PENTIUM
TX 400

Chapter 1
Introduction

Overview

TX 400 green main board provides a highly integrated solution for fully compatible, high performance PC/AT platforms and supports Intel Pentium, Cyrix 6x86, M2 and AMD K5, K6 microprocessors. It features Write-Back Secondary Cache memory for 256MB DRAMs, so as to give full play to the advantages of the Pentium, Cyrix 6x86, M2 and AMD K5, K6 CPUs. The main board offers a wide range of interfaces which supports integrated on-board IDE and on-board I/O functions.

The current Green function is compliant with ACPI specification and OS Directed Power Management.

Key Features

CPU	● Supports Intel Pentium 75, 90, 100, 120, 133, 150, 166, 180, 200, 233 MHz, Intel Pentium Processor with MMX technology.
	● Supports Cyrix 6x86 100MHz (P120 Plus), 110MHz (P133 Plus), 120MHz (P150 Plus), 133MHz (P166 Plus), 150MHz (P200 Plus)*, 6x86L and M2 CPUs.
	● Supports AMD K5 PR75, PR90, PR100, PR120, PR133, PR166 and K6 PR166, PR200, PR233 CPUs.
	● Switching regulator (2.0~3.5V circuit) on board.
Chipset	● Intel's 82439 TX, PIIX4, 324 Pin BGA package chipset.
Main memory	● Supports 4x72pin SIMM modules and 2x168 pin DIMM modules.
	● 64-bit data path for flexible memory size expands from 8MB up to 256MB DRAMs for SIMM socket.
	● Supports Fast Page mode DRAM and EDO DRAM for SIMM socket.
	● Supports from 8MB to 64MB 3.3V/unbuffered SDRAM DIMM or 3.3V/unbuffered EDO DIMM for DIMM slot.

"*": **The maximum speed of Intel PCIset specification is 66MHz only, it's recommended by Intel not to set system clock frequency as 75MHz.**
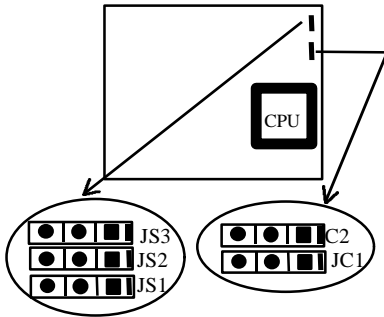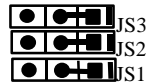
Chapter 2
Jumper Configuration

The mainboard offers a set of jumper settings to facilitate clock frequency adjustments and other important selections.
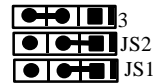
System Clock Selection

In this TX Baby AT mainboard, there are five selections of SC (System Clock). Users have to set a group of jumpers as shown in the following illustration to determine which system clock is used.
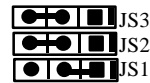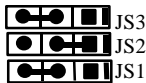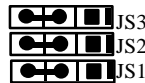

System Clock 50MHz:

System Clock 55MHz:

System Clock 60MHz :

System Clock 75MHz:

System Clock 66MHz :

Clock Multiplier Selection

Chapter 3
Connector Configuration

This section lists all connector pin assignments and port descriptions on the mainboard. The situations of the connectors and ports are illustrated in the following figures. Before inserting these connectors, take note of their directions.

Power Connector (J3)

PIN NUMBER	FUNCTION
1	POWER GOOD
2	+5V
3	+12V
4	-12V
5	GND
6	GND
7	GND
8	GND
9	-5V
10	+5V
11	+5V
12	+5V
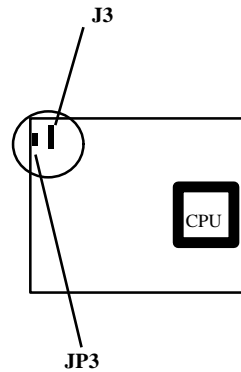
Keyboard Connector (JP3)

PIN NUMBER	FUNCTION
1	CLOCK
2	DATA
3	AC
4	GND
5	+5V

Chapter 4
AWARD BIOS
Description

Entering BIOS Setup

Power on the computer, when the following message appears briefly at the bottom of the screen during the POST (Power On Self Test), press <Del> key or simultaneously press <Ctrl> + <Alt> + <Esc> keys.

Press <Del> to enter SETUP

Once you enter Award BIOS CMOS Setup Utility, the Main Menu (Figure 1) will appear on the screen. The Main Menu allows you to select from twelve setup functions and two exit choices. Use the arrow keys to select from among the items and press <Enter> to accept or enter the sub-menu.

ROM PCI/ISA BIOS (2A59IQ1F) CMOS SETUP UTILITY AWARD SOFTWARE, INC.	
STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	PASSWORD SETTING
CHIPSET FEATURES SETUP	IDE HDD AUTO DETECTION
POWER MANAGEMENT SETUP	SAVE & EXIT SETUP
PNP/PCI CONFIGURATION	EXIT WITHOUT SAVING
LOAD SETUP DEFAULTS	
Esc : Quit	↑↓→← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Time, Date, Hard Disk Type...	

Figure-1 Main Menu For BIOS Setup

Appendix A.
BIOS Upgrade Diskette

Use this diskette to update your BIOS when necessary.

For the most updated and additional information about BIOS upgrades, please refer to the "README" in the "BIOS Upgrade Diskette".

💣**Warning**: **Before you update your BIOS, review the "README" file to avoid making mistakes.**

# Appendix B.

Cache memory	●	Provides 512KB L2 Pipeline Burst Cache on board.
On-board IDE	●	Supports 2 PCI Bus Master (Bus Master works as DMA Mode 2 type) IDE ports.
	●	Supports PIO mode up to Mode 4 Timing.
	●	Supports "Ultra DMA/33" synchronous DMA mode transfers up to 33MB/sec.
	●	Supports 2 Fast IDE interfaces for up to 4 IDE devices e.g. IDE hard disks and CD ROMs drives.
Green function	●	Supports 3 green modes: Doze, Standby and Suspend
	●	Power LED will blink when system is in the green status.
CPU Overheat Protection	●	When CPU fan malfunctions, the system will deactivate the CPU Clock line to decrease CPU utilization to the speed upon detection of system been overheated and the speaker alarms to inform users. This will prevent CPU being damaged from overheat.
On-board I/O	●	3 x ISA Slots and 4 x PCI Slots.
	●	Uses NS Plug & Play IO chip Win 977.
	●	Supports up to two 3.5" or 5.25" floppy drives 360K/720K/1.2M/1.44M/2.88M format.
	●	Supports 120MB floppy drive.
	●	All I/O ports can be enabled or disabled in BIOS.
	●	Two high speed 16550 compatible UARTS (COM1/COM2/COM3/COM4 selective) with 16-byte send/receive FIFOs and support MIDI mode.
	●	One parallel port at I/O address 378H/278H/3BCH with additional bi-direction I/O capability and multi-mode selection (SPP/EPP/ECP) (IEEE1284 compliant).
	●	Provides protection circuit to prevent damages to the parallel port when a connected printer is powered up or operated at a higher voltage.
	●	Supports PS/2 mouse and PS/2 keyboard (optional).
	●	Supports IrDA TX/RX Header.
	●	Supports USB (Universal Serial Bus) in specification.
BIOS	●	Licensed advanced AWARD BIOS. Supports Flash ROM BIOS, Plug and Play ready, DMI ready. Built-in NCR810 SCSI BIOS.
Power supply	●	Baby AT.
Board size	●	220mm x 250mm.

The Intel Pentium CPU multiple clock settings are as shown below:

** **Note:** **SC -- System Clock**

1.5× SC
or 3.5×SC

2× SC

2.5× SC

3× SC
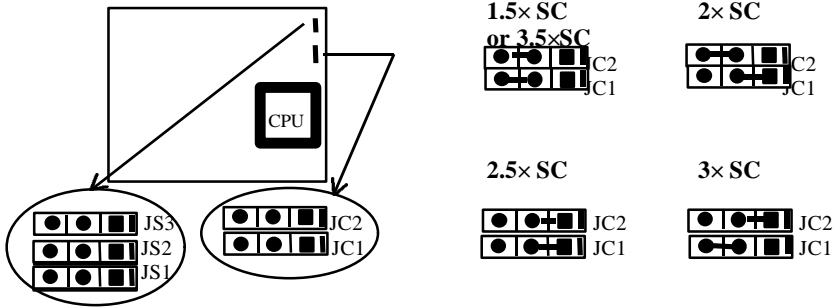
* **Remark:** **3.5× SC is only for 233MHz Pentium MMX CPU & K6 CPU.**

CPU Frequency Selection

According to the CPU's specification, set the system clock and clock multiplier carefully. The following illustrations list all jumper settings for the major types of CPUs.

