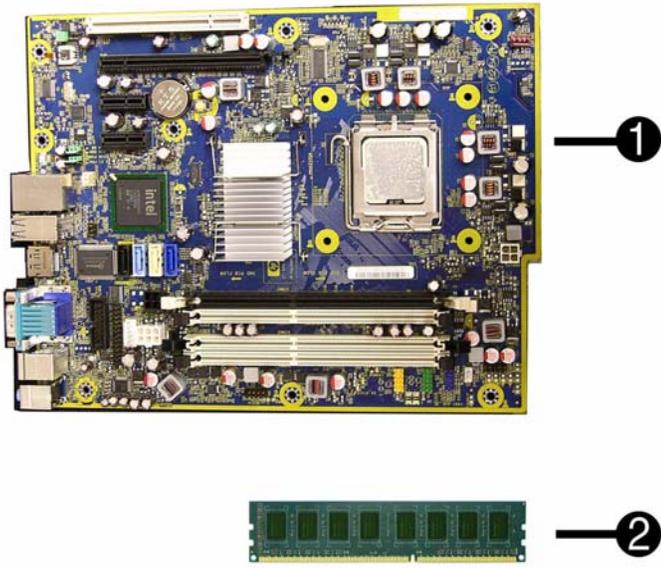
PS/2, Basic	537745-xxx		
USB, Basic	537746-xxx		
USB SmartCard	537747-xxx		
USB Mini[b]	535873-xxx		
Washable[b]	577495-xxx		
Arabic[a]	-171	LA Spanish	-161
Belgian[c]	-181	Norwegian	-091
BHCSY[c]	-B41	People's Republic of China	-AA1
BHCSY[d]	-BL1	Portuguese	-131
Brazilian Portuguese	-201	Romanian[c]	-271
Czech	-221	Russian	-251
Danish	-081	Saudi Arabia	-DE1
Finnish	-351	Slovakian	-231
French	-051	South Korea	-KD1
French Canadian	-121	Spanish	-071
German	-041	Swedish	-101
Greek	-151	Swiss	-111
Hebrew	-BB1	Taiwanese	-AB1
Hungarian	-211	Thai	-281
International[a]	-B31	Turkish	-141
International English	-L31	U.S.	-001
Italian	-061	U.K.	-031
Japanese	-291		

[a] not for 537745
[b] only for -001, -121

[c] not for 537747
[d] only for 537747

Mass Storage Devices (not illustrated)

16X SATA DVD±RW drive with LightScribe	581059-001
16X SATA DVD-ROM drive	581058-001
Blu-ray ROM DVD+-RW SuperMulti DL Drive	581601-001
1 TB (10000 GB) SATA hard drive	585465-001
500 GB SATA hard drive, 3.5-inch	504339-001
320 GB USB hard drive	591387-001
250 GB SATA hard drive, 3.5-inch	504337-001
160 GB, 10000-RPM SATA hard drive, 2.5-inch with adapter	508312-001
160 GB SATA hard drive	504336-001
64 GB Solid State Drive (SSD)	581057-001



Standard and Optional Boards

System boards with thermal grease, alcohol pad, and CPU socket cover

1	System board	536884-001
*	System board, excludes ES/CS	593216-001

Memory modules (PC3-10600, CL9)

2	1 GB	576109-001
*	2 GB	576110-001
*	4 GB	585157-001

Other boards

*	Saffron WLAN 802.11a/b/g for use world-wide, includes bracket	538048-001
*	Modem, PCIe, 56K, Agere International 56K, includes bracket	490689-001
*	ATI HD4550 (RV710), 256-MB PCIeX16 graphics card	538051-001
*	GeForce GT310 512-MB PCIeX16 graphics card	572029-001
*	nVidia Quadro NVS295 256-MB PCIe graphics card	578226-001
*	nVidia Quadro NVS290 256-MB graphics card, low profile, includes brkt	456137-001
*	Broadcom NetXtreme Gbit Ethernet Plus NIC	488293-001
*	Video card, SDVO, ADD2, DVI-D, includes bracket	398333-001
*	Intel Gigabit NIC, includes bracket	490367-001

Intel Celeron Processors with alcohol pad and thermal grease

*	450, 2.2 GHz, 512-KB cache, single core	508256-001
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Intel Pentium Dual Core Processors with alcohol pad and thermal grease

*	E5400, 2.7 GHz, 2-MB L2 cache	586743-001
*	E3300, 2.5 GHz, 1-MB L2 cache	585886-001
*	E3200, 2.5 GHz, 1-MB L2 cache	585885-001

