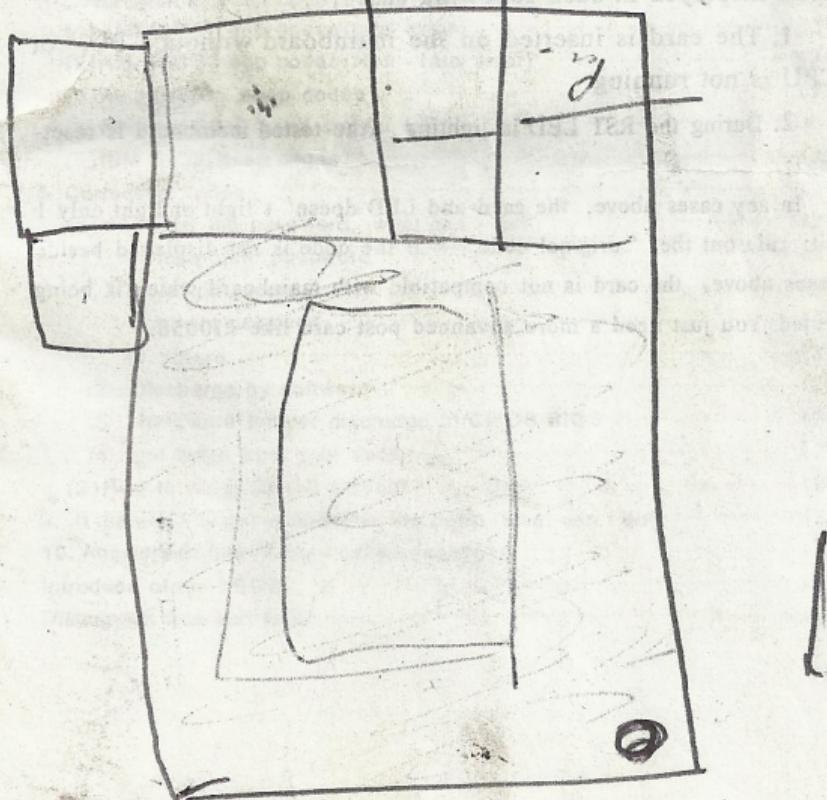


CQM1H-~~ICPU 51~~

# PC Analyzer

## User's Guide



## Improvement Note

As the 2 - bit code cards diagnose the mainboard by BIOS (refer to the "SYNOPSIS" in chapter 1), the code should not been displayed in such following cases;

1. The card is inserted on the mainboard without CPU, or CPU is not running.
2. During the RST LED is lighting (the tested mainboard is resetting);

In any cases above, the caed and LED doesn't light or light only 1 bit; rule out the "original code". If the code is not displayed beside cases above, the card is not compatible with mainboard which is being tested. You just need a more advanced post card like PI0050.

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## 1. SYNOPSIS

The card is named POST (Power On Self Test) card too. It could display the error code by the result of POST. Then you would soon determine the error in error code table. Especially when the PC can't boot operating system, or blank screen, or the card and motherboard couldn't issue an audible beep. It is a powerful diagnostic tool. Now just use it, you'll get twice the result with half the effort.

When the power is turned on. The BIOS would have a strict test with system circuit memorizer keyboard video hard disc and floppy drive, then analyze the system configuration. Initialize the basic I/O setup that already configured. Next. Boot the operating system.

By the trait of the card, you can determine the error easily like this. During the test of pivotal parts. If the error occurs. It will halt the work and nothing appears on the screen. If the pivotal part is ok, you can have a test of the parts that unimportant, this may not halt the work even if any error occurs. And the system reports an error message at the same time. Now when the computer goes wrong. Especially the fateful error. As there is nothing appears on the screen, you can insert the card into the expansion slot. Refer to the error code table and the trouble is clear.

## 2. OBLIGATORY CONTENT

- ① The error code table is in the order of the code value that from small to big. The sequence that the code displays is decided by BIOS of the motherboard.
- ② Code haven't be defined is not included in the table.
- ③ For the different BIOS (such as AMI, Award, Phoenix), a Code has different meanings. So make sure that which kind Kind of BIOS you are testing. Or view the user's guide, or See it on the BIOS IC on the motherboard.
- ④ There is only some code displayed when you insert the card into the PCI slot on a few motherboards, but when it plugged into the ISA slot, all the code could be displayed. At present, it has been discovered that the code is displayed when you insert the card into the PCI slot of several computers which has registered trade mark, but not ISA. So you'd better try it on the other slot if the code is not displayed. In addition, on the different PCI slots of a board, some could display the code, for example, the code is displayed and goes from "00" to "FF" when you insert the card into the PCI slot, which is near to the CPU on motherboard DELL810, but if in the other slot, the code would stop at the port "38".
- ⑤ The time that reser message output needed is not always in - phase, so sometimes the code is displayed when the card in the ISA, but it is stopped at the orgination code when in the PCI.
- ⑥ As there are more and more kinds motherboard, and the code of BIOS POST is updated ceaselessly, so the meanings of error codes is just for reference.

⑦ According to experience: 2-bits code card is available in testing mainboard below Pii300, but not available in maiboard above Pii300, so it's better to buy 4 - bits PI0050 card, furthermore, we haven't received any ill response from our buyer.

