INTEL VX PENTIUM™ PCI MAINBOARD

USER'S MANUAL

Version #7502/004/1196
P/N #73-75021040-000

CE

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The manufacturer reserves the right to modify any product's specifications in order to meet advances in hardware and software technology.

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"This is an **ENERGY STAR™** compliant product."

The Environmental Protection Agency **ENERGY STAR™** program defines that as an Ally of this program the specified manufacturer must produce systems, or system components which enable a computer system to operate and draw 30 watts or less of power in idle mode. Although the EPA do not endorse any particular product or service, the program is designed to offer a cooperative effort between the EPA and the component manufacturer (Ally) to provide energy saving products and education to customers."

"FCC Approval"

The PT-7502-2 motherboard has been approved for FCC Class B when properly installed in a barebone configuration using the following case/power supply:

Brand	Model	FCC ID
Procase	PC-109 SM	JPJPINE429G109
Procase	PC-609 T/M	JPJPINE429G609
Procase	PC-709 T/M	JPJPINE429G709

FCC Notice:
Information to the User

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Should you experience interference to radio or television reception then the user is encouraged to try to correct this interference by one or more of the following measures:
Re-locate the receiving antenna.
Increase the separation between the equipment and receiver.
Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
Consult the dealer or an experienced radio/TV technician for help and for additional suggestions.

The user may find the following booklet prepared by the Federal Communications Commission helpful:
"How to identify and Resolve Radio-TV Interference Problems." This booklet is available from the U.S. Government Printing Office, Washington, DC20402, Stock No. 004-000-00345-4.

FCC Warning

The user is cautioned that changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

Note : In order for the installation of this product to maintain compliance with the limits for a Class B device, shielded

1. Introduction

1.1 Overview

- The PT-7502-2 motherboard offers 64-bit programming architecture compatible with the software base of 486 and 586 microprocessors. It is a reliable motherboard, using a Intel i430VX chipset and a multi-layer printed circuit board. The chipset consists of a TVX (Host Bridge & Cache Memory Controller), two TDX (Write Buffer Data Path Controller), and 82371SB, PIIX3 (ISA Bridge & System I/O Controller).

- The PT-7502-2 is a PCI Local Bus motherboard. The four Master Mode PCI Local Bus slots fully comply with the PCI (Peripheral Component Interconnect) Local Bus Specification Rev. 2.1. The speed of I/O peripherals can be dramatically increased by connecting PCI compatible interface cards to the PCI Local Bus slots on the PT-7502-2. PINE is a member of PCI SIG (Special Interest Group).

- The PT-7502-2 is a 'green' design motherboard which means if there is no system activity for a specific period of time (this period is software programmable), the PT-7502-2 will slow down its original working frequency to zero. This will help to save power consumption, reduce energy related pollution and protect our environment.

- The PT-7502-2 has the full complement of I/O on-board: FDC, PCI local bus Enhanced IDE, printer port, COM ports, and dual USB port as well.

1.2 Green PC Power Management

The Green PC mode is a state that minimizes power consumption. There are two different levels of Green PC modes :

- Standby mode. The spin motor of the HDD can be turned off.
- Inactive mode / Sleep Mode. The PT-7502-2 can stop the CPU clock under this mode.

The PT-7502-2 will be placed into Green PC mode as a result of one of the following events : When the SMI header is connected to a momentary switch, pressing the switch will put PT-7502-2 into Green mode.

Expiration of the internal Green PC Timer. The Green PC Timer is software programmable which can configure in the "Power Management Setup" option of the BIOS CMOS setup. The power management feature will be *enabled* as default; however, the timing may differ due to production control. It is recommended that you re-adjust these timings according to your personal requirements/set-up.

Through system activity monitoring and management, the PT-7502-2 will not go into Green PC mode if any of the following activity is detected:

- PCI Master 0 activity
- PCI Master 1 activity
- PCI Master 2 activity
- LPT port activity
- COM port activity
- COM port activity
- ISA master & DMA activity
- IDE activity
- Floppy activity
- Keyboard activity

1.3 Checklist

Please check your PT-7502-2 package to ensure that it contains the following items :

- PT-7502-2 Main Board
- PT-7502-2 User Manual
- Jumper Setting List
- Cable Pack included
  - 1 x 40 way flat cables
  - 1 x FDC flat cable
  - 1 x DB9 flat cable and one DB25 flat cable with a bracket (COM 1 & COM 2)
  - 1 x DB25 flat cable with a bracket (Printer port)
- Cache Module (either 512KB , 256KB or not bundle)

If any of these items are missing or damaged, please contact your local dealer or sales representative for assistance.

1.4 PT-7502-2 System Board Specifications

- Intel i430VX PCIset™ chipset
- Support either 75/90/100/120/133/166/180/200 MHz PENTIUM™ CPUs with 321 pin ZIF socket
- Support Pentium P55C
- Support Dual Voltage Regulator Module
- Support Cyrix 6x86, AMD K5 CPUs
- Uses 72-pin SIMM modules x 4 auto banking in multiple configuration up to 128MB
- Support Both Fast Page Mode and Extended DATA Output (EDO) DRAM module
- Support SDRAM/EDO DRAM/Page Mode DRAM use 168-pin DIMMx2
- Support cache module socket, cache module options 256KB or 512KB pipeline burst SRAM module
- 4 PCI Local Bus slots, and 3 x 16 bits ISA Bus slots
- All 4 PCI slots support Master mode
- System BIOS support 4 IDE harddisk drivers that don't need device driver for S/W application, the capacity each harddisk can large than 528MB up to 8.4GB
- PCI Bus master IDE interface on board with two connectors support 4 IDE devices in 2 channel, the PCI IDE Controller supports PIO mode 0 to Mode 4 at maximum transfer rate of 16.67 MB/s and Bus master IDE DMA Mode 2.
- On board super Multi-I/O chip that support 2 serial port with 16550 Fast UART compatible, 1 parallel port with SPP, EPP and ECP capabilities, and a floppy disk drive interface.
- Support PS/2™ connector.
- Support the Universal Serial Bus (U.S.B.) (option)
- System BIOS supports NCR810 SCSI BIOS firmware and Green feature function, Plug and Play Flash ROM

