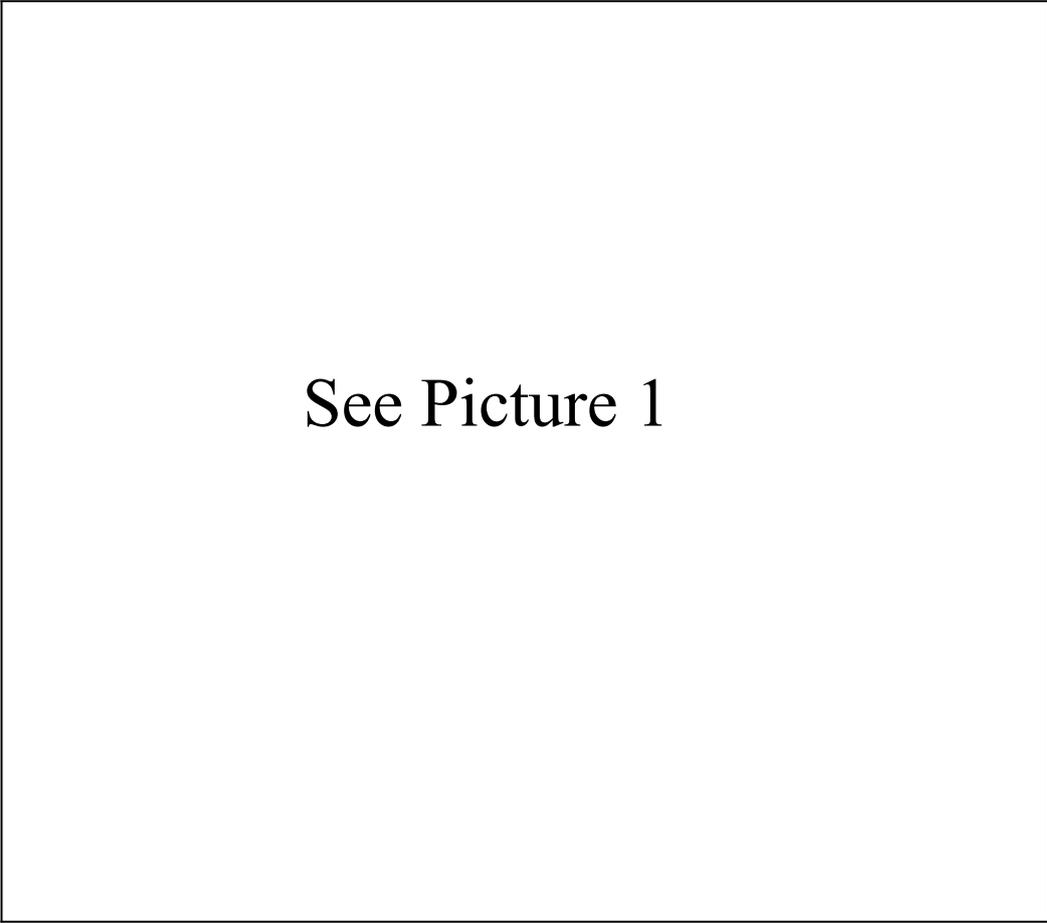# 486 PCI/ISA MAIN BOARD
(486SX / DX / DX2 / DX4)

PT-431A

USER'S MANUAL

431A/002/0595

BEFORE INSTALLING THIS 486 MAIN BOARD PLEASE READ THIS MANUAL COMPLETELY AND RETAIN IT FOR FUTURE REFERENCE.

The Green Connection :

Please refer to page 5. section 1.3.

Trademark Acknowledgments:

*   IBM PC, PC/XT and PC/AT all are registered trademarks of International Business Machines Corporation.
*   Intel is registered trademark of Intel Corporation.
*   AMD is registered trademark of Advanced Micro Devices Inc.
*   AMI is registered trademark of American Megatrends Inc.
*   UMC is registered trademark of United Microelectronics Corporation.
*   PCI is registered trademark of PCI Special Interest Group.

The manufacturer reserves the right to modify the specifications from time to time to match with the technology change.

TABLE OF CONTENTS

SECTION 1

INTRODUCTION

1.1 Overview

- PT-431A offers a 32-bit programming architecture compatible with the software base of the 486 microprocessor. It is a reliable motherboard using a UMC chipset and a multi-layer printed circuit board. The chipset consists of UM8881F and UM8886AF which provides the most cost effective and high performance solution for a 486 computer system.

- The UM8881F is a Host Bridge compliant to PCI spec. 2.0 for 486 mother board which contains a sophisticated direct-mapped cache controller with write-back or write through operation, fast page mode DRAM Controller, and support system managment mode operation. The UM8886AF provides the bridge between the PCI bus and ISA bus , Enhanced DMA function, incorporates two 82C59 interupt controllers, one 82c54 16-bit counter/timers, NMI control logic, built-in hardware keyboard controller, RTC and NVM direct interface, primary and secondary PCI IDE controller interface.

- PT-431A is a PCI Local Bus motherboard. The four PCI Bus slots fully comply with the PCI spec. v2.0. The speed of I/O peripherals can be dramatically increased by connecting PCI compatible controller cards to the PCI Bus slots on the PT-431A.

- PT-431A offers you the option for an excellent CPU upgrade path.   Designed to work with most brands of 486 CPUs such as 486SX/DX and DX2, this motherboard has been equipped with an option for lowering the voltage of the CPU down to 3.3V in order to enable use with Intel & AMD DX4 CPUs (and other 3.3Volt CPUs), offering up to 100MHz speeds.   This option is in the form of a DX4 converter/daughter board is fully described in Section 2.3 of this manual.

- PT-431A is a green design mother-board which means when there is no system activity for a specific period of time (this period is software programmable), the PT-431A will slow down its original working frequency to 8 Mhz speed when used with standard CPUs.   If an 'SMM' (System Management Mode) CPU is used, the green feature of   PT-431A slows down the CPU clock to zero.   This will help save the power consumption, reducing energy related pollution and protecting our environment.   PT-431A is also equipped with a unique AUX Green connector which can be connected up to an external product, called an 'ECO-PAD' which can control the on/off switching of external power devices such as printers, monitors and scanners, through the motherboard BIOS.   If you do not use an ECO-PAD then you can use the VGA Green connector in PT-431A connected to a range of "PT-xxxx" VGA cards or APT2000/APT2000A controller cards to perform VGA Green or power down I/O chip function. For further information on the ECO-PAD or other "PT" products please contact your dealer or sales representative.

"This is an **ENERGY STAR^{TM}** compliant product."

The Environmental Protection Agency **ENERGY STAR^{TM}** 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."

"It runs with Netware"
The PT-431A was authorized by Novell to use the Novell Yes, It runs with Netware certification mark.

"FCC Approval"

The PT-431A 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 an installation of this product to maintain compliance with the limits for a Class B device, shielded cables and power cord must be used.

1.2 Checklist

Please check your PT-431A package to ensure that it contains the following items :

- PT-431A Main Board
- PT-431A User's Manual
- PT-431A PCI IDE Driver Diskette
- Two pieces IDE cable

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

1.3 Green PC Power Management

The Green PC mode is a state that minimizes power consumption. There are three different Green PC modes :
1) Doze mode. This mode is available for all kinds of CPU. The clock of the CPU will slow down to 8 Mhz.
2) Standby mode. This mode is only available for the SMM CPUs. The clock of the CPU will slow down to the pre-set frequency.
3) Inactive mode. This mode is only available for the SMM CPUs. The PT-431A can stop the CPU clock under this mode.

The PT-431A extends the Green PC feature to a Green connector (JP45) and a VGA Green connector(JP24), through these connectors, the user can connect the PT-431A with a ECO-PAD and connect the PT-431A and PT-xxxx VGA card. These enable :
- ECO-PAD - Turn off video monitor,
- ECO-PAD - Turn off printer (or other peripheral) power.
- PT-xxxx VGA cards - Black screen after the pre-set time.
- APT2000/APT2000A controller cards - Power down the I/O chip after the pre-set time.