For Intel Pentium 75~233MHz

75=1.5 × 50MHz:
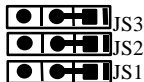
90=1.5 × 60MHz:
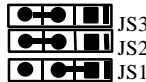
100=1.5 × 66MHz:
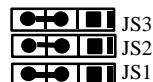
120=2 × 60MHz:

133=2 × 66MHz:

150=2.5 × 60MHz:

Keylock Connector (JP9)

PIN NUMBER	FUNCTION
1	+5V
2	NC
3	GND
4	KEYLOCK
5	GND

Hard Disk LED Connector (JP12)

PIN NUMBER	FUNCTION
1	VCC
2	IDE ACT
3	IDE ACT
4	VCC


```
CPU    KB-LOCK   (JP  9)
       HD-LED    (JP12)
       T-LED     (JP21)
       SPEAKER   (JP16)
       IR HEADER(JP17)
```
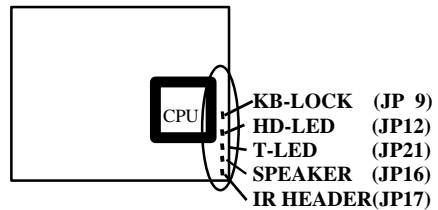
Standard CMOS Setup

Use the arrow keys to highlight the item, then use the < PgUp> or
<PgDn> keys to select the value you want in each item.

```
Date (mm:dd:yy): Thu, Mar 6, 1997
Time(hh:mm:ss) : 00:00:00


HARD DISKS          TYPE  SIZE CYLS  HEAD PRECOMP  LANDZ  SECTOR
  MODE
Primary Master  : Auto   0    0     0      0         0      0
  AUTO
Primary Slave   : Auto   0    0     0      0         0      0
  AUTO
Secondary Master: Auto   0    0     0      0         0      0
  AUTO
Secondary Slave : Auto   0    0     0      0         0      0
  AUTO


Drive A         : 1.44M, 3.5 in.          Base Memory   :  640  K
Drive B         : None             Extended Memory  : 7168K
                                     Other Memory   : 384  K
Video           : EGA/VGA               Total Memory : 8192K
Halt On         : All Errors
```

| ESC : Quit | ↑↓ → ← : Select Item | PU/PD/+/- : Modify |
| F1 : Help | (Shift)F2 : Change Color | |

Figure-2 Standard CMOS Setup Menu

Hard Disk
Primary Master/Primary Slave/Secondary Master/Secondary Slave

The categories identify the types of 2 channels that have been installed in
the computer. There are 45 predefined types and 4 user definable types
that are used for Enhanced IDE BIOS. Type 1 to Type 45 are predefined.
Type "User" is user-definable. If your hard disk drive type does not match
with the drive table or listed in it, you can use Type "User" to define your
own drive type manually.

Introducing AMD-K5 CPU markings:

Operating Voltage:
B = 3.45V ~ 3.60V -- >3.5V
C = 3.30V ~ 3.465V -- > 3.3V
F = 3.135V ~ 3.465V -- > 3.3V
G = x/y
H= 2.86V~3.00V/3.30V~3.465V -- > 2.9/3.3
J = 2.57V~2.84V/3.30V~3.465V -- > 2.7/3.3
K= 2.38V~2.63V/3.30V~3.465V -- > 2.5/3.3

Processor Name

P-Rating
75,90,100,120,
133,150,166

AMD-K5™

PR133

AMD-K5-PR133ABQ
100MHz
E J607070 ES
1996 AMD

Internal CPU
Frequency
75MHz, 90 MHz,
100 MHz,105 MHz,
116.7 MHz

Case Temperature:
W = 55°C
R = 70°C
Q = 60°C   Y = 75°C
X = 65°C   Z = 85°C

Package Type
A=SPGA
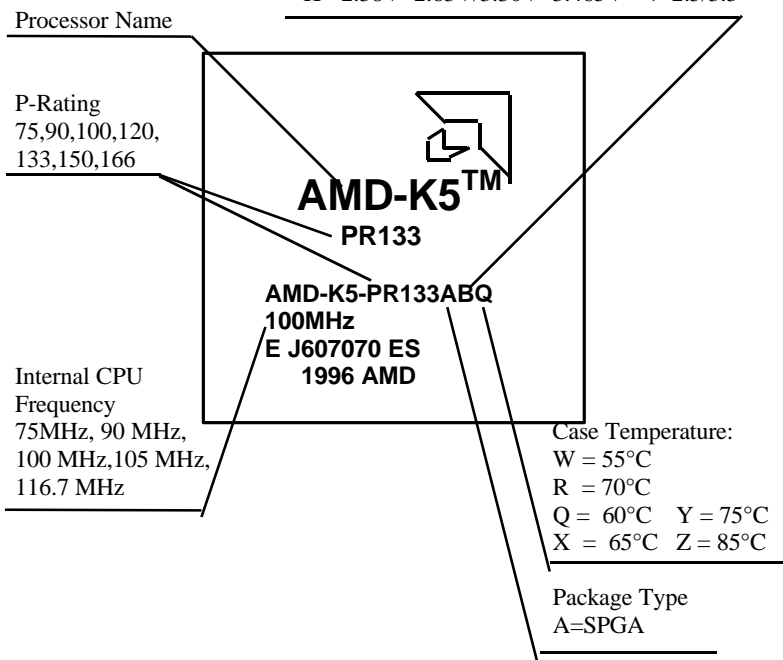
Appendix C.

Introducing AMD-K6 CPU markings:

JS3 JS2 JS1

JS3 JS2 JS1

JS3 JS2 JS1

JC2 JC1

JC2 JC1

JC2 JC1

166=2.5× 66MHz: 180=3× 60MHz: 200=3× 66MHz:

JS3 JS2 JS1

JS3 JS2 JS1

JS3 JS2 JS1

JC2 JC1

JC2 JC1

JC2 JC1

233=3.5 × 66MHz:

JS3 JS2 JS1

JC2 JC1

∗ Remark: 3.5× SC is only for Pentium MMX CPU.

For Cyrix 6× 86 CPU

Speaker Connector (JP16)

PIN NUMBER	FUNCTION
1	SPKDATA
2	NC
3	GND
4	VCC

IrDA Connector (JP17)

PIN NUMBER	FUNCTION
1	VCC
2	NC
3	IRRX
4	GND
5	IRTX
6	VCC

Turbo LED Connector (JP21)

PIN NUMBER	FUNCTION
1	GND
2	VCC

If you select Type **"Auto"**, BIOS will Auto-Detect the HDD & CD-ROM drive at the POST stage and show the IDE for HDD & CD-ROM drive.

  If you select Type **"User"**, related information is asked to be entered into the following items. Enter the information directly from the keyboard and press **<Enter>**:

If an additional ESDI HDD Controller interface is ESDI, on-chip Primary and/or Secondary has to be disabled. If the controller of HDD interface is SCSI, the type should be set as "Auto" whatever the HDD interfaces is.

CYLS	number of cylinders	HEAD	number of heads
PRECOMP	write precom	LANDZ	landing zone
SECTOR	number of sectors	MODE	HDD access mode

Video
This category selects the type of video adapter used for the primary system monitor. Although secondary monitors are supported, you do not have to select the type in Setup.

EGA/ VGA	Enhanced Graphics Adapter / Video Graphic Array. For EGA, VGA, SEGA, SVGA, or PGA monitor adapters.
CGA 40	Color Graphic Adapter, powering up in 40 column mode.
CGA 80	Color Graphic Adapter, powering up in 80 column mode.
MONO	Monochrome adapter, including high resolution monochrome adapters.

