Illustrated Parts & Service Map

HP Compaq dx7500 Business PC
Small Form Factor Chassis

Document Number 506598-001.   1st Edition December 2008.

Key Specifications

Processor Type	Intel Celeron, Pentium Dual-Core, Core2 Duo, Core2 Quad
RAM Type	DDR2-SDRAM DIMMs, PC2-6400 (800 MHz) non-ECC
Maximum RAM Supported	8 GB
Expansion Slots	• 3 PCIe-x1 (full height) • 1 PCIe-x16 (full height)
Graphics Adapter	Intel Graphics Media Accelerator X4500HD with DX10 support
Integrated Audio	Realtek ALC888S HD Audio
Drive Support	• 1 hard disk drives • 1 optical disk drives • 1 floppy diskette drive, media card reader
Power supply	250W PFC
I/O Interfaces	PS/2 (keyboard & mouse), VGA, DVI-D, 1394, SPDIF in & out, line in, line out, mic in, RJ-45, USB 2.0 (6)

Spare Parts
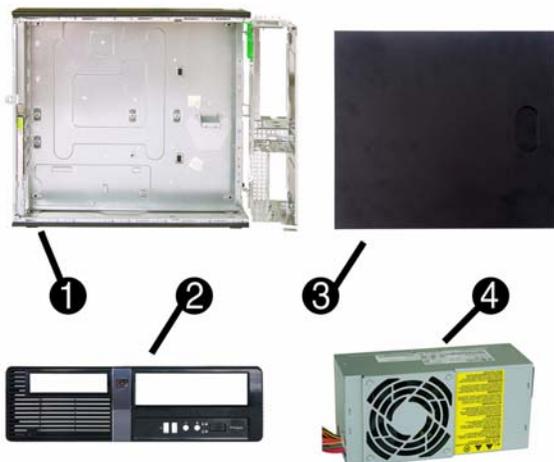
System Unit

1	Chassis	n/a
2	Front bezel	487747-001
3	Access panel	509438-001
4	Power supply, 250W, PFC	447585-001
*	5.25-inch bezel blank	335937-001

Cables

|		
1	SATA hard drive cable, 15 inch, 1 straight end, 1 right angled end	454704-001
*	DMS-59 to dual VGA cable	463023-001
*	Adapter, DVI to VGA	202997-001

Not shown

Keyboards (not illustrated)

PS/2, Basic USB, Basic	435302-xxx 435382-xxx		
Arabic	-171	LA Spanish	-161
Belgian	-181	Norwegian	-091
BHCSY	-B41	People's Republic of China	-AA1
Brazilian Portuguese	-201	Portuguese	-131
Bulgarian	-261	Romanian	-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	-B31	Turkish	-141
International English	-L31	U.S.	-001
Italian	-061	U.K.	-031
Japanese	-291		

Mass Storage Devices (not illustrated)

Diskette drive with bezel	431452-001
16X SATA DVD±RW and CD-RW drive with LightScribe	447310-001
16X SATA DVD-ROM drive	419496-001
500 GB, 7200-RPM SATA hard drive, 3.5-inch	457909-001
320 GB, 7200-RPM SATA hard drive, 3.5-inch	497731-001
250 GB, 7200-RPM SATA hard drive, 3.5-inch	449980-001
160 GB, 10000-RPM SATA hard drive, 2.5-inch with adapter	449979-001
80 GB, 7200-RPM SATA hard drive, 3.5-inch	449978-001
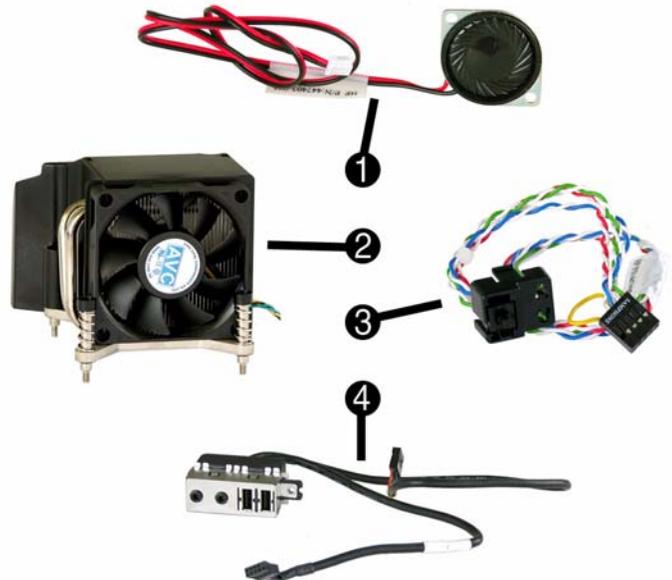
Miscellaneous Parts

