Illustrated Parts & Service Map

HP Compaq dc7700 Convertible Minitower 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 (1), parallel (1), USB 2.0 (8)

Spare Parts
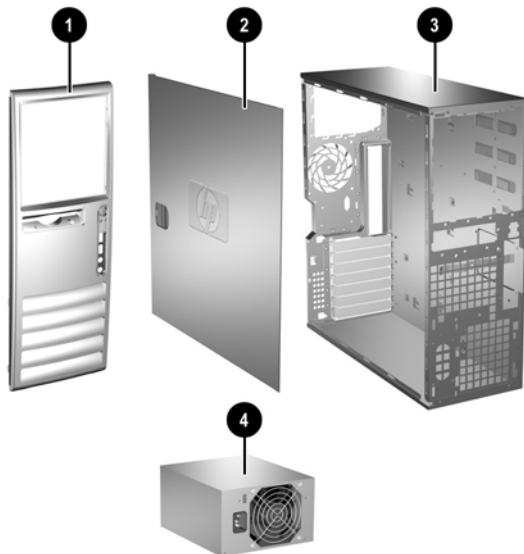
System Unit

1	Front bezel	371116-001
2	Access panel	392405-001
3	Chassis	not spared
4	Power supply, 365W	416535-001

Not shown
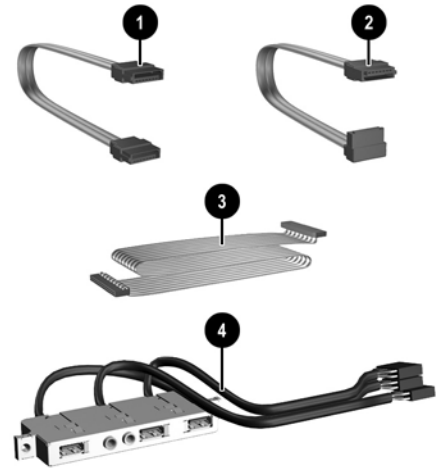
Cables

1	SATA HDD cable, 19-in. lg (2 straight ends)	391739-001
2	SATA HDD cable, 13-in. lg (1 straight, 1 angle end)	391738-001
3	Diskette drive cable	395967-001
*	Power/LED cable	435257-001
4	Front I/O with USB and audio cables	435258-001
*	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[2]	-131
Finnish[2]	-351	Romanian[3]	-271
French	-051	Russian[2]	-251
French Arabic[2]	-DE1	Slovakian[2]	-231
French Canadian[2]	-121	Spanish[2]	-071
German	-041	Swedish	-101
Greek[2]	-151	Swiss	-111
Hebrew[2]	-BB1	Taiwanese[2]	-AB1
Hungarian[2]	-211	Thai[2]	-281
International	-B31	Turkish[2]	-141
Italian	-061	U.S.[2]	-001
Japanese[2]	-291	U.K.[2]	-031

[1] 393670-xxx only
[2] not for 382927-xxx
[3] for 382925-xxx only

Mass Storage Devices (not illustrated)

Diskette drive	392415-001
Media card reader, 3.5-in	407187-001
Media card reader, 5.25-in	412838-001
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
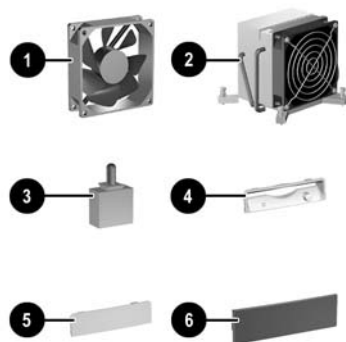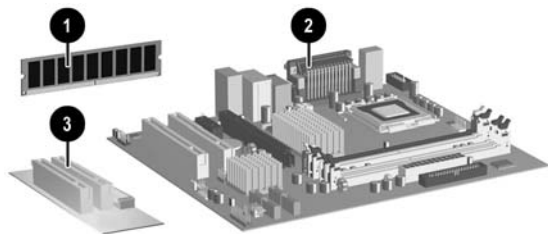
Standard and Optional Boards

