

Illustrated Parts & Service Map

HP Compaq 8100 and 8180 Elite Convertible Minitower Business PC



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Key Specifications

Processor Type	Intel® Core™ i7, i5, and i3; Intel Pentium
RAM Type	DDR3-SDRAM DIMMs, PC3-10600 (1333 MHz) non-ECC
Maximum RAM Supported	16 GB
Expansion Slots	<ul style="list-style-type: none"> (2) PCIe-x16 (1) PCIe-x1 (3) PCI
Chipset	Intel Q57 Express
Graphics Adapter	Integrated Intel Graphics Media Accelerator HD
Bays	<ul style="list-style-type: none"> (3) external 5.25-inch (3) external 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, serial port
Operating Systems	<ul style="list-style-type: none"> Windows® Vista Windows 7 Windows XP FreeDos

Spare Parts



System Unit

1	Access panel	594636-001
2	Front bezel for use in 8100 models	593221-001
3	Front bezel for use in 8180 models	608265-001
4	Chassis	not spared
5	Power supply, 325W, 89% efficient	508154-001
*	5.25-inch bezel blank, jack black	570838-001
*	Power supply, 325W	508153-001

*Not shown



Cables

1	Power switch/LED assembly	593218-001
2	Front USB, I/O assembly, power switch	593219-001
3	eSATA port assembly	497726-001
4	SATA cable, hard drive	593222-001
5	SATA cable, 17.7 inch, 2 straight ends	453317-001
*	Optical drive power cable	593223-001
*	SATA cable, 18 inch, 1 straight end, 1 angled end	393958-001
*	SATA cable, 24 inch	392308-001
*	DMS-59 to dual VGA cable	463023-001
*	DMS-59 to dual dongle	339527-001
*	Adapter, DVI to VGA	202997-001
*	Adapter, DisplayPort to VGA	603250-001
*	Adapter, DisplayPort to DVI	484156-001

*Not shown

Keyboards (not illustrated)

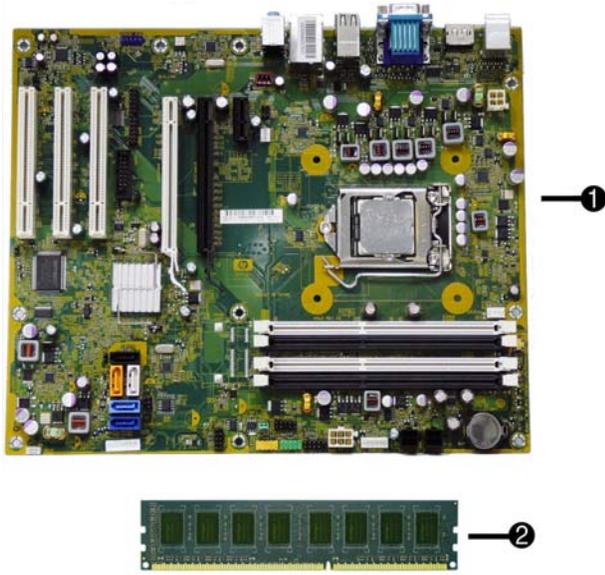
PS/2, Basic	537745-xxx		
USB, Basic	537746-xxx		
USB SmartCard	537747-xxx		
USB Mini[b]	535873-xxx		
Washable[b]	577495-xxx		
Arabic[a]	-171	LA Spanish	-161
Belgian[c]	-181	Norwegian	-091
BHCSY[c]	-B41	People's Republic of China	-AA1
BHCSY[d]	-BL1	Portuguese	-131
Brazilian Portuguese	-201	Romanian[c]	-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 and CD-RW drive with LightScribe	581600-001
16X SATA DVD-ROM drive	581599-001
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
320 GB SATA hard drive, 3.5-inch	504338-001
250 GB SATA hard drive	606179-001
250 GB USB hard drive	586383-001
160 GB, 10000-RPM SATA hard drive, 2.5-inch with adapter	508312-001
160 GB SATA hard drive	606178-001
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	531990-001
*	System board, excludes ES/CS	606174-001

Memory modules (PC3-10600, CL9)

