Illustrated Parts & Service Map

HP Compaq dx2250 Microtower Business PC

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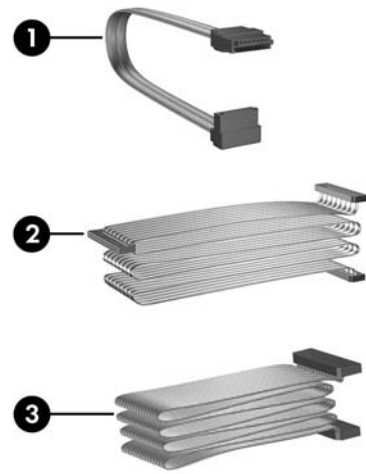
Cables

	Miscellaneous cable kit, includes:	410725-001
1	SATA HDD cable(K1D-1008060-M78)	
2	ODD cable (K12-1080104-M78)	
3	Diskette drive cable (385981-002)	
*	Front USB cable with mounting screw	436328-001
*	Power switch with cable and switch mounting bracket	416163-001
*	DMS50 to Dual VGA adapter	339257-001

Not shown

Key Specifications

Processor Type:	AMD Athlon 64 Dual Core, AMD Athlon 64, and AMD Sempron 64 with HyperTransport
RAM Type:	DDR PC2-5300 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 (6), RJ-45 (1), front and rear audio jacks (2 each), P/S2 (2), and VGA (1)

Spare Parts

System Unit

1	Front bezel without bezel blank	438609-001
2	Access panel	440197-001
3	Chassis	not spared
4	Power supply, non-PFC, 250 W	410719-001
4	Power supply, PFC, 250 W	410720-001
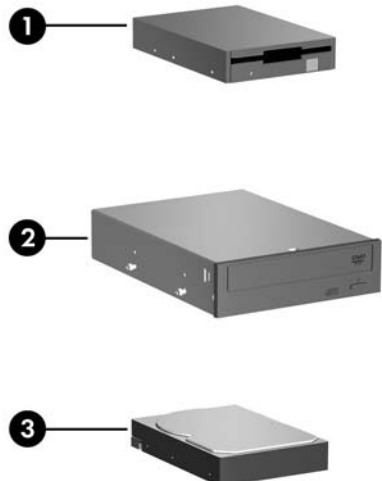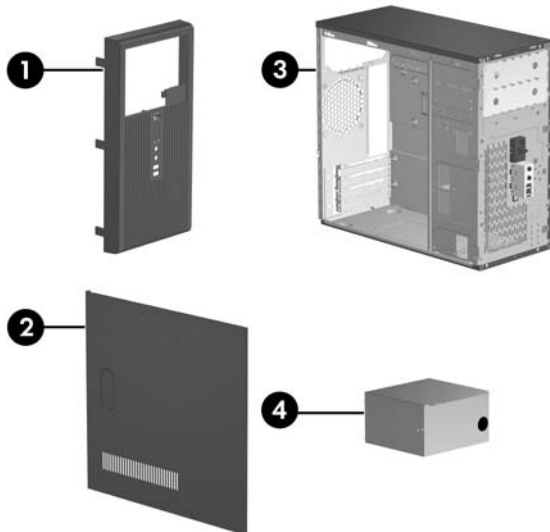
Mass Storage Devices

| 1	Diskette drive, 3.5-inch, with mounting screws	392415-001
2	48X CD-ROM drive	397130-001
*	52X CD-ROM drive	413522-001
*	48X/32/X48X CD-RW drive	395272-001
*	48X/32/48X+16X CD-RW/DVD-ROM drive	405425-001
*	16/48X DVD ROM Drive	405761-001
*	16X DVD +/- RW	405760-001
3	80-GB\7200 RPM SATA hard drive, 3.0 Gb/s	440754-001
*	160-GB\7200 RPM SATA hard drive, 3.0 Gb/s	440499-001
*	250-GB\7200 RPM SATA hard drive, 3.0 Gb/s	440747-001
*	Media card reader	407187-001

Not shown

Keyboards (not illustrated)

