## Introduction

On startup, computers perform a Power-on Self Test, commonly referred to as a POST. If problems are found while booting, you can usually diagnose them using the error codes displayed on the screen. However, if nothing displays on the screen, the computer might use sounds (i.e., beep codes) to tell you what is wrong. Many of these errors indicate hardware problems should be fixed.

The following information applies to Phoenix BIOS Q3.07 or 4.x. This information is from the Phoenix BIOS beep codes section of the ComputerHope.com Computer POST and beep codes page.

## Beep Code Sequences

Beeps Meaning

1-1-1-3 Verify real mode.

1-1-2-1 Get CPU type.

1-1-2-3 Initialize system hardware.

1-1-3-1 Initialize chipset registers with initial POST values.

1-1-3-2 Set in POST flag.

1-1-3-3 Initialize CPU registers.

1-1-4-1 Initialize cache to initial POST values.

1-1-4-3 Initialize I/O.

1-2-1-1 Initialize Power Management.

1-2-1-2 Load alternate registers with initial POST values.

1-2-1-3 Jump to UserPatch0.

1-2-2-1 Initialize keyboard controller.

1-2-2-3 BIOS ROM checksum

1-2-3-1 8254 timer initialization

1-2-3-3 8237 DMA controller initialization

1-2-4-1 Reset Programmable Interrupt Controller.

1-3-1-1 Test DRAM refresh.

1-3-1-3 Test 8742 Keyboard Controller.

1-3-2-1 Set ES segment to register to 4 GB.

1-3-3-1 28 Autosize DRAM.

1-3-3-3 Clear 512 KB base RAM.

1-3-4-1 Test 512 KB base address lines.

1-3-4-3 Test 512 KB base memory.

1-4-1-3 Test CPU bus-clock frequency.

1-4-2-4 Reinitialize the chipset.

1-4-3-1 Shadow system BIOS ROM.

1-4-3-2 Reinitialize the cache.

1-4-3-3 Autosize cache.

1-4-4-1 Configure advanced chipset registers.

1-4-4-2 Load alternate registers with CMOS values.

2-1-1-1 Set Initial CPU speed.

2-1-1-3 Initialize interrupt vectors.

2-1-2-1 Initialize BIOS interrupts.

2-1-2-3 Check ROM copyright notice.

## Beep Code Sequences (cont)

2-1-2-4 Initialize manager for PCI Options ROMs.

2-1-3-1 Check video configuration against CMOS.

2-1-3-2 Initialize PCI bus and devices.

2-1-3-3 Initialize all video adapters in system.

2-1-4-1 Shadow video BIOS ROM.

2-1-4-3 Display copyright notice.

2-2-1-1 Display CPU type and speed.

2-2-1-3 Test keyboard.

2-2-2-1 Set key click if enabled.

2-2-2-3 56 Enable keyboard.

2-2-3-1 Test for unexpected interrupts.

2-2-3-3 Display message "Press F2 to enter SETUP".

2-2-4-1 Test RAM between 512 and 640 KB.

2-3-1-1 Test expanded memory.

Dashes indicate pauses between beeps.

## Codes Continued

2-3-1-3 Test extended memory address lines.

2-3-2-1 Jump to UserPatch1.

2-3-2-3 Configure advanced cache registers.

2-3-3-1 Enable external and CPU caches.

2-3-3-3 Display external cache size.

2-3-4-1 Display shadow message.

2-3-4-3 Display non-disposable segments.

2-4-1-1 Display error messages.

2-4-1-3 Check for configuration errors.

2-4-2-1 Test real-time clock.

2-4-2-3 Check for keyboard errors.

2-4-4-1 Set up hardware interrupts vectors.

2-4-4-3 Test coprocessor if present.

3-1-1-1 Disable onboard I/O ports.

3-1-1-3 Detect and install external RS232 ports.

3-1-2-1 Detect and install external parallel ports.

3-1-2-3 Re-initialize onboard I/O ports.

3-1-3-1 Initialize BIOS Data Area.

3-1-3-3 Initialize Extended BIOS Data Area.

3-1-4-1 Initialize floppy controller.

3-2-1-1 Initialize hard-disk controller.

3-2-1-2 Initialize local-bus hard-disk controller.

3-2-1-3 Jump to UserPatch2.

3-2-2-1 Disable A20 address line.

3-2-2-3 Clear huge ES segment register.

3-2-3-1 Search for option ROMs.

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Page 1 of 2.

### Codes Continued (cont)

3-2-3-3 Shadow option ROMs.

3-2-4-1 Set up Power Management.

3-2-4-3 Enable hardware interrupts.

3-3-1-1 Set time of day.

3-3-1-3 Check key lock.

3-3-3-1 Erase "F2" message.

3-3-3-3 Scan for F2 keystroke.

3-3-4-1 Enter SETUP.

3-3-4-3 Clear in-POST flag.

3-4-1-1 Check for errors.

3-4-1-3 POST complete; prepare to boot operating system.

3-4-2-1 One beep.

3-4-2-3 Check password (optional).

3-4-3-1 Clear global descriptor table.

3-4-4-1 Clear parity checkers.

3-4-4-3 Clear screen (optional).

3-4-4-4 Check virus and backup reminders.

4-1-1-1 Try to boot with INT 19.

4-2-1-1 Interrupt handler error.

4-2-1-3 Unknown interrupt error.

4-2-2-1 Pending interrupt error.

4-2-2-3 Initialize option ROM error.

4-2-3-1 Shutdown error.

4-2-3-3 Extended Block Move.

4-2-4-1 Shutdown 10 error.

4-3-1-3 Initialize the chipset.

4-3-1-4 Initialize refresh counter.

4-3-2-1 Check for Forced Flash.

4-3-2-2 Check HW status of ROM.

4-3-2-3 BIOS ROM is okay.

4-3-2-4 Do a complete RAM test.

4-3-3-1 Do OEM initialization.

4-3-3-2 Initialize interrupt controller.

4-3-3-3 Read in bootstrap code.

4-3-3-4 Initialize all vectors.

4-3-4-1 Boot the Flash program.

4-3-4-2 Initialize the boot device.

4-3-4-3 Boot code was read okay.