Illustrated Parts & Service Map

HP Compaq 4000 Pro
Small Form Factor Business PC

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Key Specifications

Processor Type: Intel® Pentium Dual-Core, Core 2, Core2 Duo, Core2 Quad
RAM Type: DDR3-SDRAM DIMMs, PC3-10600 (1333 MHz) non-ECC
Maximum RAM Supported: 8 GB
Expansion Slots:
  - (1) PCIe-x16
  - (1) PCIe-x1
  - (2) PCI
Chipset: Intel B43 Express
Graphics Adapter: Integrated Intel GMA 4500 graphics
Bays:
  - (1) external 5.25-inch for optical drive
  - (1) external 3.5-inch for media card reader
  - (1) internal 3.5-inch or hard drive
I/O Interfaces:
  - Front: (4) USB, microphone, headphone
  - Rear: (4) USB, PS/2 keyboard and mouse, line in, line out, VGA, DVI-D, RJ-45, serial
Operating Systems:
  - Windows® Vista
  - Windows 7
  - RedFlag Linux
  - FreeDos

Spare Parts

System Unit
1. Access panel 640048-001
2. chassis 535345-xx1
   - Power supply, 240W 535630-xx0
   - Power supply, 240W, 85% efficient 535630-xx1
   - Power supply, 240W, High Voltage protection 535630-xx2
   - Front bezel 535020-xx0
   - Front bezel, 3.5-inch 535020-xx1
   - Front bezel, 5.25-inch 535020-xx3
   - Not shown

Mass Storage Devices (not illustrated)
1. 16X SATA DVD/Blu-ray drive with LightScribe 535644-xx4
2. 16X SATA DVD/Blu-ray drive 535644-xx4
3. 250 GB SATA hard drive 636930-xx1
4. 500 GB SATA hard drive 636936-xx1
5. 1 TB SATA hard drive 636940-xx1

Keys (not illustrated)

PS/2 Basic 535740-xx1
USB Basic 535746-xx1
USB SmartCard 638405-xx1
USB Mod[b] 535873-xx1
Washable[b] 577495-xx1
Arabic -17x 537745-xx1
Kazakstanian -DFx 537746-xx1
Belgian -18x LA 531411-xx4
Spanish -16x LA 531411-xx4
French -05x 531411-xx4
Spanish -07x 531411-xx4
Russian -25x 531411-xx4
Polish -24x 531411-xx4
Czech -22x 531411-xx4
Danish -18x 531411-xx4
Dutch -19x 531411-xx4
Estonian -CAx 531411-xx4
French Canadian -12x 531411-xx4
Hungarian -21x 531411-xx4
Icelandic -DDx 531411-xx4
French -04x 531411-xx4
Spanish -07x 531411-xx4
U.S. -00x 531411-xx4
U.K. -03x 531411-xx4
International -B3x 531411-xx4
International English -L3x 531411-xx4

HP Compaq 4000 Pro, SFF Chassis 640048-001 page 1
Standard and Optional Boards

- System board, No label (China only) 082474-001
- System board, Netclone (China only) 082474-001

Memory modules (PC3-10600, CL9)

<table>
<thead>
<tr>
<th>Size</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 GB</td>
<td>635802-001</td>
</tr>
<tr>
<td>2 GB</td>
<td>635803-001</td>
</tr>
<tr>
<td>4 GB</td>
<td>635804-001</td>
</tr>
</tbody>
</table>

Optional boards

- *Vista Quadro NVS300 PCIe x1 graphics card 635825-001
- *Vista Quadro NVS300 PCIe x16 graphics card 635826-001
- *ATI Radeon HD6350 PCIe x16 graphics card, 512 MB 635705-001

Intel Pentium Dual Core Processors (include thermal material)

- *E6800, 3.33 GHz, 2-MB L2 cache 631758-001
- *E6700, 3.20 GHz, 2-MB L2 cache, 1066-MHz FSB 617840-001
- *E5800, 3.20 GHz, 2-MB L2 cache, 800-MHz FSB 646376-001

Intel Celeron Processors (include thermal material)

- *E3500, 2.7 GHz, 1-MB L2 cache 633219-001
- *E3400, 2.6 GHz, 1-MB L2 cache 602071-001
- *E3300, 2.5 GHz, 1-MB L2 cache 585886-001

Intel Core 2 Quad Processors (include thermal material)

- *Q9550S, 2.83 GHz, 12-MB L2 cache 593228-001
- *Q9505S, 2.83 GHz, 6-MB L2 cache, 65W 593229-001

Intel Core 2 Duo Processors (include thermal material)

