# VX3

# INTELLIGENT PENTIUM MMX MAIN BOARD

Intel 430VX
for Baby AT Size
Supporting
Intel Pentium®(MMX)
AMD K5/K6
CYRIX 6x86

*USER'S MANUAL*

version 1.0

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# Preface

## Inside the Document

This document describes how to setup *VX3* Intel Triton VX Enhance I/O system board to be configured with right jumpers and values in your PC.

VX3 is designed with ***SMART SETTING*** for CPU. If you Install Intel 133Mhz, CYRIX 166+, AMD K5-133 CPU, you don't need to set extra jumpers for CPU type or speed. Just install it and power on system. ***If you install the CPU which is other speed, you just set one jumper to start your system.*** You can review this part in Chapter 1.

The board also has ***another convenient function*** that we put all front panel connectors together, JP5. It saves your time to look for the location for front panel connectors. ***Auto Switching between 3.3v and 2.8v CPU.***

To avoid unnecessary mistakes in jumper setting, we combine functions in some jumpers, especially in CPU type and speed, complete and clear jumpers setting and list. All our efforts are to make the setting friendly and quickly.

The package for VX3 including:

- ☑ VX3 mother board
- ☑ COM1/COM2 serial port ribbon cables attached to a mounting bracket
- ☑ One parallel port ribbon cable attached to a mounting bracket
- ☑ One IDE drive ribbon cable for 2 devices
- ☑ One Floppy ribbon cable for 2 devices
- ☑ One IDE device disk
- ☑ This user's manual

Chapter 1 is for hardware installation for VX3. The information in Chapter 1 is about positions, jumpers and connectors. Due to the

board supports full range of Intel Pentium, P55C, CYRIX, and AMD K5/6 CPU up to 233Mhz.

Chapter 2 is for BIOS setup. If you want to use external I/O card, you can disable the I/O function in BIOS and then install a card on slot. You also modify the COM1/2 as COM3/4 in BIOS. Finally, the BIOS is PnP function. It auto detects the PCI IRQ, ISA IRQ and HDD mode.

Chapter 3 is for IDE DRIVER installation and how to upgrade BIOS.

Simple features:

- Intel 430 VX PCISET (TRITON VX) TVX+TDX &PIIX3
- Enhance super I/O on board.
- 256K/512K PIPELINE BURST CACHE on board.
- Support EDO/Fast Page DRAM, 72-pin SIMM socket * 4pcs, 2 pairs/4 banks up to 128MB. 168-pin DIMM socket * 1pce supports EDO/FP/SDRAM.
- Support Intel Pentium P54C, P55C, MMX, up to 233Mhz, Cyrix up to 200+, AMD K5/K6 PR/233.
- PCI V2.1 compatible. Concurrent PCI, enhanced CPU/PCI/ISA performance. Multi-transational timer. Enhanced write performance. Passive release.
- Optimized performance for short bursters (smart TV and Video capture).
- Cut down on DMA and ISA overhead (Audio applications).
- DRAM availability has less impact on CPU-DRAM-PCI write cycle.
- L2 write-back policy cache, extend mode range 4 to 128MB.
- Support the **U**niversal **S**erial **B**us (USB).
- SIMM sockets support FP/EDO(6-2-2-2) DRAM. DIMM SDRAM (x-1-1-1).
- Support on chip DRAM parity/ECC (Error Checking and Correction) for sever designs.
- 3 * 32-bit PCI, 3 * 16 bit ISA Slots.
- 2 * IDE bus master ATAPI EIDE, support 4 IDE devices.

EPP/ECP/SPP printer port. 2 * 16550 UART serial ports. PS/2 mouse port. IR, infrared, port, option for FIR, fast infrared. 2 * USB, universal serial bus, ports.

- Built-in AWARD PCI/ISA Plug and Play Flash BIOS GREEN BIOS
- One mega flash BIOS ROM.

&&&

# Chapter 1

# Hardware Installation For VX3

## 1.1 One Jumper to Set CPU , Simple Jumper

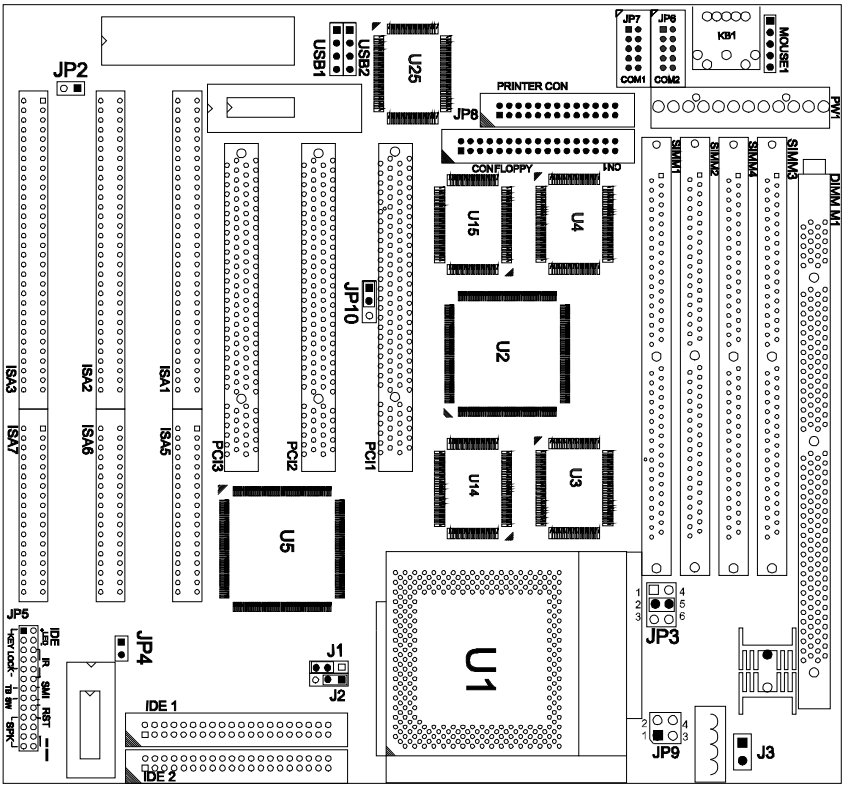
No more CPU jumper setting when you use
**Intel 133Mhz,**
**CYRIX 166$^{+}$,**
**AMD K5-133 CPU**.
You just install CPU directly and Power On. (At the moment, J1: 2-3 and J2: 1-2 SHORT; JP3: 2-5 SHORT )

