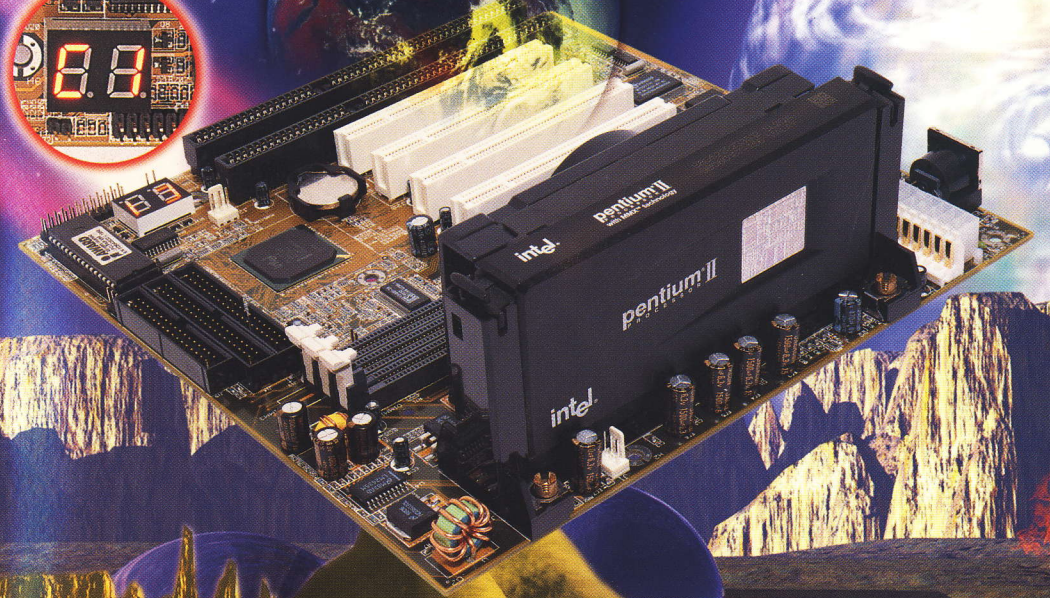
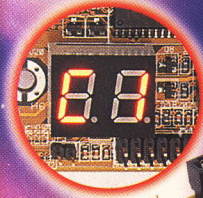


## DEBUG ON BOARD

When CPU, Memory, Cache RAM, FDD or VGA Card have not been properly installed, user can isolate problems through reading the Debug Sensor LED and the instructions in the manual. It's a great advantage for **DIY** and System Assembly.

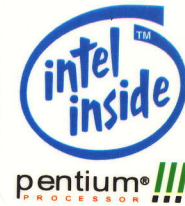


# Manual

## TM-P2BXAT370 MAINBOARD



Mainboard



COM1

COM2

Game

LPT1

LPT2

LPT3

Video

Modem

LAN1

USB1

USB2

PS/2 Mouse

Line-in

Microphone

Speaker

Power

Keyboard



X  
r-  
c  
a  
s

d  
i  
r  
e

J  
/  
/  
J  
J

**TM-P2BXAT370**  
**ISA/ PCI/ AGP Mainboard**  
with onboard PCI IDE and super Multi-I/O.

Version: 1.0

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Printed in Taiwan

## Overview

The TM-P2BXAT370 is a Celeron-370 based mainboard that utilizes BX chipset on ATX PCI/ ISA platform. This mainboard is designed for Celeron-370 CPU, and supports new architectures such as high speed AGP graphic port, Ultra DMA/ 33, Bus Master IDE, SDRAM memory and expandable to a maximum 512KB. There is no second level cache onboard since the cache is on the Celeron-370 CPU card.

In addition to above features, TM-P2BXAT370 implements most advanced technology such as Synchronous switching regulator, **CPU thermal protection, CPU fan monitoring, System voltage monitoring, Over current protection, Modem Wake Up, Keyboard power on, PS/2 mouse power on, Debug display on board and user-friendly Jumper-less.**

The most unique feature of the TM-P2BXAT370 is its capability to debug onboard. When the CPU, DRAM, FDD, or VGA cards have not been properly installed, a DIY user can isolate problems through reading the Debug display and instructions in the manual. To professional system test engineers or maintenance engineers, the Debug display can work as an 80 Port Debug Card. In other words, they can use this debug sensor function to do testing and maintenance in lieu of the 80 Port Debug card.

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**Introduction**

**A. Specifications**

**System Chipset** Intel 82440 BX or VIA 692/693 chipset.

**CPU** Intel Celeron-370 processors, support 300/ 333/ 366/400 (Ex. Clk 66MHz) MHz.

**Memory** Expandable to 512MB (2 banks) with two 168-pin DIMM socket {support 3.3 V EDO (66MHz only) / SDRAM (66MHz)}.

**I/O** Winbond 83977, two high speed 16550 compatible serial ports, one Multi-Mode.  
Parallel Port support SPP/EPP/ECP standard mode.  
Two onboard PCI IDE Ports (32-bit data transfer).  
LS-120/ ZIP FDD, IrDA/ ASK IR/ Consumer IR.  
Dual USB ports  
Support two 360/720KB/1.2/1.44/2.88MB floppy disk devices.  
One PS/2 Mouse port.