(Note : The hardware function on "PT-xxxx" VGA cards is more efficient than a green software driver (screen saver) as it works with all types of software applications such as DOS or Windows. It is completely independent of software being used at the time).

The PT-431A will be placed into Green PC mode as a result of one of the following events :

- Suspend switch (JP25) is pressed.
- 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. (Refer to 3.10 Power Management 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.
- Execution of the system hot key for power down sequencing <**CTR**L> <**ALT**> <\>.

Through system activity monitoring and management, the PT-431A will not go into Green PC mode if any of the following activity is detected:
- PCI slave activity
- LPT port activity
- COM port activity
- ISA master activity
- IDE activity
- Floppy activity
- VGA activity
- Keyboard activity

For further details on the ECO PAD or 'PTxxxx' VGA cards please contact your local dealer or sales representative for assistance.

SECTION 2

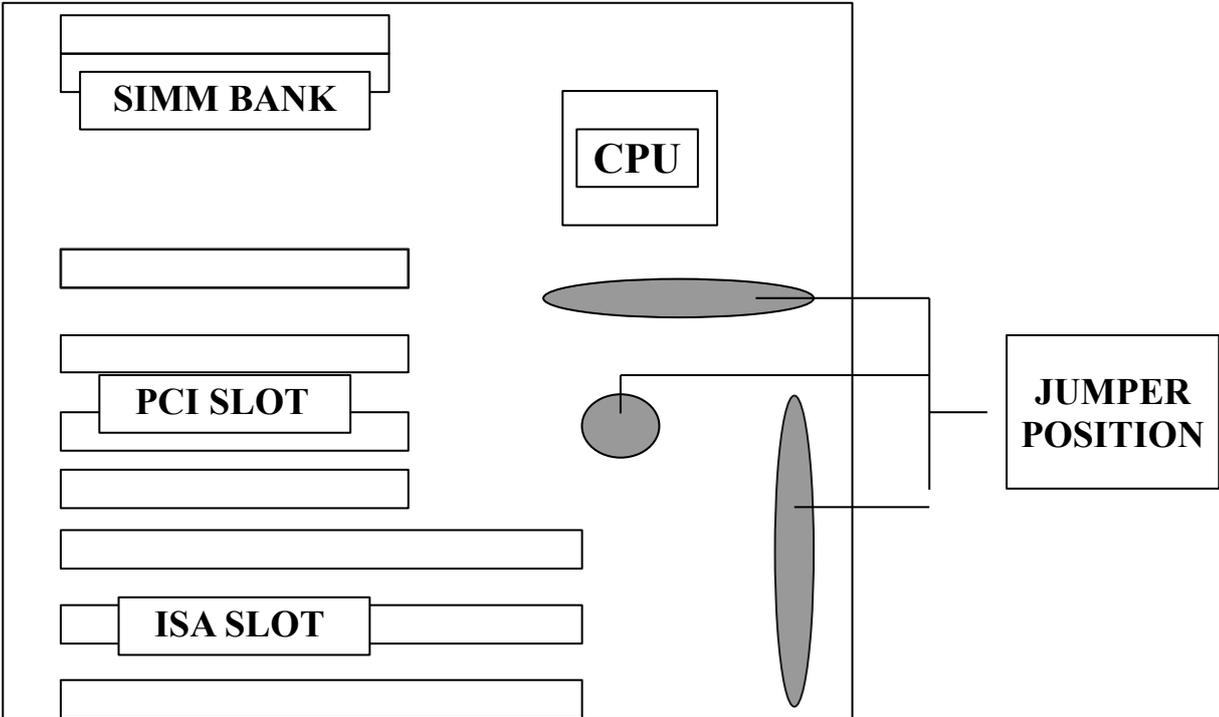# SPECIFICATIONS

2.1   PT-431A System Board Specifications

- Supports 2pcs. of 72 pins SIMM(single or double bank).
- Auto configure memory size without hardware jumper.
- 32K, 128K, 256K, 512K cache memory size selectable.
- Fast CPU reset and Fastgate A20 logic.
- Speed switching with hardware and software selection.
- Board size 204 mm by 223 mm.
- Three 16-bit ISA slots; four PCI slots.
- Clock chip design makes CPU speed changing easier.
- I/O slot signal protector on: IRQ9, DRQ2, 0WS#.
- On board PCI IDE for primary and secondary ports.
- Selectable built-in / external keyboard controller.
- Green features to slow down / stop the CPU clock & turn off VGA display signals.
- Supports DX4 CPU by a safe-proof 3.3V daughter board (DX4DB).
- Supports ECO-PAD for turning off external power devices in green modes.
- On-board CPU cooling fan power socket can be switched off automatically in green modes.

2.2   Jumpers and Connectors

Jumpers / Connector	Description
CN1	PCI Primary IDE Connector
CN2	PCI Secondary IDE Connector
J1,JP50,JP51	3.3V Daughter Board Connector
JP1,JP7,JP8	Reset signal connector for different chipset version
JP2,JP4,JP14,JP15,JP23,JP26	Internal / External Keyboard Controller Select
JP3	Key-lock Connector
JP5	PCI IDE LED Connector
JP6	Speaker Connector
JP9	Hardware Turbo Switch Connector
JP10	Turbo LED Connector
JP11	Hardware Reset Switch
JP12	Hardware Light Green Stanby Switch
JP13	Power Supply Power Down Connector
JP16,JP17,JP21,JP27-JP30,JP36,JP40	CPU Mode Select
JP18	Flash ROM Power Select
JP19	Cyrix M9 Select
JP20,JP22,JP31	P24D Select
JP24	Hardware VGA Green Connector
JP25	Intel P24D Cache Line
JP32,JP34,JP35	CPU Clock Select
JP37	Factory Setting Short 2-3
JP38	External Battery Connector
JP39	Intel P24C CPU Clock Select
JP41	Cooling Fan Power Connector
JP42	Powergood Generation
JP43	Cooling Fan Control
JP44	Cache Size Select
JP45	ECO Pad Connector

| JP46,JP47	CPU Type Select
KB1	Keyboard Connector
PS1	Power Connector

To assist you in locating the necessary jumpers in order to configure your system, the following graphical guide has been added for jumper location.

```
┌─────────────────────────────────────────────────┐
│   ┌──────────────────────┐                        │
│   │   SIMM BANK          │      ┌──────────┐      │
│   └──────────────────────┘      │   CPU    │      │
│                                 └──────────┘      │
│   ┌──────────────────────┐                        │
│   └──────────────────────┘      ⬯──────────┐      │
│   ┌──────────────────────┐                  │     │    ┌──────────┐
│   │   PCI SLOT           │      ⬭───┐       ├────│    │ JUMPER   │
│   └──────────────────────┘         │ ⬮      │    │    │ POSITION │
│   ┌──────────────────────┐         │        │    │    └──────────┘
│   └────────────────────────────┐   │        │
│   ┌────┐ ISA SLOT         ┌─────┘   ⬯───────┘
│   └──────────────────────────────┘          │
│   └──────────────────────────────┘          │
└─────────────────────────────────────────────────┘
```

Shaded Box represents default setting

PS1:   Power Supply Connector Pin Assignment

1	Power Good
2	+5V
3	+12V
4	-12V
5	Ground
6	Ground
7	Ground
8	Ground
9	-5V
10	+5V
11	+5V
12	+5V
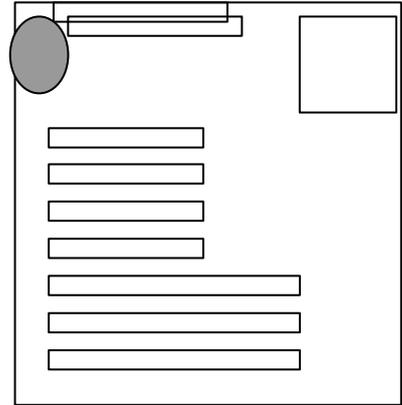
These connectors are for the system case main power supply connector.   This connector can only be attached in one specific way to avoid any crossed signals/shorts.   This also contains the 'Power Good' signal.   This is a signal from your power supply which recognizes that the system board is stable enough to release its power to.   Should your power supply not have a 'Power Good' signal, then you should choose the internal 'On-board Power Good' on this motherboard as per jumper JP36.