Error Halt
This category determines whether the computer will stop or not if an error is detected during powering up.

No errors	The system boot will not stop for any error that may be detected.
All errors	Whenever the BIOS detects a non-fatal error, the system will stop and you will be prompted.
All, But Keyboard	The system boot will not stop for a keyboard error, but it will stop for all the other errors.
All, But Diskette	The system boot will not stop for a disk error; but it will stop for all the other errors.
All, But Disk/Key	The system boot will not stop for a keyboard or disk error, but it will stop for all the other errors.

Memory
This category display-only what is determined by POST (Power On Self Test) in the BIOS.

Internal CPU Frequency
166MHz, 200MHz, 233MHz

Processor Name

AMD-K6^**TM**

AMD-K6-PR200
XXXXXXXX **2.9V**
ⓜ © **1996 AMD**

Center of Core
Voltage:
2.9V, 3.2V
(For dual voltage)
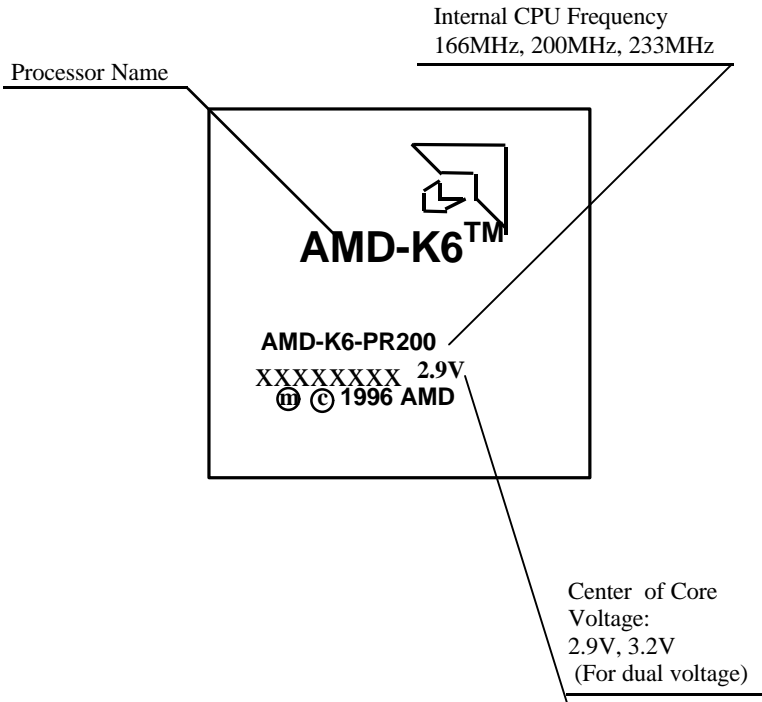
Appendix D.

Introducing Cyrix 6x86 CPU markings:

AWARD BIOS Description

Appendix

P120+(100MHz)=50MHz × 2:   P133+(110MHz)= 55MHz × 2:

JS3
JS2
JS1

JC2
JC1

JS3
JS2
JS1

JC2
JC1
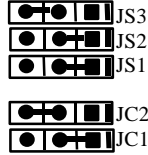
P150+(120MHz)=60MHz × 2:   P166+(133MHz)= 66MHz × 2:

JS3
JS2
JS1

JC2
JC1

JS3
JS2
JS1

JC2
JC1
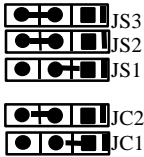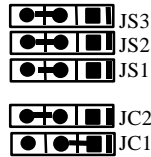
P200+(150MHz)= 75MHz × 2:

JS3
JS2
JS1

JC2
JC1
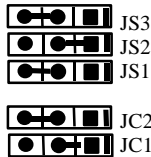
** **Note:**
The maximum speed of Intel PCIset specification is 66MHz only, it's recommended by Intel not to set system clock frequency at 75MHz.

For Cyrix 6×86MX CPU

MX-PR166(150MHz)= 60MHz × 2.5:

JS3

USB1/USB2 Connector (USB1/USB2)

PIN NUMBER	FUNCTION
1	VCC
2	Key
3	DATA -
4	DATA +
5	GND

FAN Connector (JP7)

PIN NUMBER	FUNCTION
1	GND
2	+12V
3	GND

Hardware Green (JP8)

SETTING	FUNCTION
CLOSE	HARDWARE GREEN (Close once)
OPEN	NORMAL

Reset Switch (JP10)

SETTING	FUNCTION
CLOSE ONCE	RESET THE SYSTEM
OPEN	NORMAL

PS2 Mouse (JP1)   FAN POWER (JP7)

USB1   HD SMI   (JP8)

USB2   CPU   RESET   (JP10)
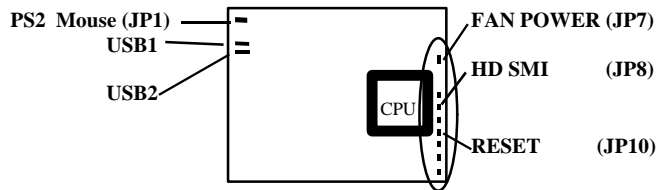
Base Memory	The POST in the BIOS will determine the amount of base (or conventional) memory installed in the system.
Extended Memory	The BIOS determines how much extended memory is present during the POST.
Other Memory	This is the memory that can be used for different applications. Shadow RAM is mostly use in this area.
Total Memory	Total memory of the system is the sum of the above memory.

BIOS Features Setup

```
          ROM PCI/ISA BIOS (2A59IQ1F)
              BIOS FEATURES SETUP
             AWARD SOFTWARE, INC.
```

Virus Warning	: Disabled	Video BIOS Shadow	: Enabled
CPU Internal Cache	: Enabled	C8000~CBFFF Shadow	: Disabled
External Cache	: Enabled	CC000~CFFFF Shadow	: Disabled
Quick Power On Self Test	: Enabled	D0000~D3FFF Shadow	: Disabled
Boot Sequence	: A,C, SCSI	D4000~D7FFF Shadow	: Disabled
Swap Floppy Drive	: Disabled	D8000~DBFFF Shadow	: Disabled
Boot Up Floppy Seek	: Disabled	DC000~DFFFF Shadow	: Disabled
Boot Up Numlock Status	: On	Delay for HDD (Secs)	: 0
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec)	: 6		
Typematic Delay(Msec)	: 250		
Security Option	: Setup	ESC: Quit ↑↓→← : Select Item	
PCI/VGA Palette Snoop	: Disabled	F1 : Help PU/PD/+/- : Modify	
OS Select For DRAM>64MB	: Non-OS2	F5 : Old Values (Shift)F2: Color	
Report No FDD For WIN95	: Yes	F7 : Load Setup Defaults	

Figure-3   BIOS Features Setup

The following pages indicate the options of each item and describe their meaning.

Item	**Option**	**Description**
• Virus Warning	*Enabled*	Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table.
	Disabled	No warning message appears when anything

4 - 4

P-Rating

Processor name
6x86, 6x86L

90+, 120+, 133+
150+, 166+, 200+

CPU Core
Frequency
100, 110, 120,
133, 150

6x86-P133+GP
110MHz
3.52V (028)

Center of Core
Voltage:
3.3V, 3.52V
(For single voltage)
2.8V, 2.9V
(For dual voltage)

