Illustrated Parts & Service Map

HP rp5700 Business System

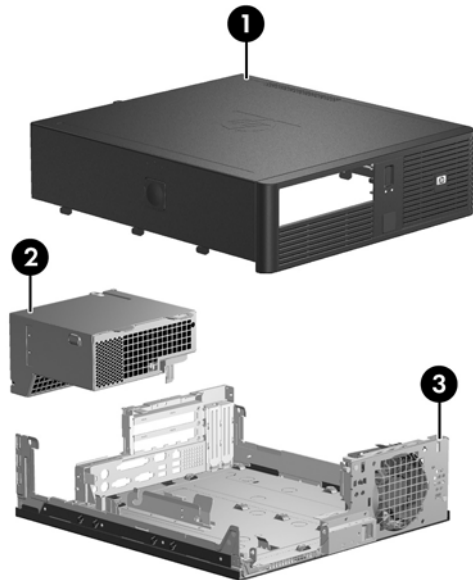**Document Number 447884-003.**   3rd Edition, June 2010

Key Specifications

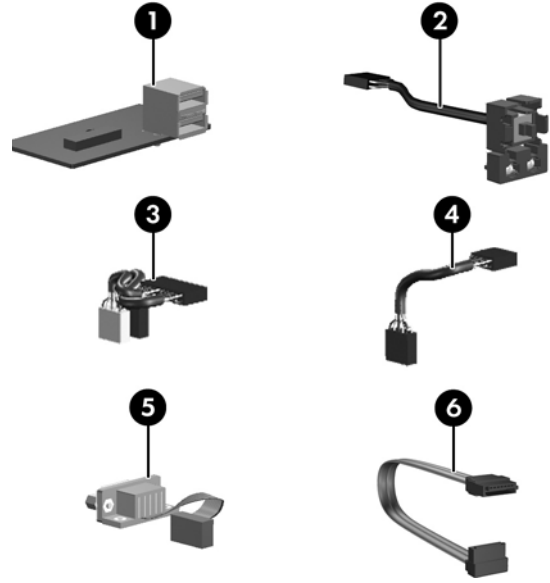|	
Processor Type:	Intel Celeron D, Intel Pentium 4, or Intel Core 2 Duo
RAM Type:	DDR PC2-5300 667 MHz, non-ECC
Maximum RAM Supported:	4 GB
Expansion Bus:	PCI 2.3
Graphics Adapter	Integrated controller. ADD2 support.
Hard drive interface:	SATA 3.0 Gb/s
I/O Interfaces:	Serial (2 std. or powered optional some models), parallel (1), USB 2.0 (6 std. + 4 powered optional some models), RJ-45 (1), front and rear audio jacks (2 each), PS/2 (2 ea), video DSUB

Spare Parts

System Unit

1	Hood assembly with front bezel for use in models with serial numbers xxx944xxxx or earlier	445765-001
*	Hood assembly with front bezel for use in models with serial numbers xxx944xxxx or later **	578190-001
2	Power supply, 80Plus for use in models with serial numbers xxx944xxxx or earlier	445771-001
*	Power supply, 80Plus for use in models with serial numbers xxx944xxxx or later **	578189-001
3	Chassis	not spared

Not shown
*** EUP Lot 6 and Jack Black color change*

Cables

1	Front USB device with cable	445759-001
2	Power switch/LED assy with cable	445760-001
	Expansion card cable kit, includes:	445777-001
3	Powered USB card cable (445792-001)	
4	Powered serial card cable (445791-001)	
5	Flying serial port with cable	445768-001
	SATA drive cable kit, includes:	445763-001
6	11.8-inch cable (381868-013)	
6	19.7-inch cable (381868-012)	
6	20.9-inch cable (381868-011)	