1.5 Static Electricity Precaution

Static electricity can easily damage your PT-7502-2 mainboard.
Observing a few basic precautions can help you safeguard against damage that could result in expensive repairs. Follow the measures below to protect your equipment from static discharge:

- Keep the mainboard and other system components in their anti-static packaging until you are ready to install them.

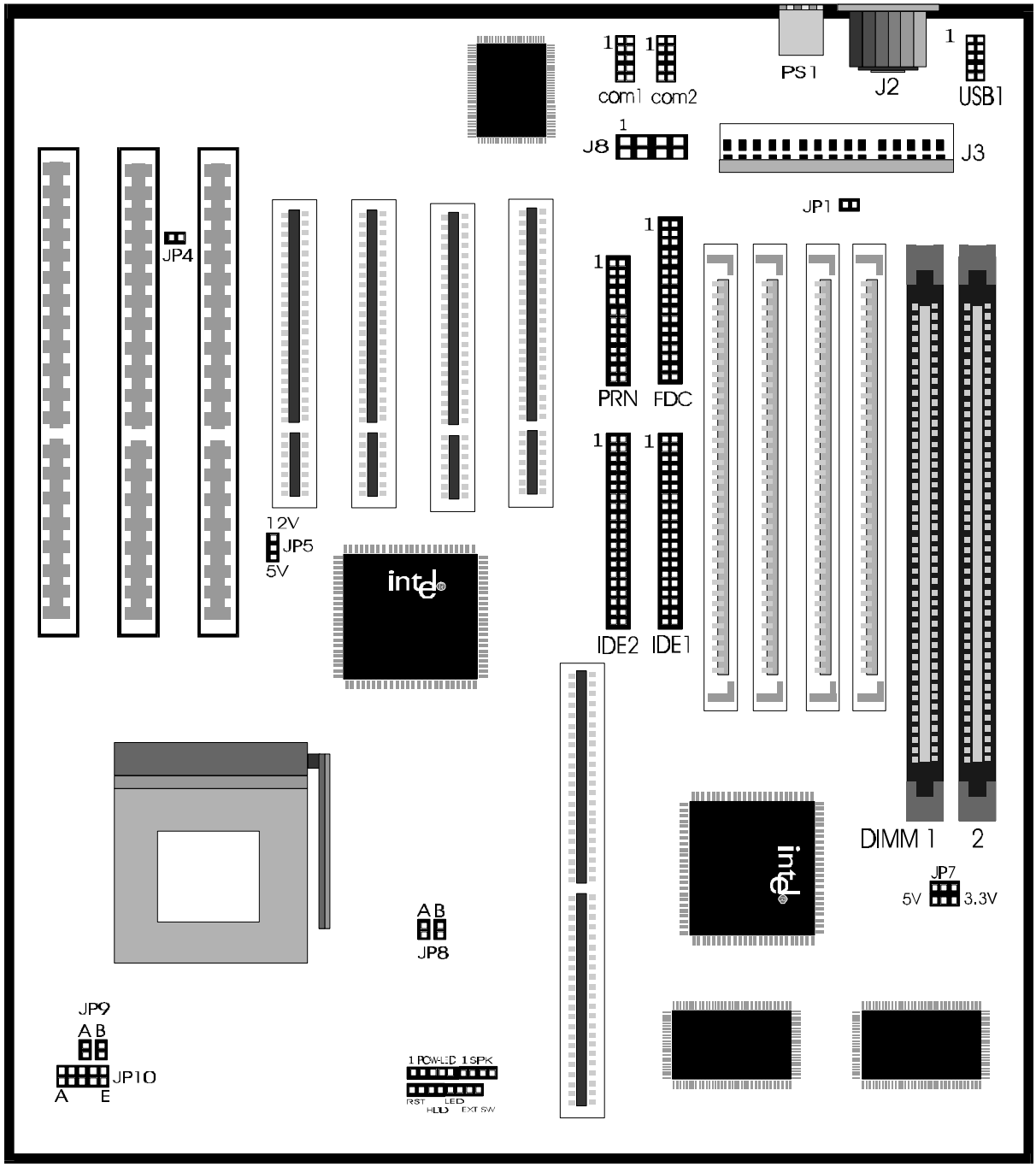
- Touch a grounded surface before you remove any system component from its protective anti-static packaging. A grounded surface within easy reach is the expansion slot covers at the rear of the system case or any other unpainted portion of the system chassis.

- During configuration and installation, touch a grounded surface frequently to discharge any static electric charge that may build up in your body. Another option is to wear a grounding wrist strap.

- When handling a mainboard or an adapter card, avoid touching its components. Handle the mainboard and adapter cards either by the edges or by the mounting bracket that attaches to the slot opening in the case.