PS/2, Basic		382925-xxx	
USB, Basic		382926-xxx	
French Canadian	-121	PRC	-AA1
International	-B31	Taiwanese	-AB1
Korean (Hanguel)	-AD1	Thai	-281
LA Spanish	-161	U.S.	-001
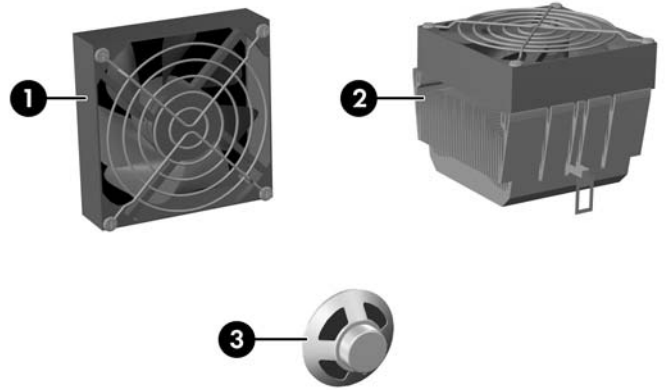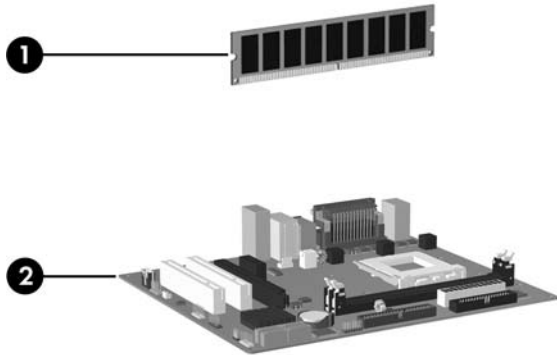
Standard and Optional Boards

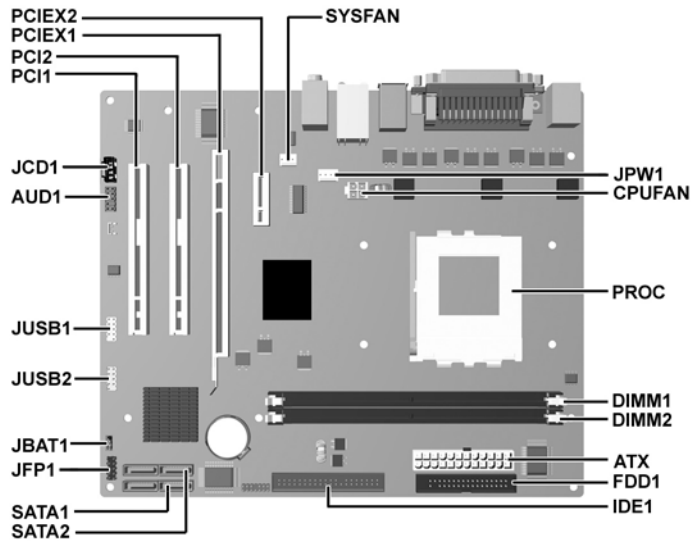|	Memory modules, non-ECC, DDR2	
1	256 MB, PC2-5300, CL5	396519-001
*	512 MB, PC2-5300, CL5	396520-001
*	1 GB, PC2-5300, CL5	398038-001
	System Boards with thermal grease, alcohol pad, and CPU socket cover	
2	Standard board	438601-001
	AMD Sempron64 processor with 800 MHz HyperTransport	
*	**3000+, 1.6 GHz, 256K cache, 1.6 GHz FSB**	**441230-001**
*	**3200+, 1.8 GHz, 128K cache, 1.6 GHz FSB**	**441229-001**
*	3400+, 1.8 GHz, 256K cache, 1.6 GHz FSB	433506-001
*	3600+, 2.0 GHz, 256K cache, 1.6 GHz FSB	435919-001
	AMD Athlon64 processor with 1.0 GHz HyperTransport,	
*	3500+, 2.2 GHz, 512 KB cache, 2.0 GHz FSB	435911-001
*	3800+, 2.4 GHz, 512 KB cache, 2.0 GHz FSB	435912-001
	AMD Athlon 64 Dual Core processor with 1.0 GHz HyperTransport	
*	3800+, 2.0 GHz, 1.0 MB cache, 2.0 GHz FSB	435913-001
*	4200+, 2.2 GHz, 1.0 MB cache, 2.0 GHz FSB	435914-001
*	4600+, 2.4 GHz, 1.0 MB cache, 2.0 GHz FSB	435915-001
	Other boards	
*	ATI Radeon X1300Pro, 256 MB, PCIe, with DVI-I and S-Video output	413023-001
*	Dual head graphics, 256 MB, PCI-E	432747-001
*	802.11 Wireless LAN adapter	391866-001
*	802.11 Wireless LAN adapter, NA	391866-002
*	Standard 1394 PCI card with 2 external and 1 internal ports	393308-001
*	Gigabit NIC, PCI-E card	398754-001
*	Agere International 56K Modem, FH	398661-001
*	DVI-I to VGA graphics adapter	202997-005