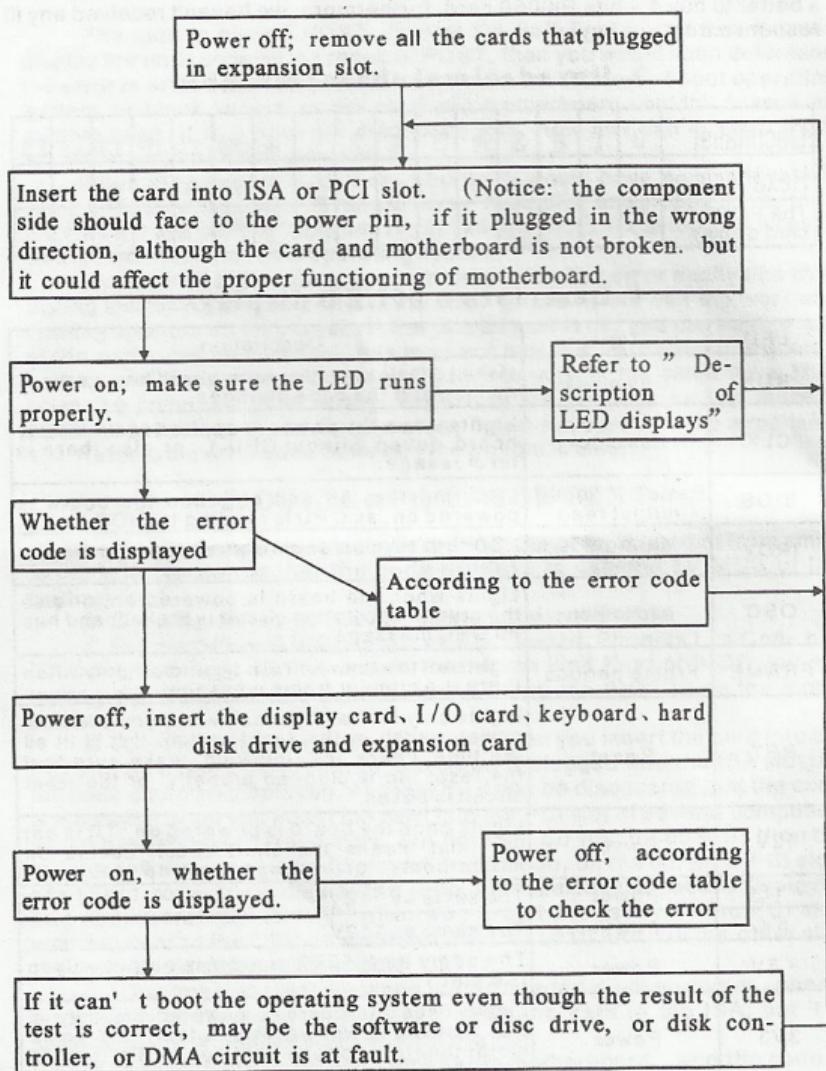
### 3. Hexadecimal character table

|                       |   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |
|-----------------------|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|
| Decimalist            | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| Hexadecimal           | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A  | B  | C  | D  | E  | F  |
| The POST card display | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A  | B  | C  | D  | E  | F  |

### 4. Description of LED displays

| LED   | Type                    | Description   |
|-------|-------------------------|---|
| RUN   | Bus pulse               | If the LED lights, the main board has worked, no matter if the code changes.  |
| CLK   | Bus clock               | Lights when the power is applied to the empty board (even without CPU'), or else there is no message.   |
| BIOS  | Basic input/output read | LED that turn on and off when the board is powered on, as CPU is reading to BIOS.   |
| IRDY  | Manager is ready        | LED that turn on and off when there is a message.   |
| OSC   | oscililation            | Lights when the board is powered on, or else the crystal oscillation circuit is broken, and has no OSC message.   |
| FRAME | Frame periods           | Lights all the time. Turn on and off only when there is a circular frame message.   |
| RST   | Reset                   | Lights only for half - second when you slide the power switch or the reset switch. If it is lit all the time, check the following: make sure that the reset pin is plugged properly, or the reset circuit is boken. |
| 12V   | Power                   | Lights once the board is powered on, if it is not lit, that means the short circuit occurs on motherboard, or voltage can't up to 12V.  |
| - 12V | Power                   | The same as " 12V"  |
| 5V    | Power                   | The same as " 12V"  |
| - 5V  | Power                   | The same as " 12V" (- 5V is output only in ISA slot.)   |
| 3V3   | Power                   | Lights once the board is powered on, only in PCI slot there will be 3V3 output. As some motherboard's voltage can't up to 3V. It could not light.   |

## 5. Flow chart



## 6. Error code table

| Code | Award  | AMI  | Phoenix4.O/<br>Tandy3000  |
|------|--|--|---|
| 00   |  | Code copying to specific areas is done. Passing control to INT 19h boot loader next.                             |   |
| 01   | Processor Test 1, Processor status (1FLAGS) verification. Test the following processor status flags: carry, zero, sign, overflow.<br><br>The BIOS sets each flag, verifies they are set, then turns each flag off and verifies it is off.  |  | CPU is testing the register inside or failed, please change the CPU and check it. |
| 02   | Test All CPU Registers Except SS, SP, and BP with Data FF and 00   |  | Verify Real Mode  |
| 03   | Disable NMI, PIE, AIE, UEI, SQWV.<br><br>Disable video, parity checking, DMA.<br><br>Reset math coprocessor.<br><br>Clear all page registers, CMOS shutdown byte.<br><br>Initialize timer 0, 1, and 2, including set EISA timer to a known state.<br><br>Initialize DMA controllers 0 and 1.<br><br>Initialize interrupt controllers 0 and 1.<br><br>Initialize EISA extended registers. | Disable NMI, PIE, AIE, UEI, SQWV<br>The NMI is disabled. Next, checking for a soft reset or a power on condition | Disable Non - Maskable Interrupt (NMI)  |
| 04   | RAM must be periodically refreshed to keep the memory from decaying. This refresh function is working properly.  |  | Get CPU type  |

| Code | Award   | AMI   | Phoenix4.0 / Tandy3000                        |
|------|---|---|---|
| 05   | Keyboard Controller Initialization  | The BIOS stack has been built. Next, disabling cache memory.  | DMA Initialization in progress or failure     |
| 06   | Reserved  | Uncompressing the POST code next.   | Initialized system hardware                   |
| 07   | Verifies CMOS is Working Correctly, Detects Bad Battery   | Next, initializing the CPU and the CPU data area  | Disable shadow and execute code from the ROM. |
| 08   | Early chip set initialization   | The CMOS checksum calculation is  | Initialize chipset with initial POST values   |
|      | Memory presence test  |   |   |
|      | OEM chip set routines   |   |   |
|      | Clear low 64K memory  |   |   |
|      | Task first 64K memory   |   |   |
| 09   | Cyrix CPU Initialization  |   | Set IN POST flag                              |
|      | Cache Initialization  |   |   |
| 0A   | Initialize first 120 interrupt vectors with SPU-RIOUS - INT - HDLR and initialize INT 00h - 1Fh according to INT - TBL. | The CMOS checksum calculation is done. Initializing the CMOS status register for date and time next.                            | Initialize CPU registers                      |
| 0B   | Test CMOS RAM Checksum. If Bad, or INS Key Pressed, Load Defaults   | The CMOS status register is initialized. Next, performing any required initialization before the keyboard BAT command is issued | Enable CPU cache                              |
| 0C   | Detect Type of Keyboard Controller and  | The keyboard controller input buffer is free. Next, issuing the BAT command to the keyboard controller.                         | Initialize caches to initial POST values      |
|      | Set NUM LOCK Status   |   |   |
| 0D   | Detect CPU Clock,   |   |   |
|      | Read CMOS location 14h to find out type of video in use.  |   |   |
|      | Detect and initialize video adapter.  |   |   |