A: Using **Intel** CPU (Ensuring JP3: 2-5 SHORT)
Intel 100Mhz CPU, put **J1: 1-2** and J2: 1-2 SHORT
Intel 166Mhz CPU, put J1: 2-3 and **J2: 2-3** SHORT
Intel 200Mhz CPU, put **J1: 1-2 and J2: 2-3** SHORT
Intel 233Mhz CPU, put **J1:1-2** and J2: 1-2 SHORT

B: Using **CYRIX** 6x86 CPU ( Ensuring J1: 2-3 and J2: 1-2 SHORT)
CX 120$^{+}$ CPU, put **JP3: 1-4, 2-5** SHORT, 50Mhz
CX 133$^{+}$ CPU, put **JP3: OPEN**, 55Mhz
CX 150$^{+}$ CPU, put **JP3: 1-4 SHORT**, 60Mhz
CX 200$^{+}$ CPU, put **JP3: 3-6 SHORT**, 75Mhz

C: Using **AMD** K5/K6 (Ensuring JP3: 2-3 SHORT)
AMD K5 -100, put **J1: 1-2** and J2: 1-2 SHORT
AMD K6(K5)-PR166, put **J1: 2-3 and J2: 2-3** SHORT
AMD K6-PR200, put **J1: 1-2 and J2: 2-3** SHORT
AMD K6-PR233, put **J1: 1-2 and J2: 1-2** SHORT

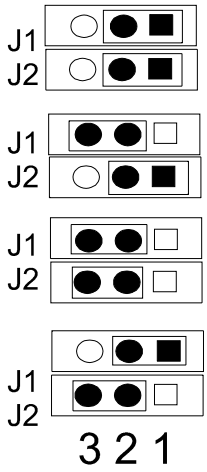
# Map of VX3 Mother Board




**Default Setting for**
**Intel Pentium 133Mhz,**
**AMD K5-133,**
**CYRIX P166+**
**256K PB Cache**

## 1.2 Two-Jumper Setting for CPU

**J1/J2**: Set CPU External Bus Frequency Rate (BF0, BF1)




J1/J2: 1-2, SHORT for Intel 90/100Mhz, MMX 233Mhz, AMD K5 75-133, AMD K6 PR233Mhz,

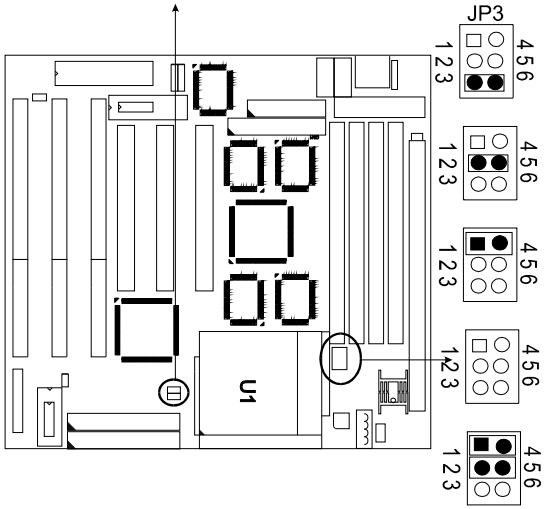
**J1:2-3 and J2: 1-2 SHORT** for Intel 120/133 Mhz, CYRIX $120^{+}$-$200^{+}$ (Default)

J1/J2: 2-3 SHORT for Intel MMX150/166Mhz, AMD K6 PR166Mhz

J1: 1-2 SHORT and J2: 2-3 SHORT for Intel MMX 180/ 200Mhz,and AMD K6 PR200.
(J1 means BF0 and J2 means BF1. When 2-3 short means ACTIVE, 1-2 short means NON-ACTIVE)

**JP3:** Set CPU External (Bus)

Frequency Selection (FS0, FS1, FS2)




3-6 SHORT : 75Mhz for CX 200+

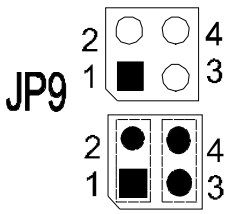
**2-5 SHORT :** 66Mhz for CX 166+, AMD K6, MMX.( Default)

1-4 SHORT : 60Mhz for CX 150+, Intel/ AMD,90/120/150/180

OPEN : 55Mhz for CX133+, Intel/AMD, 100/133/166/200/233

1-4, 2-5 SHORT : 50Mhz for CX 120+, Intel 75Mhz
(When 1-2, 3-4, 5-6 SHORT, it is for 83Mhz Overdriver and new CPU.)
(JP3: 1-4 short means FS0 active, 2-5/3-6 short means FS1/FS2 active.)

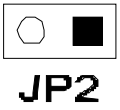
## 1□3.Other Hardware Jumpers




**JP9**: Set the CPU Type

◊ **OPEN** for Auto Switching between 3.3v and 2.8v CPU. P55C(Intel MMX, AMD K6, CYRIX 6x86/L) and P54C CPU. Default

◊ 1-2, 3-4 SHORT for 3.3v CPU only. Indicating Intel P54C (AMD K5 and CYRIX).