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

Other boards

*	HP WLAN 802.11 b/g/n 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	584217-001
*	ATI HD4650 DP (RV730), 1-GB PCIeX16 graphics card	538052-001
*	GeForce 310 DP, 512-MB PCIeX16 graphics card	572029-001
*	nVidia Quadro NVS295, 256-MB PCIe graphics card	578226-001
*	nVidia Quadro NVS290, 256-MB graphics card, full-height	456137-001
*	Broadcom NetXtreme Gbit Ethernet Plus NIC	488293-001
*	Intel CT Gigabit NIC	490367-001
*	HP TV Tuner (North America) PCIe x1 Card	582725-001
*	HP FireWire / IEEE 1394a PCIe x1 Card, full height	515182-001

Intel Quad-Core processors (8-MB L3 cache)

*	Core i7-870, 2.93-GHz processor	586378-001
*	Core i7-860, 2.80-GHz processor	586377-001
*	Core i5-750, 2.66-GHz processor	586376-001
*	Core i5-750s, 2.40-GHz processor	606180-001

Intel Dual-Core processors (4-MB L3 cache)

*	Core i5-670, 3.46-GHz processor	604616-001
*	Core i5-660, 3.33-GHz processor	604615-001
*	Core i5-650, 3.20-GHz processor	604614-001
*	Core i3-540, 3.06-GHz processor	604613-001
*	Core i3-530, 2.93-GHz processor	604612-001

Intel Pentium processor (3-MB L3 cache)

*	Pentium G6950 2.80-GHz processor	604623-001
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* Not shown

Miscellaneous Parts

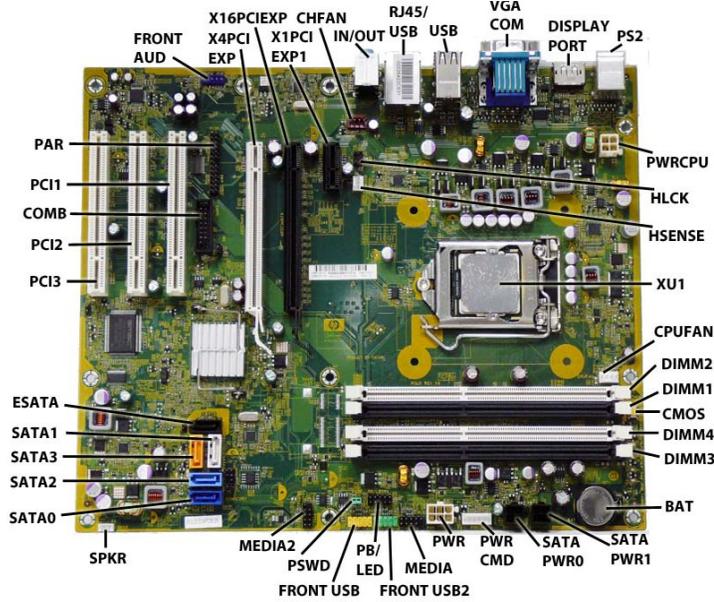
1	Fan, heat sink	593217-001
2	Speaker	392413-001
3	Chassis fan	593220-001
4	2nd serial port	392414-001
*	Card reader, 22-in-1	480032-001
*	Adapter, 5.25-inch to 3.25-inch, includes bezel	593226-001
*	Adapter, 2.5-inch	586721-001
*	Hood sensor	392417-001
*	Grommet, hard drive isolation	594220-001
*	Solenoid lock	392416-001
*	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
*	Modem cable	198220-001
*	Hard drive, removable carrier assembly	593224-001
*	Clamp lock, includes universal cable (plate not included)	508987-001
*	Foot kit	370708-001

*Not shown

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)