- *Q8200, 2.33 GHz, 6-MB L2 cache 583229-001
- *Q8200, 2.33 GHz, 6-MB L2 cache, 65W 583230-001
- *Q6600, 2.40 GHz, 6-MB L2 cache 609205-001
- *Q6700, 2.67 GHz, 6-MB L2 cache 609206-001
- *Q6600, 2.40 GHz, 6-MB L2 cache 609205-001
- *Q6700, 2.67 GHz, 6-MB L2 cache 609206-001
- *E7500, 2.93 GHz, 3-MB L2 cache 583006-001
- *E7500, 2.93 GHz, 3-MB L2 cache 583006-001
- *E7500, 2.93 GHz, 3-MB L2 cache 583006-001
- *Not shown

Intel Core 2 Duo Processors (include thermal material)

- *Q6600, 2.40 GHz, 6-MB L2 cache 609205-001
- *Q6700, 2.67 GHz, 6-MB L2 cache 609206-001
- *Q6600, 2.40 GHz, 6-MB L2 cache 609205-001
- *Q6700, 2.67 GHz, 6-MB L2 cache 609206-001
- *E7500, 2.93 GHz, 3-MB L2 cache 583006-001
- *E7500, 2.93 GHz, 3-MB L2 cache 583006-001
- *E7500, 2.93 GHz, 3-MB L2 cache 583006-001
- *Not shown

Miscellaneous Parts

<table>
<thead>
<tr>
<th>Part Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal speaker</td>
<td>638825-001</td>
</tr>
<tr>
<td>Chassis fan assembly</td>
<td>638826-001</td>
</tr>
<tr>
<td>Heat sink (includes thermal material)</td>
<td>589810-001</td>
</tr>
<tr>
<td>Brake</td>
<td>638824-001</td>
</tr>
<tr>
<td>Rubber feet kit</td>
<td>589814-001</td>
</tr>
<tr>
<td>Chassis stand</td>
<td>589815-001</td>
</tr>
<tr>
<td>2nd serial port</td>
<td>589816-001</td>
</tr>
<tr>
<td>Card reader, 22-in-1</td>
<td>589817-001</td>
</tr>
<tr>
<td>Hard drive</td>
<td>589818-001</td>
</tr>
<tr>
<td>USB powered speakers</td>
<td>609209-001</td>
</tr>
<tr>
<td>Mouse, PS2, optical, jack black</td>
<td>537748-001</td>
</tr>
<tr>
<td>Mouse, optical, jack black</td>
<td>537749-001</td>
</tr>
<tr>
<td>Mouse, laser, jack black</td>
<td>537750-001</td>
</tr>
<tr>
<td>Mouse, washable</td>
<td>537751-001</td>
</tr>
<tr>
<td>Projector port kit</td>
<td>538817-001</td>
</tr>
</tbody>
</table>
| *Not shown

LP = Low profile
System Board

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 accessible by pressing the F10 key when prompted on power-on screen or 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.

Security

- Setup Password - Allows you to set and enable the setup (Administrative) password.
- Power-On Password - Allows you to set and enable power-on password.
- Password Options - When any password exists allows you to lock Legacy mode, QuickLock mode, and set a password for warm boot, and allows you to enable/disable Setup Remote Mode.
- Smart Card Reader - Enables disables all I/O ports, enables sets work controllers, SATA ports, and embedded security devices.
- USB Security - Allows you to set Device Available/Device Habits for from USB ports 5-8, rear USB ports 9-12, and internal USB ports 1-2.
- Diagnostics - Allows you to disable any PCI or PCI Express slot.
- Network - Enables disables boot from DS via a server.
- Service Tag - Allows you to set and enable/enable/disable Setup Browse Mode.
- PC SoftLock - Allows you to enable/disable setup browse mode for network and PC SoftLock.

Password Security (some models) - Allows you to enable/disable:
- Setup Password Protection
- Setup Password Setting

Power

- QFlash Power Management - enables you to enable/disable Booting Power Management, Idle Power Settings, ACPI 51 Hard Disk Reset, ACPI 51 PCI Mouse Wakeup, USB Wake on Device Insertion (some models).
- Blackboard Power Management - Allows you to enable/disable SATA bus power management and 51 maximum power savings.

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 accessible by pressing the F10 key when prompted on power-on screen or 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

File

- System Information - Lists the following main system specifications:
  - Product name
  - SKU number (some models)
  - Processor type/placing/shopping
  - Cache size (L1A/L2A)
  - Installed memory (megahertz)

- About - Displays copyright notice.

Setup

- Set Time and Date - Allows you to set system time and date.
- Flash BIOS ROM - Allows you to select a BIOS containing a new BIOS.
- Replace Setup - Saves to ROM Memory and Restores from ROM Memory.
- Device Options - Allows you to change device settings.
- Device Security Options - Enables disables all I/O ports, audio, network controllers, SATA ports, and embedded security devices.
- Smart Cover - Allows you to lock/unlock cover lock and set status of cover removal sensor.
- Secure Boot - Enables disables boot from a signed boot image.