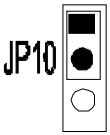



**JP2**: Select FLASH BIOS.

**OPEN for 5v Flash BIOS (normal)**
SHORT for 12v Flash BIOS (set by factory)
*WE DON'T SUGGEST THE USER CHANGES IT BY HIMSELF!*


**JP4**: CMOS. When you forget the password, clear CMOS, restart!

**OPEN for normal**
SHORT to clear CMOS (power must be off).
It is an important jumper. When BIOS setting is changed by user becoming unstable in system board, or I/O don't work properly, reset CMOS RAM data ( default setup.)




**JP10**: Set Cache. Don't change it by users!
1-2 SHORT: 256K PB SRAM
2-3 SHORT: 512K PB SRAM

## 1.4 Install System DRAM Memory

The board supports 4pcs 72-pin, 32-bit SIMMs (Single Inline Memory Modules) and 1pce 168-pin, 64-bit DIMM (Dual Inline Memory Modules) of 4, 8, 16, 32MB to form a memory size between 8MB to 128MB. The SIMMs can be 60ns or 70ns Fast Page Mode (FPM), or Enhanced Data Out (EDO) (BEDO & Parity are not supported). SIMMs must be installed in pairs so that each bank (see Map of VX3)contains 64-bit of same memory chips.

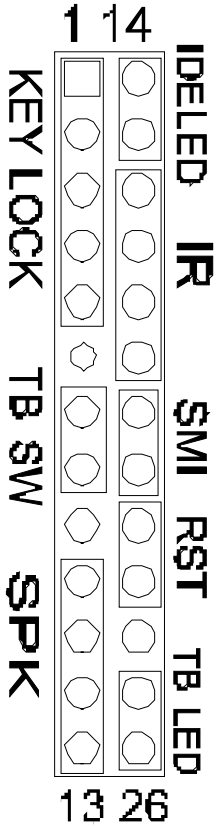
DIMM can be used as one bank. It is available for 3.3v (power level) Unbuffered Synchronous DRAM (SDRAM) or EDO DRAM of either 8, 16, 32, 64, 128MB, to form a memory size between 8MB to 128MB.

SIMM and DIMM can be used together, but the limitations are two banks and max memory size 128MB.

| Bank 0, SIMM 1/2 | Bank 1, SIMM 3/4, DIMM | TOTAL |
|---|---|---|
| 1MB * 32 SS | X | 8MB |
| 1MB * 32 SS | 1MB * 32 SS | 16MB |
| 1MB * 32 SS | 2MB * 32 DS | 24MB |
| 1MB * 32 SS | 4MB * 32 SS | 40MB |
| 1MB * 32 SS | 8MB * 32 DS | 72MB |
| 2MB * 32 DS | X | 16MB |
| 2MB * 32 DS | 1MB * 32 SS | 24MB |
| 2MB * 32 DS | 2MB * 32 DS | 32MB |
| 2MB * 32 DS | 4MB * 32 SS | 48MB |
| 2MB * 32 DS | 8MB * 32 DS | 80MB |
| 4MB * 32 SS | X | 32MB |
| 4MB * 32 SS | 1MB * 32 SS | 40MB |
| 4MB * 32 SS | 2MB * 32 DS | 48MB |
| 4MB * 32 SS | 4MB * 32 SS | 64MB |
| 4MB * 32 SS | 8MB * 32 DS | 96MB |
| 8MB * 32 DS | X | 64MB |
| 8MB * 32 DS | 1MB * 32 SS | 72MB |
| 8MB * 32 DS | 2MB * 32 DS | 80MB |
| 8MB * 32 DS | 4MB * 32 SS | 96MB |
| 8MB * 32 DS | 8MB * 32 DS | 128MB |
| 16MB * 32SS | X | 128MB |

## 1.5 Install IDE, Enhanced I/O and Front Panel Connectors

There is a special design that JP5 is for Key Lock, Sleep/Resume SW, Speaker, IDE LED, TB SW, Reset SW, and Turbo LED. It is convenient for you to connect the cable from front board of Case.




**JP5: 1-5**, Key Lock - Keyboard lock switch & power LED connector. 1. Power LED (+), 2. N/C, 3. GND, 4. Key lock, 5. GND

**JP5: 7-8**, Turbo Switch.

**JP5: 10-13**, Speaker - Connect to the system's speaker for beeping. 10. Speaker, 11. GND, 12. GND, 13. VCC.

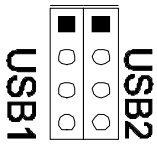
**JP5: 14-15**, IDE LED Indicator - LED ON when on board PCI IDE HDD activities.

**JP5: 16-19**, IR, fast infrared port. PIN-1: IRRX, PIN-2: GND; PIN-3: IRTX; PIN-4: VCC

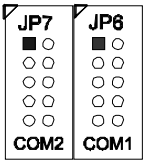
**JP5: 20-21**, SMI, Sleep/Resume Switch - Short to sleep mode. A key strobe or mouse movement ( mouse driver exists). The system will instantly " wake up" , GREEN FUNCTION .

**JP5: 22-23,** Reset - Short to restart system.

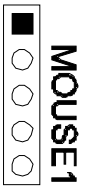
**JP5: 25-26**, Turbo LED Indicator - LED ON when high speed(JP5: 7-8 SHORT).