Not shown

Mass Storage Devices

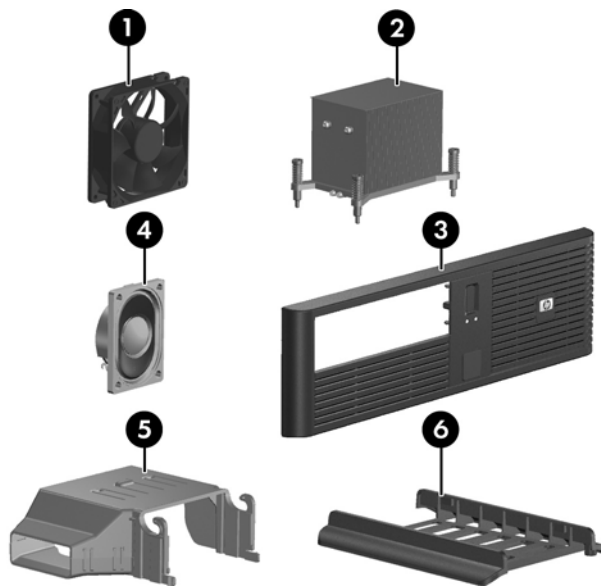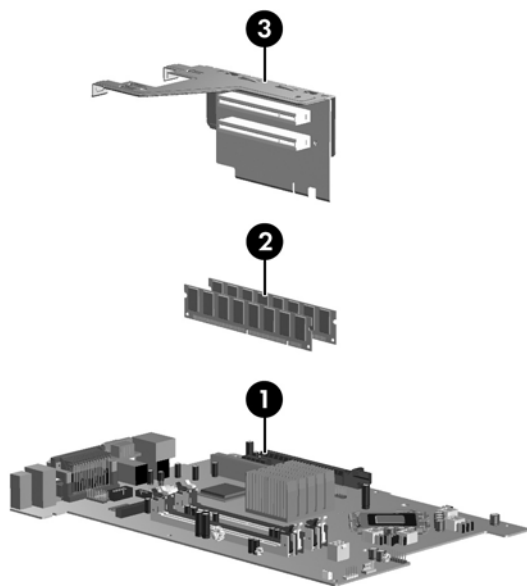|		
*	16X SATA DVD-ROM drive5.25-inch bezel blank for use in models with serial numbers xxx944xxxx or earlier	405761-001
*	16X SATA DVD-ROM drive5.25-inch bezel blank for use in models with serial numbers xxx944xxxx or later **	419496-001
*	16X SATA DVD±RW and CD-RW drive with LightScribe for use in models with serial numbers xxx944xxxx or earlier	447310-001
*	16X SATA DVD±RW and CD-RW drive with LightScribe for use in models with serial numbers xxx944xxxx or later **	581059-001
*	80-GB\7200 RPM SATA hard drive, 8MB buffer	440754-001
*	160-GB\7200 RPM SATA hard drive, 8MB buffer	440499-001
*	250-GB\7200 RPM SATA hard drive, 8MB buffer	440747-001

Not shown
*** EUP Lot 6 and Jack Black color change*

Keyboards (not illustrated)

PS/2, Basic Vista		435302-xxx	
USB, Basic Vista		**435382-xxx**	
USB, Basic Vista (BG 1650 certified)		**435384-xxx**	
Arabic[1]	-171	LA Spanish[1]	-161
Belgian	-181	Netherlands[1]	-331
BHCSY[1]	-B41	Norwegian[1]	-091
Czech[1]	-221	Polish[1]	-121
Danish	-081	Portuguese[1]	-131
Finnish[1]	-351	Russian[1]	-251
French	-051	Slovakian[1]	-231
French Arabic[1]	-DE1	Spanish[1]	-071
German	-041	Swedish	-101
Greek[1]	-151	Swiss	-111
Hebrew[1]	-BB1	Turkish[1]	-141
Hungarian[1]	-211	U.K.[1]	-031
International	-B31	U.S.[1]	-001
Italian	-061		
[1] Not for 435384-xx1			

Standard and Optional Boards

	System Boards with thermal grease, alcohol pad, CPU socket cover, and mounting screws	
1	System board for use in models with serial numbers xxx944xxxx or earlier	445757-001
*	System board for use in models with serial numbers xxx944xxxx or later **	578188-001
*	System board for use in models with serial numbers xxx944xxxx or earlier (for Russia only)	445764-001
*	System board for use in models with serial numbers xxx944xxxx or later (for Russia only) **	592231-001
	Intel Celeron Processors with alcohol pad and thermal grease	
*	#440, 512K cache, 2.0 GHz, 533 MHz FSB	449166-001
	Intel Pentium 4 Processors with alcohol pad and thermal grease	
*	#E2160, 1 MB cache, 1.8 GHz, 800 MHz FXSB	449168-001
	Intel Core 2 Duo Processors with alcohol pad and thermal grease	
*	#E7400, 3 MB cache, 2.80 GHz, 1066 FSB	581070-001
*	#E6400e, 2 MB cache, 2.13 GHz, 1066 FSB	450470-001
	Memory modules	
2	512 MB, PC2-5300, CL5	396520-001
*	1 GB, PC2-5300, CL5	398038-001
3	Riser card with mounting bracket and screws	445758-001
	Other boards	
*	Powered serial port expansion card with cable	445775-001
*	Powered USB expansion card with cable	445776-001
*	DVI-D ADD2 graphics, LP	398333-001
*	Agere International 56K Modem, FH	398661-001
*	Wireless LAN adapter, 802.11 ABG, WorldWide	391866-001
*	Wireless LAN adapter, 802.11 ABG, North America	391866-002