**BIOS** Award System BIOS installed in socket (Flash and PnP).

**Expansion slots** One AGP slot, five PCI Master Slots and two 16-bit ISA Slots.

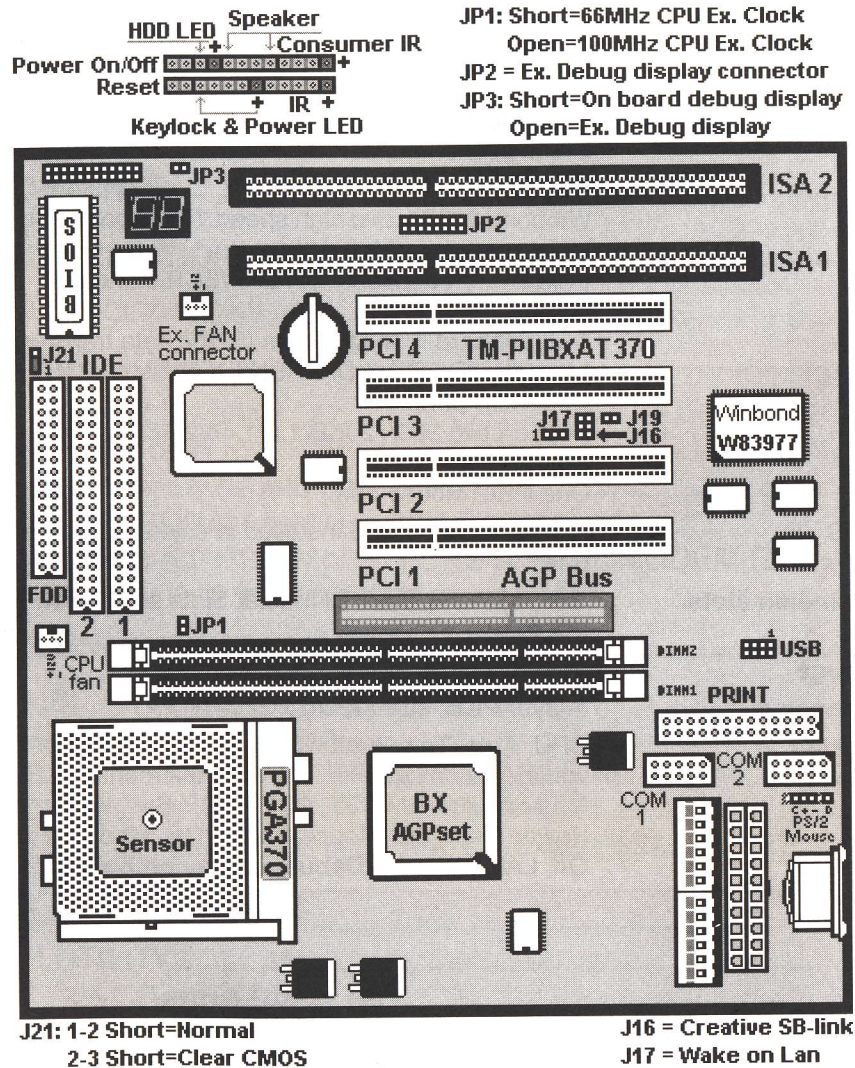
**Voltage** Auto

**Dimension** 4-layer PCB, size (22cm x 22cm).

**Others** CPU Auto Temperature Sensor & Music Alarm, voltage monitor and CPU Fan monitor, Bus Master/ Ultra DMA/33, ACPI, AGP Bus, Keyboard Power On, PS/2 Mouse Power On, Modem Ring On, LAN wake up, **Debug display on board.**

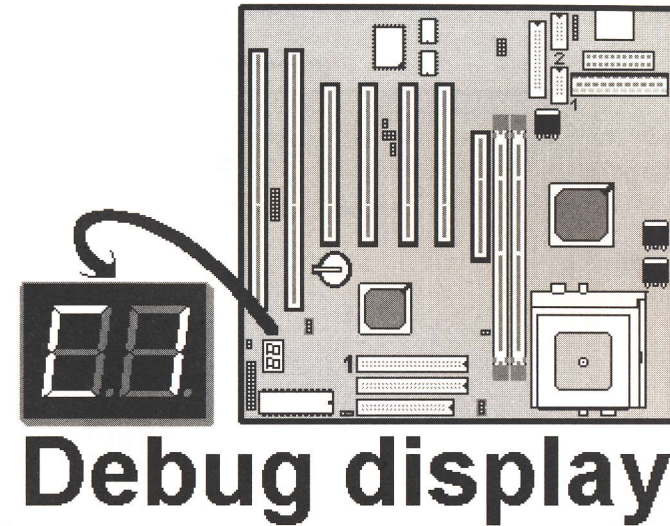
## Setup Guide

### A. Layout Diagram



### B. Smart Display On Board

When the CPU, DRAM, Cache RAM, FDD or VGA card have not been properly installed, user can isolate those basic problems through the Debug display and instructions from the manual. To Professional system engineers or maintenance engineers, the Debug display can work as an 80 Port Debug Card.



