Illustrated Parts & Service Map

HP Compaq dc7700 Small Form Factor Business PC

Key Specifications

Processor Type:	Intel Celeron D, Intel Pentium 4 HT, Intel Core 2 Duo, or Intel Pentium D
RAM Type:	DDR PC2-5300 and PC2-6400, non-ECC
Maximum RAM Supported:	4 GB
Expansion Bus:	PCI 2.3
Graphics Adapter	Integrated controller. PCI-E support.
Hard drive interface:	SATA 3.0 Gb/s
I/O Interfaces:	Serial (2 of which 1 is optional), parallel (1), USB 2.0 (8), RJ-45 (1), front and rear audio jacks (2 each)

Spare Parts
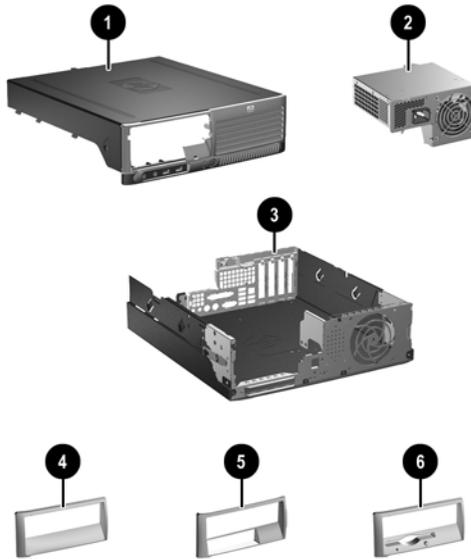
System Unit

1	Hood assembly	393599-001
2	Power supply, 240W	403985-001
3	Chassis	not spared
4	CD bezel, no diskette drive	367852-001
5	CD bezel with 3.5-in. media card reader	370504-001
6	CD bezel with diskette drive	370501-001
*	5.25-in bezel blank	335937-005

* Not shown
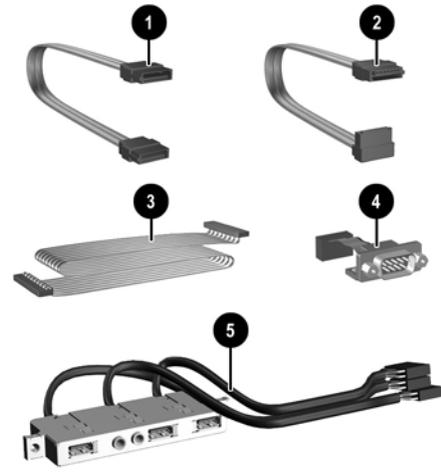
Cables

1	SATA HDD cable, 19-in. lg (2 straight ends)	391739-001
2	SATA HDD cable, 24-in. lg (1 straight, 1 angle end)	435263-001
3	Diskette drive cable	393608-001
4	Flying serial port	393605-001
5	Front I/O with USB and audio cables	435262-001
*	Power/LED cable	435261-001
*	DMS-59 to dual VGA cable adapter	339257-005

*Not shown

Keyboards (not illustrated)

PS/2, Basic	**382925-xxx**		
USB, Basic	**382926-xxx**		
USB, Basic, BG1650	**382927-xxx**		
USB SmartCard	**393670-xxx**		
Arabic[2]	-171	Korean (Hangul)[2]	-AD1
Belgian	-181	LA Spanish[2]	-161
BHCSY[2]	-B41	Netherlands[1]	-331
Brazilian Portuguese[2]	-201	Norwegian[2]	-091
Czech[2]	-221	PRC[2]	-AA1
Danish	-081	Portuguese[4]	-131
Finnish[2]	-351	Russian[2]	-251
French	-051	Slovakian[2]	-231
French Arabic[2]	-DE1	Spanish[2]	-071
French Canadian[2]	-121	Swedish	-101
German	-041	Swiss[5]	-111
Greek[2]	-151	Taiwanese[2]	-AB1
Hebrew[2]	-BB1	Thai[2]	-281
Hungarian[2]	-211	Turkish[4]	-141
International	-B31	U.S.[2]	-001
Italian	-061	U.K.[2]	-031
Japanese[2]	-291		