1	Internal speaker	505611-001
2	Heat sink with alcohol pad and factory-applied thermal grease	514231-001
3	Power switch/LED assembly	447590-001
4	Front I/O, 2 USB assembly	487745-001
*	Media card reader, 3.5-inch, includes 5.25-inch conversion kit	480033-001
*	Foot kit	370708-001
*	Mouse, PS2, optical	417966-001
*	Mouse, optical	390938-001
*	Mouse, laser	459821-001
*	Modem cable	198220-001

Not shown

Standard and Optional Boards

|	System boards with thermal grease, alcohol pad, and CPU socket cover	
1	System board	487741-001
	Memory modules (PC2-6400, CL6)	
2	512 MB	418952-001
2	1 GB	418951-001
2	2 GB	457624-001
	Memory modules (PC2-5300, CL5)	
2	1 GB	398038-001
	Other boards	
*	Saffron WLAN 802.11b/g/n for use world-wide, includes bracket	498307-001
*	Agere International 56K LSI v92 modem, includes bracket	490689-001
*	ATI HD2400 (RV610) 256-MB graphics card, one DMS59 connector and one S-Video connector, low profile with ATX bracket	462477-001
*	ATI HD3470 (RV620) 256-MB graphics card, one DP 1.1a connector, one dual-link DVI connector, includes bracket	483951-001
*	Intel Gigabit NIC, includes bracket	490367-001
*	Full height adapter board, NIC, PCIe	398794-001
	Intel Celeron Processors with alcohol pad and thermal grease	
*	E1400, 2.0 GHz, 512-KB L2 cache, dual core	491574-001
*	E1200, 1.6 GHz, 512-KB L2 cache, dual core	468589-001
	Intel Pentium Dual Core Processors with alcohol pad and thermal grease	
*	E5200, 2.5 GHz, 2-MB L2 cache	503382-001
*	E2200, 2.2 GHz, 1-MB L2 cache	465216-001
	Intel Core 2 Quad Processors with alcohol pad and thermal grease	
*	Q9550, 2.83 GHz, 12-MB L2 cache	465758-001
*	Q9400, 2.66 GHz, 6-MB L2 cache	497733-001
*	Q8200, 2.33 GHz, 4-MB L2 cache	503381-001
*	Q6600, 2.4 GHz, 8-MB L2 cache	452451-001
	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	466169-001
*	E7300, 2.66 GHz, 3-MB L2 cache	500134-001

* Not shown

Modem RJ-11 adapters (not illustrated)

Czechoslovakian	234963-225	Polish	316904-241
French	316904-051	Saudi Arabian	316904-AR1
Greek	316904-151	Scandinavian	382848-DH1
Hungarian	234963-215	Turkish	316904-141
Israel	316904-BB1	United Kingdom	158593-035

System Board
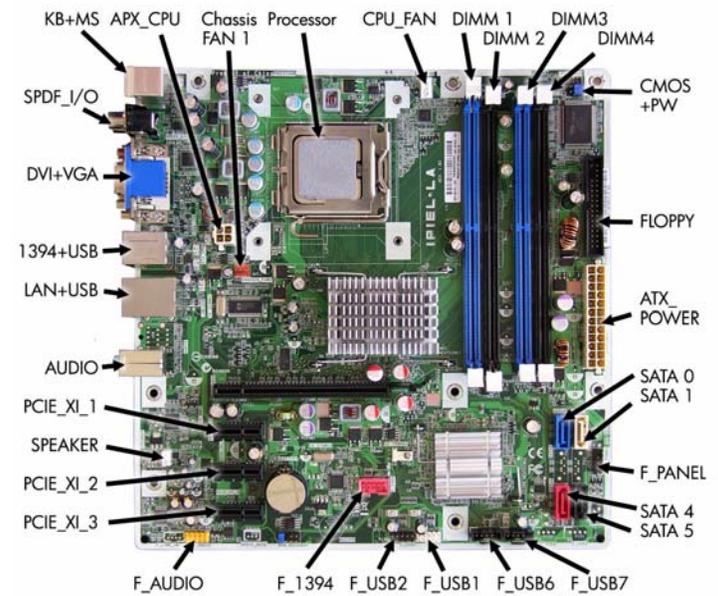
System Board Connectors and Jumpers (component location may vary)