* Not shown
LP = Low profile
FH = Full height

Miscellaneous Parts

	Miscellaneous parts kit, includes:	410717-001
*	3.5" Diskette drive bezel (414218-001)	
*	3.5" Bezel blank (414219-001)	
*	5.25" Bezel blank (166775-004)	
*	#6-32 x .187 Taptite, hitop screw with serrations (6 ea) (192308-003)	
*	#6-32 x .187 Taptite, hitop screw with serrations (6 ea) (192308-001)	
*	#6-32 x .250 Taptite, hitop screw with captive flat washer (2 ea) (114399-067-001)	
*	M3 x 5 mm Taptite hitop screw with serrations (4 ea) (247348-001)	
	M5 x 12mm Plastite screw with flat, countersunk head (247481-002)	
*	EMI shield	419986-001
1	Chassis fan with mounting screws	438741-001
2	Heatsink with alcohol pad and factory-applied thermal grease	438602-001
3	Internal speaker	438607-001
*	Mouse, PS2, optical	417966-001
*	Mouse, PS2, scroll type	390937-001
*	Mouse, optical	390938-001
*	Battery, real-time clock	153099-001
*	Foot (4 ea)	370708-001
*	DVI-I to VGA adapter	202997-001

*Not shown

System Board

PCIEX2
PCIEX1
PCI2
PCI1
JCD1
AUD1
JUSB1
JUSB2
JBAT1
JFP1
SATA1
SATA2

SYSFAN
JPW1
CPUFAN
PROC
DIMM1
DIMM2
ATX
FDD1
IDE1

System Board Connectors and Jumpers (position of some untitled components may vary in location)			
ATX	Main 24-pin power	JUSB1	Front USB
AUD1	Front audio	JUSB2	Media Card Reader
CPUFAN	Heatsink fan	PCI1	PCI card
DIMM1	Memory module	PCI2	PCI card
DIMM2	Memory module	PCIEX1	PCI-E x1
FDD1	Diskette drive	PCIEX2	PCI-E x16
IDE1	IDE drive	SATA1	Serial ATA
JBAT1	CMOS	SATA2	Serial ATA
JCD1	CD Audio (not used)	SYSFAN	Chassis fan
JPW1	Aux power (4-pin)	PROC	Microprocessor
JFP1	Power switch/LED		

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
System Information	Lists the following main system specifications: • Product Name • System ROM • SKU Number • Integrated MAC • Processor Type • UUID • Processor Speed • System Serial # • Cache Size • Asset Tracking Number • Memory Size • Enter Asset Tag Number
Standard CMOS Features	System Date (mm/dd/yyyy) - Allows you to set system date.
	System Time (hh/mm/ss) - Allows you to set system time.
	Floppy Drive A - Calculates size and capacity of diskette drive.
	PATA Controller - Disable/enable.
	PATA Channel 0 Master/PATA Channel 0 Slave - Allows you to run HDD self-tests, set device details, set access mode, and view information about the device(s)
	SATA Controller - Disable/enable
	SATA Mode - Allows you to set mode to Native/Legacy IDE
	SATA Channel 1 Master and Channel 2 Master - Allows you to run HDD self-tests, set device details, set access mode, and view information about the device(s)
	Floppy Controller - Disable/enable
	Drive A - Allows you to set to None or 1.4M, 3.5 in.
	Halt On - Allows you to set POST error behavior to: all errors, no errors, all but keyboard, all but diskette, or all but diskette/keyboard.
	POST Delay - Allows you to set POST delay to 0, 5, 10, 15, or 30 seconds
Advanced BIOS features	Device Boot Disabling - Allows you to restrict a device from booting the unit. May disable: none, USB, Internal ODD, Internal FDD, or USB+ODD+FDD
	F9 Boot Menu - Disable/enable
	Removable device Boot Seq. - Allows you to specify the order of attached removable devices. The first drive in the order has priority and is recognized as drive A.
	Hard Disk Boot Seq. - Allows you to specify the order of attached hard drive devices (USB HDD, USB2 Drive Key, or USB flash media). The first attached drive in the order has priority and is recognized as drive C.
	Hard Disk Boot Seq. - Allows you to specify the order of attached hard drive devices (USB HDD, USB2 Drive Key, or USB flash media). The first drive in the order has priority and is recognized as drive C (if attached).
	Optical Drive Boot Seq. - Allows you to specify the order in which attached optical drives (including USB ODD) are checked for a bootable operating system image.

