

Beep Codes Study Guide

Important Differences

It is important to understand that many motherboards are manufactured by a different company than the BIOS that it contains. Each manufacturer will have a customized BIOS for the system/motherboard that it will be used in. In addition, new manufacturers are born or leave the business every year. Unfortunately, due to this fact, you will never find a complete source of all the different BIOS versions available on the market or installed in every motherboard.

For instance, you may have an AMI BIOS on your motherboard, but the motherboard is made by Tylorian PC Boards (a fictitious name). Much of the BIOS may have been modified by the motherboard manufacturer, to suit the particular motherboard, its design, function, components and operation. You may then need to go to the motherboard manufacturers page to find the correct information/ [FAQ](#) 's or updates for this computer. AMI (American Megatrends) also make their own motherboards, which include AMI BIOS. The information for the BIOS on the AMI Motherboard may be different than the information for the BIOS on the Tylorian PCBoards.

BIOS BEEP CODES

"The [BIOS](#) performs a [POWER-ON SELF-TEST POST](#) when the system is turned on. This test is used to ensure that the system is functioning properly and to gather information about what the system contains. When a problem is identified with the system during the [POST](#) , the [BIOS](#) will normally produce an error message. However, in some cases the problem is detected so early in the test that the BIOS cannot even access the video card to print the message! In this case the BIOS will produce a beeping pattern on the speaker to tell you what the problem is." *(Quoted from PC Guide)*

Most Popular BIOS

The three most popular types of BIOS are those made by [Award](#) , [American Megatrends \(AMI\)](#) and [Phoenix](#) . [COMPAQ](#) computers are different than other computers, and usually have the BIOS installed on a separate partition on the hard drive. To find out more information about COMPAQ BIOS, ROMPaq's, SoftPaq's, or ROM and BIOS upgrades please visit the [COMPAQ web site](#) and do a keyword search using their site search engine. Usually, the **F10** key will get you into the Setup/Diagnostics for the computer. Setup/Diagnostics can also be accessed and ran by using a floppy disk that is special formatted by downloadable software from [COMPAQ](#), from their [Software & Drivers download page](#) . If your computer has another [BIOS](#) , you must consult your manual for its beep codes. See [below](#) for information and links concerning other brands of [BIOS](#) , or go directly to the manufacturer web sites for more information. The [More Information section](#) , below, includes links that may also help you in your search.

AWARD BIOS ERROR CODES

The Award error codes are few. Most of the Award error codes appear on the screen if the video can be accessed during POST. PC Guide lists those below as the most common Award beep codes.

See [PC Guide](#) for fix it solutions.
<http://www.pcguid.com/ts/x/sys/beep/award.htm>

Beep Code	Problem	Cause	Fix Procedure
1 long beep	memory problem	<ul style="list-style-type: none"> • memory type added not the same • memory not seated in banks • dead chip 	<ul style="list-style-type: none"> • check for nanosecond and parity • check installation • replace
1 long, 2 short	video	<ul style="list-style-type: none"> • video card not in slot • integrated video card on motherboard not disabled before PCI video card installed • bad video card 	<ul style="list-style-type: none"> • check installation • change IRQ • install another card to see if it works
1 long, 3 short	video problem video ram problem	---	---

AMI BIOS BEEP CODES

PC Guide reports 11 AMI beep codes.
 See the [PC Guide](#) for fix it solutions.
<http://www.pcguid.com/ts/x/sys/beep/ami.htm>

1 beep	DRAM refresh failure	problem with memory or motherboard
2 beeps	Parity circuit failure	problem with memory or motherboard
3 beeps	Base 64K RAM failure	problem with first bank memory
4 beeps	System timer failure	motherboard failure
5 beeps	Processor Failure	
6 beeps	Keyboard controller	problem with keyboard, keyboard controller, or motherboard.
7 beeps	Virtual mode error	problem with processor or motherboard
8 beeps	Display memory read/write failure	problem with video card, memory on video card, or a motherboard failure
9 beeps	ROM BIOS checksum failure	problem with bios chip or motherboard
10 beeps	motherboard cannot interact with CMOS	problem with motherboard
11 beeps	Cache memory error	problem with cache or motherboard

PHOENIX BIOS BEEP CODES

The phoenix error codes are many. Every BIOS code POST function has a beep code associated to it. Computers of the 286, 386 and 486 class machines, from before 1994, have about 40 beep codes in a series of 4 groups of beeps. The Pentiums and those after have about 100 beep codes in a series of 3 groups of beeps.

See [PC GUIDE](#) for a detail listing of these codes.
<http://www.pcguide.com/ts/x/sys/beep/phoenix/new.htm>

Troubleshooting A Motherboard

Troubleshooting a Motherboard from the PC Guide

When first troubleshooting your motherboard, check the following first.

1. power cable may be faulty
2. loose screws or other components inside the case - causes shorts
3. tight or pinched cables or wires
4. cables off one pin
5. red line of cable not on pin 1
6. loosened connectors
7. cables getting in the way of the CPU fan - fan does not run or makes noise
8. cables being pushed inside the mechanisms of floppy disks
9. loose mounting of the motherboard
10. motherboard touching case
11. cables to motherboard have black wires together (Check for correct wire configuration plug in of the power supply cables, to make sure they are plugged in correctly.)
12. loose connections from the motherboard to a device
13. ports not securely in place
14. fan not securely on processor
15. processor loose in the socket/slot
16. examine the memory in banks
17. expansion cards are not seated fully into their slots
18. motherboard jumper settings are not correct - see motherboard manual

OTHER BRANDS OF BIOS

For other brands of BIOS, you will either have to read the information within the manual that came with the motherboard, search the WWW, or contact the manufacturer. Many times this information will not be supplied in the manual or you may not have a manual available. In this case you will need to obtain the information directly from the manufacturer, either by telephone, fax, e-mail, or their Internet web sites. With the advance of computer technology, and with new manufacturers springing up daily, sometimes this can become more difficult. Some computer components may be offered at a tremendous savings in price. However, as a computer tech, and

especially if you build or repair computers, it is wiser to go with the brands that have information readily available. If you do decide to work with the other brands, make sure that there is a way to obtain the information you need, or see if the dealer has the information on hand, before you make the purchase. There will be times when you run into a situation where the computer you are working on already has another brand of BIOS. Try using the following links to find the manufacturer of other brands of BIOS. Some of these links will also contain manufacturer links that you may need for other computer components and devices in the computer you are working on, or seeking information about.