CPU Voltage:
Full spec.: 3.15V~3.70V
C-spec. (016): 3.15V~3.45V-- >3.3V
C-spec. (028): 3.40V~3.70V -- >3.5V
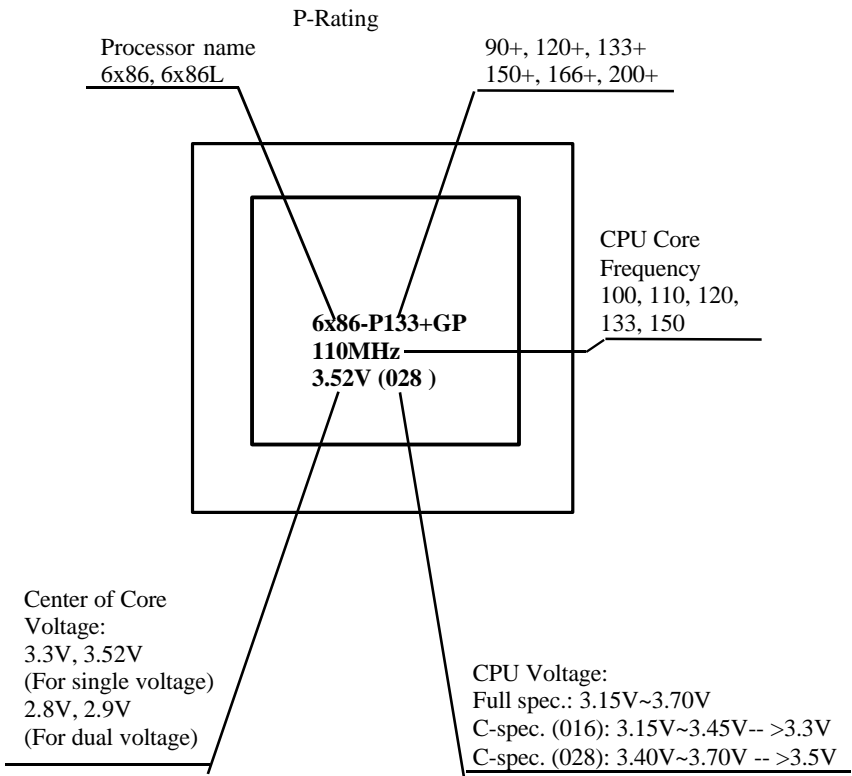
Appendix E.

Introducing Cyrix 6x86MX CPU markings:

Jumper Quick Setting

CPU Installation

JS1, JS2 and JS3 are used for System Clock settings.
JC1and JC2are used for CPU multiple clock settings.
(Please refer to pages 2-1 ~ 2-7 for detailed information)

	CPU Frequency	*JC1*	*JC2*	*JS1*	*JS2*	*JS3*
Intel Pentium (P54C & P55C)	75MHz	2-3	2-3	1-2	1-2	1-2
	90 MHz	2-3	2-3	1-2	2-3	2-3
	100 MHz	2-3	2-3	2-3	2-3	2-3
	120 MHz	1-2	2-3	1-2	2-3	2-3
	133 MHz	1-2	2-3	2-3	2-3	2-3
	150 MHz	1-2	1-2	1-2	2-3	2-3
	166 MHz	1-2	1-2	2-3	2-3	2-3
	180 MHz	2-3	1-2	1-2	2-3	2-3
	200 MHz	2-3	1-2	2-3	2-3	2-3
	233 MHz	2-3	2-3	2-3	2-3	2-3
Cyrix 6x86	P120+(100 MHz)	1-2	2-3	1-2	1-2	1-2
	P133+(110 MHz)	1-2	2-3	1-2	1-2	2-3
	P150+(120 MHz)	1-2	2-3	1-2	2-3	2-3
	P166+(133 MHz)	1-2	2-3	2-3	2-3	2-3
	P200+(150 MHz)	1-2	2-3	2-3	1-2	2-3
Cyrix 6x86MX	PR166(150 MHz)	1-2	1-2	1-2	2-3	2-3
	PR200(150 MHz)	1-2	2-3	2-3	1-2	2-3
	PR200(166 MHz)	1-2	1-2	2-3	2-3	2-3
	PR233(188MHz)	1-2	1-2	2-3	1-2	2-3
	PR233(200MHz)	2-3	1-2	2-3	2-3	2-3
AMD K5	PR75(75 MHz)	2-3	2-3	1-2	1-2	1-2
	PR90,PR120(90 MHz)	2-3	2-3	1-2	2-3	2-3
	PR100,PR133(100 MHz)	2-3	2-3	2-3	2-3	2-3
	PR166	1-2	1-2	2-3	2-3	2-3
	PR200	2-3	1-2	2-3	2-3	2-3
AMD K6	166(166 MHz)	1-2	1-2	2-3	2-3	2-3
	200(200 MHz)	2-3	1-2	2-3	2-3	2-3
	233(233 MHz)	2-3	2-3	2-3	2-3	2-3

Select CPU Type & Voltage

JV, JV2, JV3, JV4 and JV5 are used to select your CPU voltage.
(Please refer to pages 2-8 for details.)

	Single Voltage CPU	Dual Voltage CPU

```
┌──────────┐
│ ●─● │ ■│
├──────────┤ JS2
│ ●─● │ ■│
├──────────┤ JS1
│● │●─■│
└──────────┘
```

```
┌──────────┐
│● │●─■│ JC2
├──────────┤
│● │●─■│ JC1
└──────────┘
```
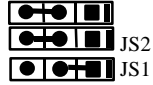
MX-PR200(150MHz)= 75MHz × 2:

```
┌──────────┐
│ ●─● │ ■│ JS3
├──────────┤
│● │●─■│ JS2
├──────────┤
│ ●─● │ ■│ JS1
└──────────┘
```

```
┌──────────┐
│ ●─● │ ■│ JC2
├──────────┤
│● │●─■│ JC1
└──────────┘
```
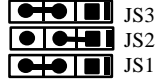
MX-PR200(166MHz)= 66MHz × 2.5:

```
┌──────────┐
│ ●─● │ ■│ JS3
├──────────┤
│ ●─● │ ■│ JS2
├──────────┤
│ ●─● │ ■│ JS1
└──────────┘
```

```
┌──────────┐
│● │●─■│ JC2
├──────────┤
│● │●─■│ JC1
└──────────┘
```
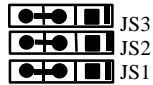
MX-PR233(188MHz)= 75MHz × 2.5:

```
┌──────────┐
│ ●─● │ ■│ JS3
├──────────┤
│● │●─■│ JS2
├──────────┤
│ ●─● │ ■│ JS1
└──────────┘
```

```
┌──────────┐
│● │●─■│ JC2
├──────────┤
│● │●─■│ JC1
└──────────┘
```
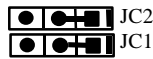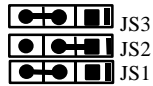
MX-PR233(200MHz)= 66MHz × 3:

```
┌──────────┐
│ ●─● │ ■│ JS3
├──────────┤
│ ●─● │ ■│ JS2
├──────────┤
│ ●─● │ ■│ JS1
└──────────┘
```

```
┌──────────┐
│ ●─● │ ■│ JC1
├──────────┤
│● │●─■│ JC2
└──────────┘
```
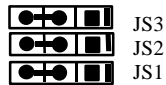
For AMD K5 CPU

PS2 Mouse (JP1)

PIN NUMBER	FUNCTION
1	DATA
2	CLOCK
3	GND
4	NC
5	+5V

** Note: If you choose to use PS/2 Mouse, please contact your vendor for an optional PS/2 Mouse cable.

I/O Port Description

CONNECTOR	FUNCTION
IDE1	Primary IDE Port
IDE2	Secondary IDE Port
FLOPPY	Floppy Drive Port
PRINTER	Parallel Port
CN2	COM1/COM2/COM3/COM4
CN3	COM2/COM3/COM4/COM1

