

## WinSystems' EBC-855 POST Codes

If the system hangs before the BIOS can process the error, the value displayed at I/O port I/O address 80h is the last test that performed. In this case, the screen does not display an error code.

The following is a list of the checkpoint codes written at the start of each test and their corresponding audio beep codes issued for terminal errors. Unless otherwise noted, these codes are valid for Phoenix BIOS 4.0 Release 6.x.

<b>Code</b>	<b>Beeps</b>	<b>POST Routine Description</b>
01h		IPMI initialization
02h		Verify real mode
03h		Disable non-maskable interrupt (NMI)
04h		Get CPU type
06h		Hardware initialization
07h		Chipset BIOS deshadow
08h		Chipset initialization
09h		Set IN POST flag
0Ah		CPU initialization
0Bh		CPU cache on
0Ch		Cache initialization
0Eh		I/O initialization
0Fh		FDISK initialization
10h		Power management initialization
11h		Register initialization
12h		Restore CR0
13h		PCI bus master reset
14h		8742 initialization (keyboard/embedded controller)
16h	1-2-2-3	Checksum BIOS ROM
17h		Pre-size RAM (initialize cache before memory auto size)
18h		Timer initialization (8254 CTC)
1Ah		DMA initialization (8237 DMAC)
1Ch		Reset PIC (8259 PIC)
20h	1-3-1-1	Test DRAM refresh
22h	1-3-1-3	Test 8742 Keyboard Controller
24h		Set huge ES (segment register to 4 GB)
26h		Enable A20
28h		Auto size DRAM
29h		POST memory manager (PMM) initialization
2Ah		Zero base (clear 512KB base RAM)
2Bh		Enhanced CMOS initialization
2Ch	1-3-4-1	Address test (RAM failure on address line <b>xxxx*</b> )
2Eh	1-3-4-3	Base RAM Low (RAM failure on data bits <b>xxxx*</b> of low byte)
2Fh		Pre-sys shadow (Enable cache before system BIOS shadow)
30h		Base RAM High (RAM failure on data bits <b>xxxx*</b> of high byte)

32h		Compute speed (test CPU bus-clock frequency)
33h		Post Dispatch Manager (PDM) initialization
34h		CMOS test
35h		Register re-initialization
36h		Check shutdown (perform warm restart)
37h		Chipset re-initialization
38h		System shadow (shadow BIOS ROM)
39h		Cache re-initialization
3Ah		Cache auto-size
3Bh		Debug server initialization
3Ch		Advanced chipset configuration
3Dh		Advanced register configuration
3Eh		Read hardware
3Fh		RomPilot memory initialization
40h		Speed
41h		RomPilot initialization
42h		Interrupt vectors initialization
44h		Set BIOS interrupt
45h		Device initialization
46h	2-1-2-3	Check ROM copyright
48h		Config (Check video configuration against CMOS)
49h		PCI initialization
4Ah		Video initialization (Initialize all video adapters)
4Bh		QuietBoot start
4Ch		Video shadow (Shadow video BIOS)
4Eh		Copyright display
4Fh		MultiBoot-XP initialization
50h		CPU type display
51h		EISA initialization
52h		Keyboard test
54h		Set key click (if enabled)
55h		USB initialization
56h		Enable keyboard
57h		1394 Firewire initialization
58h	2-2-3-1	HOT (Test for unexpected interrupts)
59h		POST display service (PDS) initialization
5Ah		Display prompt "Press F2 to enter SETUP"
5Bh		CPU cache off
5Ch		Test RAM between 512 and 640 kB
60h		Test extended memory
62h		Test extended memory address lines
64h		Jump to UserPatch1
66h		Configure advanced cache registers
67h		Initialize Multi Processor APIC
68h		Cache configuration (enable internal and external caches)
69h		PM setup System Management Mode (SMM)

