

Illustrated Parts & Service Map

HP Compaq dc7800 Ultra Slim Desktop Business PC



© 2007 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice. HP shall not be liable for technical or editorial errors or omissions contained herein. Intel, Pentium, Intel Inside, and the Intel logo are trademarks or registered trademarks of the Intel Corporation and its subsidiaries in the U. S. and other countries.

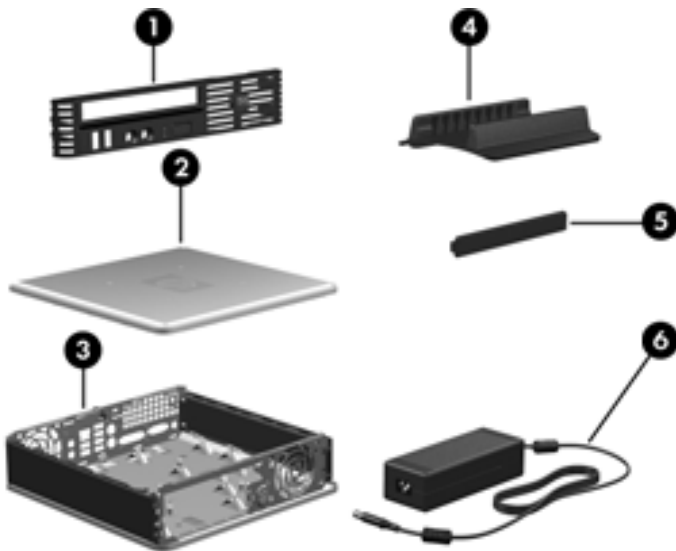
Document Number 459787-001. 1st Edition September 2007.



Key Specifications

| | |
|-----------------------|--|
| Processor Type | Intel Core 2 Duo, Pentium dual-core, Celeron |
| RAM Type | DDR2-SODIMMs, PC2 6400 (800 MHz) non-ECC |
| Maximum RAM Supported | 4 GB |
| Expansion Slots | PCI Express Mini Card |
| Graphics Adapter | Intel GMA 3100 integrated |
| Drive Support | <ul style="list-style-type: none"> 1 SATA mobile 2.5-inch 1 PATA Slimline optical |
| I/O Interfaces | USB 2.0 (8), RJ-45 (1), front and rear audio jacks (2 each), PS/2 ports (2), VGA/DVI-D connector, USB header on system board |

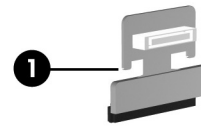
Spare Parts



System Unit

| | | |
|---|------------------|------------|
| 1 | Front bezel | 451388-001 |
| 2 | Access panel | 451387-001 |
| 3 | Chassis | not spared |
| 4 | Stand | 451396-001 |
| 5 | Bezel blank | 451394-001 |
| 6 | AC adapter, 135W | 437796-001 |

* Not shown



Cable and accessory

| | | |
|---|-------------------------------|------------|
| 1 | Optical drive cable/connector | 451393-001 |
| 2 | Cable cover | 451397-001 |

Keyboards (not illustrated)

| | | | |
|----------------------|------------|-----------------|------|
| PS/2, Basic | 435302-xxx | | |
| USB, Basic | 435382-xxx | | |
| USB SmartCard | 435385-xxx | | |
| Arabic | -171 | Korean (Hangul) | -KD1 |
| Belgian | -181 | LA Spanish | -161 |
| BHCSY | -B41 | Norwegian | -091 |
| Brazilian Portuguese | -201 | PRC | -AA1 |
| Czech | -221 | Portuguese | -131 |
| Danish | -081 | Romanian* | -271 |
| Finnish | -351 | Russian | -251 |
| French | -051 | Slovakian | -231 |
| French Arabic | -DE1 | Spanish | -071 |
| French Canadian | -121 | Swedish | -101 |
| German | -041 | Swiss | -111 |
| Greek | -151 | Taiwanese | -AB1 |
| Hebrew | -BB1 | Thai | -281 |
| Hungarian | -211 | Turkish | -141 |
| International | -B31 | U.S. | -001 |
| Italian | -061 | U.K. | -031 |
| Japanese | -291 | | |