| Code | Award  | AMI  | Phoenix4.0/<br>Tandy3000                          |
|------|--|--|---|
| OE   | Test Video Memory, write sign - on message to screen.                      | The keyboard controller BAT command result has been verified. Next, performing any necessary initialization after the keyboard controller BAT command test   | Initialize I/O component                          |
| OF   | Setup shadow RAM ? Enable shadow according to setup.                       | The initialization after the keyboard controller BAT command test is done. The keyboard command byte is written next.  | Initialize the local bus IDE                      |
| 10   | Test DMA Controller 1  | Test DMA. The keyboard controller command byte is written. Next, issuing the Pin 23 and 24 Blocking and unblocking command   | Initialize Power Management                       |
| 11   | Test DMA Page Registers  | Next, checking if <End> or <Ins> keys were pressed during power on. Initializing CMOS RAM if the Initialize CMOS RAM in every boot AMIBIOS POST option was set in AMIBCP or the <End> key was pressed. | Load alternate registers with initial POST values |
| 12   | Reserved   | Next, disabling DMA controllers 1 and 2 and interrupt controllers 1 and 2  | Restore CPU control word during warm boot         |
| 13   | Reserved   | The video display has been disabled. Port B has been initialized. Next, initializing the chipset   | Initialize PCI Bus Mastering devices              |
| 14   | Test 8254 Timer 0 Counter 2  | The 8254 timer test will begin next.   | Initialize keyboard controller                    |
| 15   | Verify 8259 Channel 1 Interrupts by Turning Off and On the interrupt Lines |  |   |
| 16   | Verify 8259 Channel 2 Interrupts by Turning Off and On the interrupt Lines |  | BIOS ROM checksum                                 |

| Code | Award   | AMI  | Phoenix4.0 / Tandy3000   |
|------|---|--|--|
| 17   | Turn Off Interrupts Then Verify No Interrupt Mask Register is On          |  | Initialize cache before memory Auto size                           |
| 18   | Force an Interrupt and Verify the Interrupt Occurred                      |  | 8254 timer initialization  |
| 19   | Test Stuck NMI Bits; Verify NMI Can Be Cleared                            |  | The 8254 timer test is over. Starting the memory refresh test next |
| 1A   | Display CPU clock   | The memory refresh line is toggling. Checking the 15 second on/off time next | 8237 DMA controller initialization                                 |
| 1B   | reserved  |  |  |
| 1C   | Reserved  |  | Reset Programmable Interrupt Controller                            |
| 1D   | Reserved  |  |  |
| 1E   | Reserved  |  |  |
| 1F   | If EISA non-volatile memory checksum is good, execute EISA initialization |  |  |
|      | If not, execute ISA tests and clear.                                      |  |  |
|      | EISA mode flag  |  |  |
|      | Test EISA configuration memory  |  |  |
|      | Integrity (checksum & communication interface).                           |  |  |
| 20   | Initialize Slot O (System Board)  |  | Test DRAM refresh  |
| 21   | Initialize Slot 1   |  |  |

| Code | Award   | AMI   | Phoenix4.0/<br>Tandy3000  |
|------|---|---|---|
| 22   | Initialize Slot 2   |   | Test 8742<br>Keyboard Con-<br>Troler  |
| 23   | Initialize Slot 3   | Reading the 8042 input port and disabling the MEGAKEY Green PC feature next. Making the BIOS code segment writable and performing any necessary configuration before initializing the interrupt vectors |   |
| 24   | Initialize Slot 4   | The configuration required before interrupt vector initialization has completed. Interrupt vector initialization is about to begin  | Set ES seg-<br>ment register to<br>4 GB   |
| 25   | Initialize Slot 5   | Interrupt vector initialization is done. Clearing the password if the POST DIAG switch is on.   |   |
| 26   | 1. test the exceptional situation of protected mode, check the memory of cpu and mainboard.<br>2. no fateful trouble, VGA displayed normally. If non-fateful trouble occurred, then display error message in VGA otherwise boot operating system, and code "26" is OK code, no any other codes to display | 1. read/write input, output port of 8042 keyboard; ready for revolve mode, continue to get ready for initialization of all data, check the 8042 chips on mainboard.<br>2. refere to the left.           | 1. enable A20 address line, check the A20 pins of memory controlling chips, and check circuit, correlated to pins in memory slot, may be A20 pin and memory pins are not in contact, or memory A20 pins bad.<br>2. refere to the left |
| 27   | Initialize Slot 7   | Any initialization before setting video mode will be done next  |   |
| 28   | Initialize Slot 8   | Initialization before setting the video mode is complete. Configuring the monochrome mode and color mode settings next  | Auto size DRAM  |

| Code | Award  | AMI  | Phoenix4.0 / Tandy3000                                    |
|------|--|--|---|
| 29   | Initialize Slot 9  |  | Initialize POST Memory Manager                            |
| 2A   | Initialize Slot 10   | Initializing the different bus system, static, and output devices, if present  | Clear 512 KB base RAM                                     |
| 2B   | Initialize Slot 11   | Passing control to the video ROM to perform any required configuration before the video ROM test.                                      |   |
| 2C   | Initialize Slot 12   | All necessary processing before passing control to the video ROM is done. Looking for the video ROM next and passing control to it.    | RAM failure on address line xxxx*                         |
| 2D   | Initialize Slot 13   | The video ROM has returned control to BIOS POST Performing any required processing after the video ROM had control                     |   |
| 2E   | Initialize Slot 14   | Completed post - video ROM test processing. If the EGA/VGA controller is not found, performing the display memory Read/write test next | RAM failure on data bits Xxxx * of low byte of memory bus |
| 2F   | Initialize Slot 15   | The EGA /VGA controller was not found. The display memory read/ write test is about to begin   | Enable cache before system BIOS shadow                    |
| 30   | Size Base Memory From 256K to 640K and Extended Memory Above 1MB | The display memory read/ write test passed. Look for retrace checking next   |   |
| 31   | Test Base Memory From 256K to 640K and Extended Memory Above 1MB | The display memory read/ write test or retrace checking failed. Performing the alternate display memory read/ write test next          |   |
| 32   | If EISA Mode, Test EISA Memory Found in Slots Initialization     | The alternate display memory read/ write test passed. Looking for alternate display retrace checking next.                             | Test CPU Bus - clock frequency                            |
| 33   | Reserved   |  | Initialize Phoenix Dispatch manager                       |