6Ah		Display external L2 cache size
6Bh		Load custom defaults (optional)
6Ch		Display shadow-area messages
70h		Display error messages
72h		Check for configuration errors
74h		RTC test
76h		Keyboard test
7Ah		Key lock
7Ch		Hardware interrupts
7Dh		Intelligent System Monitoring (ISM) initialization
7Eh		Coprocessor initialization (if present)
80h		I/O initialization (before)
81h		Late device initialization
82h		RS232 initialization
83h		FDISK config IDE
84h		LPT initialization
85h		PCI PCC initialization (PC-compatible PnP ISA devices)
86h		I/O initialization (after)
87h		Motherboard Configurable Devices (MCD) initialization
88h		BIOS data-area initialization (BDA)
89h		Enable Non-Maskable Interrupt (NMI)
8Ah		Extended BIOS Extended Data Area (EBDA)
8Bh		Mouse initialization
8Ch		Floppy initialization
8Fh		FDISK fast pre-initialization
90h		FDISK initialization
91h		FDISK fast initialization
92h		Jump to UserPatch2
93h		Build MPTABLE for multi-processor boards
95h		CDROM initialization
96h		Clear huge ES
97h		MultiProcessor table fixup
98h	1-2	Option ROM scan.
99h		FDISK check SMART
9Ah		Misc. shadow (shadow option ROMs)
9Bh		PM CPU speed
9Ch		Power Management (PM) setup
9Dh		Initialize security engine
9Eh		IRQS
9Fh		FDISK fast initialization #2
A0h		Time of day - set
A2h		Keylock test
A4h		Key rate initialization (typematic rate)
A8h		Erase F2 prompt
AAh		Scan for F2 key stroke
ACh		Setup check

AEh		Clear bootflag
B0h		Error check
B1h		RomPilot unload
B2h		POST done - prepare to boot operating system
B4h	1	One beep (before boot)
B5h		Terminate QuietBoot
B6h		Check password
B7h		ACPI initialization
B8h		System initialization
B9h		Prepare to boot
BAh		DMI – SMBIOS initialization
BBh		BCV (Boot Connection Vectors) initialization
BCh		Parity - clear parity checkers
BDh		MultiBoot-XP boot menu display
BEh		Clear screen
BFh		Check reminders (virus and backup)
C0h		INT19 - boot
C1h		POST Error Manager (PEM) - Initialization
C2h		POST Error Manager (PEM) - Logging initialization
C3h		POST Error Manager (PEM) - Initialize error display function
C4h		POST Error Manager (PEM) - Initialize system error handler
C5h		PNP'ed dual CMOS
C6h		Initialize note dock
C7h		Initialize note dock late
C8h		Force check
C9h		Extended checksum

### Embedded extensions

CAh	TP_SERIAL_KEY	-Redirect Int15h to serial keyboard
CBh	TP_ROMRAM	-Redirect Int13h to Memory Technologies Devices Such as ROM, RAM, PCMCIA, and serial disk
CCh	TP_SERIAL_VID	- Redirect Int10h to enable remote serial video
CDh	TP_PCMATA	- Re-map I/O and memory for PCMCIA
CEh	TP_PEN_INIT	- Initialize digitizer and display message

### More post codes

CFH	TP_XBDA_FAIL	- - Extended BIOS Data Area (XBDA) failure
D1H	TP_BIOS_STACK_INIT	
<b>D2h</b>		<b>Unknown interrupt</b>
D3H	TP_SETUP_WAD	
D4H	TP_CPU_GET_STRING	
D5H	TP_SWITCH_POST_TABLES	
D6H	TP_PCCARD_INIT	
D7H	TP_FIRSTWARE_CHECK	

D8H

TP\_ASF\_INIT

**The following are for boot block in Flash ROM**

E0h	Initialize the chipset
E1h	Initialize the bridge
E2h	Initialize the CPU
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 Multi Processor
EAh	Initialize OEM special code
ECh	Initialize PIC and DMA
ECh	Initialize Memory type
EDh	Initialize Memory size
EEh	Shadow Boot Block
EFh	System memory test
F0h	Initialize interrupt vectors
F1h	Initialize Run Time Clock
F2h	Initialize video
F3h	Initialize System Management Manager
F4h	Output one beep
F5h	Clear Huge Segment
F6h	Boot to Mini DOS

\* If the BIOS detects error 2C, 2E, or 30 (base 512K 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 in the lower 16 bits. Note that error 30 cannot occur on 386SX systems because they have a 16 rather than 32-bit bus. The BIOS also sends the bitmap to the port-80h LED display. It first displays the checkpoint 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.