**JP1, JP7, JP8 :   Reset Signal For different version Chipset (Factory Setting)**

Chip version	JP1		JP8
UM8886F	1-2		2-3
UM8886AF	1-2		1-2
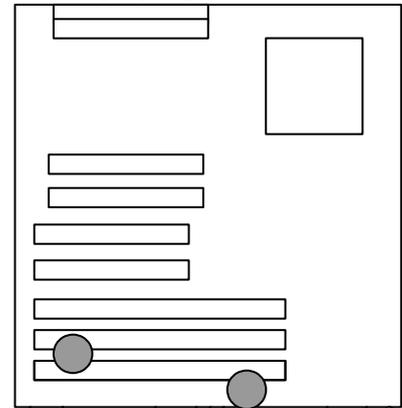
These jumpers are used to select the reset signal for different version of UM8886, normally the jumper should be set to the default setting.
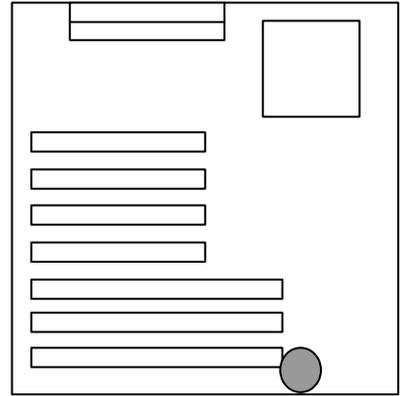
JP2, JP4, JP14, JP15, JP23, JP26 :   Internal or External Keyborad Controller Select

	JP2	JP4	JP14	JP15	JP23	JP26
Internal	1-2	1-2	1-2	1-2	7-9, 8-10	1-2
External	2-3	2-3	2-3	2-3	1-3,2-4,5-7,6-8	2-3
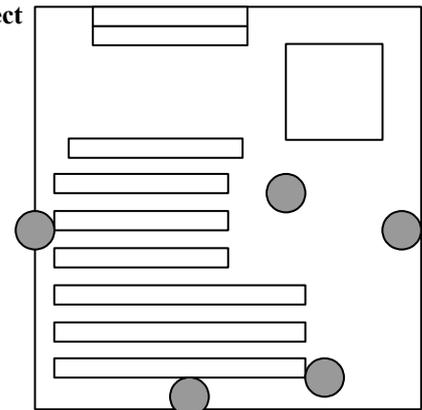
JP5 :   PCI IDE LED Connector

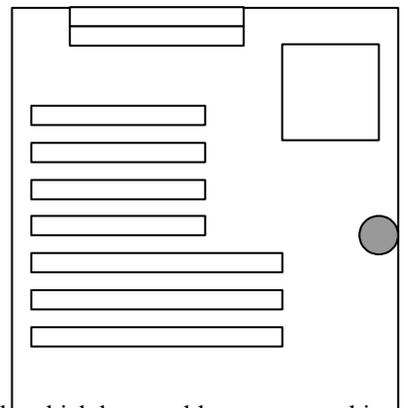| Pin 1	LED anode
Pin2	LED cathod

JP12 :   Hardware Light Green Stanby Switch

Press one time to go in suspend mode
Press another time to go back normal mode
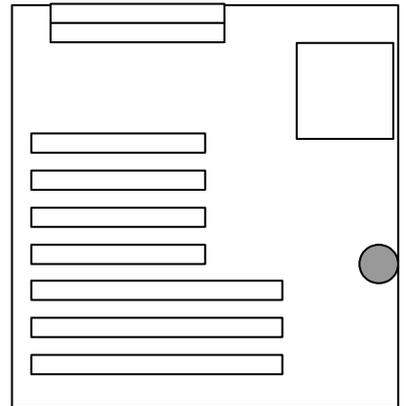
Some system cases will also have a cable for switch on the case front which when pressed will automatically put the system in to / and out of ' suspend' mode. Connect that cable here.

JP13 :   Power Supply Power Down Connector

This connector can add further power saving Green features to the new design power supply which has a cable connect to this jumper for performing Green function after the preset time.

JP16, JP17, JP21, JP27-JP30, JP36, JP40 :   CPU Type Select

| CPU Type	JP16	JP17	JP21	JP27	JP28	JP29	JP30	JP36	JP40
486DX/DX2	OPEN	OPEN	OPEN	1-2,3-4	OPEN	OPEN	OPEN	1-2	3-4
486SX	OPEN	OPEN	OPEN	2-3	OPEN	OPEN	OPEN	1-2	OPEN
486SX SL	OPEN	1-2	OPEN	2-3	2-3,4-5	OPEN	1-2	3-4	OPEN
486DX/DX2 SL	OPEN	1-2	OPEN	1-2,3-4	2-3,4-5	OPEN	1-2	3-4	3-4
P24C	OPEN	1-2	OPEN	1-2,3-4	2-3,4-5	OPEN	1-2	3-4	3-4
P24D	OPEN	1-2	OPEN	1-2,3-4	2-3,4-5	OPEN	1-2	3-4	3-4
P24T	1-2	1-2	2-3	1-2,3-4	2-3,4-5	2-3	1-2	3-4,5-6	2-3
Cx486S	2-3	1-2	1-2	2-3	1-2,3-4	1-2	2-3	3-4	OPEN
Cx486DX	2-3	1-2	1-2	1-2,3-4	1-2,3-4	2-3	2-3	3-4	3-4
Cx486M9	2-3	1-2	1-2	1-2,3-4	2-3,4-5	OPEN	1-2	3-4	3-4
UMC U5	OPEN	2-3	OPEN	2-3	OPEN	3-4	OPEN	1-2	1-2,3-4
AMD486DXLT	OPEN	2-3	OPEN	1-2,3-4	OPEN	3-4	OPEN	1-2	1-2,3-4
AMD Enhanced CPU	OPEN	1-2	OPEN	1-2,3-4	2-3,4-5	OPEN	1-2	3-4	3-4

Note :
P24C : Intel DX4-100 Write Through CPU
P24D : Intel DX4-100 Write Back CPU
P24T : Intel Overdrive CPU
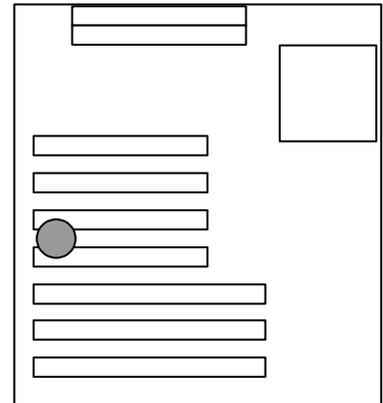AMD Enhanced CPU : AMD DX4-100 Write Back CPU