2. Hardware Configuration

Mainboard Component Locations



2.1 Jumpers & Connectors

Jumpers/Connector	Description
J2	Keyboard Connector
J3	Power Supply Connector
J6	Power-LED Keylock & Connector
J6	Speaker Connector
J7	HDD LED Connector
J7	Reset Switch
J7	External Battery Selector
J8	PS/2 Mouse Connector
JP1	Clear CMOS
JP4	AT Bus Clock Selector
JP5	FlashRom Voltage Selector
JP7A, JP7B	DIMM Socket Voltage Select
JP8A, JP8B	CPU Speed Selectors
JP9A, JP9B	CPU Internal Clock Speed Selectors
JP10	P54C/P55C CPU Voltage Selectors

J2 Keyboard Connectors

A standard five-pin female DIN keyboard connector is located at the rear of the board J2.

Pin	Description
1	Keyboard Clock
2	Keyboard Data
3	N.C.
4	Ground
5	+5VDC

J2 USB Universal Serial Bus Connector

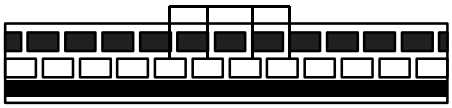
Pin	Description	Pin	Description
1	+5 VDC	**7**	+5 VDC
2	DATA -	**8**	DATA -
3	DATA +	**9**	DATA +
4	Ground	**10**	Ground
5	N.C.	**11**	N.C.

COM 1 : Serial port #1
COM 2 : Serial port #2
PRN 1 : Parallel port

J3 Power Supply Connectors

The power supply connectors are two six-pin male header connectors. Plug the dual connectors from the power directly onto the board connectors.
Most of the power supply have two leads. Each lead has six wires. Two of which are black, orient the connectors, so the black wires are in the middle.

The black wires should be in the middle

P1  P12

Pin	Description	Pin	Description
1	Power Good	**7**	Ground
2	+ 5V DC	**8**	Ground
3	+12V DC	**9**	- 5V DC
4	- 12V DC	**10**	+5V DC
5	Ground	**11**	+5V DC
6	Ground	**12**	+5V DC

J6 Power-LED Keylock & Power-LED Connector

J6 is a keylock connector that enables and disables the keyboard and the Power-LED on the case.

Pin	Description
1	LED Output
2	NC
3	Ground
4	Keylock

J6 SPK Speaker Connectors

Attach the system speaker to connector J6.

Pin	Description
1	DATA Out
2	NC
3	Ground
4	+ 5V

J7 HDD LED Connector

Pin	Description
1	5V
2	Active Low

J7 Reset Switch Connector
Attach the Reset switch cable to this connector.

Setting	Description
Open	Normal Mode
Short	Reset System

J7 External Battery Selectors

Description	J7
Normal Mode (default)	Open

J8 PS/2 Mouse Connector
2 x 4 pin header

PS1 : PS/2 Mouse Connector

JP1 Clear CMOS

Setting	Description
Open	Default
Short	Clear CMOS

JP4 AT Bus Clock Selector

Description	JP4
PCI Clock/4 (default)	1-2
PCI Clock/3	2-3

Note: CPU Speed=60MHz or 66MHz JP4 set to 1-2
CPU Speed=50MHz JP4 set to 2-3

JP5 Flash ROM Voltage Selector
The mainboard can uses two types of Flash ROM - 5 volt and 12 volt. Set the mainboard for either type with jumper JP5. You can update both types with new BIOS files as they come available.

Description	JP5
12 volt Flash ROM	1-2
5 volt Flash ROM	2-3

JP7A, JP7B DIMM Socket Voltage Selectors

Voltage Selectors
3.3V
5.0V

Note: All synchronous DRAM JP7 must be set to 3.3V position.

JP8A, JP8B CPU Speed Selectors

The mainboard has a clock generator that lets you choose the CPU frequency by settings jumpers JP8A, JP8B. You can set the CPU speed to 50/60MHz or 66MHz as shown below.

CPU Speed				
Jumpers	**66MHz**	**60MHz**	**55MHz**	**50MHz**
JP8A	Shut	Open	Open	Shut
JP8B	Open	Shut	Open	Shut

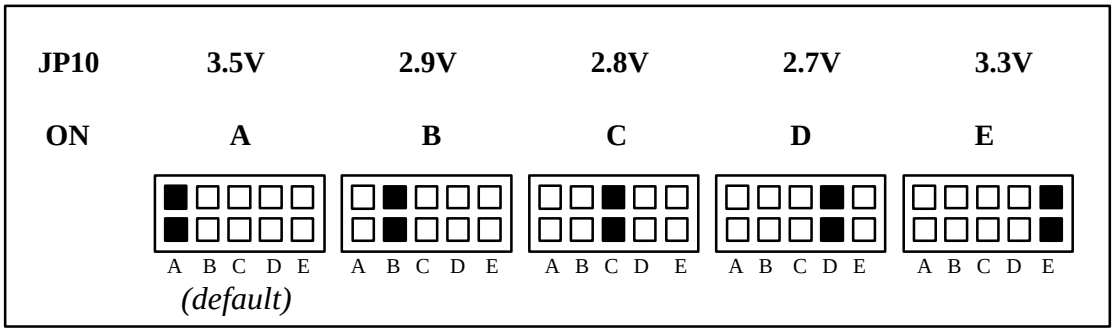
Note : Default set at 66Mhz

JP9A, JP9B CPU Internal Clock Speed Selectors

Intel	Cyrix	AMD	JP9A	JP9B
x2.0 (default)	x2.0	Reserved	Shut	Open
x1.5	Reserved	x1.5	Open	Open
x2.5	Reserved	Reserved	Shut	Shut
x3.0	Reserved	Reserved	Open	Shut

Note: CPU Internal Clock Speed = External Input Clock x (table list) factor.