[1] only for 393670-xxx
[2] not for 382927-xxx
[3] for 382926-xxx and 393670-xxx
[4] only for 382925-xxx and 393670-xxx
[5] not for 382926-xxx

Mass Storage Devices (not illustrated)

Diskette drive	392415-001
Media card reader, 3.5-in	407187-001
52X SATA CD-ROM drive (APJ only)	419469-001
16X SATA DVD-ROM drive	419496-001
48X SATA CD-ROM drive	419635-001
16X SATA DVDRW L drive with LightScribe	419498-001
16x/48x Combo drive	419497-001
80-GB\7200 RPM SATA hard drive, 8MB cache	432392-001
160-GB\7200 RPM SATA hard drive, 8MB cache	432393-001
250-GB\7200 RPM SATA hard drive, 8MB cache	432394-001
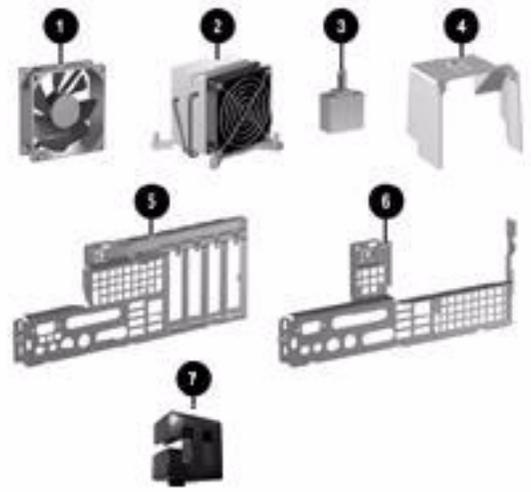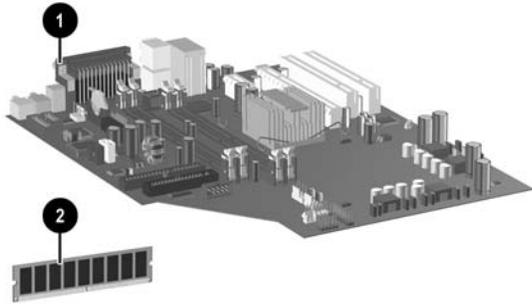
Standard and Optional Boards

System Boards with thermal grease, alcohol pad, and CPU socket cover		
1	Standard board	404674-001
*	Board for vPro applications	432289-001
*	Standard board without embedded security (Russia only)	434355-001
*	Board for vPro applications without embedded security (EMEA only)	434356-001
Intel Celeron D Processors with alcohol pad and thermal grease		
*	#352, 512K cache, 3.2 GHz, D-0, 533 MHz FSB	433891-001
*	#360, 512K cache, 3.46 GHz, D-0, 533 MHz FSB	434758-001
Intel Pentium 4 HT Processors with alcohol pad and thermal grease		
*	#524, 1 MB cache, 3.06 GHz, 533 MHz FSB	412985-001
*	#531, 1 MB cache, 3.0 GHz, 800 MHz FSB	394642-001
*	#541, 1 MB cache, 3.2 GHz, 800 MHz FSB	394812-001
Intel Pentium D Processors with alcohol pad and thermal grease		
*	#820, 2x1 MB cache, 2.8 GHz, 800 MHz FSB	432623-001
*	#915, 2x2 MB cache, 2.8 GHz, 800 MHz FSB	433843-001
*	#925, 2x2 MB cache, 3.0 GHz, 800 MHz FSB	433510-001
*	#945, 2x2 MB cache, 3.4 GHz, 800 MHz FSB	433890-001
Intel Core 2 Duo Processors with alcohol pad and thermal grease		
*	#E6300, 2 MB cache, 1.86 GHz, 1066 FSB	418947-001
*	#E6400, 2 MB cache, 2.13 GHz, 1066 FSB	418948-001
*	#E6600, 4 MB cache, 2.4 GHz, 1066 FSB	418949-001
*	#E6700, 4 MB cache, 2.67 GHz, 1066 FSB	418950-001
Memory modules		
1	256 MB, PC2-5300, CL5	396519-001
*	512 MB, PC2-5300, CL5	396520-001
*	1 GB, PC2-5300, CL5	398038-001
*	256 MB, PC2-6400, CL6	418953-001
*	512 MB, PC2-6400, CL6	418952-001
*	1 GB, PC2-6400, CL6	418951-001
Other boards		
*	ATI Radeon X1300 PCIE graphics, 256 MB, FH	413023-001
*	Nvidia NVS280 PCI graphics, 64 MB, FH	398686-001
*	DVI-D ADD2 graphics, FH	398333-001
*	1394 card 2 external, 1 internal port, FH	393308-001
*	1394 card 2 external, 1 internal port, LP	393307-001
*	Intel, Gigabit NIC, FH	398754-001
*	Broadcom NIC, PCIE, FH	430654-001
*	Agere International 56K Modem, FH	398661-001
*	DVI-I to VGA graphics adapter	202997-005
*	Adder card for 2 USB connectors	412839-001