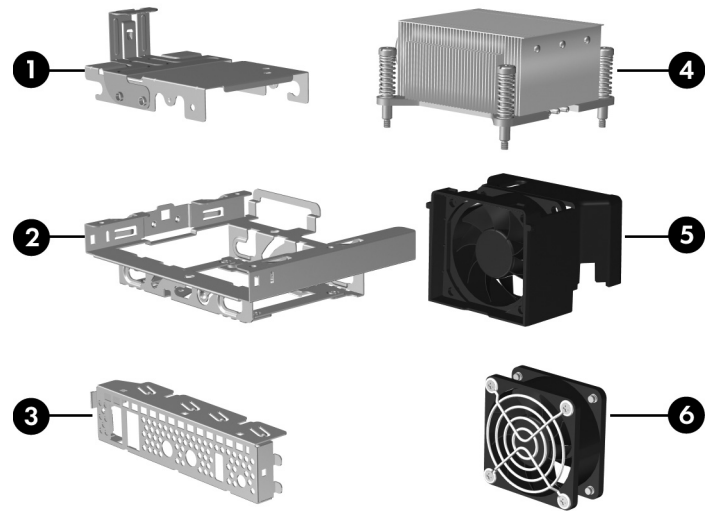
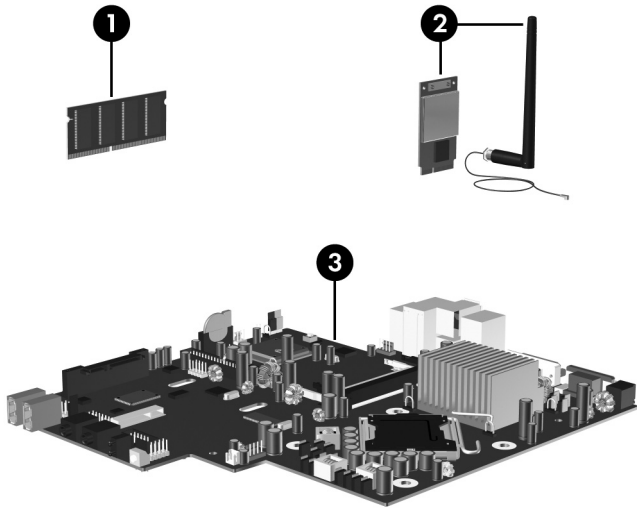
* not for 435385-xxx

Mass Storage Devices (not illustrated)

| | |
|--|------------|
| 16X DVD±RW and CD-RW drive with LightScribe | 417182-001 |
| 16X DVD-ROM drive | 417185-001 |
| 24X CD-RW/DVD-ROM combo drive | 417184-001 |
| 160 GB, 7200 RPM SATA hard drive, 8-MB cache | 456574-001 |
| 80 GB, 7200 RPM SATA hard drive, 8-MB cache | 456573-001 |
| 80 GB, 5400 RPM SATA hard drive, 8-MB cache | 449981-001 |

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 |



Standard and Optional Boards

| Memory modules (SODIMM) | | |
|--|---|------------|
| 1 | 2 GB, PC2-6400 CL6 | 451400-001 |
| 1 | 1 GB, PC2-6400 CL6 | 451398-001 |
| 1 | 512 GB, PC2-6400 CL6 | 451399-001 |
| 1 | 2 GB, PC2-5300 | 445936-001 |
| 1 | 1 GB, PC2-5300 | 445935-001 |
| 1 | 512 GB, PC2-5300 | 445934-001 |
| Wireless cards (include card, antenna, cable, and screw) | | |
| 2 | WLAN adapter kit for use in the United States | 455756-001 |
| * | WLAN adapter kit for use in the rest of the world | 455756-002 |
| * | WLAN adapter kit for use in Japan | 455756-291 |
| System boards with thermal grease, alcohol pad, and CPU socket cover | | |
| 3 | System board | 437794-001 |
| * | System board, excludes ES/CS | 451384-001 |
| Intel Celeron Processors with alcohol pad and thermal grease | | |
| * | 440, 512-KB cache, 2.0 GHz | 449166-001 |
| * | 430, 512-KB cache, 1.8 GHz | 449165-001 |
| * | 420, 512-KB cache, 1.8 GHz | 449164-001 |
| Intel Pentium Dual Core Processors with alcohol pad and thermal grease | | |
| * | E2180, 1-MB cache, 2.0 GHz | 457656-001 |
| * | E2160, 1-MB cache, 1.8 GHz | 457622-001 |
| Intel Core 2 Duo Processors with alcohol pad and thermal grease | | |
| * | E6850, 4-MB cache, 3.00 GHz | 450792-001 |
| * | E6750, 4-MB cache, 2.66 GHz | 450791-001 |
| * | E6550, 4-MB cache, 2.33 GHz | 450694-001 |
| * | E4500, 2-MB cache, 2.2 GHz | 449452-001 |
| * | E4400, 2-MB cache, 2.00 GHz | 449451-001 |
| Misc boards | | |
| * | ReadyBoost module, 1 GB | 455971-001 |