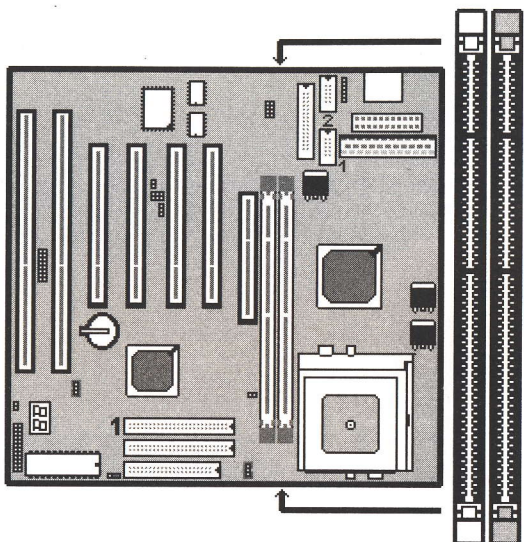
Error code	Display	Message	Solution
C1	None	Can't detect DRAM	1. Reinstall or replace the SDRAM. 2. Reinstall or replace the BIOS.
C6	None	Can't detect DRAM	1. Reinstall or replace the SDRAM. 2. Reinstall or replace the BIOS.
OD	None	Can't detect VGA card	1. Reinstall or replace the VGA card. 2. Replace the BIOS.
4E	Yes	Can't detect Floppy disk	1. <b>Replace the BIOS. (if no screen)</b> 2. Enter the BIOS Setup menu to reset. 3. Check that the FDD cable and the power connector are properly connected. 4. Reconnect the FDD cable or replace the FDD.
61	Yes	L2 cache problem	1. Enter BIOS Setup to disable the external cache.

### C. CPU Voltage and Frequencies

Dear Customers:

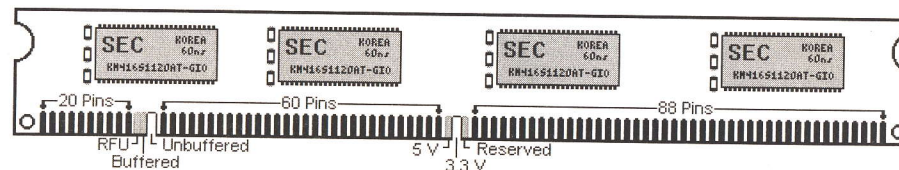
Thank you for your patronage of our products. The board you bought is a **jumper-less** mainboard. The CPU type and working voltage for the CPU shall be automatically detected.

### D. EDO/ SDRAM Installation Procedures:



- A 168-pin DIMM can support up to 512MB 3.3V EDO/ SDRAM .
- To avoid compatibility and reliability problems, you are recommended to test the 168-pin SDRAMs before buying them since the PCB specifications differ.
- First, verify the working voltage of the EDO/ SDRAM module in either DIMM socket.
- P2BXAT370 only supports 3.3V EDO/ SDRAM module. The following illustration shows you the difference between 3.3V and 5V to ensure your correct selection of 3.3V DIMM module for using.

- You can set up the BIOS "Chipset Feature Setup" to the best working condition basing on the type of EDO/ SDRAM you are using.
- The BIOS DRAM default setting is 60 ns. Change the BIOS "Chipset Feature Setup" default setting to 50ns for better performance, if the chipset is marked 50ns.
- Change nothing if EDO RAM is used. BIOS automatically detect the RAM type.
- MEMO for Installing System:
  - ⊕ Concerning memory setup, you can find how to from "**Chipset Feature Setup**" under BIOS setup. However, to avoid system unstable or system hang, user without engineering background is not suggested to change BIOS set up.
  - ⊕ If system boot failure, please clean DIMM socket (**with clean oil**) or polish **Gold-Finger** of DRAM with **soft eraser**, and try again.
- The Dual Inline Memory Module (DIMM) must be 3.3 Volt and Unbuffered Synchronus DRAM (SDRAM) 8MB, 16MB, 32MB, 64MB, 128MB or 256MB. The following illustration shows the type of DIMM Module.



168-PIN SDRAM DIMM Notch Key Definitions

**E. Keyboard/ PS/2 Mouse Power On and MODEM Ring on**

- To make sure the 5VSB signal nearly to 750mA (Amperage) from ATX Power Supply, or if your keyboard consuming power than 300mA, it's better to upgrade your ATX Power Supply to 1A for working perfectly.
- If you are going to use the function of keyboard and PS/2 mouse power on, then, the power-switch will be becoming useless automatically (unable to be used).

ROM PC/ISA BIOS (2A69KTJA)  
**INTEGRATED PERIPHERALS**  
 AWARD SOFTWARE, INC.

IDE HDD Block Mode : Enabled	Onboard Serial Port 2 : 2F8H / IRQ3
IDE Primary Master PIO : AUTO	UART Mode Select : Normal
IDE Primary Slave PIO : AUTO	
IDE Secondary Master PIO : AUTO	Onboard Parallel Port : 378H/IRQ 7
IDE Secondary Slave PIO : AUTO	Parallel Port Mode : ECP+EPP
IDE Primary Master UDMA : AUTO	ECP Mode Use DMA : 3
IDE Primary Slave UDMA : AUTO	EPP Mode Select : EPP 1.9
IDE Secondary Master UDMA : AUTO	
IDE Secondary Slave UDMA : AUTO	
On-Chip Primary PCI IDE : Enabled	
On-Chip Secondary PCI IDE : Enabled	
USB Keyboard Support : Disabled	
Init Display First : AGP	
<b>POWER ON Function : Hot KEY</b>	
<b>Hot Key Power ON : Ctrl-F12</b>	Esc : Quit      ↑↓→← Selection : Item
KBC input clock : 8MHz	F1 : Help      PU/PD+/- : Modify
Onboard FDC Controller : Enabled	F5 : Old Values      (Shift)F2 : Color
Onboard Serial Port 1 : 3F8H / IRQ4	F6 : Load BIOS Default
	F7 : Load Setup Default

Hot KEY	When user select this option, it will show another line lines as Hot Key Power ON: <b>Ctrl-F(1/2/3/4/5/6/7/8/9/10/11/12)</b> select any you like. After power off, if user key in the "Ctrl-F?", it will power on the system.
PS/2 Mouse Left	It will power on the system by PS/2 mouse left.
PS/2 Mouse Right	It will power on the system by PS/2 mouse Right.
Button Only	Only the power button can power on the system.