JP10 P54C/P55C CPU Voltage Selectors



Note : JP10 all OFF : 2.5V

2.2 External Cache Configuration

This mainboard supports a cache module socket you can install pipeline burst SRAM on a cache module in the cache module slot, the cache module size can either 256KB or 512KB.

Cache Type	Size	Data Chip Size	Tag Chip Size
Pipeline Burst	256KB	32k 32 x 2pcs	8k 8, 16k 8 or 32k 8 x 1pc
	512KB	32k 32 x 4pcs	16k 8 or 32k 8 x 1pc
	512KB	64k 32 x 2pcs	16k 8 or 32k 8 x 1pc

2.3 Memory Installation

The mainboard lets you add up to 128MB of system memory via SIMM & DIMM sockets on the mainboard. Four SIMM sockets on the mainboard are divided into two banks: Bank 0, Bank 1. Each bank consists of two 72-pin SIMM modules. The mainboard supports the following memory configurations and DIMM socket consists of one 168-pin DIMM Module.

SIMM Socket 1&2	SIMM Socket 3&4	DIMM DIM 1	DIMM DIM 2	Total Memory
4MBx2	None	None	None	8MB
8MBx2	None	None	None	16MB
16MBx2	None	None	None	32MB
32MBx2	None	None	None	64MB
None	4MBx2	None	None	8MB
None	8MBx2	None	None	16MB
None	16MBx2	None	None	32MB
None	32MBx2	None	None	64MB
None	None	8MB	None	8MB
None	None	16MB	None	16MB
None	None	32MB	None	32MB
None	None	64MB	None	64MB
None	None	None	8MB	8MB
None	None	None	16MB	16MB
None	None	None	32MB	32MB
None	None	None	64MB	64MB
4MBx2	4MBx2	None	None	16MB
8MBx2	8MBx2	None	None	32MB
16MBx2	16MBx2	None	None	64MB
32MBx2	32MBx2	None	None	128MB
None	None	8MB	8MB	16MB
None	None	16MB	16MB	32MB
None	None	32MB	32MB	64MB
None	None	64MB	64MB	128MB
4MBx2	None	None	8MB	16MB
8MBx2	None	None	16MB	32MB
16MBx2	None	None	32MB	64MB
32MBx2	None	None	64MB	128MB

SIMM Socket 1&2	SIMM Socket 3&4	DIMM DIM 1	DIMM DIM 2	Total Memory
None	4MBx2	8MB	None	16MB
None	8MBx2	16MB	None	32MB
None	16MBx2	32MB	None	64MB
None	32MBx2	64MB	None	128MB
None	8MBx2	8MB	None	24MB
None	8MBx2	16MB	None	32MB
None	8MBx2	32MB	None	48MB
None	8MBx2	64MB	None	80MB
8MBx2	None	None	8MB	24MB
8MBx2	None	None	16MB	32MB
8MBx2	None	None	32MB	48MB
8MBx2	None	None	64MB	80MB
16MBx2	4MBx2	None	None	40MB
16MBx2	8MBx2	None	None	48MB
16MBx2	16MBx2	None	None	64MB
16MBx2	32MBx2	None	None	96MB
None	16MBx2	8MB	None	40MB
None	16MBx2	16MB	None	48MB
None	16MBx2	32MB	None	64MB
None	16MBx2	64MB	None	96MB
16MBx2	None	None	8MB	40MB
16MBx2	None	None	16MB	48MB
16MBx2	None	None	32MB	64MB
16MBx2	None	None	64MB	96MB
32MBx2	4MBx2	None	None	72MB
32MBx2	8MBx2	None	None	80MB
32MBx2	16MBx2	None	None	96MB
32MBx2	32MBx2	None	None	128MB
32MBx2	None	None	8MB	72MB
32MBx2	None	None	16MB	80MB
32MBx2	None	None	32MB	96MB
32MBx2	None	None	64MB	128MB
None	32MBx2	8MB	None	72MB
None	32MBx2	16MB	None	80MB
None	32MBx2	32MB	None	96MB
None	32MBx2	64MB	None	128MB

Note:

1. Bank0 (SIMM1 &SIMM2) and DIM1 the two types DRAM module cannot be used at the same time.

2. ***Bank0 (SIMM3 & SIMM4) and DIM2 the two types DRAM module cannot be used at the same time.***

3.All SIMMs and DIMM module speed must faster than 70ns.

4.All SIMMs and DIMM module can use either 1-sided or 2-sides

5.SIMM socket DRAM type: Fast Page Mode or Extend DATA Out (EDO)

