

Phoenix BIOS Error Codes

Phoenix BIOS Text Error Messages

Table 13 Phoenix BIOS Text Error Messages

Error Message	Explanation
Diskette drive A error	Drive A: is present but fails the POST diskette tests. Check that the drive is defined with the proper diskette type in Setup and that the disk drive is installed correctly.
Extended RAM Failed at offset: nnnn	Extended memory not working or not configured properly at offset nnnn.
Failing Bits: nnnn	The hexadecimal number nnnn is a map of the bits at the RAM address (System, Extended, or Shadow memory) that failed the memory test. Each 1 in the map indicates a failed bit.
Fixed Disk 0 Failure Fixed Disk 1 Failure Fixed Disk Controller Failure	Fixed disk is not working or not configured properly. Check to see if fixed disk is installed properly. Run Setup to be sure the fixed-disk type is correctly identified.
Incorrect Drive A type - run SETUP	Type of diskette drive for drive A: not correctly identified in Setup.
Invalid NVRAM media type	Problem with NVRAM (CMOS) access.
Keyboard controller error	The keyboard controller failed test. Try replacing the keyboard.
Keyboard error	Keyboard not working.
Keyboard error nn	BIOS discovered a stuck key and displays the scan code nn for the stuck key.
Keyboard locked – Unlock key switch	Unlock the system to proceed.
Monitor type does not match CMOS - Run SETUP	Monitor type not correctly identified in Setup.
Operating system not found	Operating system cannot be located on either drive A: or C:.. Enter Setup and see if fixed disk and drive A: are properly identified.
Parity Check 1	Parity error found in the system bus. BIOS attempts to locate the address and display it on the screen. If it cannot locate the address, it displays ????.
Parity Check 2	Parity error found in the I/O bus. BIOS attempts to locate the address and display it onscreen. If it cannot locate the address, it displays ????.
Press <F1> to resume, <F2> to Setup	Displayed after any recoverable error message. Press F1 to start the boot process or F2 to enter Setup and change any settings.
Real-time clock error	Real-time clock fails BIOS test. Might require motherboard repair.
Shadow RAM Failed at offset: nnnn	Shadow RAM failed at offset nnnn of the 64KB block at which the error was detected.
System battery is dead - Replace and run SETUP	The CMOS clock battery indicator shows the battery is dead. Replace the battery and run Setup to reconfigure the system.
System cache error – Cache disabled	RAM cache failed the BIOS test. BIOS disabled the cache.
System CMOS checksum bad - run SETUP	System CMOS RAM has been corrupted or modified incorrectly, perhaps by an application program that changes data stored in CMOS. Run Setup and reconfigure the system either by getting the default values or making your own selections.
System RAM Failed at offset: nnnn	System RAM failed at offset nnnn of the 64KB block at which the error was detected.
System timer error	The timer test failed. Requires repair of system motherboard.

Phoenix BIOS Beep Codes

Table 14 Phoenix BIOS Beep Codes

Beeps	Port 80h Code	Explanation
1-2-2-3	16h	BIOS ROM checksum
1-3-1-1	20h	Test DRAM refresh
1-3-1-3	22h	Test keyboard controller
1-3-3-1	28h	Autosize DRAM
1-3-3-2	29h	Initialize POST memory manager
1-3-3-3	2Ah	Clear 512KB base RAM
1-3-4-1	2Ch	RAM failure on address line xxxx
1-3-4-3	2Eh	RAM failure on data bits xxxx of low byte of memory bus
1-4-1-1	30h	RAM failure on data bits xxxx of high byte of memory bus
2-1-2-2	45h	POST device initialization
2-1-2-3	46h	Check ROM copyright notice
2-2-3-1	58h	Test for unexpected interrupts
2-2-4-1	5Ch	Test RAM between 512–640KB
1-2	98h	Search for option ROMs. One long and two short beeps on checksum failure

Phoenix BIOS POST Codes

Table 15 Phoenix BIOS POST Codes

Code	POST Operation in Progress
02h	Verify real mode
03h	Disable non-maskable interrupt (NMI)
04h	Get processor type
06h	Initialize system hardware
08h	Initialize chipset with initial POST values
09h	Set IN POST flag
0Ah	Initialize CPU registers
0Bh	Enable CPU cache
0Ch	Initialize caches to initial POST values
0Eh	Initialize I/O component
0Fh	Initialize the local bus IDE
10h	Initialize power management
11h	Load alternate registers with initial POST values
12h	Restore CPU control word during warm boot
13h	Initialize PCI bus mastering devices
14h	Initialize keyboard controller
16h	BIOS ROM checksum
17h	Initialize cache before memory autosize
18h	8254 timer initialization
1Ah	8237 DMA controller initialization