CMOS+PW	CMOS/Password header	F_USB2	Media card reader connector
1394+USB	Stacked 1394/Double USB connector	F_USB6	3rd USB header
LAN+USB	Stacked RJ-45/Double USB connectors	F_USB7	4th USB header
PCIE_X1_1	PCIe X1, slot 1	CHASSIS_FAN1	Rear fan connector
PCIE_X1_2	PCIe X1, slot 2	F_AUDIO	Front audio connector
PCIE_X1_3	PCIe X1, slot 3	SATA0	Primary SATA hard drive
PCIE_X16	PCIe X16, slot	SATA1	1st SATA optical drive
DVI+VGA	Stacked DVI/VGA connector	SATA4	2nd SATA hard drive
AUDIO	Double stack audio connector	SATA5	2nd SATA optical drive
ATX_POWER	Main power connector	F_1394	1394 header
ATX_CPU	CPU power connector	DIMM 1	Memory socket 1
F_PANEL	Front panel connector	DIMM 2	Memory socket 2
SPEAKER	Internal speaker connector	DIMM 3	Memory socket 3
CPU_FAN	CPU/heatsink fan connector	DIMM 4	Memory socket 4
FLOPPY	Diskette drive connector	PROCES-SOR	Processor socket
F_USB1	1st USB header	SPDIF_I/O	Digital line-in/line-out audio connectors
KB+MS	Keyboard/mouse connector		

POST Audible Codes

Beeps	Meaning	Recommended Action
1 short beep and 1 long beep followed by a three second pause	Bad memory or memory configuration error.	Check that the memory modules have been installed correctly and that proper modules are used.
2 short beeps and 1 long beep followed by a three second pause	No graphics card installed or graphics card initialization failed.	For systems with a graphics card: 1. Reseat the graphics card. Power on the system. 2. Replace the graphics card. 3. Replace the system board. For systems with integrated graphics, replace the system board.
3 short beeps and 1 long beep followed by a three second pause	CPU configuration error or invalid CPU detected before graphics card initialized.	1. Upgrade the BIOS to proper version. 2. Change the processor.
1 short beep followed by a one second pause	No legacy floppy drive or optical drive found.	1. Check cable connections. 2. Run the Computer Setup utility and ensure the device port is enabled.
2 short beeps followed by a three second pause	No floppy diskette or CD found.	1. Check the type of drive that you are using and use the correct media type. 2. Replace the diskette or CD with a new one.
3 short beeps followed by a three second pause	Flashing not ready (missing utility or BIOS image file, etc.)	Upgrade the BIOS to proper version.
4 short beeps followed by a three second pause	Flashing operation has failed (checksum error, corrupted image, etc.)	1. Verify the correct ROM. 2. Flash the ROM if needed. 3. If an expansion board was recently added, remove it to see if the problem remains. 4. Clear CMOS. 5. If the message disappears, there may be a problem with the expansion card. 6. Replace the system board.
5 short beeps followed by a three second pause	BIOS recovery was successful	No action required.

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	
Main	System Time	Allows you to set system time.
	System Date	Allows you to set system date.
	Language	Allows you to select the language.
	Floppy Diskette A	Allows you to set to Disabled, 1.44 MB 3.5", Not Installed.
	1st Drive 2nd Drive 3rd Drive* 4th Drive* 5th Drive 6th Drive	Allow you to: view capacity, transfer mode. Also allows you to run HDD self-test for selected channel: SMART status check, SMART short self test, SMART extended self test. *3rd and 4th Drive not used.
	System Information	Allows you to view installed memory, memory banks 1-4, BIOS revision, core version, model number, product number, asset tag (press **Enter** to change).
Advanced	CPU Type	View only.
	CPU Speed	View only.
	Cache RAM	View only.
	Primary Video Adapter	Allows you to select boot display device when more than 2 video options are offered by system: Integrated (Onboard), PCI, PCI-Ex16, PCI-Ex1.
	Onboard Video Memory Size	1 MB, 8 MB.
	PS/2 Mouse	Disable/enable/auto detect
	USB Ports	Disable/enable all USB ports.
	Onboard LAN	Disable/enable onboard LAN controller.
	Onboard LAN Boot ROM	Disable/enable the boot ROM of the onboard LAN chip.
	SATA1 Controller	Disable/enable the SATA1 controller
	SATA1 Controller Mode	If SATA1 controller enabled, allows you to set the mode to IDE, AHCI, or RAID.
	Onboard Audio	Auto/disable/enable.
	Internal Speaker	Disable/enable.
	Supervisor Password	Allows you to view the supervisor password.
	User Password	Allows you to view the user password.
	Onboard 1394	Disable/enable all 1394 ports.
	Change Supervisor Password	Allows you to change the supervisor password.
Power	After AC Power Failure	Allows you to select system restart behavior after power loss: Stay off, Power on, Auto.
	XD	Disable/enable XD bit.
	Virtualization Technology	Disable/enable.
Boot	Boot-time Diagnostic Screen	Disable/enable POST diagnostic messages display.
	1st Boot Device, 2nd Boot Device, 3rd Boot Device, 4th Boot Device	Allows you to specify which device groups will boot first, second, third, and fourth or to disable any of the four: Floppy group, CD-ROM group, Hard drive group, Network boot group. MS-DOS drive lettering assignments maybe apply after a non-MS-DOS operating system has started.
	Floppy Group Boot Priority	Specifies boot device priority within removable devices.
	CD-ROM Boot Priority	Specifies boot device priority within CD/DVD drives.
	Hard Drive Boot Priority	Specifies boot device priority within hard drives.
	Network Group Boot Priority	Specifies boot device priority within bootable network devices.
Exit	Exit Saving Changes	Press **Enter** to exit saving changes.
	Exit Discarding Changes	Press **Enter** to exit discarding changes.
	Load Setup Defaults	Press **Enter** to load setup defaults.
	Discard Changes	Press **Enter** to discard changes.
	Save Changes	Press **Enter** to save changes.