● **Modem Ring On Function Operation:**

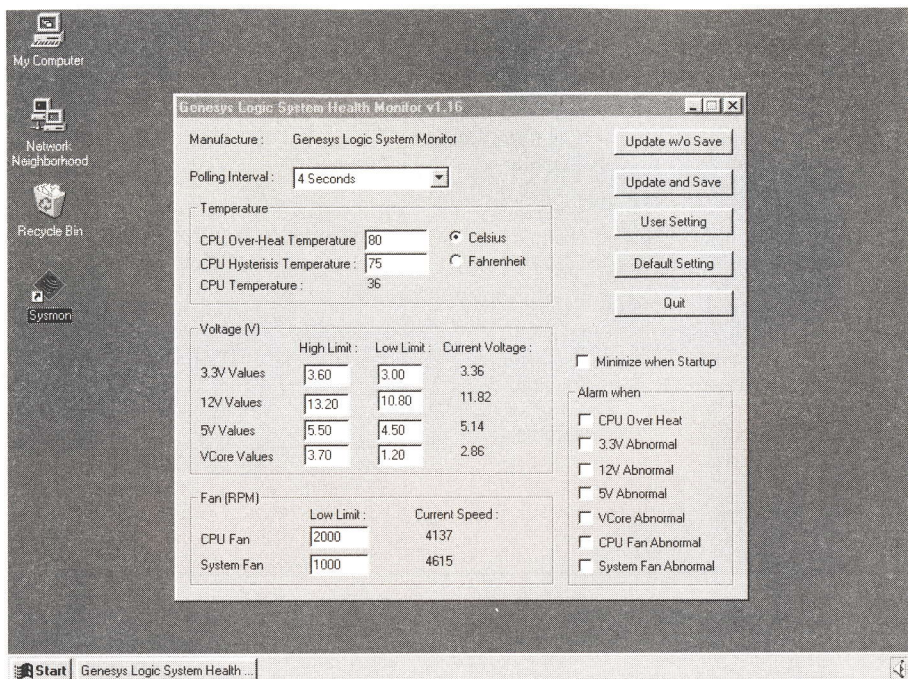
ROM PCI / ISA BIOS (2A69KTJA)  
**POWER MANAGEMENT SETUP**  
 AWARD SOFTWARE, INC.

Power Management : Disabled	** Reload Global Timer Events **
PM Control by APM : No	IRQ[3-7, 9-15], NMI : Enabled
Video Off Method : V/H SYNC+Blank	Primary IDE 0 : Disabled
Video Off After : Standby	Primary IDE 1 : Disabled
<b>MODEM Use IRQ : 3</b>	Secondary IDE 0 : Disabled
Doze Mode : Disabled	Secondary IDE 1 : Disabled
Standby Mode : Disabled	Floppy Disk : Disabled
Suspend Mode : Disabled	Serial Port : Enabled
HDD Power Down : Disabled	Parallel Port : Disabled
Throttle Duty Cycle : 62.5%	
ZZ Active in Suspend : Disabled	
VGA Active Monitor : Enabled	
Soft-Off by PWR-BTTN : Instant-Off	
CPUFAN Off In Suspend : Enabled	
<b>Resume by Ring : Enabled</b>	
IRQ 8 Clock Event : Disabled	Esc : Quit      ↑↓→← Selection Item
	F1 : Help      PU/PD+/- : Modify
	F5 : Old Values      (Shift) F2 : Color
	F6 : Load BIOS Default
	F7 : Load Setup Default

1. Have an external MODEM connected to COM 1 or COM 2.
2. Enter BIOS setup.
3. Select Power Management Setup.
4. **This number of MODEM use IRQ has to be set as same as the IRQ of Serial Port which you are connecting in. Please set in N/A if you are not going to use the function of MODEM ring on.**
5. **Resume by Ring: Enable.**
6. Save BIOS setup and Reboot.
7. Booting from DOS, Windows, or Windows 95.
8. Turn off the system by:
  - a. ATX-Power Switch
  - b. Windows 95 Software Power Off
9. System Waiting for Modem Ring On  
 When Modem Ringing Signal Active, System will wake-up.



## F. System Health Monitor



### ● Fan Monitoring:

There are two fan connectors, one is for CPU, the other can be a housing fan. When the fans speed is working abnormal, there will be warning (**Speaker Alarm**) through application software such as SM10 (Small Icon for System Monitoring) to notify user. The fan monitoring function is implemented by connecting fan to 3-pin fan connector J1/ J23 and installing SM10. Referring to Page 12 (System Health Monitor).

### ● CPU Thermal Protection:

**TM-P2BXAT370** implements special thermal protection circuits. When **temperature** is higher than a predefined value, there will be warning (**Speaker Alarm**) through application software such as SM10 (Small Icon for System Monitor) to notify user. It's automatically implemented by BIOS or SMD10, no hardware installation is needed. Referring to Page 12 (System Health Monitor).