Code	POST Operation in Progress
1Ch	Reset programmable interrupt controller
20h	Test DRAM refresh
22h	Test keyboard controller
24h	Set ES segment register to 4GB
26h	Enable A20 line
28h	Autosize DRAM
29h	Initialize POST memory manager
2Ah	Clear 512KB base RAM
2Ch	RAM failure on address line xxxx*
2Eh	RAM failure on data bits xxxx* of low byte of memory bus
2Fh	Enable cache before system BIOS shadow
30h	RAM failure on data bits xxxx* of high byte of memory bus
32h	Test CPU bus-clock frequency
33h	Initialize POST dispatch manager
34h	Test CMOS RAM
35h	Initialize alternate chipset registers
36h	Warm start shut down
37h	Reinitialize the chipset (motherboard only)
38h	Shadow system BIOS ROM
39h	Reinitialize the cache (motherboard only)
3Ah	Autosize cache
3Ch	Configure advanced chipset registers
3Dh	Load alternate registers with CMOS valuesnew
40h	Set Initial CPU speed new
42h	Initialize interrupt vectors
44h	Initialize BIOS interrupts
45h	POST device initialization
46h	Check ROM copyright notice
47h	Initialize manager for PCI option ROMs
48h	Check video configuration against CMOS RAM data
49h	Initialize PCI bus and devices
4Ah	Initialize all video adapters in system
4Bh	Display QuietBoot screen
4Ch	Shadow video BIOS ROM
4Eh	Display BIOS copyright notice
50h	Display CPU type and speed
51h	Initialize EISA motherboard
52h	Test keyboard
54h	Set key click if enabled
56h	Enable keyboard
58h	Test for unexpected interrupts
59h	Initialize POST display service
5Ah	Display prompt Press F2 to enter SETUP

(continues)

Table 15 Continued

Code	POST Operation in Progress
5Bh	Disable CPU cache
5Ch	Test RAM between 512–640KB
60h	Test extended memory
62h	Test extended memory address lines
64h	Jump to UserPatch1
66h	Configure advanced cache registers
67h	Initialize multiprocessor APIC
68h	Enable external and processor caches
69h	Setup System Management mode (SMM) area
6Ah	Display external L2 cache size
6Ch	Display shadow area message
6Eh	Display possible high address for UMB recovery
70h	Display error messages
72h	Check for configuration errors
74h	Test real-time clock
76h	Check for keyboard errors
7Ah	Test for key lock on
7Ch	Set up hardware interrupt vectors
7Eh	Initialize coprocessor if present
80h	Disable onboard Super I/O ports and IRQs
81h	Late POST device initialization
82h	Detect and install external RS232 ports
83h	Configure non-MCD IDE controllers
84h	Detect and install external parallel ports
85h	Initialize PC-compatible PnP ISA devices
86h	Reinitialize onboard I/O ports
87h	Configure motherboard configurable devices
88h	Initialize BIOS data area
89h	Enable non-maskable interrupts (NMIs)
8Ah	Initialize extended BIOS data area
8Bh	Test and initialize PS/2 mouse
8Ch	Initialize diskette controller
8Fh	Determine number of ATA drives
90h	Initialize hard-disk controllers
91h	Initialize local-bus hard-disk controllers
92h	Jump to UserPatch2
93h	Build MPTABLE for multiprocessor boards
94h	Disable A20 address line (Rel. 5.1 and earlier)
95h	Install CD-ROM for boot
96h	Clear huge ES segment register
97h	Fix up multiprocessor table
98h	Search for option ROMs
99h	Check for S.M.A.R.T. drive

Code	POST Operation in Progress
9Ah	Shadow option ROMs
9Ch	Set up power management
9Eh	Enable hardware interrupts
9Fh	Determine number of ATA and SCSI drives
A0h	Set time of day
A2h	Check key lock
A4h	Initialize typematic rate
A8h	Erase F2 prompt
AAh	Scan for F2 key stroke
ACH	Enter SETUP
ACh	Clear IN POST flag
B0h	Check for errors
B2h	POST done; prepare to boot operating system
B4h	One short beep before boot
B5h	Terminate QuietBoot
B6h	Check password (optional)
B8h	Clear global descriptor table
B9h	Clean up all graphics
Bah	Initialize DMI parameters
BBh	Initialize PnP Option ROMs
BCh	Clear parity checkers
BDh	Display MultiBoot menu
BEh	Clear screen (optional)
BFh	Check virus and backup reminders
C0h	Try to boot with INT 19h
C1h	Initialize POST Error Manager (PEM)
C2h	Initialize error logging
C3h	Initialize error display function
C4h	Initialize system error handler
E0h	Initialize the chipset
E1h	Initialize the bridge
E2h	Initialize the processor
E3h	Initialize system timer
E4h	Initialize system I/O
E5h	Check force recovery boot
E6h	Checksum BIOS ROM
E7h	Go to BIOS
E8h	Set huge segment
E9h	Initialize multiprocessor
EAh	Initialize OEM special code
EBh	Initialize PIC and DMA
ECh	Initialize memory type
EDh	Initialize memory size

(continues)

Table 15 Continued

Code	POST Operation in Progress
EEh	Shadow boot block
EFh	System memory test
F0h	Initialize interrupt vectors
F1h	Initialize runtime clock
F2h	Initialize video
F3h	Initialize beeper
F4h	Initialize boot
F5h	Clear huge segment
F6h	Boot to mini-DOS
F7h	Boot to full DOS

If the BIOS detects error 2C, 2E, or 30 (base 512KB RAM error), it displays an additional word-bitmap (xxxx) indicating the address line or bits that failed. For example, 2C 0002 means address line 1 (bit one set) has failed. 2E 1020 means data bits 12 and 5 (bits 12 and 5 set) have failed. The BIOS also sends this bitmap to the port-80 LED display. It first displays the check point code, followed by a delay, the high-order byte, another delay, and then the low-order byte of the error. It repeats this sequence continuously. Even with this information, normally you won't be able to replace the individual chips that are bad; you'll have to replace the entire bank of memory instead.