Boot Block Emergency Recovery Mode

Boot Block Emergency Recovery Mode permits system recovery in the unlikely event of a ROM flash failure. For example, if a power failure were to occur during a BIOS upgrade, the ROM flash would be incomplete. This would render the system BIOS unusable. The Boot Block is a flash-protected section of the ROM that contains code that checks for a valid system BIOS image when the system is turned on.
• If the system BIOS image is valid, the system starts normally.
• If the system BIOS image is not valid, a failsafe Boot Block BIOS provides enough support to search removable media for BIOS image files. If an appropriate BIOS image file is found, it is automatically flashed into the ROM.

When an invalid system BIOS image is detected, the system power LED will blink red 8 times, one blink every second. Simultaneously, the speaker will beep 8 times. If the portion of the system ROM containing the video option ROM image is not corrupt, Boot Block Emergency Recovery Mode will be displayed on the screen.
To recover the system after it enters Boot Block Emergency Recovery Mode, complete the following steps:

Boot Block Recovery

1. Remove any bootable media from the computer and turn off power.
2. Insert a USB flash device or CD containing the BIOS image file 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 automatically reprograms the ROM.

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

The Supervisor password is used to authorize the capability to change BIOS Setup options. The User password is used to authorize the capability to change non-critical BIOS Setup options only, such as system date and system time.
• To create a user password, a supervisor password should be activated first.
• If both Supervisor and User passwords are activated and the correct Supervisor password is entered, all read/write options can be modified.
• If both Supervisor and User passwords are activated and the correct User password is entered, all options that cannot be modified must be displayed as read-only.
• When a password was not activated, the field displays as "Disabled".

Establishing a Supervisor password in Computer Setup

1. Turn on or restart the computer. If you are in Windows, click **Start > Shut Down > Restart the Computer**.
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 **Advanced**, and then select **Supervisor Password**.
4. Before exiting, click **File > Save Changes and Exit**.

Changing a Supervisor or User password

If the system is equipped with an embedded security device, refer to the HP ProtectTools Security Manager Guide at http://www.hp.com.

1. Turn on or restart the computer. If you are in Windows, click **Start > Shut Down > Restart the Computer**.
2. As soon as the computer is turned on, press **F10** before the computer boots to the operating system to enter Computer Setup.
3. Select the **Advanced** menu, select **Change supervisor password** or **Change user password**, press **Enter** to modify the password, and then type the 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.

Disabling a Supervisor or User password

If the system is equipped with an embedded security device, refer to the HP ProtectTools Security Manager Guide at http://www.hp.com.

1. Turn on or restart the computer. If you are in Windows, click **Start > Shut Down > Restart the Computer**.
2. As soon as the computer is turned on, press **F10** when the monitor light turns green to enter Computer Setup.
3. Select the **Advanced** menu, select **Change supervisor password** or **Change user password**, and then press **Enter** twice to disable the password.
4. Press **Enter**.

HP Insight Diagnostics

Diagnostic functions are provided by the Setup Utility (in system ROM) and by HP Insight Diagnostics. The HP Insight 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.

Insight Diagnostics may be downloaded from the HP 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, dc7500) 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. 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. Locate the jumper labeled E69.
4. Remove the blue CMOS jumper from pins 4 and 6 and put the jumper on pins 2 and 4. This clears CMOS.
5. Put the jumper back on pins 4 and 6.
6. Replace the chassis access panel and reconnect the power cord.
7. Turn on the computer and allow it to start.