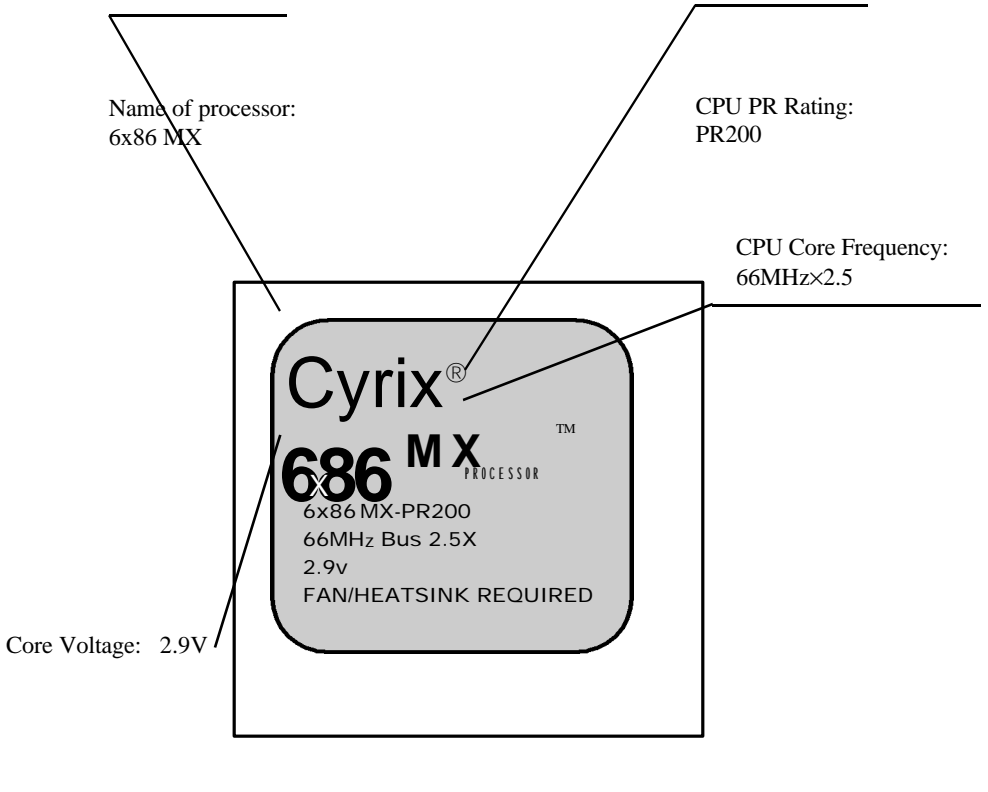|		attempts to access the boot sector or hard disk partition table.
		**Note: This function is available only for DOS and other OSes that do not trap INT13.
• CPU Internal Cache	*Enabled*	Enables CPU internal cache.
	Disabled	Disables CPU internal cache.
• External Cache	*Enabled*	Enables external cache.
	Disabled	Disables external cache.
• Quick Power On Self Test	*Enabled*	Enables quick POST. BIOS will shorten or skip some check items during POST to speed up POST after you power on the computer.
	Disabled	Normal POST.
• Boot Sequence	*C, CD-ROM,A ... SCSI, C ,A*	Any search sequence can be choosen for bootup.
• Swap Floppy Drive	*Enabled*	Exchanges the assignment of A&B floppy drives.
	Disabled	The assignment of A&B floppy drives are normal.
• Boot Up Floppy Seek	*Enabled*	BIOS searches for floppy disk drive to determine if drive is ready for diskette read/write during booting.
	Disabled	SkipS drive seeking to speed up system booting.
• Boot Up Numlock Status	*On*	Keypad is used as number keys.
	Off	Keypad is used as arrow keys.
•Typematic Rate Setting	*Enabled*	EnableS typematic rate and typematic delay programming.
	Disabled	DisableS typematic rate and typematic delay programming. The system BIOS will use the default value of these two items.
• Typematic Rate Chars/Sec)	6~30	Sets the speed of the typematic rate (characters per second).
• Typematic Delay (Msec)	*250~1000*	Set the time of the typematic delay.
• Security Option	*System*	The system will not boot and access to Setup will be denied if the correct password is not entered when prompted.
	Setup	The system will boot up, but access to Setup will be denied if the correct password is not entered when prompting.
		**Note: To disable security, select Password Setting in Main Menu, you will

Name of processor:
6x86 MX

CPU PR Rating:
PR200

CPU Core Frequency:
66MHz×2.5

Cyrix®

6x86 **M X** ™
PROCESSOR

6x86 MX-PR200
66MHz Bus 2.5X
2.9v
FAN/HEATSINK REQUIRED

Core Voltage: 2.9V

	Voltage		I/O Voltage	Core	Voltage	
	3.3V	3.5V	3.3V	2.8V	2.9V	3.2V
JV1	Close			Open	Close	Open
JV2	Open	Close		Open		
JV3	Close			Open	Open	Close
JV4	Close			Close		
JV5	2-3		1-2			

Clear CMOS

	CLEAR CMOS	NORMAL
JP6	Close	Open

** **Note: Power down the AC Supply (110/220V) when wanting to clear CMOS.**
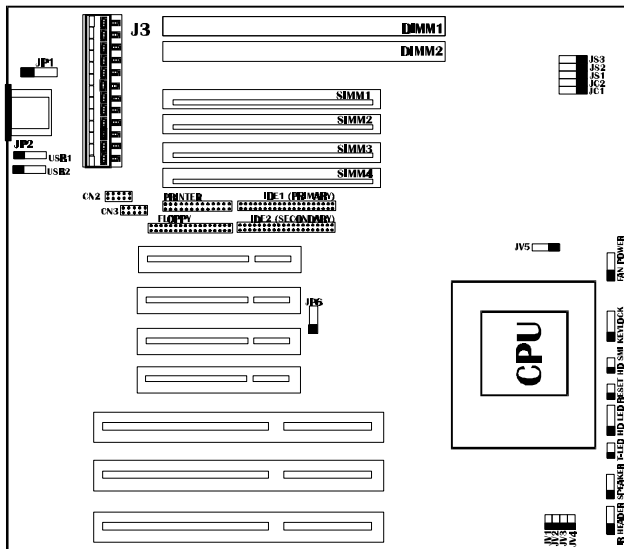
PR75 (75MHz) = 50MHz × 1.5:

JS3
JS2
JS1

JC2
JC1
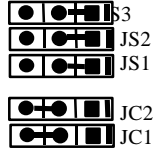
PR90, PR120 (90MHz) = 60MHz × 1.5:

JS3
JS2
JS1

JC2
JC1
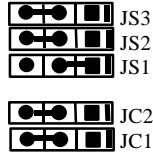
PR100, PR133 (100MHz) = 66MHz × 1.5:

JS3
JS2
JS1

JC2
JC1

PR166 = 66MHz × 2.5:

JS3
JS2
JS1

JC2
JC1

PR200 = 66MHz × 3:

JS3
JS2
JS1

JC2
JC1
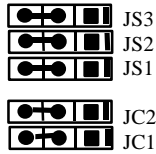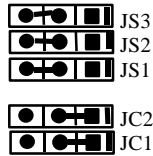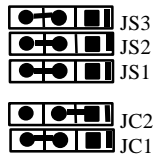
For AMD K6 CPU

K6 - 166 (166MHz) = 66MHz × 2.5:

JS3

Illustration of Connectors on board

be asked to enter the password. Do not type anything, just press <Enter>, it will disable security. Once the security is disabled, the system will boot and you are able to enter Setup freely.

• PCI/VGA Palette Snoop	*Enabled*	Enables PCI/VGA palette snoop.
	Disabled	Disables PCI/VGA palette snoop.
• OS Select For DRAM>64MB	*Non-OS2*	If your operating system is not OS/2, please select this item.
	OS2	If system DRAM is more than 64MB and operating system is OS/2, please select this item.
• Report No FDD For WIN95	*Yes*	Releases IRQ6 to WIN95 if no FDD are in the connection.
	No	Does not release IRQ6 to WIN95.
• Video BIOS Shadow	*Enabled*	Video BIOS will be copied to RAM. Video Shadow will increase the video speed.
	Disabled	Video shadow is disabled.
• C8000~CBFFF Shadow ... DC000-DFFFF Shadow:	*Enabled*	Optional ROM will be copied to RAM by 16K bytes per unit.
	Disabled	The shadow function is disabled.
• Delay For HDD (Secs)	*0 ~ 15*	This item allows you to set additional delay time (*0~15seconds) for HDD detection. If you encounter any HDD detection problems, delay time can be added.*

P/N: 430-01011-211
Manual TX 400 Ver 1.1

```
┌─────────┐
│●─●│ ■│ JS2
│●─●│ ■│ JS1
└─────────┘
```

```
┌─────────┐
│● │●─■│ JC2
│● │●─■│ JC1
└─────────┘
```