| Code | Award   | AMI  | Phoenix4.0 / Tandy3000                      |
|------|---|--|---|
| 34   | Reserved  | Video display checking is over. Setting the display mode next.                         |   |
| 35   | Reserved  |  |   |
| 36   | Reserved  |  | Warm start and shut down                    |
| 37   | Reserved  | The display mode is set. Displaying the power on message next                          |   |
| 38   | Reserved  | Initializing the bus input, IPL, general devices next, if present                      | Shadow system BIOS ROM                      |
| 39   | Reserved  | Displaying bus initialization error messages.  |   |
| 3A   | Reserved  | The new cursor position has been read and saved. Displaying the Hit <DEL> message next | Auto size cache                             |
| 3B   | Reserved  | The Hit <DEL> message is displayed. The protected mode memory test is about to start.  |   |
| 3C   | Setup Enabled   |  | Advanced configuration of chipset registers |
| 3D   | Detect if Mouse is Present, Initialize Mouse, Install Interrupt Vectors |  | Load alternate registers with CMOS values   |
| 3E   | Initialize Cache Controller   |  |   |
| 3F   | Reserved  |  |   |
| 40   | Display Virus Protect Disable or Enable                                 | Preparing the descriptor tables next   |   |
| 41   | Initialize Floppy Disk Drive Controller and Any Drives                  |  | Initialize extended memory for RomPilot     |
| 42   | Initialize Hard Drive Controller and Any Drives                         | The descriptor tables are prepared. Entering protected mode for the memory test next   | Initialize interrupt vectors                |
| 43   | Detect and Initialize Serial & Parallel Ports and Game Port             | Entered protected mode. Enabling interrupts for diagnostics mode next.                 |   |

| Code | Award                                  | AMI   | Phoenix4.0/<br>Tandy3000                |
|------|--|---|---|
| 44   | Reserved                               | Interrupts enabled if the diagnostics switch is on. Initializing data to check memory wraparound at 0:0 next.   |   |
| 45   | Detect and Initialize Math Coprocessor | Data initialized. Checking for memory wraparound at 0: 0 and finding the total system memory size next  | POST device initialization              |
| 46   | Reserved                               | The memory wraparound test is done. Memory size calculation has been done. Writing patterns to test memory next   | Check ROM copyright notice              |
| 47   | Reserved                               | The memory pattern has been written to extended memory. Writing patterns to the base 640 KB memory next.  | Initialize 120 support                  |
| 48   | Reserved                               | Patterns written in base memory. Determining the amount of memory below 1 MB next.  | Check video configuration against CMOS  |
| 49   | Reserved                               | The amount of memory below 1 MB has been found and verified. Determining the amount of memory above 1 MB memory next.   | initialize bus and PCI devices          |
| 4A   | Reserved                               |   | Initialize all video adapters in system |
| 4B   | Reserved                               | The amount of memory above 1 MB has been found and verified. Checking for a soft reset and clearing the memory below 1 MB for the soft reset next. If this is a power on situation, going to checkpoint 4Eh next. | QuietBoot start (optional)              |
| 4C   | Reserved                               | The memory below 1 MB has been cleared via a soft reset. Clearing the memory above 1 MB next.   | Shadow video BIOS ROM                   |
| 4D   | Reserved                               | The memory above 1 MB has been cleared via a soft reset. Saving the memory size next. Going to checkpoint 52h next  |   |

| Code | Award   | AMI   | Phoenix4.0 / Tandy3000         |
|------|---|---|--------------------------------|
| 4E   | Reboot if Manufacturing Mode; If not, Display Messages and Enter Setup      | The memory test started, but not as the result of a soft reset. Displaying the first 64 KB memory size next.                              | Display BIOS copyright notice  |
| 4F   | Ask Password Security (Optional)  | The memory size display has started. The display is updated during the memory test. Performing the sequential and random memory test next | Initialize Multi-Boot          |
| 50   | Write All CMOS Values Back to RAM and Clear                                 | The memory below 1 MB has been tested and initialized. Adjusting the displayed memory size for relocation and shadowing next              | Display CPU type and speed     |
| 51   | Enable Parity Checker. Enable NMI, Enable Cache Before Boot                 | The memory size display was adjusted for relocation and shadowing. Testing the memory above 1 MB next.                                    | Initialize EISA board          |
| 52   | Initialize Option ROMs from C8000h to EFFFFh or if FS-CAN Enabled to F7FFFh | The memory above 1 MB has been tested and initialized. Saving the memory size information next.   | Test keyboard                  |
| 53   | Initialize Time Value in 40h: BIOS Area                                     | The memory size information and the CPU registers are saved. Entering real mode next.   |                                |
| 54   |   | Shutdown was successful. The CPU is in real mode. Disabling the Gate A20 line, parity, and the NMI next                                   | Set key click if enabled       |
| 56   |   |   | Enable USB devices             |
| 57   |   | The A20 address line, parity, and the NMI are disabled. Adjusting the memory size depending on relocation and shadowing next.             |                                |
| 58   |   | The memory size was adjusted for relocation and shadowing. Clearing the Hit <DEL> message next  | Test for unexpected Interrupts |

| Code | Award  | AMI  | Phoenix4.0/<br>Tandy3000                    |
|------|--|--|---|
| 59   |  | The Hit <DEL> message is cleared. The <WAIT...> message is displayed. Starting the DMA and interrupt controller test next. | Initialize POST display service             |
| 5A   |  |  | Display prompt<br>Press F2 to enter SET-UP' |
| 5B   |  |  | Disable CPU cache                           |
| 5C   |  |  | Test RAM between 512 and 640 kB             |
| 60   | Setup virus protection (boot sector protection) functionality according to setup setting.          | The DMA page register test passed. Performing the DMA Controller 1 base register test next.                                | Test extended memory                        |
| 61   | Try to turn on level 2 cache (if L2 cache already turned on in post 3D, this part will be skipped) |  |   |
|      | Sat the boot up speed according to setup setting   |  |   |
|      | Last chance for chipset initialization   |  |   |
|      | Last chance for power management initialization (Green BIOS Only)                                  |  |   |
|      | Show the system configuration table  |  |   |
| 62   | Setup NUM Lock Status According to Setup values  | The DMA controller 1 base register test passed. Performing the DMA controller 2 base register test next                    | Test extended memory address lines          |
|      | Program the NUM lock, typematic rate & typematic speed according to setup setting                  |  |   |