6. DIMM socket DRAM type Fast Page Mode or Extend Data Out (EDO) or synchronous DRAM (SDRAM)

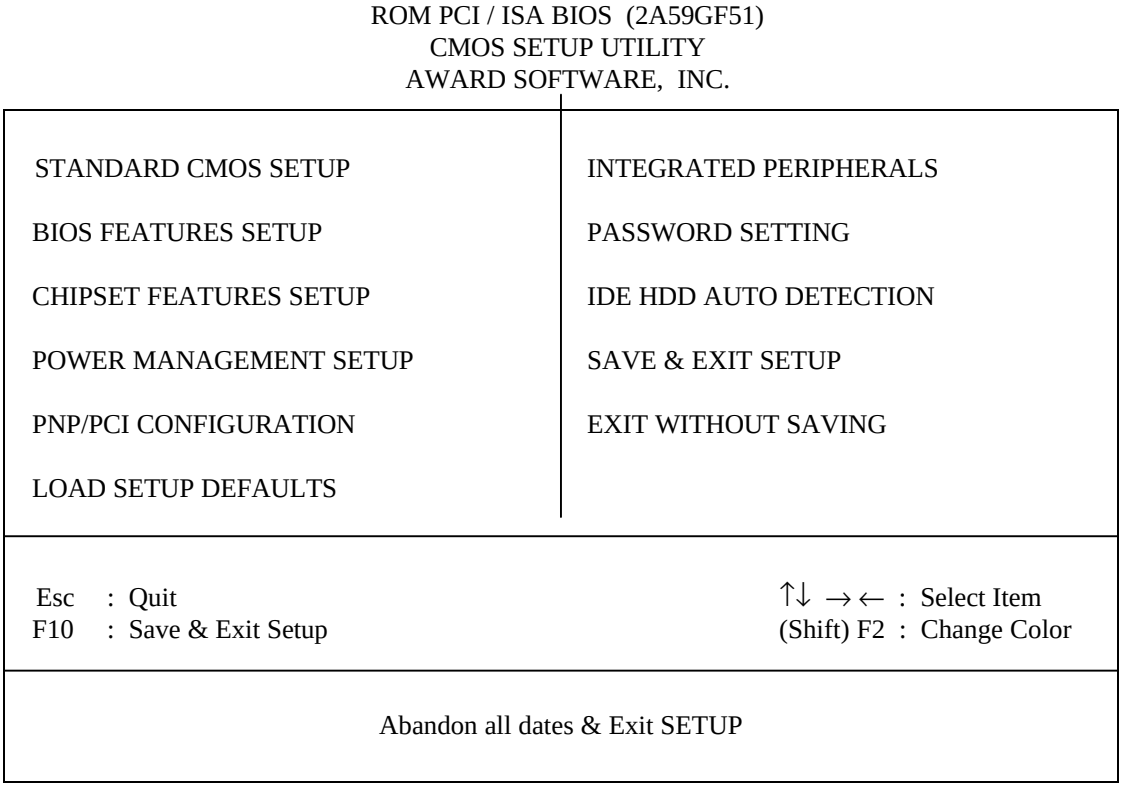
7. Synchronous DRAM (SDRAM JP7) must set to 3.3V position

3 . Award BIOS Setup

Enter the Award Setup program's Main Menu as follows:

1. Turn on or reboot the system. The following message appears at the bottom of the screen:
   "Press <DEL> to enter setup, ESC to skip memory test"

2. Press the <DEL> key to enter the Award BIOS setup program and the following screen appears:



3. Choose an option and press <**ENTER**>. Modify the system parameters to reflect the options installed in the system. (See the following sections for more information.)

4. Press <**ESC**> at anytime to return to the Main Menu.

5. In the Main Menu, choose "**SAVE AND EXIT SETUP**" or <**F10**> to save your changes and reboot the system.
   Choosing "**EXIT WITHOUT SAVING**" or <**ESC**> ignores your changes and exits the program.

3.1 STANDARD CMOS SETUP

Run the Standard CMOS Setup as follows:

1. Choose "**STANDARD CMOS SETUP**" from the Main Menu and a screen with a list of items appears.

ROM PCI/ISA BIOS (2A59GF51)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

Date (mm:dd:yy) : Thu, May 6 1996
Time (hh:mm:ss) : 17 : 54 : 42

HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Primary Master	: AUTO	0	0	0	0	0		AUTO
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 : 1.44M, 3.5 in.
Drive B : None

Video : EGA/VGA
Halt On : All Errors

Base Memory : 640K
Extended Memory : 15360K
Other Memory : 384K

Total Memory : 16384K

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

2. Use the arrow keys to move between items and to select values. Modify the selected fields using PgUp/PgDn/+/-keys. Some fields let you enter numeric values directly.

Data (mm/dd/yy) Type the current date

Time (hh:mm:ss) Type the current time

Primary master and slave
Secondary master and slave

Choose from the standard hard disk types 1 to 46, or "User" defined. IF you choose "User", run the IDE HDD Auto detection function from the Main Menu, or enter the HDD information directly from the keyboard and press <Enter>. If you use Auto mode the BIOS can Auto detect HDD type and do not enter any HDD information from the keyboard.

Drive A & B

Choose
360KB 5 1/4"
1.2MB 5 1/4"
720MB 3 1/2"
1.44MB 3 1/2"
Not installed

Video	Choose	Monochrome, Color 40x25 VGA/PGA/EGA, Color 80x25, or Not installed
Halt On	Choose	All Errors (Default) No Errors All, But Keyboard All, But Diskette All, But Disk/Key

3. After you have finished with the Standard CMOS Setup program, press the <**ESC**> key to return to the Main Menu.

3 .2 BIOS FEATURES SETUP

Run the BIOS Features Setup as follows.

1. Choose "BIOS FEATURES SETUP" from the Main Menu and a screen with a list of items appears.

ROM PCI / ISA BIOS (2A59GF51)
BIOS FEATURES SETUP
AWARD SOFTWARE, INC.

Virus Warning	:	Disabled	Video BIOS shadow	:	Enabled
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	:	C,A	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			
Boot Up System Speed	:	High			
Gate A20 Option	:	Fast			
Typematic Rate Setting	:	Disabled			
Typematic Delay (Chars/sec)	:	6			
Typematic Delay (Msec)	:	250			
Security Option	:	Setup			
Assign IRQ VGA	:	Disabled			

Esc: Quit ↑↓ →← : Select Item
F1: Help PU/PD/+/- : Modify
F5: Old Value (Shift) F2 : Color
F6: Load BIOS Defaults
F7: Load Setup Defaults

2 Use the arrow keys to move between items and to select values. Modify the selected fields using the PgUp/PgDn/+/-Keys. An explanation of <F> keys follows:

<F1>: "Help" gives options available for each item.