K6 - 200 (200MHz) = 66MHz × 3:

```
┌─────────┐
│●─●│ ■│ JS3
│●─●│ ■│ JS2
│●─●│ ■│ JS1
└─────────┘
```

```
┌─────────┐
│● │●─■│ JC2
│●─●│ ■│ JC1
└─────────┘
```
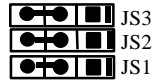
K6 - 233 (233MHz) = 66MHz × 3.5:

```
┌─────────┐
│●─●│ ■│ JS3
│●─●│ ■│ JS2
│●─●│ ■│ JS1
└─────────┘
```

```
┌─────────┐
│●─●│ ■│ JC2
│●─●│ ■│ JC1
└─────────┘
```
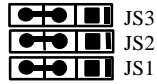
CPU Type & Voltage Selection

```
┌─────────┐
│●│●│ ■│
└─────────┘
```

<u>*Chipset Features Setup*</u>

```
┌─────────────────────────────────────────────────────────────────┐
│                  ROM PCI/ISA BIOS (2A59IQ1F)                      │
│                  CHIPSET FEATURES SETUP                           │
│                  AWARD SOFTWARE, INC.                             │
├─────────────────────────────────────────────────────────────────┤
│ Auto Configuration      :Enabled    Pipeline Cache Timing  : Faster│
│ DRAM Timing             :60ns       Chipset NA# Asserted   :Enabled│
│                                     Mem Drive Str. (MA/RAS) :Auto  │
│ DRAM Lead off Timing    :10/6/3     DRAM Refresh Rate      :15.6us │
│ DRAM Read Burst (EDO/FP) :x444/x444                               │
│ DRAM Write Burst Timing :x222                                     │
│ Fast EDO Leadoff        :Disabled                                 │
│ Refresh RAS# Assertion  :4 Clks                                   │
│ Fast RAS To CAS Delay   :3                                        │
│ DRAM Page Idle Timer    :2 Clks                                   │
│ DRAM Enhanced Paging    :Enabled                                  │
│ Fast MA to RAS# Delay   :2 Clks                                   │
│ SDRAM(CAS Lat/RAS-to-CAS) :3/3                                    │
│ SDRAM Speculative Read  :Disabled                                 │
│ System BIOS Cacheable   :Disabled                                 │
│ Video BIOS Cacheable    :Disabled                                 │
│ 8 Bit I/O Recovery Time :2          ESC : Quit    ↑↓→←  : 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│
│ PCI 2.1 Compliance      :Enabled    F7  : Load Setup Defaults     │
└─────────────────────────────────────────────────────────────────┘
```

Figure-4   Chipset Features Setup Menu

The following pages indicates the options of each item and describe their meaning.

Item	**Option**	**Description**
• Auto Configuration	*Enabled* *Disabled*	Enables auto configuration of DRAM timing Manually set DRAM timing.

JV5

CPU

JV1JV2JV3JV4
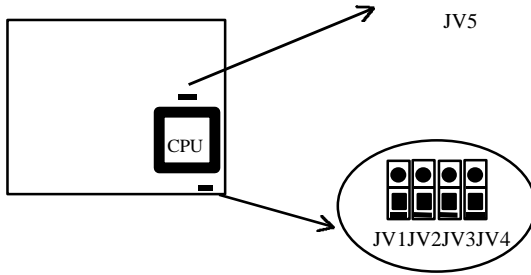
For single voltage CPU (Intel Pentium Processor):

3.3V Voltage   3.5V Voltage

JV1JV2JV3JV4   JV5   JV1JV2JV3JV4   JV5
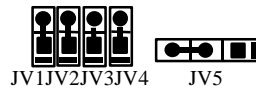
For dual voltage CPU (Pentium Processor with MMX ^{TM} Technology):

I/O voltage selection:
                    3.3V I/O voltage

JV5

Core voltage selection:

2.8V core voltage   2.9V core voltage   3.2V core voltage

JV1JV2JV3JV4   JV1JV2JV3JV4   JV1JV2JV3JV4

Clear CMOS

💣 **Warning: Do not set DRAM timing too fast this may affect the stability of your system.**

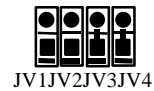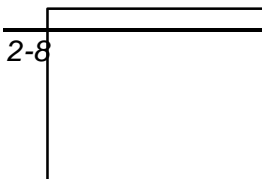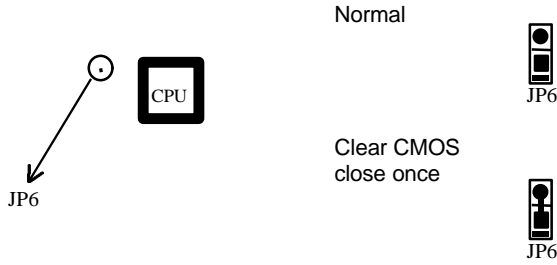|		
• DRAM Timing	*60ns, 70ns*	This item is of selected DRAM read/write timing. You must ensure that your SIMMs are as fast as 60ns, otherwise you have to select 70ns.
• DRAM Leadoff Timing... Fast MA to RAS# Delay		These items are concerning DRAM Timing configuration.
• SDRAM (CAS Lat/RAS-to-CAS) & SDRAM Speculative Read		These items are concerning SDRAM Timing configuration.
• System BIOS Cacheable	*Enabled*	Other than conventional memory, the system BIOS area is also cacheable.
	Disabled	The system BIOS area is not cacheable.
• Video BIOS Cacheable	*Enabled*	Other than conventional memory, video BIOS area is also cacheable.
	Disabled	Video BIOS area is not cacheable.
• 8 Bit I/O Recovery Time	*1~4*	This is the ISA Bus 8 bit I/O operating recovery time.
	NA	8 bit I/O recovery time does not exist.
• 16 Bit I/O Recovery Time	*1~4*	This is the ISA Bus 16 bit I/O operating recovery time.
	NA	16 bit I/O recovery time is not exist.
• Memory Hole At 15M-16M	*Enabled*	Memory Hole at 15-16M is reserved for expanded PCI card.
	Disabled	Do not set this memory hole
• Pipeline Cache Tim-Fastening	*Fastest*	This item allows you to select two timing of pipeline cache, faster and fastest.
• Chipset NA# Asserted	*Enabled* *Disabled*	This item allows you to select between two methods of chipset NA# asserted during CPU with cycles/CPU line fills Enabled or Disabled.
• Mem Drive Str. (MA/RAS)		This item allows you select memory drive Str. If high loading SIMM RAM is used (the number of memory chips exceed 64), select 16mA/16mA..
• DRAM Refresh Rate	*15.6us*	For SDRAM and/or EDO/FPM memory sub-system..
	31.2us 64.4us 125us 256us	For EDO/FPM only memory sub-system
	Disabled	Refresh disabled

Normal

JP6

CPU

JP6

Clear CMOS
close once

JP6

Note: **Power down the AC Supply (110/220V) when
wanting to clear CMOS.**

"✳"   : Represents default jumper settings.

Memory Configuration

The TX Baby AT mainboard provides 4 SIMM slots and 2 DIMM slots for providing a flexible memory size from 8MB up to 256MB main memory. Please do not plug in two different brands of SIMMs on a bank simultaneously.

This mainboard supports 72-pin SIMM of 4MB, 8MB, 16MB, 32MB or 64MB. The DRAM can be 60ns/70ns Fast Page mode of EDO DRAM. SIMMs must be installed in pairs so that each bank contains two of the same size memory modules. Two slots support 3.3V Synchronous DRAM (SDRAM) or 3.3V unbuffered EDO DIMM of 8MB, 16MB, 32MB, 64MB.