Heading	Option / Description	
Advanced BIOS features (continued)	Network Boot Seq.	Allows you to specify the order in which network devices (including UP NIC cards) are checked for a bootable operating system image.
	First, Second, Third, and Fourth Boot Device	Allows you to specify which devices will boot in which sequence or to disable any of the four: removable, hard disk, CDROM, network, or disabled.
	Boot Up NumLock Status	Allows you to set default to off or on.
	Security Option	Allows you to set option to Setup or System.
	BIOS Write Protection	Disable/enable
	AMD NX Function	Disable/enable
Advanced Chipset Features	UMA Frame Buffer	Select the UMA frame buffer size to: 32MB, 64MB, or Recommended (system automatically allocates memory)
	Init Display First (VGA)	Allows you to select the primary display device: PCI slot, OnChip VGA, or PCIEx
	SURROUND-VIEW	Disable/enable SURROUNDVIEW (when an ATI PCIEx video card is installed) (VGA setting)
	Auto Detect PCI Clk	Disable/enable (VGA setting)
	Spread Spectrum	Disable/enable (VGA setting)
Integrated Peripherals	Onboard HD Audio	Disable/enable
	OnChip USB Controller	Disable/enable
	USB Legacy Support	Disable/enable (USM mouse, keyboard, and flash media)
	Onboard LAN	Disable/enable
	Onboard LAN Boot ROM	Disable/enable
	Onboard Serial Port	Select a setting: Disabled, 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, or 2E8/IRQ3
	Onboard Parallel Port	Select a setting: Disabled, 378/IRQ7, 278/IRQ5, or 3BC/IRQ7
	Parallel Port Mode	Select a mode: SPP, EPP, ECP, ECP+EPP, or Normal
Power Management Setup	After AC Power Loss	Select system power loss behavior: On, Off, Last State
	External Modem S5 Wake-up	Disable/enable
	Wake on PCI Device from S5	Disable/enable
	AMD Cool'n'Quiet	Disable/enable
	RTC Alarm Resume	Disable/enable
	Date (of Month)	If RTC Alarm Resume is enabled, allows you to select any day of the month to resume RTC alarm.
	Resume Time (hh:mm:ss)	If RTC Alarm Resume is enabled, allows you to select what time the RTC alarm will resume.
PC Health Status	System Fan Fail Check	Disable/enable
	Smart Fan Function	Disable/enable
	Current CPU Temperature	View only
	Current System Temp	View only
	Current CPU Fan Speed	View only
	Current System Fan Speed	View only
	Vcore	View only
	+12V	View only
	VCC5	View only
	+3.3V	View only
	VBAT (V)	View only
	3VSB (V)	View only
Action Choices	Load Optimized Defaults	Reset Computer Setup to factory defaults.
	Set Supervisor Password	Allows you to establish a password to enter Computer Setup
	Set User Password	Allows you to establish a password to enter the computer (must have Supervisor password established)
	Exit & Save Setup	Save current settings and exit Computer Setup.
	Exit Without Saving	Exit Computer Setup without saving changes.

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.

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, dx2250) 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**.

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	Suspend to RAM (some Models)
Power	Red	1 blink every second followed by a 2 second pause	CPU thermal shutdown
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	8 blinks, 1 blink every second followed by a 2 second pause	Invalid ROM based on Checksum
none	none	1 blink then power shut down	Cannot detect CPU
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
103-System Board Failure	none	DMA, timers	1. Clear CMOS memory. 2. Remove expansion board. 3. Replace system board.
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. Turn off the computer and any external devices, disconnect the power cord from the power outlet, and remove the access panel.
2. Locate jumper JBAT1 and move the jumper from pins 2-3 to pins 1-2.
3. Leave the jumper on pins 1-2 for 5 seconds then, move the jumper back to pins 2-3.
4. Replace the access panel and connect the power cord to the power outlet.
5. Turn on the computer, allow it to start.