Intel Core 2 Quad Processors with alcohol pad and thermal grease

*	Q9650, 3.00 GHz, 12-MB L2 cache	497734-001
*	Q9550, 2.83 GHz, 12-MB L2 cache	465758-001
*	Q9550S, 2.83 GHz, 12-MB L2 cache	593228-001
*	Q9505S, 2.83 GHz, 6-MB L2 cache (65W)	593229-001
*	Q9505, 2.83 GHz, 6-MB L2 cache (95W)	591607-001
*	Q8400, 2.66 GHz, 4-MB L2 cache	573955-001
*	Q8400S, 2.66 GHz, 4-MB L2 cache	593227-001

Intel Core 2 Duo Processors with alcohol pad and thermal grease

*	E8600, 3.33 GHz, 6-MB L2 cache	497732-001
*	E8500, 3.16 GHz, 6-MB L2 cache	466170-001
*	E8400, 3.00 GHz, 6-MB L2 cache	509554-001
*	E7600, 3.06 GHz, 3-MB L2 cache	573954-001
*	E7500, 2.93 GHz, 3-MB L2 cache	583006-001
*	E6500, 2.93 GHz, 2-MB L2 cache	586748-001
*	E6300, 2.80 GHz, 2-MB L2 cache	580748-001
*	E5300, 2.60 GHz, 2-MB L2 cache	516900-001

* Not shown

Miscellaneous Parts

1	Chassis fan assembly	581352-001
2	Heatsink with alcohol pad and factory-applied thermal grease	581354-001
3	Internal speaker	394779-001
4	Fan baffle	583652-001
*	Rubber feet kit	583654-001
*	Chassis stand	587451-001
*	Solenoid lock assembly	586752-001
*	2nd serial port	392414-001
*	Card reader, 22-in-1	480032-001
*	Hood sensor	392417-001
*	USB powered speakers	571536-001
*	Mouse, PS2, optical, jack black	537748-001
*	Mouse, optical, jack black	537749-001
*	Mouse, laser, jack black	570580-001
*	Printer port	497727-001

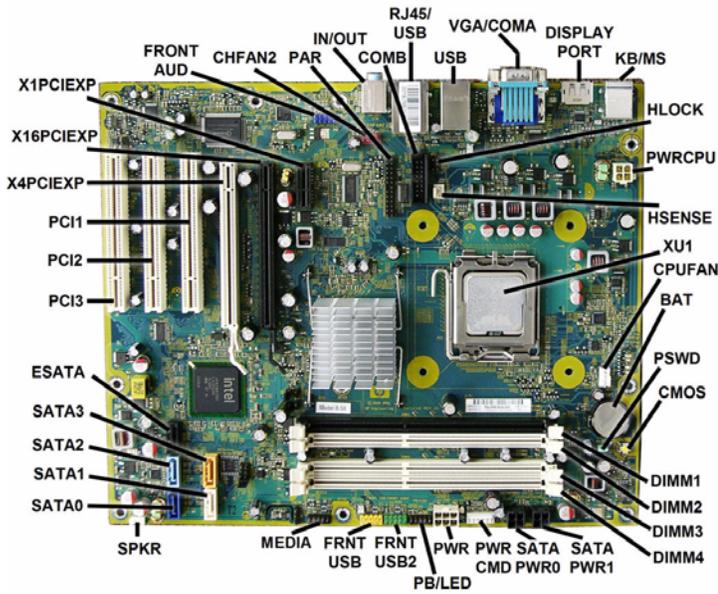
*Not shown

LP = Low profile

Modem RJ-11 adapters (not illustrated)

Austrian	417561-011	Italian	316904-065
Belgian	316904-181	Netherlands	316920-335
Czechoslovakian	234963-221	Polish	316904-241
French	316904-051	Saudi Arabian	316904-AR1
German	316904-045	Scandinavian	382848-DH1
Greek	316904-151	Swiss	417562-111
Hungarian	234963-215	Turkish	316904-141
Israel	316904-BB1	United Kingdom	158593-035

System Board



System Board Connectors and Jumpers (component location may vary)

FRNT AUD	Front panel connector	SATA PWR0	Optical drive power connector
CHFAN2	System fan connector	PWR CMD	Power connector
PAR	Parallel port connector	PWR	Main power connector
IN/OUT	Double stack audio connector	PB/LED	Power switch connector
COMB	2nd media reader connector	FRNT_USB2	2nd USB connector
RJ45/USB	Stacked RJ-45/USB connectors	FRNT_USB	1st USB connector
USB	USB connector	MEDIA	Media card reader connector
VGA/COMA	Stacked VGA/serial connector	SPKR	Speaker connector
DISPLAY-PORT	DisplayPort connector	SATA1	Primary SATA hard drive
KB/MS	PS/2 connectors	SATA2	1st SATA optical drive
HLOCK	Hood lock connector	SATA3	2nd SATA optical drive
PWRCPU	CPU power connector	SATA4	2nd SATA hard drive
HSENSE	Hood sensor connector	ESATA	Internal eSATA connector
XU1	Processor socket	PCI3	PCI slot 3
CPUFAN	CPU/heat sink fan connector	PCI2	PCI slot 2
BAT	Battery socket	PCI1	PCI slot 1
PSWD	Password header	X4PCEXP	PCIe X16, slot 1
CMOS	CMOS header	X16PCIEXP	PCIe X16, slot 2
DIMM1-4	Memory sockets	X1PCIEXP	PCIe X1 slot
SATA PWR1	Hard drive power connector		