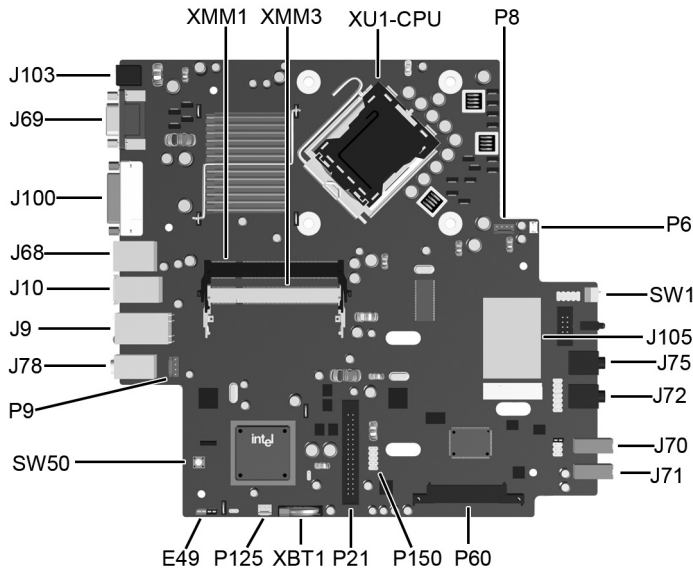
* Not shown

Miscellaneous Parts

| | | |
|---|---|------------|
| 1 | Hard drive bracket | 451389-001 |
| 2 | Optical drive bracket | 451390-001 |
| 3 | Front I/O panel bracket | 451391-001 |
| 4 | Fansink with alcohol pad and factory-applied thermal grease | 451395-001 |
| 5 | Fan duct | 451392-001 |
| 6 | Chassis fan | 451385-001 |
| * | Mouse, PS2, optical | 417966-001 |
| * | Mouse, optical | 390938-001 |
| * | Battery, real-time clock | 153099-001 |
| * | Internal speaker | 447085-001 |
| * | Rubber feet, snap in | 451386-001 |
| * | Hood sensor | 394064-001 |

*Not shown

System Board



System Board Connectors and Jumpers (position of some untitled components may vary in location)

| | | | |
|------|----------------------------------|------|-----------------------------------|
| E49 | Password | P125 | Hood sensor |
| J10 | Quad stacked USB | P150 | Media reader/ReadyBoost connector |
| J68 | Stacked keyboard/mouse connector | P21 | Secondary IDE connector |
| J69 | Video connector | P6 | Internal speaker |
| J70 | Primary single USB port | P60 | SATA0 |
| J71 | Secondary single USB port | P8 | CPU fan |
| J72 | Microphone jack | P9 | Chassis fan |
| J75 | Headphone jack | SW50 | Clear CMOS |
| J78 | Double stacked line-out/line-in | SW1 | System front power button |
| J100 | DVI connector | XBT1 | Real-time-clock battery |
| J103 | DC power input | XMM1 | DIMM 1 |
| J105 | PCIe Mini Card | XMM3 | DIMM 3 |
| J9 | Stacked RJ-45/Dual USB | XU1 | Processor |

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.

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) Memory size/speed/ no. channels Integrated MAC Address System BIOS Chassis serial number Asset tracking number |
| | 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 applying or saving any changes. |
| | Save Changes and Exit - Saves changes to system configuration or default settings and exits Computer Setup. |
| | Storage |
| Storage Options <ul style="list-style-type: none"> Removable Media Boot Legacy Diskette Write | |
| 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, and embedded security devices. |
| | 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 Virtualization Technology Virtualization Technology Directed I/O Trusted Execution Technology Embedded Security Device Support OS management of Embedded Security Device through OS Virtual Appliance options Smart Card BIOS Password Support |
| | 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 Mouse Wakeup, USB Wake on Device Insertion (some models), Unique Sleep State Blink Rates. |
| | Hardware Power Management - Allows you to enable/disable SATA bus power management. |
| | 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, or FullBoot every 1-30 days. POST messages - Enable/disable MEBx Setup prompt - Enable/disable or hidden/displayed F9 prompt - Enable/disable F10 prompt - Enable/disable F12 prompt - Enable/disable Factory Recovery Boot Support - Enable/disable Option ROM prompt - Enable/disable WOL After Power Loss - 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 Limit CPUID |
| | 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 Processor cache - enable/disable Integrated video - enable/disable Multi-Processor - enable/disable Internal speaker - enable/disable Monitor Tracking - enable/disable NIC PXE Option ROM Download - enable/disable |
| | |
| | |
| | |