FRONT AUD	Front audio connector	BAT	Battery socket
X4PCIEXP	PCIe x4 connector	SATA PWR1	Hard drive power connector
X16PCIEXP	PCIe x16 connector	SATA PWR0	Optical drive power connector
X1PCIEXP1	PCIe x1 connector	PWRCMD	System power connector
CHFAN	Rear chassis fan connector	PWR	Main power
IN/OUT	Audio ports	MEDIA	Card reader connector
RJ45/USB	Network/USB ports	FRONT USB2	Internal USB connector
USB	USB ports	PB/LED	Front power button/LED connector
VGA COM	Monitor connector/serial port	FRONT USB	Internal USB connector
DISPLAY-PORT	DisplayPort connector	PSWD	Password jumper
PS2	Keyboard/mouse connectors	MEDIA2	External media device connector
PWRCPU	CPU power	SPKR	Speaker connector
HLCK	Solenoid hood lock connector	SATA0-SATA3	Drive connectors
HSENSE	Chassis intrusion switch	ESATA	eSATA drive connector
XU1	Processor socket	PCI1-PCI3	PCI connectors
CPUFAN	CPUFAN	COMB	Serial port connector
DIMM1-DIMM4	Memory sockets	PAR	Parallel connector
CMOS	Clear CMOS button		

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 Maintenance and Service 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.
	Save Changes and Exit - Saves changes to system configuration or default settings and exits Computer Setup.
	Storage
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, allows enable/disable Setup Browse Mode, allows enable/disable stringent password, allows enable/disable password prompt.
	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, 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 Smart card BIOS password support
	Master Boot Record Security - Protects the master boot record from viruses or other corruption. Saves off 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.
Power	OS Power Management - Allows you to enable/disable Runtime Power Management, Idle Power Savings, ACPI S3 Hard Disk Reset, ACPI S3 PS2, Unique Sleep State Blink Rates.
	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 - Hidden/displayed F10 prompt - Hidden/displayed F11 prompt - Hidden/displayed F12 prompt - Hidden/displayed 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 Multi-processor - Enable/disable Hyper-threading - Enable/disable POST delay - None, 5, 10, 15, or 20 seconds Limit CPUID Maximum Value to 3 - Enable/disable 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 - Displayed only if multiple PCI video adapters installed. Allows you to specify which VGA controller will be the boot or primary VGA controller.
	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 Internal speaker - enable/disable NIC Option ROM Download - enable/disable Turbo Mode - 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 Remote PC Assist Timeout - 5, 10, 15, 20, 30, 40, 50, 60, 120, 180, 240 seconds SOL Terminal Emulation Mode - enable/disable SOL Keyboard - enable/disable Unprovision AMT on next boot - allows reset of AMT settings

Password Security

This computer supports two security password features that are established through the Computer Setup Utilities menu: setup password and power-on password. When you establish only a setup password, any user can access all the information on the computer except Computer Setup. When you establish only a power-on password, the power-on password is required to access Computer Setup and any other information on the computer. When you establish both passwords, only the setup password will give you access to Computer Setup.

When both passwords are set, the setup password can also be used in place of the power-on password as an override to log in to the computer.

If you forget the password for the computer, you can clear that password so you can gain access to the information on the computer by resetting the password jumper.

Clearing and Resetting CMOS

The computer's configuration memory (CMOS) stores information about the computer's configuration. The CMOS button resets CMOS but does not clear the power-on and setup passwords. Clearing CMOS will clear the Active Management Technology (AMT) settings in the Management Engine BIOS Extension (MEBx), including the password. The password will default to "admin" and will need to be reset. The AMT settings will also need to be reset. To access the MEBx, press Ctrl+P during POST.

1. Turn off the computer and any external devices, and disconnect the power cord.
2. Disconnect the keyboard, monitor, and any other external equipment.
3. Remove the access panel.
4. Locate, press, and hold the CMOS button in for five seconds.
5. Replace the access panel.
6. Reconnect the external devices.
7. Plug in the computer and turn on power.

Clearing or Disabling a Power-On or Setup password

1. Shut down the operating system properly, then turn off the computer and any external devices, and disconnect the power cord.
2. With the power cord disconnected, press the power button again to drain any residual power.
3. Remove the access panel.
4. Locate the header and jumper. The password jumper is green.
5. Remove the jumper from pins 1 and 2. Place the jumper on either pin 1 or 2, but not both.
6. Replace the access panel.
7. Reconnect the external equipment.
8. Plug in the computer and turn on power. Allow the operating system to start. This clears the current passwords and disables the password features.
9. To establish new passwords, repeat steps 1 through 4, replace the password jumper on pins 1 and 2, then repeat steps 6 through 8. Establish the new passwords in Computer Setup.