This mother board has been designed to work with a wide range of CPUs
from various vendors. Set this according to the type of CPU used.
WARNING : If you are using a 3.3V/3.45V or 4V CPU,
please ensure you have the optional 'DX4DB' converter connected.
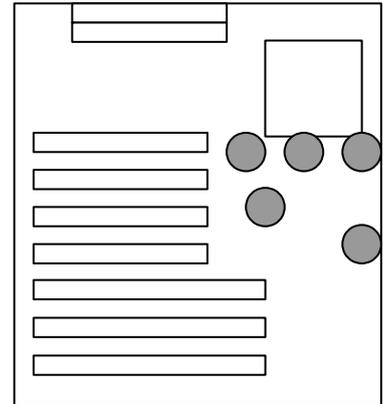
**JP18 : Flash ROM Power Select**

| 1-2	12 Volt
2-3	5 Volt
Open	Normal EPROM

This mother board can use a FLASH ROM in order to change the system BIOS through software. This allow you to constantly update your system BIOS as changes are made. Should you wish to use this feature then you must set this jumper according to the voltage of that FLASH ROM. When using FLASH ROMs a Flash Memory Writer Utility software driver is required. For details on this driver please contact your dealer or sales representative.
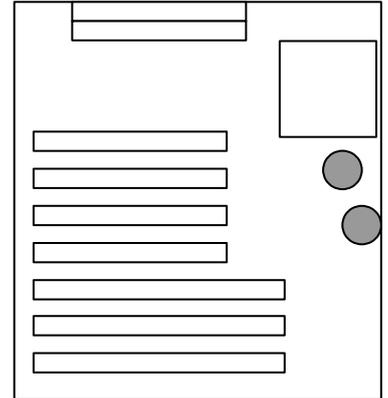
JP19 : Cyrix M9 Select

Short	Cyrix M9 Enable
Open	Other CPU
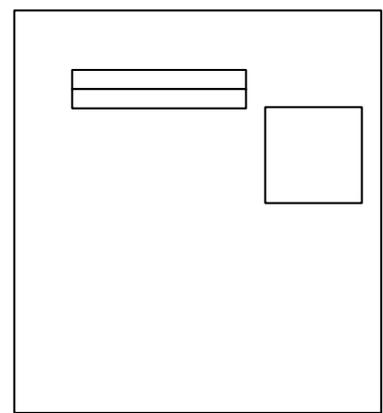
Short this jumper for using Cyrix M9 CPU.
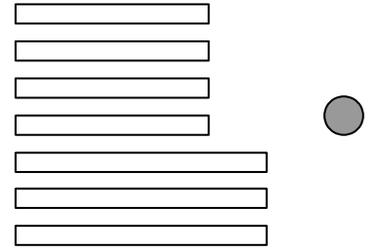
JP20, JP22, JP31 : P24D Select

JP20	Short
JP22	Short
JP31	Short

Short all these jumpers if P24D is using.

JP24 :   Hardware VGA Green Connector
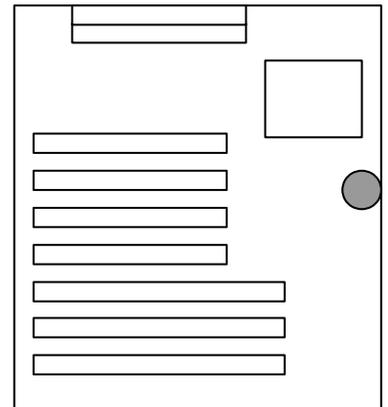
This connector can add further power saving Green features to your Green VGA card or 'PT-xxxx' Green VGA card by connecting a Green cable between this jumper and the Green jumper on VGA card.

JP25 :   Intel P24D or AMD DX2-80 CPU Cache Line

1-2	For Intel P24D Write Back Cache
2-3	For AMD DX2-80 Write Through Cache
OPEN	Other CPU
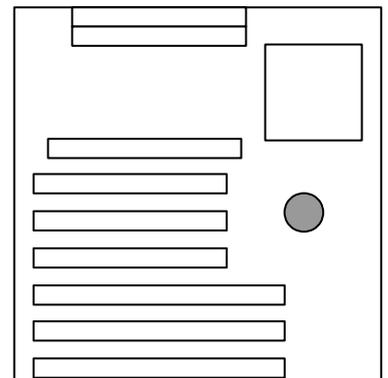
JP32, JP34, JP35 :   CPU Clock Select

Clock Freq.	JP32	JP34	JP35
20MHz	2-3	2-3	2-3
25MHz	1-2	2-3	2-3
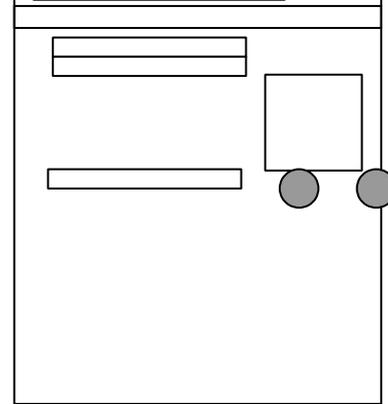
33MHz	1-2	1-2	1-2
40MHz	1-2	2-3	1-2
50MHz	2-3	1-2	2-3
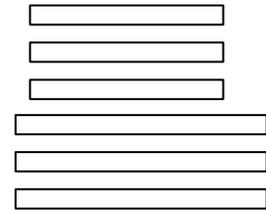
This selects the speed of CPU clock signal. Please note that some CPUs are clock-doubling or clock-tripling of of internal clock.

JP37 :   Clock Mode Select

Factory Default Short 2-3

JP38 :   External Battery Connector

For External Battery : Pin 1 is '+', Pin 4 is '-'
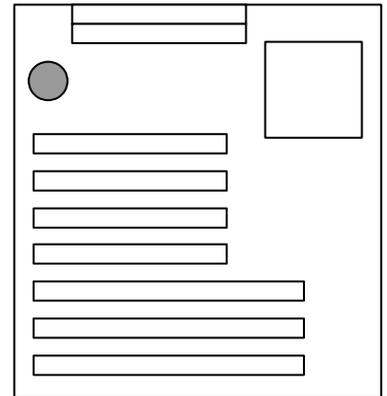
Default is using the built-in battery of DS12887.

JP39 :   Intel P24C CPU Internal Clock Select

OPEN	3 X Extenal Clock
1-2	2.5 X External Clock
2-3	2 X External Clock
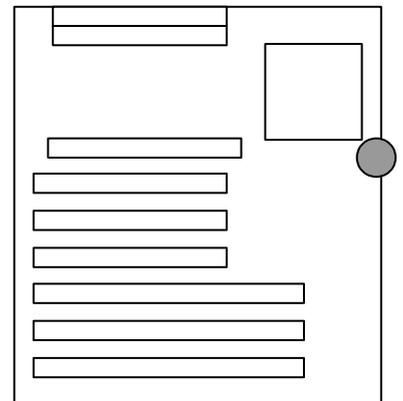
DX4 CPUs can perform high speed processing due to internal clock multiplication. This type of CPU is capable of multiplying the clock by 2X/2.5X and 3X to reach 100mhz speed. However CPU vendors recommend that it is far more stable to use the 3X clock method. Therefore this is the default.

JP41 :   Cooling Fan Power Connector
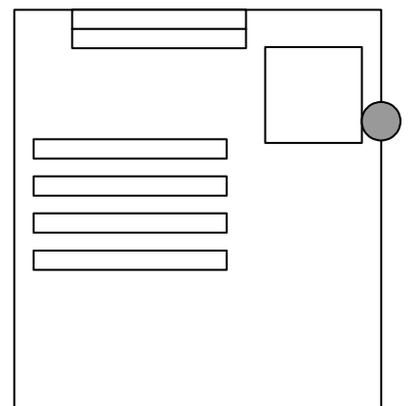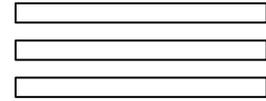
Connect the cooling fan power cable to this connector, then the cooling fan can be controlled by power supply or CPU, please refer to JP43 as well.