Storage

- Device Configuration - Lists all installed BIOS-controlled storage devices. On following options are available:
  - CD-ROM
  - SATA Drive
  - Removable Media Boot

- TFTP Auto-Boot - Allows you to execute soft switches on ATA hard drive.
- AD Auto-Boot - Allows you to specify boot source.
- ShortCut to Temporarily Override Boot Order

Computer Setup Menu (Continued)

File

- System Information - Lists the following main system specifications:
  - Product name
  - SKU number (some models)
  - Processor type/placing/shopping
  - Cache size (L1A/L2A)
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- Service Tag - Allows you to set and enable/enable/disable Setup Browse Mode.
- PC SoftLock - Allows you to enable/disable setup browse mode for network and PC SoftLock.
Password Security

Establishing a Setup or Power-On password:
1. Turn off the computer. If you are in Windows, click Start > Shut Down > Restart. When the monitor light turns green to enter Computer Setup. Press Enter to bypass the title screen, if necessary.
2. To change the Power-on password, go to step 3.
3. When the key icon appears, type your current password followed by a slash (/) or alternate delimiter character, and your new password again as shown:
   
   currentpassword/newpassword

   NOTE: Type the new password carefully since the characters do not appear on the screen.
4. Press Enter.
5. Turn on the computer and allow it to start.

Clearing CMOS

1. Turn off the computer and any external devices, and disconnect the power cord from the computer.
2. Remove the chassis access panel and reconnect the power cord.
3. With the key icon appears, type your current password followed by a slash (/) or alternate delimiter character, and your new password again as shown:
   
   currentpassword/newpassword

   NOTE: Type the new password carefully since the characters do not appear on the screen.
4. Press Enter.
5. Turn on or restart the computer. If you are in Windows, click Start > Shut Down > Restart.

Deleting a Power-On or Setup password:
1. Turn off the computer. If you are in Windows, click Start > Shut Down > Restart. When the monitor light turns green to enter Computer Setup. Press Enter to bypass the title screen, if necessary.
2. To change the Setup password, go to step 3.
3. When the key icon appears, type your current password, a slash (/) or alternate delimiter character, and your new password again as shown:
   
   currentpassword/password

   NOTE: The new password will take effect the next time the computer is restarted.
4. Press Enter.

Changing a Setup or Power-On password:
1. Turn on or restart the computer. If you are in Windows, click Start > Shut Down > Restart. When the monitor light turns green to enter Computer Setup. Press Enter to bypass the title screen, if necessary.
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 delimiter character, your new password, another slash (/) or alternate delimiter character, and your new password again as shown:
   
   currentpassword/newpassword/newpassword

4. Press Enter.

Common POST Error Messages

Screen Message Possible Cause Recommended Action
101 Option ROM Error 1. System ROM checksum error. 2. Expansion board option ROM checksums. 1. Verify ROM, reflash if required. 2. Remove suspicious card, reseat. 3. Clear CMOS memory, reseat. 4. Replace system board.
103 System Board failure DMA, interrupts. 1. Clear CMOS memory. 2. Remove expansion boards. 3. Replace system board.
104 BOC Network Controller has been disabled. Network controller controlled for setting to take effect requires re-boot from system for 15 seconds.
106 Memory Error 1. Memory module missing. 2. Memory module. 1. Verify memory module type. 2. Remove and replace memory. 3. Replace with module conforming to SPD standard.
123 Incompatible Memory Modules in Memory slot(s) X, Y. Memory module mismatch. 1. Verify memory module type. 2. Remove and replace memory. 3. Replace module compatible with chipset.
124 PRM Configuration Warning Preferred DIMM configuration is not supported. Replace memory board that is not compliant to SPD standard.
010, 040 Keyboard error Keyboard failure. 1. Check keyboard connection or reset. 2. Check connector for bent or damaged wires. Replace keyboard if testable, possible system board problem.
107 Display Adapter failure Graphics display controller is not functioning. 1. Reset graphics card. 2. Clear CMOS. 3. Check monitor connection. 4. Replace graphics card.
110 Black Screen of Death Memory image is corrupt. 1. Reinstall OS. 2. Reset CMOS. 3. Replace system board.
111 Front Power Supply Fan sensor detected. 1. Verify rear power supply fan. 2. Replace rear power supply fan.
390 Display cache is detected unreadable. Display graphics control for display cache is not working properly and disabled. 1. Replace system board or memory board that is not compliant to SPD standard.
112 SMART Hard Drive Status Information Failure Hard drive is about to fail. 1. Replace hard drive immediately. 2. Enter Computer Setup and run the Drive Properties test under Storage > DPS Self-Test.
1199 SASA Cabling Error One or more SASA devices are improperly attached. For optimal performance, the SASA devices must be used before SASA 2 and SASA 3. 1. Verify SATA connections are used in ascending order. 2. For one device, enter SASA 1. For two devices, enter SASA 1 and SASA 2. 3. For three devices, enter SASA 0, SASA 1, and SASA 2.
181 Microcode Pack Error Processor not supported by ROM BIOS. 1. Upgrade BIOS to proper version. 2. Change the processor.