### ● System Voltage Monitoring:

TM-P2BXAT370 is featured with a voltage monitoring system. When you turn on your system, this smart design will keep on monitoring your system working voltage. If any of voltage is over the component's standard, there will be **Speaker Alarm** though application software SM10 (Small Icon For System Monitor) for a warning to user. System voltage monitoring function monitors 5V, 12V, 3.3V and CPU voltage. It's automatically implemented by BIOS and SM10, no hardware installation is needed. Referring to Page 12 (System Health Monitor)



### Technical Information

ATX POWER SUPPLY Connector				Parallel port connector			
3.3 V	11	1	3.3 V	-STROBE	1	14	-AUTO FEED
-12 V	12	2	3.3 V	Data Bit 0	2	15	-ERROR
GND	13	3	GND	Data Bit 1	3	16	-INIT
PS-ON	14	4	5 V	Data Bit 2	4	17	-SLCT IN
GND	15	5	GND	Data Bit 3	5	18	Ground
GND	16	6	5 V	Data Bit 4	6	19	Ground
GND	17	7	GND	Data Bit 5	7	20	Ground
-5 V	18	8	PW-OK	Data Bit 6	8	21	Ground
5 V	19	9	5 V-SB	Data Bit 7	9	22	Ground
5 V	20	10	12 V	Data Bit 8	10	23	Ground
<b>Serial port connector</b>				-AC	10	24	Ground
				BUSY	11	25	Ground
				PE	12		
				SLCT	13		
				<b>PS/2 mouse connector signal line</b>			
DSR	6	1	DCD	Data(Red)	1	4	NC
RTS	7	2	SIN	Clock(Blue)	2	5	VCC(Yellow)
CTS	8	3	SOUT	GND(Green)	3		
RI	9	4	DTR				

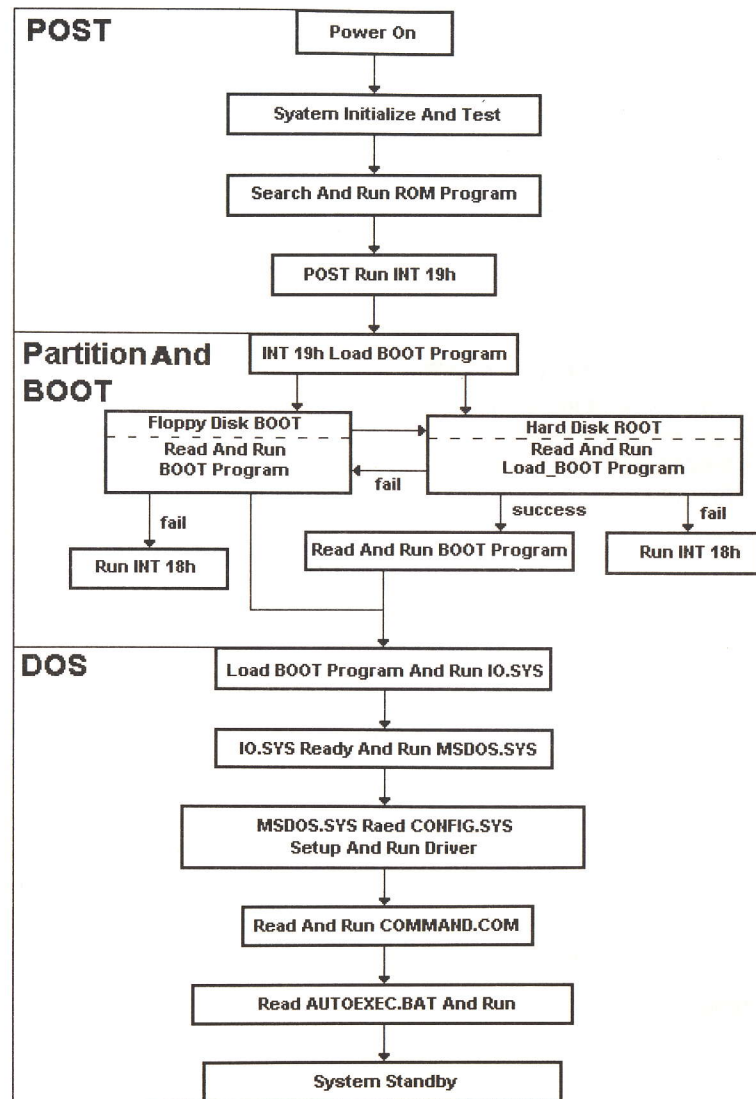
### C. The transfer rate of IDE PIO and DMA modes.

Mode	PCI Bus Clock	Cycle time	Data transfer rate
PIO Mode 0	33 MHz	600 ns	3.3 MB/s
PIO Mode 1	33 MHz	383 ns	5.2 MB/s
PIO Mode 2	33 MHz	240 ns	8.3 MB/s
PIO Mode 3	33 MHz	180 ns	11.1 MB/s
PIO Mode 4	33 MHz	120 ns	16.6 MB/s
PIO Mode 5	33 MHz	90 ns	20 MB/s
DMA Mode 0	33 MHz	480 ns	4.16 MB/s
DMA Mode 1	33 MHz	150 ns	13.3 MB/s
DMA Mode 2	33 MHz	120 ns	16.6 MB/s
DMA/33	33 MHz	60 ns	33 MB/s

When IORDY signal is used, PIO Mode 3/4 is in ATA-2 format while PIO Mode 0/1/2 is in ATA format. PIO Mode 5 is unlikely to happen.