JP42 : Power Good Generator

1-2	On Board Power Good Generator
2-3	Power Supply Power Good
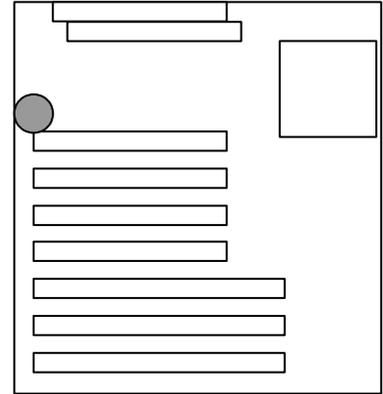
Most power supplies produce a 'Power Good' signal which recognizes that the system board is stable enough to release the power to, however this mother board also includes an on-board Power Good circuit for additional safety.

JP43 : Cooling Fan Control

1-2	Control By CPU
2-3	Control By Power Supply
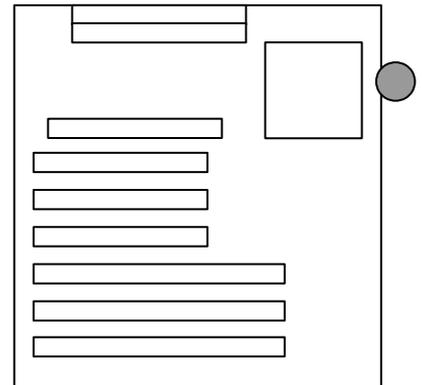
This mother board has been equipped with an on-board power connector for the CPU cooling fan. The advantage of this feature is that as well as the CPU, the cooling fan itself can be slowed down according to the power management settings in the Green system BIOS. Here there are options for control by BIOS or cooling fan permanently on.

JP44 : Cache Size Select

Cache Size	JP44	Cache RAM	Tag RAM
128KB	OPEN	32K8 x 4	8K8 x 1
256KB	1-2	64K8 x 4	32K8 x 1
512KB	1-2,3-4	128K8 x 4	64K8 x 1
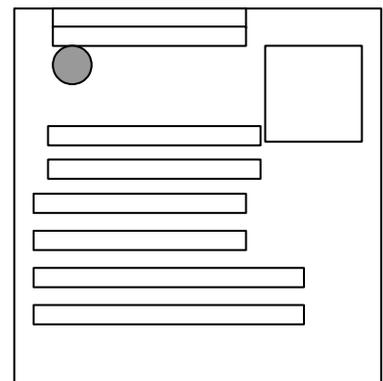
This selects the size and type of cache RAM on the mother board. This mother board can work with three types of cache RAM which allows for extra flexibiity should you wish to upgrade. The jumpers will be set accordingly during production.

JP45 : ECO PAD Connector

Pin 1	+5V	For ECO PAD
Pin 2	Ground	For ECO PAD/VGA/IDE
Pin 3	Controll Signal	For ECO PAD/VGA/IDE
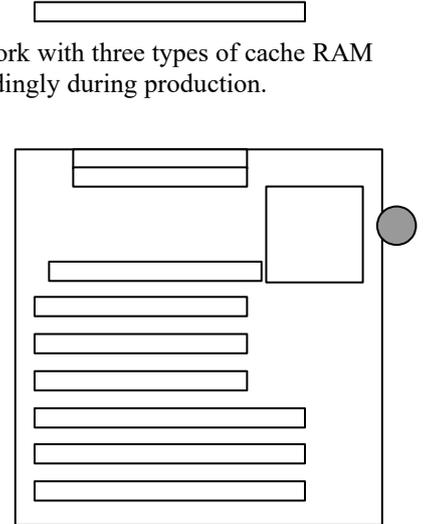
This connector can add further power saving Green features to your system when used in conjunction with an ECO-PAD, a 'PT-xxxx' Green VGA card or 'PT-xxxx' Green IDE I/O card with hardware connection. For further details refer to the 'Green PC Power Managment' section of this manual.

JP46,JP47 : CPU Brand Select

Brand	JP46	JP47
Intel	1-2	1-2
Cyrix	1-2	2-3
AMD/UMC	2-3	1-2

This selects the CPU brand to get the optimal perfomance of CPU.
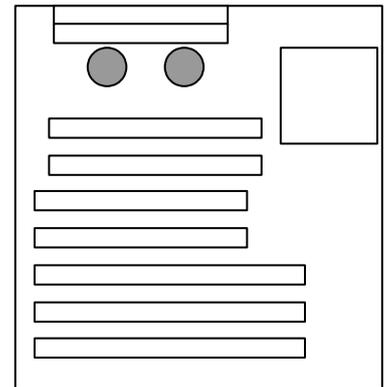
All of the following jumpers share the same position

JP3 : Power LED & Key-Lock Connector

1	+5V
2	NC
3	Ground
4	Key-Lock
5	Ground
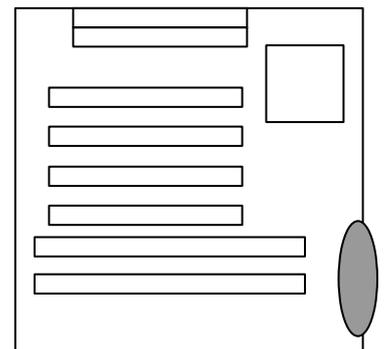
JP6 : Speaker Connector

1	Speaker data
2	NC
3	Ground
4	+5V

JP9 : Turbo Switch

OPEN	Turbo Speed
CLOSE	Normal Speed

JP10 : Turbo LED Connector

1	LED anode
2	LED Cathod

JP11 : Reset Switch

OPEN	Normal
CLOSE	Reset

2.3   5V to 3.3V Daughterboard Board Installation (DX4/3.3V CPU)

Remark : The user should read carefully all the procedures shown below before they go to install the 3.3V/3.45V CPU and the 3.3V/3.45V daughter board (DX4DB).

J1,JP50,JP51 :   3.3V/3.45V Daughter Board (DX4DB) Connector

This is an optional component which converts the voltage from 5V down to 3.3V/3.45V. Some CPUs, such as the Intel or AMD DX4 operate at 3.3V. If you want to use this CPU then you must first add this extra component.   If you have not purhcased this component beforehand please contact your dealer or sales representative.

5V to 3.3V/3.45V Daughter Board Installation (DX4 CPU or 3.3V/3.45V CPU)

Step 1, remove the 4 mini jumpers from J1.

JP50,JP51

J1
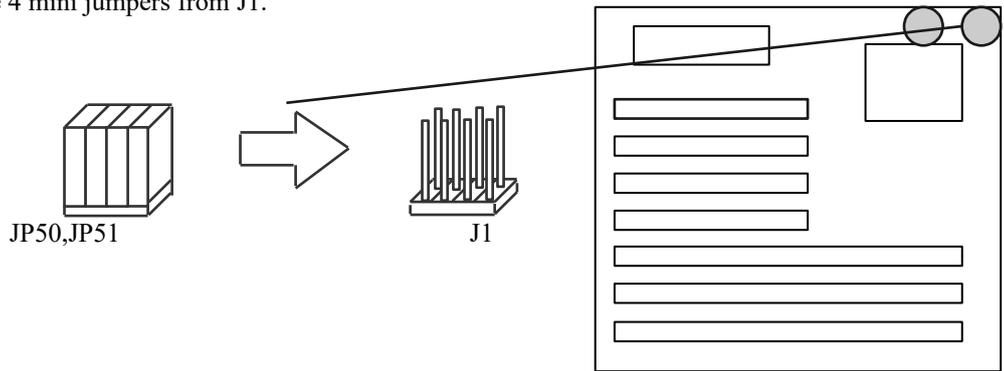
Step 2, insert the DX4DB 3.3V daughter board on to the 8 pin header (J1) and the 10 pin IDC socket (JP50+JP51).