**USB1-2/:** 4-PIN connectors. PIN-1: VCC(5V), PIN-2: USB-, PIN-3: USB+, PIN-4: GND

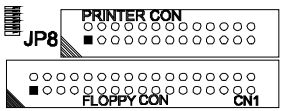



**COM1-2/JP6-7**: Support 16550 high speed serial ports/ UART.



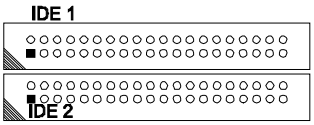

**PS/2 Mouse**: PS/2 mouse port. 5-pin Mouse:

| Pin # | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 |
|---|---|---|---|---|---|
| Pin Name | Data | Clock | GND | No Key | VCC |
| Cable Color | Blue | Green | Red | | Yellow |




**FDC/CN1**: Support 2 FDD up to 1.44MB or 2.88MB .

**LPT/JP8**: Printer port with ECP/ PP. bi-direction. It can be used with external IDE/ SCSI device.




**IDE 1**: Primary IDE port to support ATAPI Mode 5 IDE devices

**IDE 2**: Secondary IDE port to support ATAPI Mode 5 IDE devices.

## 1.6 I/O Address and IRQ/DRQ

I/O Address and IRQ

| On Board I/O | Address | IRQ | DRQ |
|---|---|---|---|
| GAME | 200-20F | X | X |
| COM1 | 3F8-3FF | 4 | X |
| COM2 | 2F8-2FF | 3 | X |
| COM3 | 3E8-3EF | 3 | X |
| COM4 | 2E8-2EF | 3 | X |
| IDE1 | 1F0-1F7 | 14 | X |
| IDE2 | 170-177 | 15 | X |
| LPT1 | 378-37F | 7 | 3 (ECP) |
| LPT2 | 278-27F | 7 | 3 (ECP) |
| LPT3 | 3BC-3BF | 7 | 3 (ECP) |
| FDD1 | 3F0-3F7 | 6 | 2 |
| PS/2 MOUSE | X | 12 | X |

## 1.7 Jumpers and Connectors List

| ITEMS | DESCRIPTION |
|---|---|
| JP2 | OPEN for 5v Flash BIOS, SHORT for 12v |
| JP3 | Set CPU speed |
| JP4 | SHORT to clear CMOS under POWER is off |
| JP5 | Front panel, IR, and SMI connectors |
| JP6-7 | COM1-2 |
| JP8 | Parallel Port |
| JP9 | Set CPU type, OPEN for P55C, MMX, K6; 1-2, 3-4 for P54C, K5 |
| JP10 | 1-2 for 256K cache, 3-4 for 512K cache |
| J1-2 | Set CPU speed |
| CN1 | Floppy Drive connector |
| IDE1-2 | IDE Drive connector |

| | |
|---|---|
| PW1 | AT power supply connector |
| MOUSE 1 | PS/2 mouse connector |

## 1.8 Pin Definition for Cable Connection

There are two cables for COM1 and COM2. Each cable is connected to 10-pin IDC connector. The pin definitions for COM1/COM2 are as follows:

| 9-pin D-Sub | Definition | 10-pin IDC |
|---|---|---|
| Pin-1 | CD, Carrier Detect | Pin-1 (IN) |
| Pin-2 | RXD, Receive Data | pin-3 (IN) |
| Pin-3 | TXD, Transmit Data | Pin-5 (OUT) |
| Pin-4 | DTR, Data Terminal Ready | Pin-7 (OUT) |
| Pin-5 | GND, Signal Ground | Pin-9 |
| Pin-6 | DSR, Data Set Ready | Pin-2 (IN) |
| Pin-7 | RTS, Request To Send | Pin-4 (OUT) |
| Pin-8 | CTS, Clear To Send | Pin-6 (IN) |
| Pin-9 | RI, Ring Indicator | Pin-8 (IN) |

| 25-pin D-Sub | Definition | 10-pin IDC |
|---|---|---|
| Pin-8 | CD, Carrier Detect | Pin-1 (IN) |
| Pin-6 | DSR, Data Set Ready | Pin-2 (IN) |
| Pin-3 | RXD, Receive Data | Pin-3 (IN) |
| Pin-4 | RTS, Request To Send | Pin-4 (OUT) |
| Pin-2 | TXD, Transmit Data | Pin-5 (OUT) |
| Pin-5 | CTS, Clear To Send | Pin-6 (IN) |
| Pin-20 | DTR, Data Terminal Ready | Pin-7 (OUT) |
| Pin-22 | RI, Ring Indicator CTS | Pin-8 (IN) |
| Pin-7 | GND, Signal Ground | Pin-9 |

# Chapter 2

# AWARD, PnP GREEN BIOS SETUP

## 2.1 BIOS Setup

Powe on the computer and press <DEL> key immediately and the screen will display you CMOS SETUP UTILITY as follows:

**ROM PCI/ISA BIOS (2A59GT4A)**
**CMOS SETUP UTILITY**
**AWARD SOFTWARE, INC.**

| | |
|---|---|
| STANDARD CMOS SETUP<br>BIOS FEATURES SETUP<br>CHIPSET FEATURES SETUP<br>POWER MANAGEMENT SETUP<br>PNP/PCI CONFIGURATION<br>LOAD BIOS DEFAULTS<br>LOAD SETUP DEFAULTS | INTEGRATED PERIPHERALS<br>SUPERVISOR PASSWORD<br>USER PASSWORD<br>IDE HDD AUTO DETECTION<br>HDD LOW LEVEL FORMAT<br>SAVE & EXIT SETUPG<br>EXIT WITHOUT SAVING |
| Esc : Quit<br>F10 : Save & Exit Setup | ↓←→: Select Item<br>(Shift) F2: Change Color |
| Time, Date, Hard Disk Type..... | |

## 2.2 Standard CMOS Setup

The STANDARD CMOS SETUP allows user to configure system setting such as current date and time, type of hard disk drive installed in the system, floppy drive type, and the type of display monitor.