### Technical Information

### D. The Computer BOOT flow. chart



**E. The difference of Intel 440EX and 440BX Chipset**

	INTEL 440 EX	Intel 440BX Chipset
CPU support	Dual Pentium II or PRO	Dual Pentium II
Memory size	EDO/ SDRAM 256MB	1 GByte
Memory support	EDO/ SDRAM	SDRAM
Memory Clock	66MHz	100MHz
Ex. Clock	66MHz	66MHz or 100MHz
ACPI	Yes	ACPI or Mobile
AGP Bus	Yes	Yes
USB	2 Port	2 Port
Ultra DMA33	Yes	Yes

- **Ultra DMA/33 (Ultra ATA)**  
This new specification of IDE HDD, set up by Intel and Quantum together, is first supported by Fireball ST Series HDD, with the highest transfer rate of 33.3MB/s, required the Driver of Tritones to support it. Without Driver, PIO mode 4 is in charge of access performance instead.
- **ACPI (Advanced Configuration and Power Interface)**  
This Advanced Configuration and Power Interface set up by Intel, Microsoft, Compaq, IBM, HP...etc, offers the functions below:
  - (1). Automatically stops offering power to CD-ROM, FDD or HDD when any of them is not in use.
  - (2). Offers the "OnNow" function; when you start the system, what is seen on the screen is in the condition same as the last time before the system was shut down.
  - (3). Enhances the system configuration like PnP, DMI....
- **USB(Univer Serial Bus)**  
The new Bus specification defined by Compaq, DEC, IBM, Microsoft, NEC, Intel...etc, is connected by USB, making it possible for the peripheral to have the "plug and play" function without interface card. There are at most 127 peripherals that can be connected at the same time.

● **Printer Modes /SPP /ECP /EPP**

**SPP (Standard Parallel Port)**

The current commonly used standard mode.

**ECP (Extended Capabilities Port)**

Jointly set by Microsoft and HP. Its main feature is using high-performance half-duplex bidirectional channel to achieve faster transmission speed. Its 16-bit FIFO (First-In-First-Out) buffer makes high-speed transmission more stable and reliable. DMA function is included in its controller.

**EPP (Enhanced Parallel Port)**

Jointly set by Intel, Zenith and Xircom. Bidirectional blocks transmission makes transmission speed to reach 2MB per second. It is compatible with the standard parallel port interface. For printers that do not support the EPP mode in Windows 95, including the Canon BJ Series and the Epson LQ Series, you can set the Parallel Mode in BIOS to Normal (SPP) Mode to enable EPP.

● **IrDA (Infrared Data Association)**

This organization sets the infrared transmission standards. The IrDA Protocol sets transmission speed at 115KB per second and a transmission angle of 30 degree. Its Serial Port shall have 16550 UARTs and its maximum transmission distance is one meter.

● **S. M. A. R. T (Self Monitoring Analysis Report Technology)**

It is jointly set by Conner, IBM, Quantum, Seagate and Western Digital. Most hard disks on the market have this function. It issues a warning message to the computer user prior to the "actual" failure of the user can have sufficient time to backup data or to replace the hard disk.

## Technical Information

### F. POST Code

POST (HEX)	Description
<b>C0</b>	<ol style="list-style-type: none"> <li>1. Turn off OEM specific cache, shadow...</li> <li>2. Initialize all the standard devices with default values standard devices including:                             <ul style="list-style-type: none"> <li>- DMA controller (8237)</li> <li>- Programmable Interrupt Controller (8259)</li> <li>- Programmable Interval Timer (8254)</li> </ul> </li> </ol>
<b>C1/C6</b>	Auto-detection of onboard DRAM and Cache
<b>C3</b>	<ol style="list-style-type: none"> <li>1. Test the first 256K DRAM</li> <li>2. Expand the compressed codes into temporary DRAM area including the compressed System BIOS and Option ROMs</li> </ol>
<b>C5</b>	Copy the BIOS from ROM into E0000-FFFFFF shadow RAM so that POST will go faster
<b>01-02</b>	Reserved
<b>03</b>	Initialize EISA registers (EISA BIOS ONLY)
<b>04</b>	Reserved
<b>05</b>	<ol style="list-style-type: none"> <li>1. Keyboard Controller Self-Test</li> <li>2. Enable Keyboard Interface</li> </ol>
<b>06</b>	F000 shadow R/W test
<b>07</b>	Verifies CMOS's basic R/W functionality
<b>BE</b>	Program defaults values into chipset according to the MODBINable Chipset Default Table
<b>09</b>	<ol style="list-style-type: none"> <li>1. Issue CPU ID instruction to identify CPU type</li> <li>2. Program the configuration register of Cyrix CPU according to the MODBINable Cyrix Register Table</li> <li>3. OEM specific cache initialization</li> </ol>
<b>0A</b>	<ol style="list-style-type: none"> <li>1. Initialize the first 32 interrupt vectors with corresponding interrupt handlers Initialize INT no from 33-120 with Dummy (Spurious) Interrupt Handler</li> <li>2. Early Power Management initialization (OEM specific)</li> </ol>
<b>0B</b>	<ol style="list-style-type: none"> <li>1. Verify whether RTC time is valid or not</li> <li>2. Detect bad battery</li> <li>3. Read CMOS data into BIOS stack area</li> <li>4. PNP initializations including (PNP BIOS ONLY)                             <ul style="list-style-type: none"> <li>- Assign CSN to PNP ISA card</li> <li>- Create resource map from ESCD</li> </ul> </li> <li>5. Update the P6 CPU's micro code (P6 Only)</li> <li>6. Assign IO and Memory for PCI devices (PCI BIOS ONLY)</li> </ol>