| Code | Award  | AMI   | Phoenix4.0/<br>Tandy3000                       |
|------|--|---|--|
| 63   | If there is any changes in the hardware configuration. update the ESCD information (PnP BIOS only) |   |  |
|      | Clear memory that have been used   |   |  |
|      | Boot system via INT 19h  |   |  |
| 64   |  |   | Jump to UserPatch1                             |
| 65   |  | The DMA controller 2 base register test passed<br>Programming DMA controllers 1 and 2 next        |  |
| 66   |  | Completed programming DMA controllers 1 and 2<br>Initializing the 8259 interrupt controller next. | Configure advanced cache registers             |
| 67   |  | Completed 8259 interrupt controller initialization  | Initialize Multi Processor APIC                |
| 68   |  |   | Enable external and CPU caches                 |
| 69   |  |   | Setup System Management Mode (SMM) area        |
| 6A   |  |   | Display external L2 cache size                 |
| 6B   |  |   | Load custom defaults (optional)                |
| 6C   |  |   | Display shadow-area message                    |
| 6E   |  |   | Display possible high address for UMB recovery |
| 6F   |  |   |  |

| Code | Award | AMI  | Phoenix4.0/<br>Tandy3000                   |
|------|-------|--|--|
| 70   |       |  | Display error message                      |
| 71   |       |  |  |
| 72   |       |  | Check for configuration errors             |
| 76   |       |  | Check for keyboard errors                  |
| 7C   |       |  | Set up hardware interrupt vectors          |
| 7D   |       |  | Initialize Intelligent System Monitoring   |
| 7E   |       |  | Initialize coprocessor if present          |
| 7F   |       | Extended NMI source enabling is in progress.   |  |
| 80   |       | The keyboard test has started. Clearing the output buffer and checking for stuck keys. Issuing the keyboard reset command next | Disable onboard Super I/O ports and IRQs   |
| 81   |       | A keyboard reset error or stuck key was found. Issuing the keyboard controller interface test command next                     | Late POST device initialization            |
| 82   |       | The keyboard controller interface test completed. Writing the command byte and initializing the circular buffer next.          | Detect and install external RS232 ports    |
| 83   |       | The command byte was written and global data initialization has completed. Checking for a locked key next                      | Configure non - MCD IDE controllers        |
| 84   |       | Locked key checking is over. Checking for a memory size mismatch with CMOS RAM data next                                       | Detect and install external parallel ports |
| 85   |       | The memory size check is done. Displaying a soft error and checking for a password or bypassing WINBIOS Setup next.            | Initialize PC - compatible PnP ISA devices |
| 86   |       | The password was checked. Performing any required programming before WINBIOS Setup next  | Re - initialize onboard I/O ports.         |

| Code | Award | AMI  | Phoenix4.0 /<br>Tandy3000                             |
|------|-------|--|---|
| 87   |       | The programming before WINBIOS Setup has completed Uncompressing the WINBIOS Setup code and executing the AMIBIOS Setup or WINBfOS Setup utility next              | Configure Motherboard Configurable Devices (optional) |
| 88   |       | Returned from WINBIOS Setup end cleared the screen. Performing any necessary programming after WINBIOS Setup next  | Initialize BIOS Data Area                             |
| 89   |       | The programming after WINBIOS Setup has completed. Displaying the power on screen message next   | Enable Non-Maskable Interrupts.(NMIs)                 |
| 8A   |       |  | Initialize Extended BIOS Data Area                    |
| 8B   |       | The first screen message has been displayed. The <WAIT...> message is displayed. Performing the PS/2 mouse check and extended BIOS data area allocation check next | Test and initialize PS/2 mouse                        |
| 8C   |       | Programming the WINBIOS Setup options next   | Initialize floppy controller                          |
| 8D   |       | The WINBIOS Setup options are programmed. Resetting the hard disk controller next  |   |
| 8E   |       | The hard disk controller has been reset. Configuring the floppy drive controller next  |   |
| 8F   |       |  | Determine number of ATA drives (optional)             |
| 90   |       |  | Initialize hard-disk controllers                      |
| 91   |       | The floppy drive controller has been configured. Configuring the hard disk drive controller next.  | Initialize local-bus hard-disk controllers            |
| 92   |       |  | Jump to UserPatch2                                    |
| 93   |       |  | Build MPTABLE for multi-processor boards              |

| Code | Award | AMI   | Phoenix4.0/<br>Tandy3000  |
|------|-------|---|---|
| 95   |       | Initializing bus adaptor ROMs from C8000h through D8000   | Install CD ROM for boot   |
| 96   |       | Initializing before passing control to the adaptor ROM at C800  | Clear huge ES segment register  |
| 97   |       | Initialization before the C800 adaptor ROM gains control has completed. The adaptor ROM check is next.  | Fix up Multi Processor table  |
| 98   |       | The adaptor ROM had control and has now returned control to BIOS POST. Performing any required processing after the option ROM returned controlA                | Search for option ROMs. One long, two short beeps on checksum failure |
| 99   |       | Any initialization required after the option ROM test has completed. Configuring the timer data area and printer base address next.                             | Check for SMART Drive (optional)                                      |
| 9A   |       | Set the timer and printer base addresses. Setting the RS - 232 base address next.   | Shadow option ROMs  |
| 9B   |       | Returned after setting the RS - 232 base address. Performing any required initialization before the Coprocessor test next.                                      |   |
| 9C   |       | Required initialization before the Coprocessor test is over. Initializing the Coprocessor next  | Set up Power Management   |
| 9D   |       | Coprocessor initialized. Performing any required initialization after the Coprocessor test next.  | Initialize security engine (optional)                                 |
| 9E   |       | Initialization after the Coprocessor test is complete. Checking the extended keyboard, Keyboard ID, and Num Lock key next. Issuing the keyboard ID command next | Enable hardware interrupts  |
| 9F   |       |   | Determine number of ATA and SCSI drives                               |
| A0   |       |   | Set time of day   |

| Code | Award                                  | AMI   | Phoenix4.0/<br>Tandy3000  |
|------|--|---|---------------------------|
| A1   |  |   | Check key lock            |
| A2   |  | Displaying any soft error next  |                           |
| A3   |  | The soft error display has completed. Setting the keyboard typematic rate next.   |                           |
| A4   |  | The keyboard typematic rate is set. Programming the memory wait states next   | Initialize typematic rate |
| A5   |  | Memory wait state programming is over. Clearing the screen and enabling parity and the NMI next                               |                           |
| A7   |  | NMI and parity enabled. Performing any initialization required before passing control to the adaptor ROM at E000 next.        |                           |
| A8   |  | Initialization before passing control to the adaptor ROM at E000h completed. Passing control to the adaptor ROM at E000h next | Erase F2 prompt           |
| A9   |  | Returned from adaptor ROM at E000h control. Performing any initialization required after the E000 option ROM had control next |                           |
| AA   |  | Initialization after E000 option ROM control has completed. Displaying the system configuration next                          | Scan for F2 key stroke    |
| AB   |  | Uncompressing the DMI data and executing DMI POST initialization next   |                           |
| AC   |  |   | Enter SETUP               |
| AE   |  |   | Clear boot flag           |
| BO   | If Interrupts Occurs in Protected Mode | The system configuration is displayed.  | Check for errors          |