**ROM PCI/ISA BIOS (2A59GT4A)**
**STANDARD CMOS SETUP**
**AWARD SOFTWARE, INC.**

Date (mm:dd:yy) : Wed, Jan 5 2000
Time (hh:mm:ss) : 0 : 0 : 0

| HARD DISKS | TYPE | SIZE | CYLS | HEADS | PRECOMP | LANDZ | SECTOR | MODE |
|---|---|---|---|---|---|---|---|---|
| Primary Master: | NONE | 0 | 0 | 0 | 0 | 0 | 0 | -------- |
| Primary Slave: | NONE | 0 | 0 | 0 | 0 | 0 | 0 | -------- |
| Secondary Master: | NONE | 0 | 0 | 0 | 0 | 0 | 0 | -------- |
| Secondary Slave: | NONE | 0 | 0 | 0 | 0 | 0 | 0 | -------- |

Drive A: 1.2M, 5.25 in
Drive B: None

Video: EGA/VGA

Halt On: All Errors

| | |
|---|---|
| Base Memory: | 640K |
| Extended Memory: | 3072K |
| Other Memory: | 384K |
| Total Memory: | 4096K |

Esc: Quit
F1: Help
↑↓→←: Select Item
(Shift) F2: Change Color
Pu/Pd/+/-: Modify

## 2.3 BIOS Features Setup

**ROM PCI/ISA BIOS (2A59GT4A)**
**BIOS FEATURES UTILITY**
**AWARD SOFTWARE, INC.**

| | |
|---|---|
| Virus Warning | : Disable |
| CPU Internal Cache | : Enabled |
| External Cache | : External |
| Quick Power On Self Test | : Disable |
| Boot Sequence | : A,C |
| Swap Floppy Drive | : Disable |
| Boot Up Floppy Seek | : Enabled |
| Boot Up NumLock Status | : On |
| Boot Up System Speed | : High |
| Gate A20 Option | : Fast |
| Typematic Rate Setting | : Disabled |
| Typematic Rate (Chars/Sec) | : 6 |
| Typematic Delay *Msec) | : 250 |
| Security Option | : Setup |
| PCI/VGA Palette Snoop | : Disabled |
| OS Select for DRAM >64MB | : NON-OS2 |

| | |
|---|---|
| Video BIOS Shadow | : Enabled |
| C8000-CBFFF Shadow | : Disabled |
| CC000-CFFFF Shadow | : Disabled |
| D0000-D3FFF Shadow | : Disabled |
| D4000-D7FFF Shadow | : Disabled |
| D8000-DBFFF Shadow | : Disabled |
| DC000-DFFFF Shadow | : Disabled |

↓←→: Select Item

F1 : Help
F5 : Old Values
F6: Load BIOS Defaults
F7 : Load Setup Defaults

PU/PD/+/- : Modify
(Shift)F2 : Color

## 2.4 Chipset Features Setup

**ROM PCI/ISA BIOS (2A59GT4A)**
**CHIPSET FEATURES SETUP**
**AWARD SOFTWARE, INC.**

| | | | |
|---|---|---|---|
| Auto Configuration | : Enabled | DRAM Fast Leadoff | : Disabled |
| DRAM Timing | : 60ns | Delayed Transaction | : Disabled |
| DRAM RAS# Precharge Time | : 3 | | |
| DRAM R/W Leadoff Timing | : 6 | | |
| DRAM RAS To Cas Relay | : 3 | | |
| DRAM Read Burst(EDO?FP) | : 3 | | |
| DRAM Write Burst Timing | :x222/x333 | | |
| Fast MA To RAS# Delay CLK | : 1 | | |
| Fast EDO path Select | : Disabled | | |
| Refresh RAS# Assertion | : 4 CLKS | | |
| ISA Bus Clock | : PCICLK/4 | | |
| System BIOS Cacheable | : Disabled | | |
| Video BIOS Cacheable | : Disabled | | |
| 8 Bit I/O Recovery Time | : 1 | ↓←→: Select Item | |
| 16 Bit I/O Recovery Time | : 1 | F1 : Help | PU/PD/+/- : Modify |
| Memory Hole At 15M-16M | : Disabled | F5 : Old Values | (Shift)F2 : Color |
| Peer Concurrency | : Enabled | F6: Load BIOS Defaults | |
| Passive Release | : Enable | F7 : Load Setup Defaults | |

## 2.5 Power Management Setup

**ROM PCI/ISA BIOS (2A59GT4A)**
**POWER MANAGEMENT SETUP**
**AWARD SOFTWARE, INC.**

| | | | |
|---|---|---|---|
| Power Management | : User Define | **power Down & | Resume Events ** |
| PM Control by APM | : Yes | IRQ3 (COM2) | : ON |
| Video Off Method | : V/H SYNC+Blank | IRQ4 (COM1) | : ON |
| Modem Use IRQ | : 3 | IRQ5 (LPT2) | : ON |
| Doze Mode | : 1 Min | IRQ6 (Floppy Disk) | : OFF |
| Standby Mode | : 1 Min | IRQ7 (LPT1) | : ON |
| Suspend Mode | : 1 Min | IRQ8 (RTC ALARM) | : OFF |
| HDD Power Down | : I Min | IRQ9 (IRQ2 Redir) | : ON |
| | | IRQ10 (Reserved) | : ON |
| ** Wake Up Events In Doze | & Standby ** | IRQ11 (Reserved) | : ON |
| IRQ3 (Wake-Up Event) | : ON | IRQ12 (PS/2 Mouse) | : ON |
| IRQ4 (Wake-Up Event) | : ON | IRQ13 (Coprocessor) | : ON |
| IRQ8 (Wake-Up Event) | : ON | IRQ14 (Hard Disk) | : ON |
| IRQ12 (Wake-Up Event) | : ON | IRQ15 (Reserved) | : ON |
| | | ↓←→: Select Item | |

| | | | |
|---|---|---|---|
| | | F1 : Help | PU/PD/+/- : Modify |
| | | F5 : Old Values | |
| | | F6: Load BIOS Defaults | |
| | | F7 : Load Setup Defaults | (Shift)F2 : Color |