<F2>: Change color

<F5>: Get the old values. The user started the current session with these values.

<F6>: Load all options in the BIOS Features Setup with the BIOS Default values.

<F7>: Load all options in the BIOS Features Setup with the Setup Default values.

A short description of the screen items follows:

Virus Warning	Choose Enabled or Disabled. Enable this option and a SYSTEM WARNING MESSAGE appears when the system detects a virus.
CPU Internal Cache	Choose Enabled or Disabled. This option lets you enable the CPU's internal cache memory.
External Cache	Choose Enabled or Disabled. This option lets you enable the external cache memory. For better performance, make sure you always choose "Enabled."
Quick Power On Self Test	Choose Enabled or Disabled. Enabled provides a fast POST and boot-up speed.
Boot Sequence	The default setting first to boot from drive C: You can reverse this sequence with "A:C:", will then drive A: boot directly.
Swap Floppy Driver	Choose Enabled or Disabled. When Enabled Floppy drives A & B are swapped under DOS.
Boot Up Floppy Seek	Choose Enabled or Disabled. "Disabled" provides a fast boot and reduces the possibility of damage to the heads.
Boot Up Num Lock Status	Choose On or Off. On puts numeric keypad in Num Lock mode at boot-up. Off puts this keypad in arrow key mode at boot-up.
Boot Up System Speed	Choose High or Low. This option lets you choose system bootup speed. The default is High.
Gate A20 Option	Choose Fast or Normal. This item lets you use the GA20 from the chipset or the keyboard controller.
Typematic Rate Setting	Choose Enabled or Disabled. Enable this option to adjust the keystroke repeat rate.
Typematic Rate (chars/Sec)	Choose the rate a character keeps repeating.
Typematic Delay (Msec)	Choose how long after you press a key that a character begins repeating.

Security Option	Choose Setup, or System. Use this feature to prevent unauthorized system boot-up or unauthorized use of BIOS Setup. "System" - Each time the system boots the password prompt appears. "Setup" - Password prompt only appears if you attempt to enter the Setup program.
Assign IRQ for VGA	Choose Enable or Disable, when Enable, assign IRQ for VGA
Video BIOS Shadow	VIDEO shadow copies BIOS code from slower ROM to faster RAM. BIOS can then execute from RAM.

3. After you have finished with the BIOS Features Setup program, press the <**ESC**> key and then follow screen instructions to save or disregard your settings.

3.3 CHIPSET FEATURES SETUP

The "**CHIPSET FEATURES SETUP**" is used to control the values of the chipset registers. These registers control most of the system options in the computer.

Run the Chipset Features Setup as follows:

1. Choose "**CHIPSET FEATURES SETUP**" from the Main Menu and a screen with a list of items appears.

ROM PCI / ISA BIOS (2A59GF51)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

DRAM RAS# Precharge Time	: 4
DRAM R/W Leadoff Timing	: 7
Fast RAS To CAS Delay	: 3
DRAM Rasd Burst (EDO/FP)	: x222/x333
DRAM Write Burst Timing	: x333
Fast MA to RAS# Delay CLK	: 2
Fast EDO Path Select	: Enabled
Refresh RAS# Assertion	: 5 Clks
ISA Bus Clock	: PCICLK/4
SDRAM (CAS Lat/RAS-to-CAS)	: 3/3
System BIOS Cacheable	: Diabled
Video BIOS Cacheable	: Disabled
8 Bit I/O Recovery Time	: 2
16 Bit I/O Recovery Time	: 1
Peer Concurrence	: Enabled
Chipset NA# Asserted	: Enabled

Esc	: Quit	↑↓ →←	: Select Item
F1	: Help	PU/PD/+/-	: Modify
F5	: Old Value	(Shift) F2	: Color
F6	: Load BIOS Defaults		
F7	: Load Setup Defaults		

2. The first ten items are optimal setting for this mainboard, you should not change them unless you are familiar with the Intel chipset.

3.4 POWER MANAGEMENT SETUP

The Power Management controls the mainboard a "green" features that for the power saving Mode, Display turn off and HDD power down that together form the hardware power conservation scheme.

Run the Power Management Setup as follows:

1. Choose "**POWER MANAGEMENT SETUP**" from the Main Menu and a screen with a list of items appears.

ROM PCI / ISA BIOS (2A59GF51)
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

Power Management	: Disable	**Power down & Resume Events**	
PM Control By APM	: Yes	IRQ3 (COM2)	: ON
Video Off Method	: Blank screen	IRQ4 (COM1)	: ON
		IRQ5 (LPT2)	: ON
Doze Mode	: Disabled	IRQ6 (Floppy Disk)	: ON
Standby Mode	: Disabled	IRQ7 (LPT1)	: ON
Suspend Mode	: Disabled	IRQ8 (RTC Alarm)	: OFF
HDD Power Down	: Disabled	IRQ9 (IRQ2 Redir)	: OFF
Wake UpEvents in doze & Standby		IRQ10 (Reserved)	: OFF
IRQ3 (Wake-Up Event)	: ON	IRQ11 (Reserved)	: OFF
IRQ4 (Wake-Up Event)	: ON	IRQ12 (PS/2 Mouse)	: OFF
IRQ8 (RTC Alarm)	: OFF	IRQ13 (Coprocessor)	: OFF
IRQ12(Wake-Up Event)	: ON	IRQ14 (Hard Disk)	: ON
		IRQ15 (Reserved)	: OFF
		ESC : Quit	↑↓ → ← : Select Item
		F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values	(Shift) F2 : Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

2. A short description of the screen items follows:

"**POWER MANAGEMENT**" is the master control for the four power saving modes, doze, standby, suspend mode and HDD power down mode..