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.
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.

Diagnostic LEDs

Activity	Beeps	Possible Cause	Recommended Action
Green pwr LED On	None	Computer on.	None.
Green LED, 1 blink/2 seconds	None	Computer in Suspend to RAM mode (some models only) or normal Suspend mode.	None required. Press any key or move the mouse to wake the computer.
Red LED, 1 blink/sec, 2 sec pause	2	Processor thermal protection activated: A fan may be blocked or not turning. OR The heat sink/fan assembly is not properly attached to the processor.	1. Ensure computer air vents not blocked and processor cooling fan running. 2. Open hood, press power button, see if processor fan spins. If not spinning, make sure fan's cable plugged onto system board header. 3. If fan plugged in, but not spinning, replace heat sink/fan assembly.
Red LED, 3 blinks/sec, 2 sec pause	3	Processor not installed (not an indicator of bad processor).	1. Check if processor is present. 2. Reseat processor.
Red LED, 4 blinks/sec, 2 sec pause	4	Power failure (power supply is overloaded).	1. Open hood and ensure the 4 or 6-wire power supply cable is seated into connector on system board. 2. Check if a device is causing the problem by removing ALL attached devices. Power on system. If system enters the POST, then power off and replace one device at a time and repeat until failure occurs. Replace device causing failure. Continue adding devices one at a time to ensure all devices functioning properly. 3. Replace the power supply. 4. Replace the system board.

Red LED, 5 blinks/sec, 2 sec pause	5	Pre-video memory error.	1. Reseat DIMMs. 2. Make sure a DIMM is installed in black DIMM connector first if only one DIMM. 3. Replace 3rd-party with HP memory. 4. Replace system board.
Red LED, 6 blinks/sec, 2 sec pause	6	Pre-video graphics error.	For systems with a graphics card: 1. Reseat graphics card. 2. Replace graphics card. 3. Replace system board. For systems with integrated graphics, replace system board.
Red LED, 7 blinks/sec, 2 sec pause	7	System board failure (ROM detected failure prior to video).	Replace system board.
Red LED, 8 blinks/sec, 2 sec pause	8	Invalid ROM based on bad checksum.	1. Reflash system ROM with latest BIOS image. 2. Replace system board.
Red LED, 9 blinks/sec, 2 sec pause	9	System powers on but is unable to boot.	1. Check that voltage selector, located on the rear of power supply (some models), is set to appropriate voltage. Proper voltage setting depends on region. 2. Unplug power cord from computer, wait 30 seconds, plug back in. 3. Replace system board. 4. Replace processor.
Red LED, 10 blinks/sec, 2 sec pause	10	Bad option card.	1. Check each option card by removing the card (one at a time if multiple cards), then power on system to see if fault goes away. 2. Once bad card identified, remove and replace bad option card. 3. Replace system board.
Red LED, 11 blinks/sec, 2 sec pause	11	The current processor does not support a feature previously enabled on this system.	1. Install a TXT capable processor. 2. Disable TXT in Computer Setup (F10) utility. 3. Reinstall original processor.
System does not power on and LEDs are not flashing	None	System unable to power on.	Press and hold power button for less than 4 seconds. If hard drive LED turns green, power button working correctly. Try the following: 1. Check that voltage selector (some models), located on the rear of power supply, is set to appropriate voltage. Proper voltage setting depends on region. 2. Replace system board. OR Press and hold power button for less than 4 seconds. If hard drive LED does not turn on green then: 1. Check that unit plugged into a working AC outlet. 2. Open hood and check that power button harness is properly connected to system board. 3. Check that both power supply cables are properly connected to system board. 4. Check if 5V_aux light on system board is turned on. If yes, replace power button harness. If problem persists, replace system board. 5. If 5V_aux light on system board is not turned on, remove expansion cards one at a time until 5V_aux light on system board turns on. If problem persists, replace power supply.

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 4. If message disappears, may be problem with expansion card 5. 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	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 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 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. 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, SATA 1, and SATA 2.
1801-Microcode Patch Error	Processor not supported by ROM BIOS.	1. Upgrade BIOS to proper version. 2. Change the processor.