## 2.6 PNP/PCI Configuration

**ROM PCI/ISA BIOS (2A56GT5A)**
**PNP/PCI CONFIGURATION**
**AWARD SOFTWARE, INC.**

| | | | |
|---|---|---|---|
| Resources Controlled By | : Manual | PCI IRQ Actived By | : Level |
| Reset Configuration Data | : Enabled | PCI IDE IRQ Map To | : PCI-AUTO |
| | | primary IDE INT# | : A |
| IRQ-3 assigned to | : Legacy ISA | Secondary IDE INT# | : B |
| IRQ-4 assigned to | : Legacy ISA | Used Mem Base Addr | : N/A |
| IRQ-5 assigned to | : Legacy ISA | | |
| IRQ-7 assigned to | : Legacy ISA | | |
| IRQ-9 assigned to | : Legacy ISA | | |
| IRQ-10 assigned to | : Legacy ISA | | |
| IRQ-11 assigned to | : Legacy ISA | | |
| IRQ-12 assigned to | : Legacy ISA | | |
| IRQ-14 assigned to | : Legacy ISA | | |
| IRQ-15 assigned to | : Legacy ISA | | |
| DMA-0 assigned to | : Legacy ISA | | |
| DMA-1 assigned to | : Legacy ISA | ↓←→: Select Item | |
| DMA-5 assigned to | : Legacy ISA | F1 : Help | PU/PD/+/- : Modify |
| DMA-6 assigned to | : Legacy ISA | F5 : Old Values | |
| DMA-7 assigned to | : Legacy ISA | F6: Load BIOS Defaults | |
| | : | F7 : Load Setup Defaults | (Shift)F2 : Color |

## 2.7 Integrated Peripherals

**ROM PCI/ISA BIOS (2A59GT5A)**
**INTEGRATED PERIPHERALS**
**AWARD SOFTWARE, INC.**

| | | | |
|---|---|---|---|
| IDE HDD block Mode | : Enabled | USB Controller | : Enabled |
| IDE Promary Master PIO | : Auto | | |
| IDE Primary Slave PIO | : Auto | | |
| IDE Secondary Master PIO | : Auto | | |
| IDE Secondary Slave PIO | : Auto | | |
| On-chip Primary PCI IDE | : Enabled | | |
| On-Chip Secondary PCI IDE | : Enabled | | |
| Onboard FDD Controller | : Enabled | | |
| Onboard Serial Port 1 | : 3F8/IRQ4 | | |
| Onboard Serial Port 2 | : 2F8/IRQ3 | | |
| UART 2 Mode | : Standard | | |

| | | | |
|---|---|---|---|
| Onboard Parallel Port | :378H/IRQ7 | | |
| Onboard Parallel Mode | : SPP | | |
| | | ↓←→: Select Item | |
| | | F1 : Help | PU/PD/+/- : Modify |
| | | F5 : Old Values | |
| | : | F6: Load BIOS Defaults | |
| | | F7 : Load Setup Defaults | (Shift)F2 : Color |

## 2.8 AWARD BIOS Post Code

| POST (hex) | Description |
|---|---|
| C0 | 1. Turn off OEM specific cache, shadow...<br>2. Initialize all the standard devices with default values standard devices includes:<br>-DMA controller (8237), -Programmable Interrupt Controller (8259), -Programmable Interval Timer (8254), -RTC chip |
| C1 | Auto-detection of onboard DRAM & Cache |
| C3 | 1. Test system BIOS checksum<br>2. Test the first 256K DRAM<br>3. Expand the compressed codes into temporary DRAM area including the compressed System BIOS & Option ROMs |
| C5 | Copy the BIOS from ROM into E0000-FFFFF shadow RAM so that POST will go faster |
| 01-02 | Reserved |
| 03 | Initialize EISA registers (EISA BIOS only) |
| 04 | Reserved |
| 05 | 1. Keyboard Controller Self-Test<br>2. Enable Keyboard Interface |
| 06 | Reserved |
| 07 | Verifies CMOS's basic R/W functionality |
| BE | Program defaults values into chipset according to the MODBINable Chipset<br>Default Table |
| 09 | 1. Program the configuration register of Cyrix CPU according to the MODBINable Cyrix Register Table<br>2. OEM specific cache initialization (if needed) |
| 0A | 1. Initialize the first 32 interrupt vectors with corresponding |