| Code | Award   | AMI                                 | Phoenix4.0/<br>Tandy3000                     |
|------|---|-------------------------------------|--|
| B1   | If Unmasked NMI Occurs, Display Press F1 to Disable NMI, F2 Reboot  | Copying any code to specific areas. | Inform RomPilot about the end of POST.       |
| B2   |   |                                     | POST done - prepare to boot operating system |
| B3   |   |                                     |  |
| B4   |   |                                     | 1 One short beep before boot                 |
| B5   |   |                                     | Terminate Quiet-Boot (optional)              |
| B6   |   |                                     | Check password (optional)                    |
| B7   |   |                                     | Initialize ACPI BIOS                         |
| B8   |   |                                     |  |
| B9   |   |                                     | Prepare Boot                                 |
| BA   |   |                                     | Initialize SMBIOS                            |
| BB   |   |                                     | Initialize PnP Option ROMs                   |
| BC   |   |                                     | Clear parity checkers                        |
| BD   |   |                                     | Display MultiBoot menu                       |
| BE   | Program chipset registers with power on BIOS defaults   |                                     | Clear screen (optional)                      |
| BF   | Program the rest of the chipset's value according to setup (later setup value program)<br><br>If auto configuration is enabled, programmed the chipset with pre-defined values in the MODBINable Auto Table |                                     | Check virus and backup reminders             |

| Code | Award  | AMI | Phoenix4.0/<br>Tandy3000                   |
|------|--|-----|--|
| C0   | Turn off OEM specific cache, shadow  |     | Try to boot with INT 19                    |
| C1   | OEM Specific – Test to Size On – Board Memory  |     | Initialize POST Error Manager (PEM)        |
| C2   |  |     | Initialize error logging                   |
| C3   | Test the first 256K DRAM<br><br>Expand the compressed codes into temporary DRAM area including the compressed system BIOS & Option ROMs. |     | Initialize error display function          |
| C4   |  |     | Initialize system error handler            |
| C5   | OEM Specific – Early Shadow Enable for Fast Boot   |     | PnPnd dual CMOS (optional)                 |
| C6   | External Cache Size Detection  |     | Initialize note dock (optional)            |
| C7   |  |     | Initialize note dock late                  |
| C8   |  |     | Force check (optional)                     |
| C9   |  |     | Extended checksum (optional)               |
| CA   |  |     | Redirect Int 15h to enable remote keyboard |

| Code | Award | AMI   | Phoenix4.0/<br>Tandy3000  |
|------|-------|---|---|
| CB   |       |   | Redirect Int 13h to Memory Technologies Devices such as ROM, RAM, PCMCIA, and serial disk |
| CC   |       |   | Redirect Int 10h to enable remote serial video  |
| CD   |       |   | Re-map I/O and memory for PCMCIA  |
| CE   |       |   | Initialize digitizer and display message  |
| D0   |       | The NMI is disabled. Power on delay is starting. Next, the initialization code checksum will be verified.   |   |
| D1   |       | Initializing the DMA controller, performing the keyboard controller BAT test, starting memory refresh, and entering 4 GB flat mode next.                          |   |
| D2   |       |   | Unknown interrupt   |
| D3   |       | Starting memory sizing next   |   |
| D4   |       | Returning to real mode. Executing any OEM patches and setting the stack next.   |   |
| D5   |       | Passing control to the uncompressed code in shadow RAM at E000:0000h. The initialization code is copied to segment 0 and control will be transferred to segment 0 |   |

| Code | Award              | AMI   | Phoenix4.0/<br>Tandy3000       |
|------|--------------------|---|--------------------------------|
| D6   |                    | Control is in segment 0<br>Next, checking if<br><Ctrl> <Home><br>was pressed and verifying<br>the system BIOS<br>checksum. If either<br><Ctrl> <Home><br>was pressed or the system<br>BIOS checksum is<br>bad, next will go to<br>checkpoint code E0h.<br>Otherwise, going to<br>checkpoint code D7h. |                                |
| E0   |                    | The onboard floppy<br>controller if available is<br>initialized. Next, begin-<br>ning the base 512 KB<br>memory test  | Initialize the<br>chipset      |
| E1   | E1 Setup - Page E1 | Initializing the interrupt<br>vector table next   | Initialize the<br>bridge       |
| E2   | E2 Setup - Page E2 | Initializing the DMA and<br>Interrupt controllers<br>next.  | Initialize the CPU             |
| E3   | E3 Setup - Page E3 |   | Initialize system<br>timer     |
| E4   | E4 Setup - Page E4 |   | Initialize system<br>I/O       |
| E5   | E5 Setup - Page E5 |   | Check force re-<br>covery boot |
| E6   | E6 Setup - Page E6 | Enabling the floppy drive<br>controller and Timer<br>IRQs. Enabling internal<br>cache memory.   | Checksum BIOS<br>ROM           |
| E7   | E7 Setup - Page E7 |   | Go to BIOS                     |
| E8   | E8 Setup - Page E8 |   | Set Huge Seg-<br>ment          |
| E9   | E9 Setup - Page E9 |   | Initialize Multi<br>Processor  |
| EA   | EA Setup - Page EA |   | Initialize OEM<br>special code |
| EB   | EB Setup - Page EB |   | Initialize PIC and<br>DMA      |