Not shown
** EUP Lot 6 and Jack Black color change
LP = Low profile
FH = Full height

Miscellaneous Parts

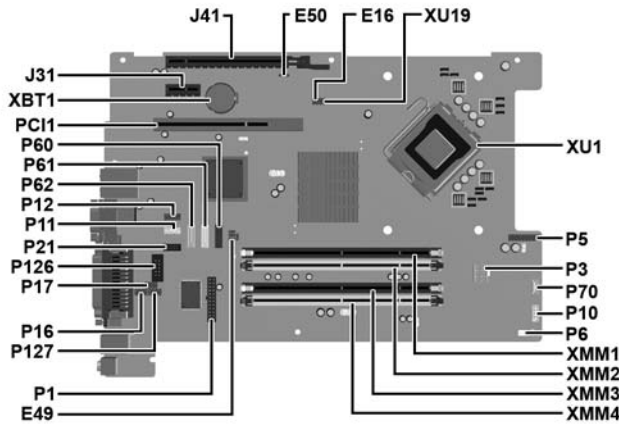|		
1	Chassis fan	445761-001
2	Heatsink with alcohol pad and factory-applied thermal grease	445774-001
*	Mouse, PS2, scroll type	390937-001
*	Mouse, PS2, optical	417966-001
*	Battery, real-time clock	153099-001
3	Front bezel without mounting screws for use in models with serial numbers xxx944xxxx or earlier	445766-001
*	Front bezel without mounting screws for use in models with serial numbers xxx944xxxx or later **	578191-001
4	Internal speaker	445762-001
5	Fan duct	445767-001
6	Tower stand for use in models with serial numbers xxx944xxxx or earlier	445770-001
*	Tower stand for use in models with serial numbers xxx944xxxx or later **	578193-001
*	5.25-inch bezel blank for use in models with serial numbers xxx944xxxx or earlier	335937-001
*	5.25-inch bezel blank for use in models with serial numbers xxx944xxxx or later **	570838-001

Not shown
** EUP Lot 6 and Jack Black color change

Power Supply Cable Connections

CABLE DESIGNATOR	DEVICE
P1	System board., 24-pin
P2	CPU power, 6-pin
P3	Powered USB port expansion card
P4	Powered serial port expansion card
P5	2nd SATA hard drive
P6	1st SATA hard drive
P7	Optical drive

System Board

System Board Connectors and Jumpers (position of some untitled components may vary in location)			
E16	ROM recovery	P21	Powered COM port card
E49	Password	P126	COM2 connector
E50	CMOS	PCI1	PC riser
J31	PCI express x1 slot	P60	SATA0
J41	ADD 2 card socket	P61	SATA1
P1	Main power	P62	SATA2
P3	CPU power	P70	Chassis fan
P5	Power button/LED	XBT1	Real-time-clock battery
P6	Internal speaker	XU1	Processor
P10	Front USB	XU19/U19	SPI ROM and socket
P11	USB0 Powered USB card	XMM1	DIMM 1
P12	USB1 Powered USB card	XMM2	DIMM 2
P16 & P127	COMx power configuration jumpers	XMM3	DIMM 3
P17	COMx power configuration jumpers	XMM4	DIMM 4

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: • Hard disk • Multisector Transfers (ATA disks only) • Translation Mode (ATA disks only) • Translation Parameters (ATA disks only) • Default Values IDE/SATA
	Storage Options - • Removable Media Boot • BIOS DMA Data Transfers • SATA Emulation-IDE RAID - SATA 0 and 2, SATA 1
	DPS Self-Test - Allows you to execute self-tests on ATA hard drives.
	Boot Order - • Allows you to specify boot order. • Shortcut to Temporary 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.
	Embedded Security (some models) - Allows you to enable/disable Embedded Security and power-on authentication support, reset device to factory settings, enable/disable power-on authentication, and reset authentication credentials.
	Device Security (some models) - Enables/disables all I/O ports, audio, network controllers, 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, OS management of Enabled Security Devices, reset Embedded Security Devices, and Intel Virtualization Technology.
	Setup Security Level - allows changing some options outside of F10 setup
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 • F11 prompt - hidden/displayed • F12 prompt - Enable/disable • Factory Recovery Boot Support - 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 http://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
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 computer cover.

3. Locate the E50 (CMOS) jumper and move the jumper from pins 1-2 to pins 2-3.

4. Leave the jumper on pins 2-3 for 5 seconds then, return the jumper to pins 1-2.

5. Replace the computer cover and reconnect the power cord.

6. Turn on the computer and allow it to start.