Not shown
LP = Low profile
FH = Full height

Miscellaneous Parts

Miscellaneous screw kit, includes:		414180-001
*	#6-32 x .250 hitop screw with serrations (192308-001)(14 ea)	
*	(192308-002) (4 ea)	
*	(192308-003) (6 ea)	
*	(106902-001) (2 ea)	
*	(334248-001) (4 ea)	
*	(247481-001) (8 ea)	
*	(247348-001) (8 ea)	
*	(368224-002) (2 ea)	
*	(101517-067) (12 ea)	
*	Solenoid lock	393602-001
1	Chassis fan	392412-001
2	Heatsink with alcohol pad and factory-applied thermal grease	435265-001
*	Mouse, PS2, scroll type	390937-001
*	Mouse, PS2, optical	417966-001
*	Mouse, optical	390938-001
*	Battery, real-time clock	153099-001
*	Internal speaker	394778-001
3	Hood sensor	393603-001
4	Fan duct	435260-001
5	Backwall, LP	435270-001
6	Backwall, FH	394213-001
*	Second serial port, FH	392414-001
*	Second serial port, LP	393601-001
7	Power switch/LED holder	370857-001
*	Tower stand	393604-001
*	Heatsink retention plate	393609-001
*	Thumbscrew, backing plate	393610-001
*	Foot (4 ea)	370708-001

Not shown
LP = Low profile
FH = Full height

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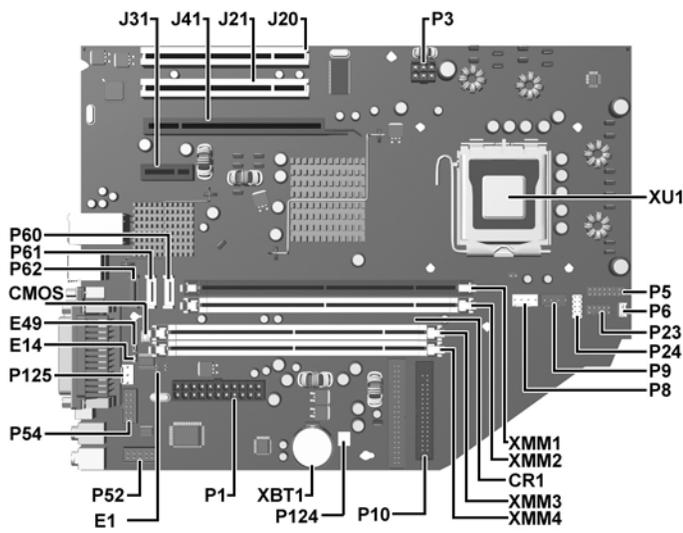
System Board Connectors and Jumpers (position of some untitled components may vary in location)

CMOS	Clear CMOS	P5	Power button/LED
CR1	5VAUX LED	P52	Second serial port
E1	Descriptor table override	P54	First serial port
E14	Boot Block enable	P6	Internal speaker
E49	Password	P60	SATA0
J20	PCI slot 1	P61	SATA1
J21	PCI slot 2	P62	SATA2
J31	PCIE X1	P8	CPU fan
J41	PCIE X16	P9	Chassis fan
P1	Main power	XBT1	Real-time-clock battery
P10	Diskette drive	XMM1	DIMM 1
P124	Hood lock	XMM2	DIMM 2
P125	Hood sensor	XMM3	DIMM 3
P23	Front audio	XMM4	DIMM 4
P24	Front USB	XU1	Processor
P3	CPU power		