## Technical Information

POST (HEX)	Description
<b>0C</b>	Initialization of the BIOS Data Area (40:0-40:FF)
<b>0D</b>	<ol style="list-style-type: none"> <li>1. P5 Multi-P BIOS Only Init IO and Local APIC</li> <li>2. Program some of the Chipset's value according to Setup (Early Setup Value Program)</li> <li>3. Measure CPU speed for display and decide system clock speed</li> <li>4. Video initialization including Monochrome, CGA, EGA/VGA. If no display device found, the speaker will beep</li> </ol>
<b>0E</b>	<ol style="list-style-type: none"> <li>1. Initialize the APIC (Multi-Processor BIOS ONLY)</li> <li>2. Test video RAM (If Monochrome display device found)</li> <li>3. Show messages including:                             <ul style="list-style-type: none"> <li>- Award Logo, Copyright String, BIOS Date code and Part No.</li> <li>- OEM specific sign on messages</li> <li>- Energy Star Logo (Green BIOS Only)</li> <li>- CPU brand, type and speed</li> </ul> </li> </ol>
<b>0F</b>	DMA channel 0 test
<b>10</b>	DMA channel 1 test
<b>11</b>	DMA page registers test
<b>12-13</b>	Reserved
<b>14</b>	Test 8254 Timer 0 Counter 2
<b>15</b>	Test 8259 interrupt mask bits for channel 1
<b>16</b>	Test 8259 interrupt mask bits for channel 2
<b>17</b>	Reserved
<b>19</b>	Test 8259 functionality
<b>1A-1D</b>	Reserved
<b>1E</b>	If EISA NVM checksum is good,, execute EISA initialization
<b>1F-29</b>	Reserved
<b>30</b>	<ol style="list-style-type: none"> <li>1. Get Base Memory and Extended Memory Size</li> <li>2. P6 Multi-P BIOS Only Init IO &amp; Local APIC</li> <li>3. Program K5 CPU's Write Allocation</li> </ol>
<b>31</b>	<ol style="list-style-type: none"> <li>1. Get Base Memory and Extended Memory Size</li> <li>2. P6 Multi-P BIOS Only Init IO and Local APIC</li> <li>3. Program K5 CPU's Write Allocation</li> </ol>
<b>32</b>	<ol style="list-style-type: none"> <li>1. Display the Award Plug and Play BIOS Extension message (PNP BIOS ONLY)</li> <li>2. Program all onboard super I/O chips (if any) including COM ports, LPT ports, FDD port... according to setup value</li> <li>3. Program onboard audio devices</li> </ol>

### Technical Information

POST (HEX)	Description
33-3B	Reserved
3C	Set flag to allow users to enter CMOS Setup Utility
3D	<ol style="list-style-type: none"> <li>1. Initialize Keyboard</li> <li>2. Install PS/2 mouse</li> <li>3. Build the INT 15h function E820H table</li> <li>4. Build the PnP Device Node for total memory size</li> </ol>
3E	<p>Try to turn on Level 2 cache</p> <p>Note: Some chipset may need to turn on the L2 cache in this stage. But usually, the cache is turned on later in POST 61h</p>
3F-40	Reserved
BF	<ol style="list-style-type: none"> <li>1. Program the rest of the Chipset's value according to setup</li> <li>2. If auto-configuration is enabled, program the chipset with predefined values in the MODBIN able Auto-Table</li> </ol>
41	Initialize floppy disk drive controller
42	<ol style="list-style-type: none"> <li>1. Cut IRQ 12 connection if PS/2 mouse is not installed</li> <li>2. Install IDE Hard Drives               <ul style="list-style-type: none"> <li>- Auto-detect HDDs</li> <li>- Build the AT compatible HDD table for Type 47</li> <li>- Set PIO timing</li> </ul> </li> <li>3. Detect CD ROM on IDE Bus</li> <li>4. Detect LS120 drive</li> </ol>
43	If it is a PNP BIOS, initialize serial and parallel ports
44	Reserved
45	Initialize math coprocessor
46-4D	Reserved
4E	<ol style="list-style-type: none"> <li>1. If there is any error detected (such as video, kb....), show all the error messages on the screen and wait for the user to</li> <li>2. Enable "Far Hit" for Cyrix 6x86 CPU</li> </ol>
4F	<ol style="list-style-type: none"> <li>1. If password is needed, ask for password</li> <li>2. Clear the Energy Star Logo (Green BIOS ONLY)</li> </ol>
50	Write all the CMOS values currently in the BIOS stack area back into the CMOS
51	Reserved

### Technical Information

POST (HEX)	Description
52	<ol style="list-style-type: none"> <li>1. Initialize all ISA ROMs</li> <li>2. Later PCI initializations (PCI BIOS ONLY)               <ul style="list-style-type: none"> <li>- assign IRQ to PCI devices</li> <li>- initialize all PCI ROMs</li> </ul> </li> <li>3. Program shadows RAM according to setup settings</li> <li>4. Program Parity according to Setup setting</li> <li>5. Power Management Initialization               <ul style="list-style-type: none"> <li>- Enable/Disable global PM</li> <li>- APM interface initialization</li> </ul> </li> </ol>
53	<ol style="list-style-type: none"> <li>1. If it is NOT a PNP BIOS, initialize serial and parallel port</li> <li>2. Initialize time value in BIOS data area by translating the RTC time value into a timer tick value</li> </ol>
54-5F	Reserved
60	Setup Virus Protection (Boot Sector Protection) functionality according to setup setting
61	<ol style="list-style-type: none"> <li>1. Try to turn on Level 2 cache               <p>Note: if L2 cache is already turned on in POST 3D, this part will be skipped</p> </li> <li>2. Set the boot up speed according to setup setting</li> <li>3. Last chance for chipset initialization</li> <li>4. Last chance for power Management initialization (Green BIOS only)</li> <li>5. Show the system configuration table</li> </ol>
62	<ol style="list-style-type: none"> <li>1. Setup daylight saving according to setup value</li> <li>2. Program the NUM Lock, typmatic rate and typmatic speed according to setup setting</li> </ol>
63	<ol style="list-style-type: none"> <li>1. If there is any changes in the hardware configuration, update the ESCD information (PNP BIOS ONLY)</li> <li>2. If there is any changes in the hardware configuration, update the DMI data pool (DMI BIOS ONLY)</li> <li>3. Clear memory that have been used</li> <li>4. Boot system via INT 19h</li> </ol>
FF	System Booting. This means that the BIOS already pass the control right to the operating system