DX4DB 3.3V/3.45V Daughter Board

JP3
8 pin IDC socket

JP2+JP4+JP5
10 pin header

J1
8 pin header

JP50,+JP51
10 pin IDCsocket
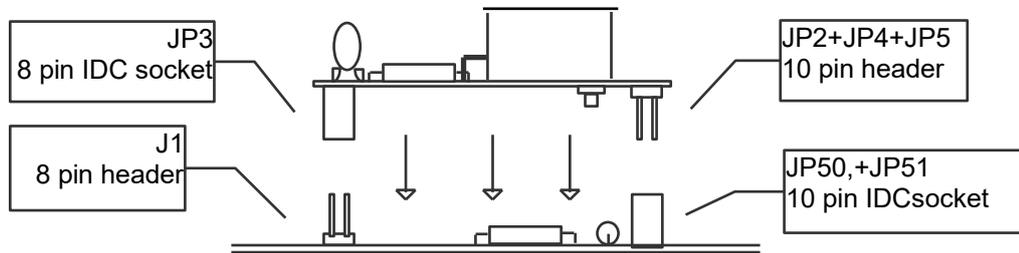
Setp 3, refer to the above CPU Type Select Table to choose the correct setting of the 3.3V CPU

2.4   SIMM MEMORY Configuration

This motherboard can work with various types of SIMM module. It's auto-banking feature means that you do not have to set any jumpers to designate the bank, size or type of SIMM - just install the modules and the motherboard will auto-configure on booting up.

This motherboard supports 72-Pin SIMM module.
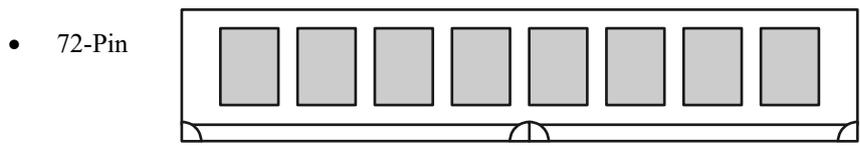
- 72-Pin

These are 32-bit modules (sometimes referred to as 'x32' or 'x36').   Because they are fully 32-Bit you only need to use one piece. Therefore this type of SIMM occupies one bank on its own. The exception to this rule is that some 72-Pin modules are double sided and will occupy two banks. The table below shows you what types of SIMM are single or dual banked.

RAS Signals - The UMC chipset of this motherboard supports 4 RAS signals.   Each of these RAS signals is equivalent to one bank. Therefore this motherboard can support 4 banks.

Some 72-pin SIMM modules are double-bank as mentioned above .   This means that although they only occupy one socket, they require 2 RAS signals. To help you with identifying the type of 72-pin module your system uses please refer to the table below.

SIMM TYPE	RAS Signals used. For 1 Pc SIMM	TOTAL MEMORY For 1 Pc SIMM
256k x 32 (Non-Parity)	one - single bank	1 MB

256k x 36 (Parity)	one - single bank	1 MB
512k x 32 (Non-Parity)	two - dual bank	2 MB
512k x 36 (Parity)	two - dual bank	2 MB
1M x 32 (Non-Parity)	one - single bank	4 MB
1M x 36 (Parity)	one - single bank	4 MB
2Mx 32 (Non-Parity)	two - dual bank	8 MB
2M x 36 (Parity)	two - dual bank	8 MB
4M x 32 (Non-Parity)	one - single bank	16 MB
4M x 36 (Parity)	one - single bank	16 MB
8M x 32 (Non-Parity)	two - dual bank	32 MB
8M x 36 (Parity)	two - dual bank	32 MB

SECTION 3

AMI BIOS Setup

3.1 About CMOS Setup

After the PT-431A motherboard has been integrated into the system, you need to run the Setup Program to set system configuration. Upon completion of this the Setup Program is then stored in the read-only memory (ROM), and can only be accessed when you turn on or reset the system.

The settings you specify within the Setup program are recorded in a special area of memory called CMOS RAM. This memory is backed up by a battery so that it will not be erased when you turn off or reset the system. Whenever you turn on the power, the system reads the settings stored in CMOS RAM and compares them to the equipment check conducted during the POST. If an error occurs, an error message will be displayed on screen, and you will be prompted to run the Setup program again.

AMI WinBIOS Setup configures system information that is stored in CMOS RAM. AMI WinBIOS Setup has an easy-to-use graphical user interface that will be immediately recognizable to anyone who has ever used Microsoft Windows. WinBIOS Setup sets a new standard in BIOS user interfaces.

3.2 Using AMI WinBIOS Setup with Mouse

WinBIOS Setup can be accessed via mouse, or pen. The mouse click functions are:

- **single click** to change or select both global and current fields and
- **double click** to perform an operation in the selected field.

3.3 Using AMI WinBIOS Setup with Keyboard

WinBIOS Setup has a built-in keyboard driver that uses simple keystroke combinations:

Keystroke	Function
<Tab>	Move to the next window or field.
→,←,,↓	Move to the next field to the right, left, above, or below.
<Enter>	Select in the current field.
+	Increments a value.
-	Decrements a value.
<Esc>	Closes the current operation and return to previous level.
<PgUp>	Returns to the previous page.
<PgDn>	Advances to the next page.
<Home>	Returns to the beginning of the text.
<End>	Advances to the end of the text.
<Alt> <H>	Access a help window.
<Alt> <Spacebar>	Exit WinBIOS Setup.
Alphabetic keys	A to Z are used in the Virtual Keyboard, and are not case-sensitive.
Numeric keys	0 to 9 are used in the Virtual Keyboard and Numeric Keypad.

3.4 Getting Help

WinBIOS Setup provides Help screens for Advanced Setup, Chipset Setup, Power Management Setup, and Peripheral Setup. Help on mouse and keyboard use is also available. Choose Help by pressing <Alt> <H>.

3.5   Starting AMI WinBIOS Setup

When you turn on the system and in the course of the system POST, you will be presented with the screen depicted below.

To enter the Setup program at this time, press the [DEL] key. This will display the first page of the AMI BIOS Setup menu. If you do not press the [DEL] key at the right time, press [Ctrl-Alt-Del] to restart the system and try again.
If you do not press the key at the correct time and the system fails to boot, an error message KEYBOARD ERROR will be displayed and you will again be asked to :

<div align="center">

RUN SETUP UTILITY
Press <F1> to resume

</div>

> **If you press and hold the [Ins] key while the system is booting until you hear a single beep, the default Setup values will be loaded into CMOS. Release the key after the beep to prevent a keyboard error.**