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: • 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 (some models) - Allows you to select a drive containing a new BIOS.
	Replicated Setup - Save to Removable Media and Restore from Removable Media
	Default Setup • 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	Device Configuration - Lists all installed BIOS-controlled storage devices. The following options are available: • Diskette Type (Legacy Diskette only) - 3.5" 1.44 MB and 5.25" 1.2 MB • Drive Emulation of ATAPI Zip drive, hard disk, legacy diskette, CD-ROM drive, and ATAPI LS-120 drive • Multisector Transfers • Translation Mode • Translation Parameters • Default Values IDE/SATA
	Storage Options - • Removable Media Boot • Legacy Diskette Write • BIOS DMA Data Transfers • SATA Emulation - SATA 0 and 2, SATA 1 and 3, SATA 4 (some models) SATA 5 (some models)
	DPS Self-Test - Allows you to execute self-tests on ATA hard drives.

Computer Setup Menu (Continued)

Heading	Option / Description
Storage (Continued)	Boot Order - Allows you to specify boot order.
Security	Smart Card Options (some models) - Allows you to enable/disable the Smart Card.
	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.
	Embedded Security (some models) - Allows you to enable/disable Embedded Security and power-on authentication support, reset device to factory settings, and reset authentication credentials.
	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.
	OS Security - Allows you to enable/disable Data Execution Prevention and Intel Virtualization Technology.
Power	OS Power Management - Allows you to enable/disable Runtime Power Management, ACPI S3 Hard Disk Reset, and ACPI S3 PS2 Mouse Wakeup. Also Allows you to improve Idle Power Savings and to permit system to awaken when USB device is inserted.
	Hardware Power Management - Allows you to enable/disable SATA bus power management.
	Thermal - Allows you to control minimum permitted fan idle speed.
Advanced Features	Power-On Options - Allows you to set: • 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 • 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 • I/O APIC mode - Enable/disable • Hyperthreading - Enable/disable • 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: • 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 • Unique Sleep State Blink Patterns • Integrated video - enable/disable • Internal speakers (some models) • Monitor racking - 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.

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.

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**.

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 > Power-On Password** and follow the instructions on the screen.

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 de-limiter 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 actual 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 Web site using the following procedure:

1. Go to www.hp.com
2. Click the **Software and Download driver** link.
3. Enter the product number (for example, dc7700) 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. The SoftPaq number is SP33665 or later.

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)
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
none	none	System does not power on and LEDs are not flashing	System unable to power on

Common POST Error Messages

Screen Message	Beeps	Probable Cause	Recommended Action
101-Option ROM Error	1L, 1S	1. System ROM checksum error. 2. Expansion card. 3. CMOS corruption. 4. System board.	1. Verify ROM, reflash if required 2. Remove suspected card, reboot 3. Clean CMOS memory, reboot 4. Replace system board
103-System Board Failure	none	DMA, timers	1. Clear CMOS memory. 2. Remove expansion board. 3. Replace system board.
164-Memory Size Error and 201 Memory Error	2S	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.
214-DIMM Configuration Warning	none	Populated DIMM configuration is not optimized	Rearrange the DIMMs so that each channel has the same amount of memory.
301-, 304-Keyboard error	none	Keyboard failure.	Check keyboard connection or keys. Replace keyboard. If 304, possible system board problem.
501-Display Adapter Failure	1L, 2S	Graphics controller.	1. Reseat graphics card. 2. Check monitor connection. 3. Replace graphics card.
1720-SMART Hard Drive Detects Imminent Failure	none	Hard drive is about to fail.	Run drive protection system test if available. Check for firmware patch for erroneous error message.
1796-SATA Cabling Error	none	One or more SATA devices are improperly attached.	Ensure SATA0 and SATA1 are used before any other SATA connectors.
1801-Microcode Patch Error	none	Processor not supported by ROM BIOS.	1. Upgrade BIOS to proper version. 2. Change the processor.

NOTES: L = long, S = short

Clearing CMOS

1. Shut down the system 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.