|	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
	System Boards with thermal grease, alcohol pad, and CPU socket cover	
2	Standard board	404673-001
*	Board for vPro applications	432288-001
*	Standard board without embedded security (Russia only)	434353-001
*	Board for vPro applications without embedded security (EMEA only)	434354-001
	Intel Celeron D Processors with alcohol pad and thermal grease (use heatsink 435920-001)	
*	#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 (use heatsink 435920-001)	
*	#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 (use heatsink 435259-001)	
*	#820, 2 x 1 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 (use heatsink 435920-001)	
*	#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
	Other boards	
3	PCI extender board	414137-001
*	ATI Radeon X1300 PCIE graphics, 256 MB, FH	413023-001
*	ATI X1600 PCI graphics, 256 MB, FH	419543-001
*	Nvidia NVS280 PCI graphics, 64 MB, FH	398686-001
*	ADD2 Graphics, DVI-D, FH	398333-001
*	1394 card 2 external, 1 internal port, FH	393308-001
*	Intel, Gigabit NIC, PCI-Express, FH	398754-001
*	Broadcom Gigabit NIC, PCI-E, FH	430654-001
*	Agere International 56K Modem, PCI, FH	398661-001
*	DVI-I to VGA graphics adapter	202997-005

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)	
*	PCI tray extender (use with 414137-001)	392418-001
*	Solenoid lock	392416-001
1	Chassis fan	392412-001
2	Heatsink with alcohol pad and factory-applied thermal grease (use only with 432623-001, 433843-001, 433510-001, and 433890-001)	435259-001
*	Heatsink with alcohol pad and factory-applied thermal grease (use with all other processors)	435920-001
*	Mouse, PS2, scroll type	390937-001
*	Mouse, PS2, optical	417966-001
*	Mouse, USB, optical	390938-001
*	Battery, real-time clock	153099-001
*	Internal speaker	392413-001
3	Hood sensor	392417-001
*	Serial port expansion device, FH	392414-001
4	Diskette bezel	371119-001
5	Diskette bezel blank	336581-005
5	5.25-in. Bezel blank	335937-005
*	Front I/O device mounting bracket	371118-001
*	Foot (4 ea)	336445-005

Not shown
LP = Low profile
FH = Full height

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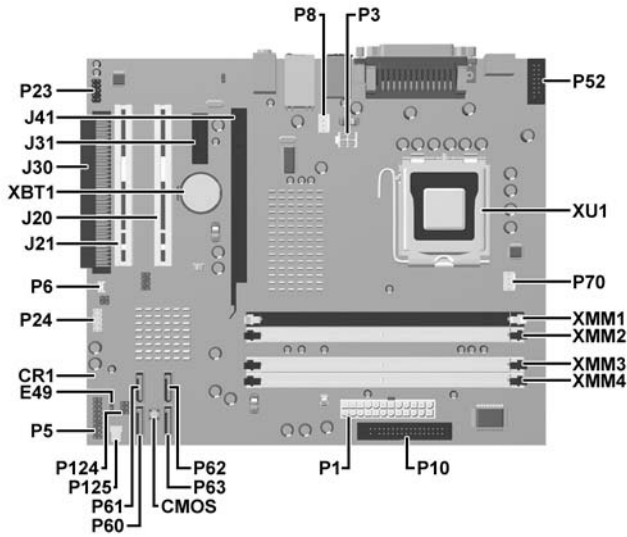
System Board Connectors and Jumpers (position of some untitled components may vary in location)

CMOS	Clear CMOS	P23	Front audio
CR1	5VAUX LED	P24	Front USB
E49	Password	P52	Flying second serial port
J20	PCI1	P124	Hood lock
J21	PCI2	P125	Hood sensor
J30	Expansion board	P60	SATA0
J31	PCIE connector, X1	P61	SATA1
J41	PCIE connector, X16	P62	SATA2
P1	24-pin main power	P63	SATA3
P3	CPU power	XBT 1	Real-time-clock battery
P5	Front power button/LED	XMM1	DIMM 1
P6	Internal speaker	XMM2	DIMM 2
P70	CPU fan	XMM3	DIMM 3
P8	Chassis fan	XMM4	DIMM 4
P10	Diskette drive	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: • 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.

The 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 of prompt the user to unplug the unit, wait 5 seconds, reattach the power cord, 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 press, 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 press, 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. Clear 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 STAT connectors.
1801-Micro-code 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.