Min Saving	The "Min saving"defaults as "1 hour", "1 hour", "1 hour" and "15 Min" respectively.
Max Saving	The "Max Saving" defaults are all "1 Min"
User define	Allows you to set the power mode time-out by yourself

Disable	Turn off all power saving time-outs.
Doze mode	Put the system performance down to 20%
Stand by mode	Turn off the video signal and cause CPU enter SMM mode
Suspend mode	Turn off the video signal and cause CPU enter SMM mode and shut down any IDE hard disk drivers connected to the system.
HDD Power down	Shut down any IDE hard disk drivers in the system if they are not accessed.

Note: HDD Power down does not effect SCSI hard disks.

Individual IRQ wake-up Event

The setting in this group determine if a system IRQ is monitored for activity so as to wake up the system if an interrupt request is generated by a device using, if an IRQ is not use, there is no effect.

3.5 PNP/PCI SLOT CONFIGURATION

The "**PNP/PCI SLOT CONFIGURATION**" sets the system for use with PCI bus cards.

Run the PNP/PCI Slot Configuration program as follows.

1. Choose "**PCI SLOT CONFIGURATION**" from the Main Menu and a screen with a list of items appears.

ROM PCI / ISA BIOS (2A59GF51) PCI CONFIGURATION SETUP AWARD SOFTWARE, INC.	
Resources Controlled by : Auto Reset Configuration Data : Disable	PCI IRQ Actived By : Level PCI IDE IRQ Map To : ISA
	ESC : Quit ↑↓ → ← : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift) F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults

2. Use the arrow keys to move between items and to select values. Modify the selected fields using the PgUp/PgDn/+/-keys. <F> keys are explained below:

   <F1>: "Help" gives options available for each item.

   <F2>: Change color

   <F5>: Get the old values. The user started the current session with these values.

   <F6>: Load all options in the BIOS Features Setup with the BIOS Default values.

   <F7>: Load all options in the BIOS Features Setup with the Setup Default values.

4. After you have finished with the PCI Slot Configuration program, press the <**ESC**> key and then follow screen instructions to save or disregard your settings.

3.6 LOAD SETUP DEFAULTS

This Main Menu item loads the default system values. These settings are recommended for optimum performance. If the CMOS is corrupted when enter BIOS setup utility you must load setup default again. Choose this item and the following message appears:

"Load "SETUP Defaults (Y/N)? N"

To use the Setup defaults, change the prompt to "Y" and press <**ENTER**>.

3.7 INTEGRATED PERIPHERALS SETUP

The "**INTEGRATED PERIPHERALS**" is used to control the values of the I/O chipset registers. These registers control the mode of HDD type and I/O address port.

Run the Integrated Peripherals as follows:

1. Choose "**INTEGRATED PERIPHERALS**" from the Main Menu and a screen with a list of items appears.

ROM PCI / ISA BIOS (2A59GF51)
PCI/GREEN FUNCTION SETUP
AWARD SOFTWARE, INC.

IDE HDD Block Mode	: Enabled
IDE Primary 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
PCI Slot IDE 2nd Channel	: Enabled
USB Controller	: Disabled
Onboard FDD Controller	: Enabled
Onboard Serial Port 1	: AUTO
Onboard Serial Port 2	: AUTO
Onboard Parallel Port	: 378H/IRQ7
Onboard Parallel Mode	: ECP/EPP
ECP Mode Use DMA	: 3

ESC	: Quit	↑↓ → ←	: Select Item
F1	: Help	PU/PD/+/-	: Modify
F5	: Old Values	(Shift) F2	: Color
F6	: Load BIOS Defaults		
F7	: Load Setup Defaults		

IDE Hard Disk Drive Mode Setting

The BIOS support two kind of methods to set up your IDE Hard Disk Drive Mode. One is auto, the other is manual mode.
In auto mode BIOS can auto detect HDD's mode, but in some old type HDD that can't meet ATA specification, the BIOS will detect wrong Mode and cause system boot fail. You must change auto mode to manual mode and try a proper mode that can meet your HDD specification. There are five modes defined in manual mode. They are mode 0,1,2,3,4. The default setting for on board timing is auto mode that it will provide optimum performance for your HDD.

IDE HDD Block Mode

Choose Enabled or Disabled. If your IDE HDD supports BLOCK MODE, then you can enable this function to speed up the HDD Access time. If not, please disable this function to avoid an HDD Access Error.

Onboard PCI IDE Controller

The on Chip PCI IDE controller is default "Enable" setting, if you disable On-Chip primary and secondary PCI IDE, it will disable the on board IDE controller. Make sure you do this if you want to use an IDE controller other than on the mainboard IDE controller.

Onboard FDD Controller

The default setting for the "Onboard FDC Controller" is "Enabled". This setting allows you to connect your floppy disk drives to the onboard "Floppy" connector. Choose the "Disabled" setting if you want to use a separate controller card.

Serial Port

The "Onboard Serial Port 1" and "Onboard serial Port 2" lines control the assignments for the mainboard's two onboard serial connectors. They can be assigned as COM1, COM2, COM3, COM4 for serial Port 1 and serial Port 2, or disable.