| | |
|---|---|
| | Interrupt handlers;Initialize INT no from 33-120 with Dummy(Suprious); Interrupt Handler.<br>2. Issue CPUID instruction to identify CPU type<br>3. Early Power Management initialization (OEM specific) |
| 0B | 1. Verify the RTC time is valid or not<br>2. Detect bad battery<br>3. Read CMOS data into BIOS stack area<br>4. PnP initializations including (PnP BIOS only)<br>-Assign CSN to PnP ISA card<br>-Create resource map from ESCD<br>5. Assign IO & Memory for PCI devices (PCI BIOS only) |
| 0C | Initialization of the BIOS Data Area (40 : 0N – 40:FF) |
| 0D | 1. Program some of the Chipset's value according to Setup. (Early Setup Value Program)<br>2. Measure CPU speed for display & decide the system clock speed<br>3. Video initialization including Monochrome,CGA,EGA / VGA.<br>If no display device found, the speaker will beep |
| 0E | 1. Initialize the APIC (Multi-Processor BIOS only)<br>2. Test video RAM (If Monochrome display device found)<br>3. Show messages including:<br>-Award Logo, Copyright string, BIOS Date code & Part No.<br>-OEM specific sign on messages<br>-Energy Star Logo (Green BIOS ONLY)<br>-CPU brand, type & speed<br>-Test system BIOS checksum(Non-Compress Version only) |
| 0F | DMA channel 0 test |
| 10 | DMA channel 1 test |
| 11 | DMA page registers test |
| 12-13 | Reserved |
| 14 | Test 8254 Timer 0 Counter 2. |
| 15 | Test 8259 interrupt mask bits for channel 1 |
| 16 | Test 8259 interrupt mask bits for channel 2 |
| 17 | Reserved |

| | |
|---|---|
| 19 | Test 8259 functionality |
| 1A-1D | Reserved |
| 1E | If EISA NVM checksum is good, execute EISA initialization (EISA BIOS only) |
| 1F-29 | Reserved |
| 30 | Detect Base Memory & Extended Memory Size |
| 31 | 1. Test Base Memory from 256K to 640K<br>2. Test Extended Memory from 1M to the top of memory |
| 32 | 1. Display the Award Plug & Play BIOS Extension message (PnP BIOS only)<br>2. Program all onboard super I/O chips (if any) including COM ports, LPT ports, FDD port... according to setup value |
| 33-3B | Reserved |
| 3C | Set flag to allow users to enter CMOS Setup Utility |
| 3D | 1. Initialize Keyboard<br>2. Install PS2 mouse |
| 3E | Try to turn on Level 2 cache<br>Note: Some chipset may need to turn on the L2 cache in this stage. But usually, the cache is turn on later in POST 61h |
| 3F-40 | Reserved |
| BF | 1. Program the rest of the Chipset's value according to Setup. (Later Setup Value Program)<br>2. If auto-configuration is enabled, programmed the chipset with pre-defined values in the MODBINable Auto-Table |
| 41 | Initialize floppy disk drive controller |
| 42 | Initialize Hard drive controller |
| 43 | If it is a PnP BIOS, initialize serial & parallel ports |
| 44 | Reserved |
| 45 | Initialize math coprocessor. |
| 46-4D | Reserved |
| 4E | If there is any error detected (such as video, kb...), show all the error messages on the screen & wait for user to press <F1> key |
| 4F | 1. If password is needed, ask for password<br>2. Clear the Energy Star Logo (Green BIOS only) |

| | |
|---|---|
| 50 | Write all CMOS values currently in the BIOS stack area back into the CMOS |
| 51 | Reserved |
| 52 | 1. Initialize all ISA ROMs<br>2. Later PCI initializations (PCI BIOS only)<br>-assign IRQ to PCI devices<br>-initialize all PCI ROMs<br>3. PnP Initializations (PnP BIOS only)<br>-assign IO, Memory, IRQ & DMA to PnP ISA devices<br>-initialize all PnP ISA ROMs<br>4. Program shadows RAM according to Setup settings<br>5. Program parity according to Setup setting<br>6. Power Management Initialization<br>-Enable/Disable global PM<br>-APM interface initialization |
| 53 | 1. If it is NOT a PnP BIOS, initialize serial & parallel ports<br>2. Initialize time value in BIOS data area by translate the RTC time value into a timer tick value |
| 60 | Setup Virus Protection (Boot Sector Protection) functionality according to Setup setting |
| 61 | 1. Try to turn on Level 2 cache<br>Note: if L2 cache is already turned on in POST 3D, this part will be skipped<br>2. Set the boot up speed according to Setup setting<br>3. Last chance for Chipset initialization<br>4. Last chance for Power Management initialization (Green BIOS only)<br>5. Show the system configuration table |
| 62 | 1. Setup daylight saving according to Setup value<br>2. Program the NUM Lock, typematic rate & typematic speed according to Setup setting |
| 63 | 1. If there is any changes in the hardware configuration, update the ESCD information (PnP BIOS only)<br>2. Clear memory that have been used<br>3. Boot system via INT 19H |

| | |
|---|---|
| FF | System Booting. This means that the BIOS already pass the control right to the operating system |

# Chapter 3

# Quick Installation Guide

EIDE Driver
and
Update Flash BIOS
for Intel Chipset

Thise Chapter includes two parts: one is to instal Enhance IDE Driver and the other is to update main board BIOS.

## PART 1. Installation IDE driver:

Dear Customer,

Thank you for choosing the Intel PIIX Bus Master IDE Drivers. This production release of the drivers provides support for Intel PCIsets.

To install the drivers, follow the steps below:

1. **For all drivers: execute the appropriate self-extracting archive.**
   Windows 95* archive - bmide_95.exe
   Windows NT* archive - bmide_nt.exe
   IBM OS/2* archive - bmideos2.exe
   This will place the SETUP files in a subdirectory on your hard disk.

2. **For all drivers: run the setup program.**
   Click on SETUP.EXE from Windows* File Manager/Explorer
   OR
   Execute Program/Run from the Program Manager.

3. **Driver Installation**
   For the Windows 95 Driver:
   [See auto install procedures.]

[If using OEM Version of Windows 95 CD-ROM on PIIX3 based systems see also " 82371SB PIIX3 Application Note #3 Microsoft Windows 95* Support for PIIX3 IDE Controller".]

For the IBM OS/2 and Windows NT Drivers:
After running SETUP, follow the installation instructions in the README.TXT file which is extracted to the driver installation directory.