System Setup and Boot

Basic system information regarding system information, setup, power management, hardware, and passwords is maintained in the Setup Utility held in the system ROM. The Setup Utility is accessed by pressing the F10 key when prompted (on screen) to do so during the boot sequence. If the screen prompt opportunity is missed, a restart will be necessary. For more information about Setup Utilities refer to the *Service Reference Guide*.

Computer Setup Menu

Heading	Option/Description
File	System Information - Lists the following main system specifications: <ul style="list-style-type: none"> Product name SKU number (some models) Processor type/speed/stepping Cache size (L1/L2) Installed memory size/speed/channels Integrated MAC Address System BIOS Chassis serial number Asset tracking number ME firmware version Management node
	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 Rmv Media and Restore from Rmv 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.
Storage	Device Configuration - Lists all installed BIOS-controlled storage devices. The following options are available: <ul style="list-style-type: none"> CD-ROM Hard Disk Default Values SATA Defaults Translation Mode Removable Media Boot eSATA Port Max eSATA Speed SATA Emulation
	DPS Self-Test - Allows you to execute self-tests on ATA hard drives.
	Boot Order - Allows you to specify boot order. <ul style="list-style-type: none"> Shortcut to Temporarily Override Boot Order

Computer Setup Menu (Continued)

Heading	Option / Description
Security	Setup Password - Allows you to set and enable the setup (Administrator) 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 network server mode, specify password requirement for warm boot, and allows you to enable/disable Setup Browse Mode.
	Smart Cover (some models) - Allows you to lock/unlock cover lock and set status of cover removal sensor.
	Device Security (some models) - Enables/disables all I/O ports, audio, network controllers, SMBus controller, SATA ports, eSATA, and embedded security devices.
	USB Security - Allows you to set Device Available/Device Hidden for front USB ports 3-6, rear USB ports 7-12, internal USB ports 1-2.
	Slot Security - Allows you to disable any PCI or PCI Express slot.
	Network Service Boot - Enables/disables boot from OS on a server.
	System IDs - Allows you to set Asset tag, Ownership tag, Chassis serial number, UUID, and keyboard locale setting.
	DriveLock Security - Allows you to assign/modify a hard drive password for added security.
	System Security (some models) - Allows you to enable/disable: <ul style="list-style-type: none"> Data Execution Prevention PAVP (Protect Audio Video Path) (some models) Virtualization Technology Virtualization Technology Directed I/O Trusted Execution Technology Embedded Security Device Support OS management of Embedded Security Device through OS
Power	Master Boot Record Security - Protects the master boot record from viruses or other corruption. Saves of copy of the current master boot record.
	Setup Security Level - Provides method to allow users limited access to change specified setup options without knowing Setup password.
	OS Power Management - Allows you to enable/disable Runtime Power Management, Idle Power Savings, ACPI S3 Hard Disk Reset, ACPI S3 PS2 Mouse Wakeup, USB Wake on Device Insertion (some models), Unique Sleep State Blink Rates.
Advanced	Hardware Power Management - Allows you to enable/disable SATA bus power management and S5 maximum power savings.
	Thermal - Allows you to control minimum permitted fan idle 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 F9 prompt - Enable/disable F10 prompt - Enable/disable F12 prompt - Enable/disable Factory Recovery Boot Support - Enable/disable Option ROM prompt - Enable/disable Remote wakeup boot source - Remote server/local hard drive After Power Loss - Off/on/previous state POST delay - None, 5, 10, 15, or 20 seconds Bypass F1 Prompt on Configuration Changes - Enable/disable
	Execute Memory Test (some models) - Restarts computer and executes POST memory test.
	BIOS Power-On - Allows you to set the computer to turn on at a preset time.
	Onboard Devices - Allows you to set resources or disable onboard system devices.
	PCI Devices - Lists installed PCI devices with their IRQ settings and allows you to reconfigure IRQ or disable devices.
	PCI VGA Configuration - Allows you to specify which VGA controller will be used when multiple video adapters are available.
	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"> Printer Mode - Bi-Directional, EPP & ECP, Output Only Num Lock state at power-on - off/on S5 Wake on LAN - enable/disable Multi-Processor - enable/disable Internal speaker - enable/disable Monitor Tracking - enable/disable NIC PXE Option ROM Download - enable/disable
	Management Devices - Only displayed in Advanced menu when BIOS detects multiple management options.
	Management Operations - Allows you to set: <ul style="list-style-type: none"> MEBx Setup Prompt - enable/disable Intel Remote PC Assist Prompt - enable/disable Intel PC Assist Timeout - 5, 10, 15, 20, 30, 40, 50, 60, 120, 180, 240 seconds SOL Character Echo - enable/disable SOL Terminal Emulation Mode - enable/disable SOL Keyboard - enable/disable Unprovision AMT on next boot