System Hardware Interrupts

| IRQ | System Function | IRQ | System Function |
|-----|------------------------------|-----|--------------------------------|
| 0 | Timer Interrupt | 8 | Real-Time Clock |
| 1 | Keyboard | 9 | Unused |
| 2 | Interrupt Controller Cascade | 10 | Unused, available for PCI |
| 3 | Serial Port (COM B) | 11 | Unused, available for PCI |
| 4 | Serial Port (COM A) | 12 | Mouse |
| 5 | Unused, available for PCI | 13 | Coprocessor |
| 6 | Diskette Drive | 14 | Primary ATA (IDE) Controller |
| 7 | Parallel Port (LPT 1) | 15 | Secondary ATA (IDE) Controller |

Failsafe Boot Block ROM

The computer comes with a reprogrammable flash system ROM (read only memory). To upgrade the ROM, download the latest ROM BIOS image from the HP Web site (www.hp.com) and follow the online GUI/instructions.

Your system ROM includes a Failsafe Boot Block that is protected during the flash process and allows the computer to be restarted in the unlikely event of an unsuccessful ROM flash.

If the system detects an invalid system ROM during the boot sequence, the Failsafe Boot Block attempts to locate a valid BIOS image on removable media. To recover from the Boot Block recovery mode complete the following steps:

Boot Block Recovery

1. Remove any bootable media from the computer and turn off power.
2. Insert a flash drive or CD containing the ROM BIOS in the root directory. The media must be formatted using the FAT12, FAT16, or FAT32 file system.
3. Turn on power to the system.
4. The system will automatically flash the ROM. After a successful flash, the system will either automatically restart or prompt the user to unplug the unit, wait 5 seconds, reattach the power cord, and then press the power button.

NOTE: BitLocker prevents Windows Vista from booting when a CD containing the BIOS image file is in an optical drive. If BitLocker is enabled, remove this CD before attempting to boot to Windows Vista.

Password Security

Establishing a Setup 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. Select **Security > Setup Password** and follow the instructions on the screen.
4. Before exiting, click **File > Save Changes and Exit**.

Changing a 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 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**.

Security Features

NOTE: For more information about Setup Utilities refer to the Computer Setup Menu on the previous page or in the *Service Reference Guide*.

Diagnostic Functions

Diagnostic functions are provided by the Setup Utility (in system ROM) and by Insight Diagnostics. Insight Diagnostics provides detailed system information including:

- Processor type and speed
- Memory amount, mapping, and integrity
- Hardware peripheral availability/settings
- Hard drive type, space used/available
- System identification, asset tracking

Insight Diagnostics may be found on the *Documentation and Diagnostics* CD that shipped with the computer. The tool may also be downloaded from the [hp](http://hp.com) Web site using the following procedure:

1. Go to www.hp.com
2. Click the **Software & Download driver** link.
3. Enter the product number (for example, dc7800) in the text box and press the **Enter** key.
4. Select the specific product.
5. Select the OS.
6. Click the **Diagnostics** link.
7. Select **HP Insight Diagnostics Offline Edition**.
8. Select the proper language and click **Download**.

NOTE: The download includes instructions on how to create a bootable CD.

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.

Error Conditions and Messages

| Feature | Purpose | How It Is Established |
|-------------------------|--|-----------------------|
| Floppy drive controller | Prevents the transfer of data to or from the floppy drive. | Setup Utilities |
| Device Boot Disabling | Prevents booting from and/or all of these devices: Internal or external USB, Internal ODD, or Internal FDD | Setup Utilities |
| Security Option | Prevents use of computer until password is entered. Can apply to both initial startup and restart. | Setup Utilities |
| BIOS Write Protect | Restricts ability to change ROM BIOS without approval. | Setup Utilities. |
| USB Controller | Allows you to disable or enable all USB devices. | Setup Utilities |

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) OR on USDT the wrong external power supply is being used. |
| 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 3. System board | 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. |