3.3V/unbuffered   Synchronous DRAM

3.3V/unbuffered EDO DRAM

SIMM slots

Bank 0

Bank 1

Fast Page Mode DRAM
EDO DRAM
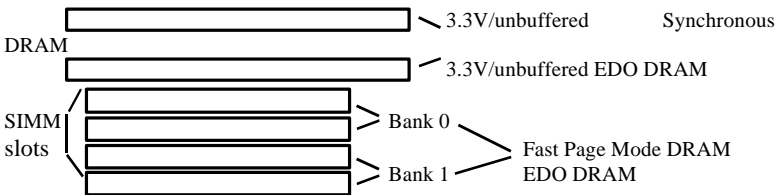
If using DIMM together with SIMM, refer to the following table:

DIMM1	DIMM2	SIMM1 & 2	SIMM3 & 4
None	Don't care	Single-row or Double row SIMM	Don't care
Single-row DIMM	Don't care	Single-row SIMM	Don't care

Power Management Setup

ROM PCI/ISA BIOS (2A59IQ1F) POWER MANAGEMENT SETUP AWARD SOFTWARE, INC.			
Power Management	:Disabled	** Reload Global Timer Events **	
PM Control by APM	:Yes	IRQ [3-7, 9-15], NMI	:Enabled
Video Off Method	:V/H SYNC+Blank	Primary IDE 0	:Disabled
Video Off After	:N/A	Primary IDE 1	:Disabled
		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%		
VGA Active Monitor	:Disabled	Thermal Duty Cycle	:Disabled
		CPU Warning Temperature	:80ºC
		ESC : Quit ↑↓→← : Select Item	
		F1 : Help PU/PD/+/- : Modify	
IRQ 8 Clock Event	:Disabled	F5 : Old Values (Shift)F2: Color	
		F7 : Load Setup Defaults	

Figure-5 Power Management Setup Menu

The following pages indicates the options of each item and describe their meaning.

Item	Option	Description
• Power Management	*Disabled*	Global Power Management (PM) will be disabled.
	User Define	Users can configure their own Power Management Timer.
	Min Saving	Pre - defined timer values are used so that all timers are in their MAX values
	Max Saving	Pre - defined timer values are used such that all timers are in their MIN value
• PM Control by APM	*No*	System BIOS will ignore APM when Power Management is enabled.
	Yes	System BIOS will wait for APM's prompt before

4 - 9

Double-row DIMM	Don't care	None	Don't care

If using DIMM or SIMM only, refer to the following table:

Total Memory	SIMM1 & 2	SIMM3 & 4	DIMM1	DIMM2
8 MB	4 MB × 2	----	----	----
	----	----	8 MB	----
16 MB	8 MB × 2	----	----	----
	4 MB × 2	4 MB × 2	----	----
	----	----	16 MB	----
	----	----	8 MB	8 MB
24 MB	8 MB × 2	4 MB × 2	----	----
32 MB	8 MB × 2	8 MB × 2	----	----
	16 MB × 2	----	----	----
	----	----	16 MB	16 MB
	----	----	32 MB	----
48 MB	16 MB × 2	8 MB × 2	----	----
	----	----	32 MB	16 MB
64 MB	16 MB × 2	16 MB × 2	----	----
	32 MB × 2	----	----	----
	----	----	32MB	32MB
72 MB	32 MB × 2	4 MB × 2	----	----
80 MB	32 MB × 2	8 MB × 2	----	----
96 MB	32 MB × 2	16 MB × 2	----	----
128 MB	32 MB × 2	32 MB × 2	----	----
256 MB	64 MB × 2	64 MB × 2	----	----

* Remark:
1. **If DIMM1 and/or DIMM2 has 64MB or 128MB DIMMs with 64 bit SDRAM cells, SIMM1, 2, 3 & 4 must be empty.**

2. **DRAM and SDRAM modules can be installed in a variety of configurations. Please note that not all possible combinations of installation are listed here.**

it enters any PM mode e.g. Standby or Suspend.

**Note: If APM is installed (choose "Yes"), if there is a task running, even the timer is set as time out, the APM will not prompt the BIOS to put the system into any power saving mode. But if APM is not installed (choose "No"), this option has no effect.

• Video Off Method	*Blank Screen*	The system BIOS will only blank off the screen when disabling video.
	V / H SYNC + Blank	In addition to Blank Screen, BIOS will also turn off the V-SYNC & H - SYNC signals from VGA cards to monitor.
	DPMS	This function is enabled only for the VGA card supporting DPMS.

**Note:When the Green monitor detects the V/H-SYNC signal, the electron gun will be turned off.

• Video Off After	*N/A*	System BIOS will never turn off the screen.
	Suspend	Screen is off when the system is in Suspend mode.
	Standby	Screen is off when the system is in Standby mode.
	Doze	Screen is off when the system is in Doze mode.
• Doze mode	*Disabled*	The system will never enter Doze mode.
	1Min ~ 1 Hr	Defines the continuous idle time before the system enters Doze mode. If any item defined in "*Wake Up Events In Doze & Suspend*" is On and activated, the system will be waken up.
• Standby Mode	*Disabled*	The system will never enter Standby mode.
	1 Min ~ 1Hr	Defines the continuous idle time before the system enters Standby mode. If any item defined in "*Wake Up Events In Doze & Suspend*" is On and activated, the system will be waken up.
• Suspend Mode	*Disabled*	The system will never enter Suspend mode.
	1 Min ~ 1Hr	Defines the continuous idle time before the system enters Suspend mode. If any item defined in "*Wake Up Events In Suspend*" is On and activated, the system will be waken up.
• HDD Power Down	*Disabled*	HDD's motor will not be off.
	1Min~15 Min	Defines the continuous HDD idle time before the HDD entering power saving mode (motor off).
• Throttle Duty	*Enabled*	Enables clock throttling.

Cycle	*Disabled*	Disables clock throttling.
• IRQ8 Clock Event	*Enabled*	Generates a clock event.
	Disabled	Does not generate a clock event.
• IRQ(3~7, 9~15), NMI... Parallel Port	*Enabled*	Reloads global timer.
	Disabled	Does not influence global timer.
• Thermal Duty Cycle	*Disabled*	Disables thermal control function and speaker alarm function when CPU is overheated.
	25 %	CPU speed will fall 25 percent when CPU is overheated.
	50 %	CPU speed will fall 50 percent when CPU is overheated.
	75 %	CPU speed will fall 75 percent when CPU is overheated.
• CPU Warning Temperature	*65ºC*	Speaker alarms when CPU boundary temperature is over *65ºC*.
	70ºC	Speaker alarms when CPU boundary temperature is over *70ºC*.
	75ºC	Speaker alarms when CPU boundary temperature is over *75ºC*.
	80ºC	Speaker alarms when CPU boundary temperature is over *80ºC*.

PNP/PCI Configuration Setup

```
ROM PCI/ISA BIOS (2A59IQ1F)
PNP/PCI CONFIGURATION SETUP
AWARD SOFTWARE, INC.
```

PNP OS Installed	: No	PCI IDE IRQ Map To	: PCI-AUTO
Resources Controlled By	: Manual	Primary IDE INT#	: A
Force Update ESCD	: Disabled	Secondary IDE INT#	: B
IRQ-3 assigned to	: Legacy ISA	Used MEM base addr	: N/A
IRQ-4 assigned to	: Legacy ISA		
IRQ-5 assigned to	: PCI/ISA PnP		
IRQ-7 assigned to	: PCI/ISA PnP		
IRQ-9 assigned to	: PCI/ISA PnP		
IRQ-10 assigned to	: PCI/ISA PnP		
IRQ-11 assigned to	: PCI/ISA PnP		
IRQ-12 assigned to	: PCI/ISA PnP		
IRQ-14 assigned to	: Legacy ISA		
IRQ-15 assigned to	: Legacy ISA		
DMA-0 assigned to	: PCI/ISA PnP		
DMA-1 assigned to	: PCI/ISA PnP		
DMA-3 assigned to	: PCI/ISA PnP		
DMA-4 assigned to	: PCI/ISA PnP	ESC: Quit ↑↓→← :Select Item	
DMA-5 assigned to	: PCI/ISA PnP	F1 : Help PU/PD/+/- : Modify	
DMA-6 assigned to	: PCI/ISA PnP	F5 : Old Values (Shift)F2 : Color	
DMA-7 assigned to	: PCI/ISA PnP	F7 : Load Setup Defaults	

Figure-6   PNP/PCI Configuration Setup

The following pages indicates the options of each item and describe their meaning.

Item	Option	Description
• Resources Controlled By	*Manual*	Assigns system resources (IRQ and DMA) manually by user.
	Auto	Assigns system resources (IRQ and DMA) automatically by BIOS.
• Force Updating ESCD	*Enabled*	The system BIOS forces updating ESCD once, then automatically sets this item as Disable.