3.6   AMI WinBIOS Setup Main Menu

The WinBIOS Setup Menu, shown below, is organized into four windows. Each windows contains several icons. Clicking on each icon activates a specific function. The windows are: **Setup /Utilities / Scurity / Default**.
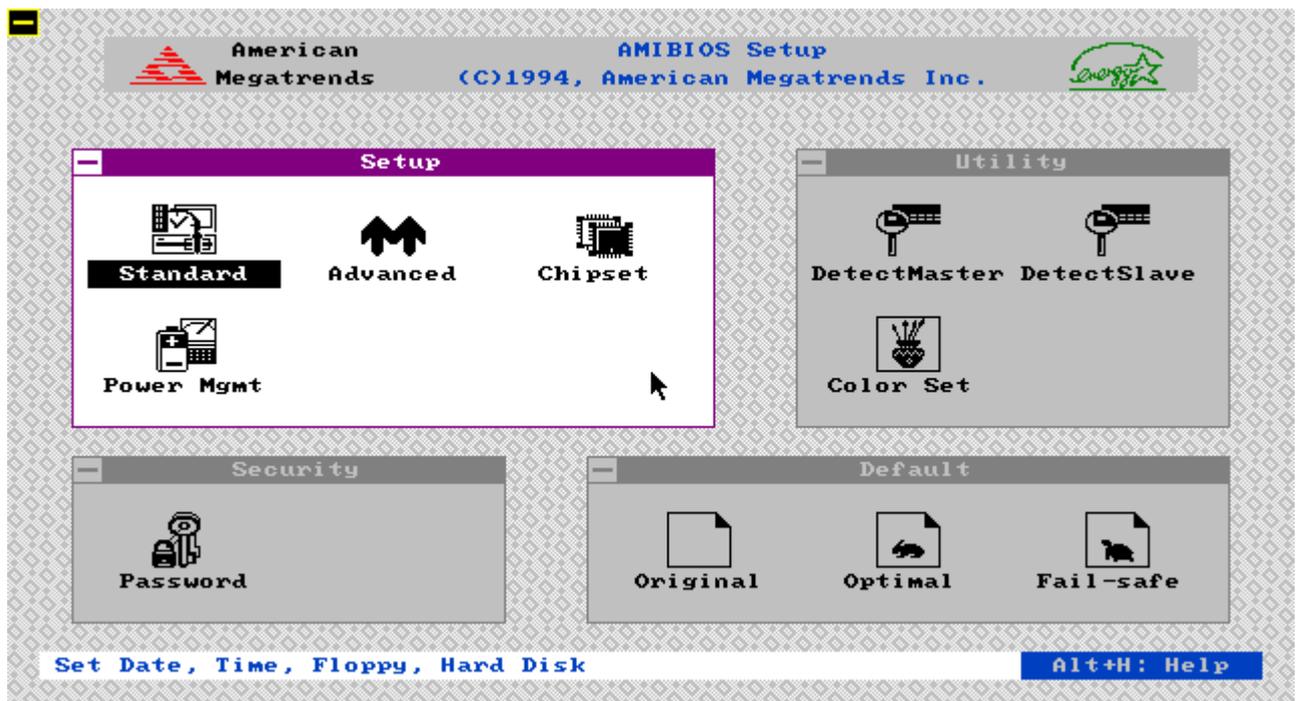
Each WinBIOS Setup option has two default settings. These settings can be applied to all WinBIOS Setup options when you select the Default section on the WinBIOS Setup main menu. The types of defaults are:

Optimal   these settings provide the best performance characteristics.

Fail-Safe   these settings are more likely to configure a workable computer when something is wrong. If you cannot boot the computer successfully, select the Fail-Safe WinBIOS Setup options and try to diagnose the problem after the computer boots. These settings do not provide optimal performance.

Notes :

AMI WinBIOS only has the set-up options for 2 hard drives, however when using an Enhanced IDE controller you can actually attach 4 hard drives. With an Enhanced IDE controller the two drives in the AMI WinBIOS set-up will refer to the two drives connected to the 'Primary' IDE Port of that card. Set-up these two drives in the WinBIOS, and upon re-booting the system the BIOS will automatically detect the 3rd & 4th drives.

3.7   Standard Setup

- The Standard Setup option is selected by choosing the "**Standard**" icon from the Setup section of the AMI WinBIOS Setup main menu selection screen. The Standard Setup screen should be as follows:
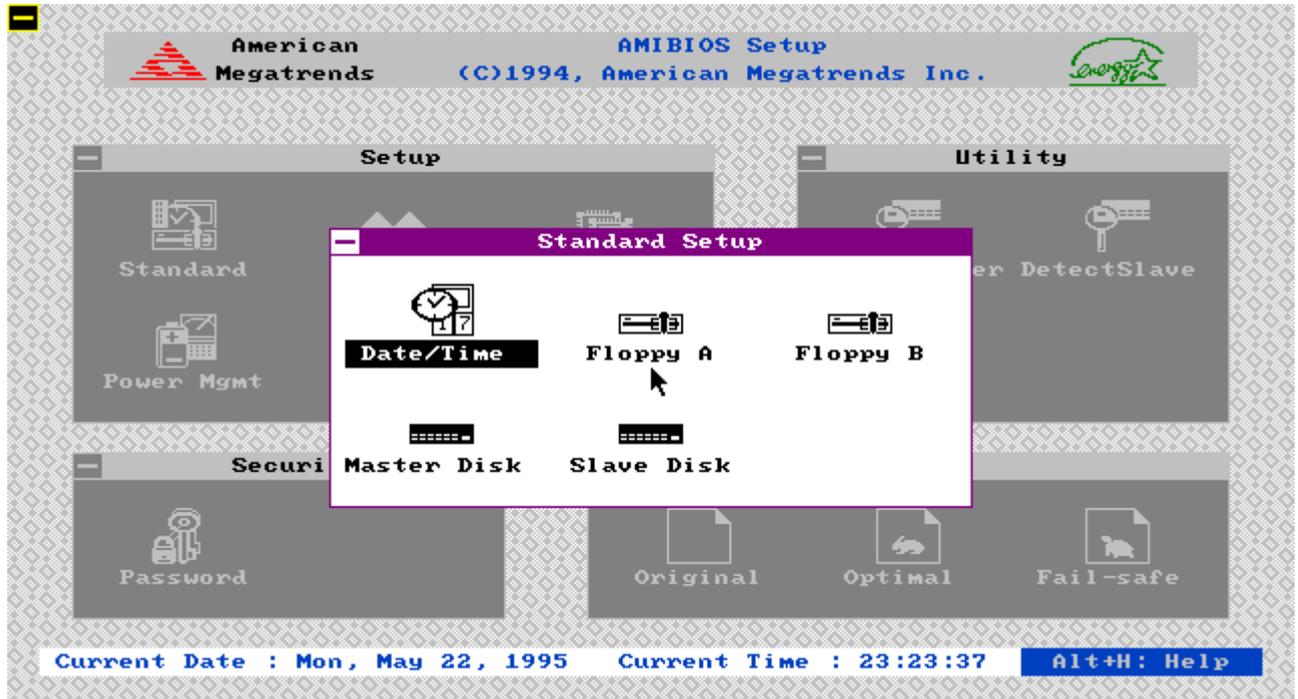
Date / Time
- Select the Standard option. Select the Date and Time icon. The current values for each category are displayed. Enter new values through the keyboard.

Floppy Drive A

Floppy Drive B
- Move the cursor to these fields and select the floppy type. The settings are *360 KB 5¼ inch*, *1.2 MB 5¼ inch*, *720 KB 3½ inch*, *1.44 MB 3½ inch*, or *2.88 MB 3½ inch*.

Hard Disk C

Hard Disk D
- Select one of these hard disk drive icons to configure the drive named in the option. A scrollable screen that lists all valid disk drive types is displayed. Select the correct type and press <Enter>. If the hard disk drive is an IDE drive, select Detect C: or Detect D: from the Utility section of the WinBIOS Setup main menu to allow WinBIOS to automatically detect the IDE drive parameters and report them on this screen. You may also enter the hard disk drive parameters. The drive parameters are:

Parameter	Description
Type	The number for a drive with certain identification parameters.
Cylinders	The number of cylinders in the disk drive.
Heads	The number of heads.
Write Precompensation	The size of a sector gets progressively smaller as the track diameter diminishes. Yet each sector must still hold 512 bytes. Write precompensation circuitry on the hard disk compensates for the physical difference in sector size by boosting the write current for sectors on inner tracks. This parameter is the track number where write precompensation begins.
Landing Zone	This number is the cylinder location where the heads will normally park when the system is shut down.

Sectors	The number of sectors per track. MFM drives have 17 sectors per track. RLL drives have 26 sectors per track. ESDI drives have 34 sectors per track. SCSI and IDE drive may have even more sectors per track.
Capacity	The formatted capacity of the drive is (Number of heads) x (Number of cylinders) x (Number of sectors per track) x (512 bytes per sector)

If you select Detect C: or Detect D: from the Utility section of the WinBIOS Setup main menu, WinBIOS automatically finds all IDE hard disk drive parameters. WinBIOS places the hard disk drive parameters that it finds in the Drive C: Type or Drive D: Type fields in Standard Setup.