The Driver Version Numbers included in this release are:

Windows 95 Driver - version 2.61
Windows NT Driver - version 1.59
IBM OS/2 Driver - version 2.05

Sincerely,
PCIsets Product Line Marketing
PCI Components Division
Intel Corporation

*Other brands and names are the properties of their respective owners

**********
**********
*  *  *
*
*  PIIX Bus Master IDE Driver for Windows 95*  *  *
*
*  Auto Install/Uninstall Procedures  *
*  *  *
*
**********
**********

**********
*  INTRODUCTION  *
*  *
**********

This document describes the auto installation and uninstallation procedurefor the PIIX Bus Master IDE Drivers for Windows 95.

Note: For information regarding the driver, refer to the README.TXT file included with the driver package. In order to access the README.TXT file, follow the steps to EXTRACT or INSTALL the driver below.

The README.TXT document has more detailed information on the following topics:

- System Requirements
- Installing the Software - Manual Method
- UNINSTALLing the Software - Manual Method
- Troubleshooting
- Identifying the Software Version Number
- Contents of the Distribution Package
- Storage Devices Supported by the Driver
- Release Notes

**********

ASSUMPTION: Ensure that a mouse is connected to the system.

TO DECOMPRESS THE DRIVER.

If drive is on a diskette, copy BMIDE_95.EXE to your system.

Click on BMIDE_95.EXE from Windows* File Manager to decompress file.

Decompression process is completed when the command prompt appears.

TO RUN DRIVER SETUP.EXE PROGRAM

Click on SETUP.EXE from Windows File Manager.
Select YES to read license.
Close License box.
Select YES if you agree to the terms of the license.
If you do not agree, the installation process will terminate.

**THREE OPTIONS WILL BE PRESENTED:**

**1. AUTO INSTALL**

NOTE: SETUP.EXE will only perform installation of the driver on Windows 95-based systems with use either the Intel 82371FB or 82371SB PCI Bus Master IDEcontroller.

To INSTALL the driver, click on INSTALL.

The 'Choose Destination Location' box appears. The default subdirectory, where the driver files and documentation are to be located, is displayed.

If another subdirectory is desired, specify subdirectory and hit ENTER. Otherwise, click on NEXT.

If either the c:\CONFIG.SYS or c:\AUTOEXEC.BAT system files are present on the system, SETUP.EXE will prompt a warning. The user will be required to confirm that there are no IDE or ATAPI real-mode drivers installed. For more information regarding this issue, extract the README.TXT file from the driver package; the information is listed under the 'Troubleshooting' section. NOTE: the user can still install the drivers in the case that the CONFIG.SYS/AUTOEXEC.BAT files exist on the system. Select YES when prompted to continue. The 'Restart Windows' box appears. Select 'Yes, I want to restart my computer now.' Click on OK.
[The system will restart.]

[Windows 95 will report that 'New Hardware' has been found in the system.]

NOTE: When the Windows 95 compressed image is present on the system that the driver is installed on, Windows 95 may prompt the user for a driver installation path. If this happens, enter the path where the containing the driver files and click on OK when prompted to do so.

Windows 95 will prompt that the system settings have changed. Select YES when prompted to restart Windows 95. The system will restart.
[This step, restarting Windows 95, may occur two times.]

The PIIX Bus Master IDE Device Driver should now be installed.

## 2. AUTO UNINSTALL

First follow TO RUN DRIVER SETUP.EXE PROGRAM procedures, then continue to the AUTO UNINSTALL procedures.

To uninstall the driver, click on UNINSTALL.
Question box appears warning that the driver will be uninstalled.
Select YES to proceed with unstalling the driver.

The 'Restart Windows' box appears.
Select 'Yes, I want to restart my computer now.'
Click on OK.
[The system will restart.]
.
The 'New Hardware found' box appears.
Select 'Windows default driver'.
Click on OK.

[Windows 95 will report that 'New Hardware' has been found in the system.]

Windows 95 will prompt that the system settings have changed.
Select YES when prompted to restart Windows 95.
The system will restart.
[This step, restarting Windows 95, may occur two times.]

The PIIX Bus Master IDE Device Driver should now be uninstalled.

### 3. EXTRACT

First follow TO RUN DRIVER SETUP.EXE PROGRAM procedures, then continue to the EXTRACT procedures.

NOTE: Extraction of the driver files may be performed on any Windows-based system.

To EXTRACT the driver files (e.g. README.TXT) to the hard disk without installing the driver, click on EXTRACT.

The 'Choose Destination Location' box appears.
The default subdirectory, where the driver files and documentation are to be located, is displayed. If another subdirectory is desired, specify subdirectory and hit ENTER. Otherwise, click on NEXT. Extraction process is completed.Go to specified subdirectory to refer to driver files.

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Intel is making no claims of usability, efficacy or warranty. The Shrink Wrap Software License Agreement completely defines the license and use of the PIIX Bus Master IDE Driver.
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## PART II. Update Flash BIOS

Because the BIOS of Pentium Triton main board is Flash BIOS, there are two methods to update BIOS. Before programming the BIOS. **( THIS MODIFICATION IS UNDER THE SUPPLIER'S PERMISSION AND FOR QUALIFIED ENGINEER.)**

BIOS is writeable so that don't write anything in the BIOS local address from FFF0:E000 - FFF0:FFFF. Keep BIOS ROM data is available.

# From the BIOS of new main board to old main board:

1. Perform the command, AWDFLASH. The command is in the BIOS of new main board, sub directory of AWARD.
2. Save BIOS.OLD and save it to another disk.
3. Program the BIOS.OLD of the disk to old main board.

# From disk to old main board:

1. Get the disk from your supplier. Usually EIDE Driver include the update function.
2. Program the file, VX3.BIN, of disk to old main board.

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