	Disabled	Disable forces the update of ESCD function.
• IRQ-3 ~ IRQ-15 assigned to	*Legacy ISA*	The specified IRQ-x will be assigned to ISA only.
	PCI/ISA PnP	The specified IRQ-x will be assigned to ISA or PCI.
• DMA-0 ~ DMA-7 assigned to	*Legacy ISA*	The specified DMA-x will be assigned to ISA only.
	PCI/ISA PnP	The specified DMA-x will be assigned to ISA or PCI.
• PCI IDE IRQ Map To	*PCI-AUTO*	The BIOS will scan for PCI IDE devices and determine the location of the PCI IDE device.
	PCI - SLOT5~1	The BIOS will scan IRQ14 for primary IDE INT# and IRQ15 for secondary IDE INT# at the specified slot.
	ISA	The BIOS will not assign any IRQs even if PCI IDE card is found, because some IDE cards connects the IRQ14&15 directly from ISA slot through a card.
• Primary IDE INT#	*A ~ D*	Indicates which INT# the PCI IDE card uses for its interrupting the 1st IDE channel.
• Secondary IDE INT#	*A ~ D*	Indicates which INT# the PCI IDE card uses for its interrupting the 2nd IDE channel.

Load Setup Defaults

The Setup Defaults settings are common and efficient.

Integrated Peripherals

```
ROM PCI/ISA BIOS (2A59IQ1F)
INTEGRATED PERIPHERALS
AWARD SOFTWARE, INC.
```

IDE HDD Block Mode	: Enabled		
IDE Primary Master PIO	: Auto		
IDE Primary Slave PIO	: Auto		
IDE Secondary Master PIO	: Auto	Onboard Parallel Port	: 378H/IRQ7
IDE Secondary Slave PIO	: Auto	Parallel Port Mode	: SPP
IDE Primary Master UDMA	: Auto		
IDE Primary Slave UDMA	: Auto		
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		
Onboard FDC Controller	: Enabled	ESC: Quit ↑↓→← : Select Item	
Onboard Serial Port 1	: Auto	F1 : Help PU/PD/+/-: Modify	
Onboard Serial Port 2	: Auto	F5 : Old Values (Shift) F2 : Color	
Onboard IR Controller	: Disabled	F7 : Load Setup Defaults	

Figure 7 Integrated Peripherals

The following pages indicates the options of each item and describe their meaning.

Item	Option	Description
• IDE HDD Block Mode	*Enabled*	Allows IDE HDD to read/write several sectors once.
	Disabled	IDE HDD only reads/writes a sector once.
• IDE Primary/Secondary Master/Slave PIO	*Mode 0-4*	Defines the IDE primary/secondary master/ slave PIO mode.
	Auto	The IDE PIO mode is defined according to auto - detect.
• On-chip Primary/Secondary PCI IDE	*Enabled*	On-chip primary/secondary PCI IDE port is enabled.
	Disabled	On-chip primary/secondary PCI IDE port is

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		disabled.
• Onboard FDC Controller	*Enabled*	Onboard floppy disk controller is enabled.
	Disabled	Onboard floppy disk controller is disabled.
• Onboard Serial Port 1/2	*Auto*	Sets the address and interrupts the number automatically.
	COM1/3F8, COM2/2F8, COM3/3E8, COM4/2E8,	Defines the onboard serial port address.
	Disabled,	Onboard serial port is disabled.
• Onboard IR controller	*Disabled*	Disables onboard IR function.
	Enabled	Enables and configures IR mode.
• Onboard Parallel Port	*378/IRQ7, 3BC/IRQ7, 278/IRQ5, 378/IRQ5,*	Defines onboard parallel port address and IRQ channel.
	Disabled	Onboard parallel port is disabled.
• Parallel Port mode	*SPP EPP1.7 EPP1.9 ECP ECP+EPP*	Defines the parallel port mode as Standard Parallel Port (SPP), Enhanced Parallel Port (EPP), or Extended Capabilities Port (ECP).

Password Setting

When selecting this function, the following message appears at the center of the screen to assist you in creating a password.
ENTER PASSWORD

Type the password, up to eight characters, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>.

To disable the password, press <Enter> when you are prompted to enter password. A message will confirm the password being disabled. Once the password is disabled, the system will boot allowing you to enter Setup freely.

PASSWORD DISABLED

If you select "**System**" at "Security Option" of the "BIOS Features Setup" Menu, you will be prompted for the password every time the system is rebooted or any time you try to enter "CMOS Setup".
If you select "**Setup**" at "Security Option" of the "BIOS Features Setup" Menu, you will be prompted for the password only when you try to enter "CMOS Setup".

IDE HDD Auto Detection

The Enhanced IDE features are included in all Award BIOS. Below is a brief description of these features.

ROM/PCI/ISA BIOS (2A59IQ1F)
IDE HDD AUTO DETECTION
AWARD SOFTWARE, INC.

HARD DISKS TYPE SIZE CYLS HEAD PRECOMP LANDZ SECTOR MODE
Primary Master:

Select Primary Master Option (N=Skip): N							
Option	Size	Cyls	Heads	Precomp	Landzone	Sectors	Mode
2(Y)	541	525	32	0	1049	67	LBA
1	541	1050	16	65535	1049	63	NORMAL
3	541	525	32	65536	1049	63	LARGE

Note: Some OSes (like SCO-UNIX) must use "NORMAL" for installation

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Figure-9 IDE HDD Auto Detection

1. Setup Changes

With auto-detection

- BIOS setup will display all possible modes supported by the HDD including NORMAL, LBA and LARGE.
- If HDD does not support LBA modes, no "LBA" option will be shown.
- If the number of physical cylinders are less than or equal to 1024, "LARGE"   option may not be shown.

• Users can select their appropriate mode.

With Standard CMOS Setup

	CYLS	HEADS	PRECOMP	LAND	SECTOR ZONE
MODE					
Drive C: User (516MB) Normal	1120	16	65535	1119	59
Drive D: None(203MB) ---	684	16	65535	685	38 ------

When HDD is set as "user" type, the "MODE" option will be opened for users to select their own HDD mode.

2. HDD Modes

The Award BIOS supports 3 HDD modes: NORMAL, LBA and LARGE,
also Auto detect.

NORMAL

Generic access mode in which neither the BIOS nor the IDE controller will make any transformation during accessing. The maximum number of cylinders, heads and sectors for NORMAL mode are 1024,16 and 63.

If the user sets his HDD to NORMAL mode, the maximum accessible HDD size will be 528 megabytes even though its physical size may be greater than that.

LBA (Logical Block Addressing) mode

A new HDD accessing method to overcome the 528 Megabyte bottleneck.
The number of cylinders, heads and sectors shown in setup may not be the number physically contained in the HDD.

During HDD accessing, the IDE controller will transform the logical address described by the sector, head and cylinder number into its own physical address inside the HDD. The maximum HDD size supported by LBA mode is 8.4 Gigabytes.

LARGE mode

Some IDE HDDs contain more than 1024 cylinder without LBA support (in some cases, users do not want LBA). The Award BIOS provides another alternative in supporting these kinds of HDD.

BIOS tricks DOS (or other OS) so that the number of cylinders is less than 1024 by dividing it by 2. At the same time, the number of heads are multiplied by 2. A reverse transformation process will be made inside INT13h in order to access the right HDD address.

Auto detect

If using Auto detect, the BIOS will automatically detect IDE hard disk mode and set it to one kind of HDD modes.

3. **Remark**

To support LBA or LARGE mode of HDDs, there must be some software involved which are located in Award HDD Service Routine (INT13h). It may fail to access a HDD with LBA (LARGE) mode selected if you are running under an Operating System which replaces the whole INT 13h.

Power - On Boot

If you have made all the changes to the CMOS values and the system can not boot with the CMOS values selected in Setup, restart the system by turning it OFF then ON or by pressing the "RESET" button on the system case. You may also restart the system by simultaneously pressing the < Ctrl >, < Alt > and < Del > keys.