| Code | Award               | AMI   | Phoenix4.0/<br>Tandy3000             |
|------|---------------------|---|--------------------------------------|
| EC   | EC Setup - Page EC  |   | Initialize Memory type               |
| ED   | ED Setup - Page ED  | Initializing the floppy drive.  | Initialize Memory size               |
| EE   | EE Setup - Page EE  | Looking for a floppy diskette in drive A: Reading the first sector of the diskette                          | Shadow Boot Block                    |
| EF   | EF Setup - Page EF  | A read error occurred while reading the floppy drive in drive A:  | System memory test                   |
| F0   |                     | Next, searching for the AMIBOOT.ROM file in the root directory.   | Initialize interrupt vectors         |
| F1   |                     | The AMIBOOT.ROM file is not in the root directory   | Initialize Run Time Clock            |
| F2   |                     | Next, reading and analyzing the floppy diskette FAT to find the clusters occupied by the AMI-BOOT. ROM file | Initialize video                     |
| F3   |                     | Next, reading the AMI-BOOT ROM file, cluster by cluster.  | Initialize System Management Manager |
| F4   |                     | The AMIBOOT. ROM file is not the correct size   | Output one beep                      |
| F5   |                     | Next, disabling internal cache memory.  | Clear Huge Segment                   |
| F6   |                     |   | Boot to Mini DOS                     |
| F7   |                     |   | Boot to Full DOS                     |
| FB   |                     | Next, detecting the type of flash ROM.  |                                      |
| FC   |                     | Next, erasing the flash ROM.  |                                      |
| FD   |                     | Next, programming the flash ROM.  |                                      |
| FF   | Int 19 Boot Attempt | Flash ROM programming was successful. Next, restarting the system BIOS.                                     |                                      |

## 7. Description of beep code

### (1) AMI BIOS beep codes(fatal error)

|          |   |
|----------|---|
| 1 beep   | DRAM Refresh Failure. Try reseating the memory first. If the error still occurs, replace the memory with known good chips.  |
| 2 beeps  | Parity Error in First 64K RAM. Try reseating the memory first. If the error still occurs, replace the memory with known good chips.   |
| 3 beeps  | Base 64K RAM Failure. Try reseating the memory first. If the error still occurs, replace the memory with known good chips.  |
| 4 beeps  | System timer failure  |
| 5 beeps  | Process failure   |
| 6 beeps  | Keyboard Controller 8042 - Gate A20 Error. Try reseating the keyboard controller chip. If the error still occurs, replace the keyboard chip. If the error persists, check parts of the system relating to the keyboard, e.g. try another keyboard, check to see if the system has a keyboard fuse |
| 7 beeps  | Processor, Virtual Mode Exception Interrupt Error   |
| 8 beeps  | Display Memory Read/Write Test Failure (Non-fatal). Replace the video card or the memory on the video card.   |
| 9 beeps  | ROM BIOS Checksum (32KB at F800:0) Failed. It is not likely that this error can be corrected by reseating the chips. Consult the motherboard supplier or an AMI product distributor for replacement part(s).  |
| 10 beeps | CMOS Shutdown Register Read/Write Error   |
| 11 beeps | Cache memory error  |

### (2) AMI BIOS beep codes(Non-fatal error)

|                |  |
|----------------|--|
| 2 short        | POST Failure - One or more of the hardware tests has failed  |
| 1 long 2 short | An error was encountered in the video BIOS ROM, or a horizontal retrace failure has been encountered |
| 1 long 3 short | Conventional/Extended memory failure   |
| 1 long 8 short | Display/Retrace test failed  |

### (3) Award BIOS beep codes

|                |  |
|----------------|--|
| 1 short        | No error during POST                           |
| 2 short        | Any Non-fatal error, enter CMOS SETUP to reset |
| 1 long 1 short | RAM or motherboard error                       |

|                |  |
|----------------|--|
| 1 long 2 short | Video Error, Cannot Initialize Screen to Display Any information |
| 1 long 3 short | Keyboard Controller error  |
| 1 long 9 short | Flash RAM /EPROM (which on the motherboard) error. (BIOS error)  |
| Long beep      | Memory bank is not plugged well, or broken.                      |

(4) Phoenix BIOS beep codes

| Beep Code     | Description / What to Check                            |
|---------------|--|
| 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 User Patch0                                    |
| 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 512K base RAM.                                   |
| 1 - 3 - 4 - 1 | Test 512K base address lines.                          |
| 1 - 3 - 4 - 3 | Test 512K 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.                 |
| 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 interupts.              |
| 2 - 2 - 3 - 3 | Display prompt " Press F2 to enter SETUP".  |
| 2 - 2 - 4 - 1 | Test RAM between 512 and 640k.              |
| 2 - 3 - 1 - 1 | Test expanded memory                        |
| 2 - 3 - 1 - 3 | Test extended memory address lines.         |
| 2 - 3 - 2 - 1 | Jump to User Patch1.                        |
| 2 - 3 - 2 - 3 | Configure advanced cache registers.         |
| 2 - 3 - 3 - 1 | Enable external and CPU caches.             |
| 2 - 3 - 3 - 3 | Display extemal 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 ot 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.                       |

#### (5) IBM BIOS beep codes

| Beep Code                            | Description                               |
|--------------------------------------|---|
| No Beeps                             | No Power, Loose Card, or Short.           |
| 1 Short Beep                         | Normal POST, computer is ok.              |
| 2 Short Beep                         | POST error, review screen for error code. |
| Continuous Beep                      | No Power, Loose Card, or Short.           |
| Repeating Short Beep                 | No Power, Loose Card, or Short.           |
| One Long and one Short Beep          | Motherboard issue.                        |
| One Long and Two short Beeps         | Video (Mono/CGA Display Circuitry) issue. |
| One Long and Three Short Beeps.      | Video (EGA) Display Circuitry.            |
| Three Long Beeps                     | Keyboard / Keyboard card error.           |
| One Beep, Blank or Incorrect Display | Video Display Circuitry.                  |

## 8. Corrective Action

(1). If I forget the password, what can I do?

If you forget your password, don't worry! The following will help you:

### ① . Omnipotent password

For the BIOS from different manufacturer, their password is different too. Both omnipotent password and password users set are able to unlock the computer. Try the abbreviation of manufacturer or the character string which formed by the first letter of each word. May be it is the omnipotent password, for example:

#### I. AMI password

|          |          |          |          |          |
|----------|----------|----------|----------|----------|
| AMI      | AMI      | Bios310  | AMII SW  | KILLCMOS |
| A. M. I  | 589589   | SMOSPWD  | AMISETUP | ami. kez |
| BIOS     | ammii    | AMI SW   | ami?     | AMI. KEY |
| AMI SW   | amipswd  | amidecod | amiami   |          |
| PASSWORD | LKWPETER | BIOSPASS | AMIPSWD  |          |

## II. Award passwod

|          |          |          |        |           |
|----------|----------|----------|--------|-----------|
| PASSWORD | HLT      | biostar  | ?award | djonet    |
| AWARD SW | ALFAROME | j09F     | 1EAAh  | g6PJ      |
| AWARD?SW | 256256   | j256     | admin  | HELGA - S |
| AWARE PW | 589721   | LKWPETER | ally   | HLT       |

## III. others

|                            |                           |
|----------------------------|---------------------------|
| Phoenix BIOS: phoenix      | Megastar: star            |
| Biostar Biostar: Q54arwms  | Micron: sldkj754xyzall    |
| Compaq: compaq             | Micronics: dn 04rie       |
| CTX International: CTX_123 | Packard Bell: bell9       |
| Dell: Dell                 | Shuttle: spacie           |
| Digital Equipment: komprie | Siements Nixdorf: SKY FOX |
| HP Vectra: hewlpack        | Tiny: tiny                |
| IBM: IBM MBIUO sertafu     | TMC: BIGO                 |

### ② . Discharge by software

CMOS ROM can be discharged by software way. Then help you to solve the password problem. Follow these method, use the prompt " DEBUG", all things to be easy.