**Technical Information**

**G. Problem Sheet**

Customer			
Name		Tel	
address		Fax	

Mainboard			
Mode		Mainboard Rev	
Serial No.		BIOS version	

Configuration					
CPU	Brand		RAM	Brand	
	Type			Type & Size	
	Voltage			Speed	
Floppy disk	Brand		VGA card	Brand	
	Mode			Chipset	
	Size			RAM Type	
Hard disk	Brand		CD-ROM	Brand	
	Mode			Mode	
	Size			Speed	
Sound card	Brand		Lan card	Brand	
	Mode			Mode	
	Remark			PCI/ISA Bus	
Mouse	Brand		O.S	Brand	
	Mode			Name	
	PS/2 or Serial			Version	
Autoexec.bat			Config.sys		

Problem Description					

**Utility Guide**

**Utility Guide**

**AWDFLASH**

It's for you to erase the system BIOS that is stored on the system mainboard and let you write a updated BIOS into the BIOS. If you erase current BIOS but not write in a new BIOS successfully, the system will malfunction.

You can only use this AWDFLASH.EXE in real-mode DOS (not the DOS box under Windows95/98/NT). So, you need to shut down your computer and select Restart from DOS. If you are just under Windows 95/98/NT, shut down your computer and boot via a DOS diskette for running this utility.

**Intel Bus Master Driver**

This PCI IDE driver is for installation only in Windows 95/98. You may able to get more Up-to-date driver from the Web Site of Intel.

**Intel Win95 Patch Driver**

you may install this driver before you start to install Win95 to smooth the installation. Just get into Intel Web Site for more Up-to-date driver.

**ESS Solo-1 Sound Driver**

This Driver is for TM-P2BX370, TM-P2ZX370 and TM-P2VA370 with ESS Solo-1 Sound on Board. You may able to get more up-to-date driver from the Web Site of

**VIA IDE Master Driver**

This PCI driver is for installation only in Windows 95/98. You may able to get more up-to-date driver from the Web Site of VIA Technology Inc. [WWW.VIA.COM.TW](http://WWW.VIA.COM.TW)

**VIA AGP Bus Master Driver**

This PCI driver is for installation only in Windows 95/98. The latest Version is V3.0. This VIA AGP driver need to be installed before you install an AGP driver. You may able to get more up-to-date driver from the Web Site of VIA Technology Inc. [WWW.VIA.COM.TW](http://WWW.VIA.COM.TW)

### VIA Sound Driver

This driver is for installation in Windows 95/98/NT. The Directory of **Sound Driver** cover two files. The **Viaaudio.inf** is for Audio and **Viajstic.inf** is for Game. Since VIA Audio driver is in its initial version, you may refer to the Installation Guide from the manual Illustration page.

### Super-VB

This anti-virus software is provided by Paragon and is able to be installed for Windows95/98 and DOS. Just run Set-Up file for it.

### Smart-Debug

This file includes System Monitoring and System Debug utility. After installation, you can use both function. Aside from System Monitoring and System Debug, CPU temperature will be always standing on the debug display for internal and external after debugging.

## Illustration!

### Instructions for using External 3.5" Drive Bay

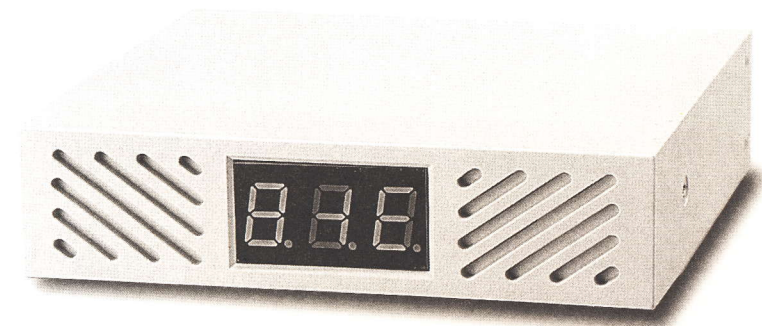
When you are ready to use external 3.5" Drive Bay featured with LED Debug & CPU Temperature display function, please remember to complete the Set-Up works as follows:

1. Get into file name of "Smart-Debug".
2. Get into "95".
3. Get into "Setup.exe".
4. Run "Setup".
5. After Setup, please turn-off and turn-on again.

Now, you will find the CPU temperature is standing on the LED of external Debug Drive Bay after debugging.

#### Remark:

This external function is belonged to optional so that please check your supplier to make sure the board you bought is available with this extra function.





**MEMO**