Parallel Port

The options for "Onboard Parallel Port" is 378H. This item controls the on-board parallel port connector, if you are using an I/O card with a parallel port, make sure the address don't conflict.

Parallel Port Mode

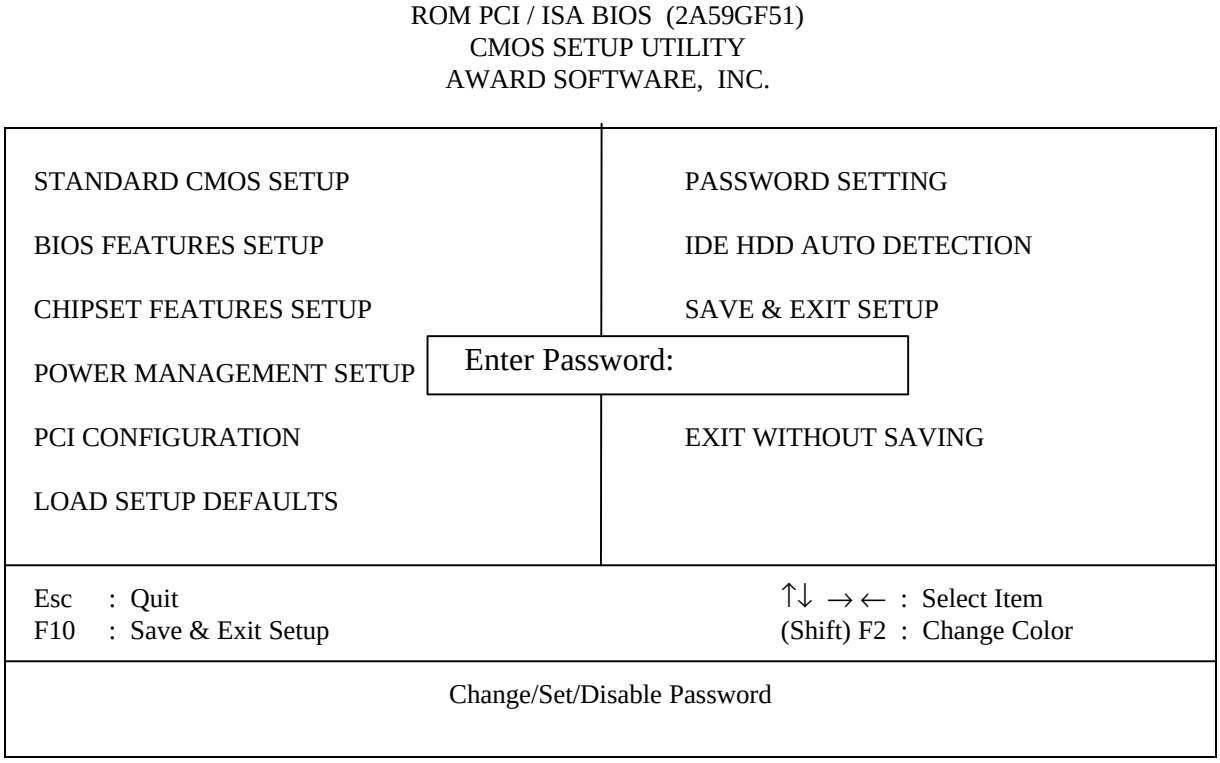
The options for "Onboard LPT Port Mode" is default ECP/EPP mode, you can select EPP, ECP, and SPP Mode just change setting, if you have a parallel interface peripheral device, use one of the parallel port enhancements and set this line for the enhanced mode that your peripheral supports.

ECP Mode Use DMA

The option for "ECP Mode use DMA" is default DMA3 if your system has ECP peripheral device, when you are using some I/O card, make sure the DMA channel don't conflict.
When you have done with this section, press the <**ESC**> key to go back to the main screen.

3.8 USER PASSWORD SETTING

This Main Menu item lets you configure the system so that a password is required every time the system boots or an attempt is made to enter the Setup program. The password cannot be longer than 8 characters.



Important: Keep a safe record of the new password. If you forget or lose the password, the only way to access the system is to discharge CMOS memory using jumper J7.

3.9 IDE HDD AUTO DETECTION

1. If your system has an IDE hard drive, you can use this utility to detect its parameters and automatically enter them into the Standard CMOS Setup.

ROM PCI / ISA BIOS (2A59GF51)
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

OPTIONS	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
2(Y)	21	699	32	0	1398	63	LBA
1	722	1399	16	65535	1398	63	NORMAL
2	721	699	32	65535	1398	63	LARGE

ESC : SKIP

For IDE hard disk driver, the BIOS provide three modes to support both normal IDE hard disk and also drivers large than 528MB, a short description of three modes as follows:

a. Normal mode: For drivers small than 528MB
b. Large mode: For drivers larger than 528MB that do not use LBA. There can only be used with MS-Dos operating system.
c. LBA mode: For drivers larger than 528MB and upto 8.4GB that use logic block addressing mode. Normally we recommend to select LBA Mode if your HDD drivers large than 528MB.

3. This utility will autodetect as many as four IDE drivers.

3.10 SAVE & EXIT SETUP

Select this item from the main menu and type "**Y**" to save the values entered during the current session and then exit the BIOS Setup program. Type "**N**" to return to the Setup program.

3.11 EXIT WITHOUT SAVING

Select this item from the main menu and type "**Y**" to exit the BIOS Setup program without saving the values entered during the current session. Type "**N**" to return to the Setup program.