I. clear Award password

C: \> DEBUG

- o 70 34↙ or      - o 70 11↙  
 - o 71 34↙      - o 71 ff↙  
 - q↙      - q↙

II. clear AMI BIOS password

C: \> DEBUG

- o 70 16↙ or      - o 70 10↙  
 - o 71 16↙      - o 71 0↙  
 - q↙      - q↙

Note: the setup of CMOS BIOS will be erased during the discharge, so the computer is able to running until you reset it. If it is COMPAQ computer, you'd better get a floppy disk which store CMOS program first, then do the discharge, or else it is easy to discharge but hard to recover.

### ③ . hardware jumper discharge to CMOS BIOS

All the computers could discharge to CMOS BIOS by switch or jumper, and clear any prompt (system booting prompt, CMOS setup prompt, key lock prompt) . There are examples for the particularity of CMOS of some Original packaging computer:

The discharge of COMPAQ and AST is finished by close/open the switch, but except the state power off, follow these steps:

a. when the external power is turned off, push SW1 and SW1 - 2 to

"on".

- b. external power is turned on, restart the computer.
- c. after 1 to 5 minutes, turn off the computer
- d. push SW1 and SW1 - 2 to "off"
- e. turn on the computer, enter CMOS setup to reset if.

Most of motherboard discharge to CMOS by jumper, and for the different board, the pin is different. During the discharge, read the user's guide of motherboard first, if the state of CMOS discharge jumper pin is not included in it, to check that whether there are signs on the motherboard, such as "Exit Batter", "Clean CMOS", "CMOS ROM Reset". If you find these sign, connect the pin of switch, or else, remove the battery.

④ . get helps from your dealer

If the problem is not solved still, please get in touch with your dealer.

#### (2) How to enter CMOS SETUP?

| BIOS                | Key   | Screen instruction |
|---------------------|---|--------------------|
| AMI                 | <Del> or <ESC>  | Displayed          |
| Award               | <Del> or <Ctrl> + <Alt> + <ESC>                           | Displayed          |
| MR                  | <Del> or <Ctrl> + <Alt> + <ESC>                           | NONE               |
| Quadtel             | <F2>  | Displayed          |
| COMPAQ              | Press <F10> when the cursor displayed on top right screen | NONE               |
| AST                 | <Del> + <Alt> + <S>                                       | NONE               |
| Phoenix             | <Del> + <Alt> + <S>                                       | NONE               |
| Hewlett Packard(HP) | <F2>  | NONE               |

#### 9. If the code is not included in the book, what can I do?

As the mainboard manufacturer defines the code. Some codes haven't been defined, so you can get in touch with your dealer and find them. Also if you have the new code meaning, you can write them down in the following table:

| CODE | Description | BIOS type (✓) |     |         |
|------|-------------|---------------|-----|---------|
|      |             | Award         | AMI | Phoenix |
|      |             |               |     |         |
|      |             |               |     |         |
|      |             |               |     |         |
|      |             |               |     |         |
|      |             |               |     |         |
|      |             |               |     |         |
|      |             |               |     |         |

## 10. Answers of frequently - asked questions

NOTE: 1. Don't against the rules in motherboard quality guaranty during repair the board.

2. Troubleshooting only when the power off.

| Error                                     | description   | solutions   |
|---|---|---|
| Memory Bank                               | Memory bank is bad  | Replace it and try again  |
|   | Pin of memory bank is dirty   | Clean it with student eraser and try again.   |
|   | It is not match the other bank  | Insert the right memory bank.   |
|   | Plugged in the wrong direction  | Insert it property  |
| Memory slot or extended slot              | The slot is dirty or something in it                                  | Clean it  |
|   | Metallic spring stice in the slot is out of shape or ruptured.        | Refit it's shape or replace it  |
|   | Metallic spring stice in the slot is rusty or mouldy                  | Wash with the pure alcohol. Inserts it and pull it out frequently after it is dry.                    |
| CPU                                       | CPU is bad  | Replace it. (Touch it to check if it does not generate heat or overheated)                            |
|   | The jumper setup or CMOS setup of CPU is error.                       | Check the setup of working voltage and frequency of CPU   |
|   | CPU pin is dirty  | Clear the dirty things, insert and pull out it frequently.  |
|   | CPU is not plugged well.  | Check the CPU pin   |
| Error of POST card or it plugged by error | The pin is dirty  | Clean it with student eraser. Insert the card and pull it out many times.                             |
|   | The POST card is plugged in wrong slot                                | Distinguish carefully between ISA slot and PCI slot   |
|   | It is plugged in the wrong direction.                                 | Make sure the component Side should face to the power pin   |
|   | The POST card is bad  | Get in touch form you dealer. (P678@163.net)  |
| Power on, the code is stopped             | The motherboard is not running  | Check the power and CPU jumper.   |
|   | There is no code export to the bus slot in which the POST card insert | Try the other slot. (See "Obligatory content")  |
| POST tails midway                         | Motherboard error   | According to error codes  |
|   | The motherboard send the error code to ideo display                   | Connect the video display. According to the message on the screen to check the error, then try again. |

## Introduce of run LEDS

Only by some units and a few mainboard slot message, it could runs normally, and it has a low error percentum. If the card is plugged into the bad slot, the code stop changing, or the other LEDs is not light, but the run LED is quite possible to run normally. You can solve the following problems by the result of "if the run LED has lighted, the mainboard has ever ran":

1. The code of the card is bad.
2. The card is not fit for the mainboard which you using.
3. PCI slot or ISA slot is bad.
4. The card is plugged incorrectly or pins of card are dirty, or pins in slot rusted.
5. The mainboard stops working.
6. The mainboard is working on programs which is out of relation to codes.