Password Security

Establishing a Setup or Power-On password:

1. Turn on or restart the computer. If you are in Windows, click **Start > Shut Down > Restart**.
2. As soon as the computer is turned on, press **F10** when the monitor light turns green to enter Computer Setup. Press **Enter** to bypass the title screen, if necessary. If you do not press **F10** when prompted, a restart will be necessary.
3. To establish a Setup password, select **Security > Setup Password** and follow the instructions on the screen.
- or -
To establish a Power-On password, select **Security > Power-On Password** and follow the instructions on the screen.
4. Before exiting, click **File > Save Changes and Exit**.

Changing a Setup or Power-On password:

1. Turn on or restart the computer. If you are in Windows, click **Start > Shut Down > Restart**. To change the Setup password, go to step 2.
To change the Power-on password, go to step 3.
2. To change the Setup password, as soon as the computer is turned on, press **F10** when the monitor light turns green to enter Computer Setup. Press **Enter** to bypass the title screen, if necessary.
3. 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.

4. Press **Enter**.

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

Deleting a Power-On or Setup password

1. Turn on or restart the computer. If you are in Windows, click **Start > Shut Down > Restart**. To delete the Setup password, go to step 2.
To delete the Power-On password, go to step 3.
2. To change the Setup password, as soon as the computer is turned on, press **F10** when the monitor light turns green to enter Computer Setup. Press **Enter** to bypass the title screen, if necessary.
3. When the key icon appears, type your current password followed by a slash (/) or alternate delimiter character as shown. Example: **currentpassword/**
4. Press **Enter**.

Hewlett-Packard Vision Diagnostics

The Hewlett-Packard Vision Diagnostics utility allows you to view information about the hardware configuration of the computer and perform hardware diagnostic tests on the subsystems of the computer. The utility simplifies the process of effectively identifying, diagnosing, and isolating hardware issues.

Use HP Vision Diagnostics to determine if all the devices installed on the computer are recognized by the system and functioning properly. Running tests is optional but recommended after installing or connecting a new device.

To access HP Vision Diagnostics, you must create a Recovery Disc Set then boot to the CD containing the utility. It can also be downloaded from <http://www.hp.com> and either burned to CD or installed to a USB flash drive.

1. In Windows Explorer, go to **C:\SWSetup\ISOs** and burn the file **Vision Diagnostics.ISO** to a CD or copy it to a USB flash drive.
2. While the computer is on, insert the CD in the Optical Drive or USB flash drive in a USB port on the computer.
3. Shut down the operating system and turn off the computer.
4. Turn on the computer. The system will boot into HP Vision Diagnostics.
NOTE: If the system does not boot to the CD in the optical drive or to the USB flash drive, you may need to change the boot order in the Computer Setup (F10) utility.
5. At the boot menu, select either the **HP Vision Diagnostics** utility to test the various hardware components in the computer or the **HP Memory Test** utility to test memory only.
NOTE: The HP Memory Test is a comprehensive memory diagnostic utility that is run as a stand-alone application, outside of HP Vision Diagnostics.
6. If running **HP Vision Diagnostics**, select the appropriate language and click **Continue**.
7. In the End User License Agreement page, select **Agree** if you agree with the terms. The HP Vision Diagnostics utility launches with the Survey tab displayed.

Clearing CMOS

1. Turn off the computer and any external devices, and disconnect the power cord from the power outlet.
2. Remove the chassis 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	11 blinks, 1 blink every second followed by a 2 second pause	The current processor does not support a feature previously enabled on this system.
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.
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.
1796-SATA Cabling Error	One or more SATA devices are improperly attached. For optimal performance, the SATA 0 and SATA 1 connectors must be used before SATA 2 and SATA 3.	Ensure SATA connectors are used in ascending order. For one device, use SATA 0. For two devices, use SATA 0 and SATA 1. For three devices, use SATA 0, SATA1, and SATA 2.
1801-Microcode Patch Error	Processor not supported by ROM BIOS.	1. Upgrade BIOS to proper version. 2. Change the processor.