3.8   Advanced Setup

- The Advanced Setup option is selected by choosing the "**Advanced**" icon from the Setup section of the AMI WinBIOS Setup main menu selection screen. The Advanced Setup screen should be as follows:
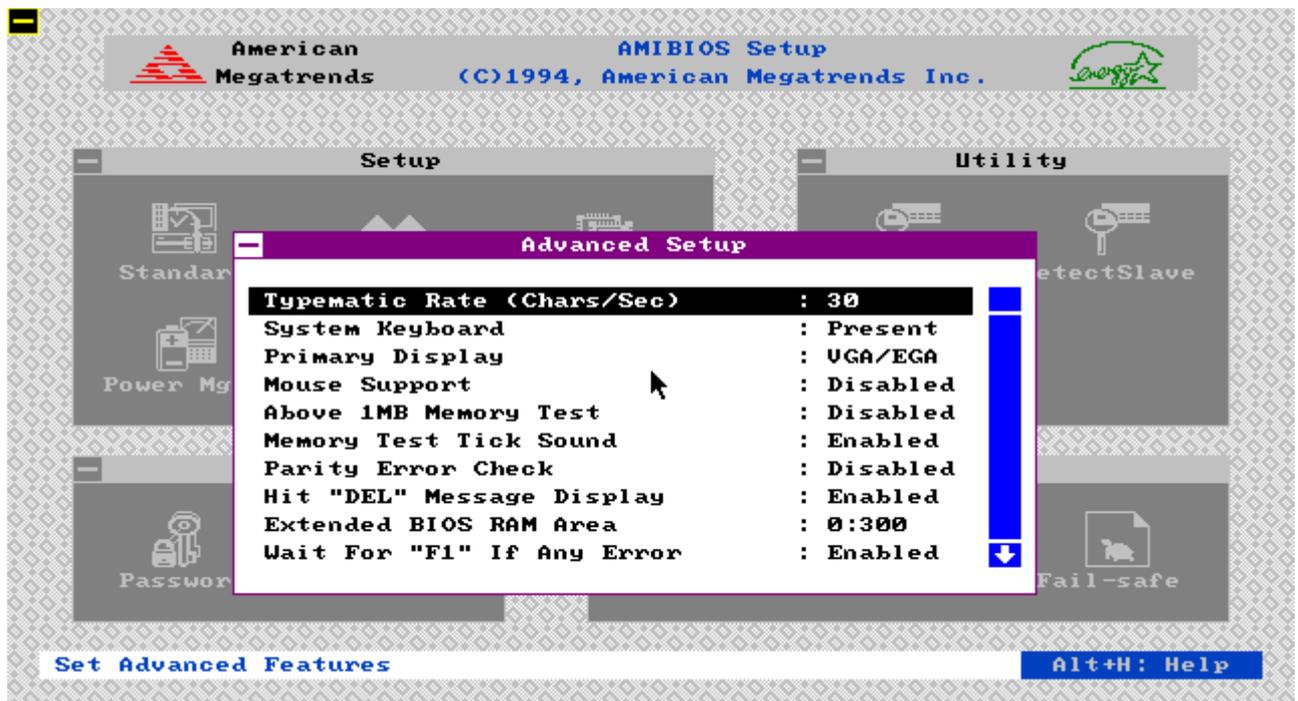
Typematic Rate (Chars/Sec)
- Typematic Rate sets the rate at which characters on the screen repeat when a key is pressed and held down. The settings are *15, 20, or 30* characters per second.

System Keyboard
- This option does not specify if a keyboard is attached to the computer. Rather, it specifies if error messages are displayed if a keyboard is not attached. This option permits you to configure workstations with no keyboards. The settings are *Absent* or *Present.*

Primary Display
- Select this option to configure the type of monitor attached to the computer. The settings are *Mono, CGA 80x25, Color 40x25, VGA/EGA,* or *Absent*.

Mouse Support
- When this option is enabled, WinBIOS supports a PS/2-type mouse. The settings are *Enabled* or *Disabled.*

Above 1 MB Memory Test

- When this option is enabled, the WinBIOS memory test is performed on all system memory. When this option is disabled, the memory test is done only on the first 1 MB of system memory. The settings are *Enabled* or *Disabled.*

Memory Test Tick Sound

- This option enables (turns on) or disables (turns off) the ticking sound during the memory test. The settings are Enabled or Disabled.

Parity Error Check

- This option enables or disables parity error checking for system RAM. The settings are *Enabled* (all system RAM parity is checked) or *Disabled* (parity is checked only on the first 1 MB of system RAM).

Hit "DEL" Message Display

- Disabling this option prevents - `Hit <DEL> if you want to run Setup` - from appearing when the system boots. The settings are *Enabled* or *Disabled.*

Extended BIOS RAM Area

- Specify in this option if the top 1 KB of the system programming area beginning at 639K or 0:300 in the system BIOS area in low memory will be used to store hard disk information. The settings are *Top 1K* or *0:300.*

Wait for <F1> If Any Error

- WinBIOS POST runs system diagnostic tests that can generate a message followed by - **Press <F1> to continue** - If this option is enabled, WinBIOS waits for the end user to press <F1> before continuing. If this option is disabled, WinBIOS continues the boot process without waiting for <F1> to be pressed. The settings are *Enabled* or *Disabled.*

System Boot Up Num Lock

- When *On,* this option turns on / off *Num Lock* when the system is powered. The settings are *On* or *Off.*

Floppy Drive Seek At Boot

- When this option is enabled, WinBIOS performs a Seek command on floppy drive A: before booting the system. The settings are *Enabled* or *Disabled.*

System Boot Up Sequence

- This option sets the sequence of boot drives (either floppy drive A: or hard disk drive C:) that WinBIOS attempts to boot from after POST completes. The settings are *C:,A:* or *A:,C:.*

System Boot Up CPU Speed

- This option specifics the speed of the CPU at system boot time. The settings are *High* or *Low.*

External Cache

- This option enables (turns on) or disables (turns off) the secondary cache memory. The settings are *Disabled*, *Enabled.*

Internal Cache

- This option enables (turns on) or disables (turns off) the CPU built-in cache memory. The settings are *Disabled*, *Enabled.*

Turbo Switch Function

- When this option is set to *Enabled,* the externally-mounted turbo switch is enabled. The settings are *Enabled* or *Disabled.*

Password Checking

- This option enables the password check option every time the system boots or the end user runs Setup. If *Always* is chosen, a user password prompt appears every time the computer is turned on. If *Setup* is chosen, the password prompt appears if AMI WinBIOS Setup is executed.

Video Shadow C000,16K

- When this option is set to *Enabled,* the video ROM area from C0000h - C3FFFh is copied (shadowed) to RAM for faster execution.

Shadow C800,16K

- This option enables (turns on) or disables (turns off) the shadowing function of the contents of ROM area named in the option title. The settings are *Disabled*, *Enabled*.

Shadow CC00,16K

- This option enables (turns on) or disables (turns off) the shadowing function of the contents of ROM area named in the option title. The settings are *Disabled*, *Enabled*.

Shadow D000,16K

- This option enables (turns on) or disables (turns off) the shadowing function of the contents of ROM area named in the option title. The settings are *Disabled*, *Enabled*.

Shadow D400,16K

- This option enables (turns on) or disables (turns off) the shadowing function of the contents of ROM area named in the option title. The settings are *Disabled*, *Enabled*.

Shadow D800,16K

- This option enables (turns on) or disables (turns off) the shadowing function of the contents of ROM area named in the option title. The settings are *Disabled*, *Enabled*.

Shadow DC00,16K

- This option enables (turns on) or disables (turns off) the shadowing function of the contents of ROM area named in the option title. The settings are *Disabled*, *Enabled*.

IDE Block Mode

- This option enables (turns on) or disables (turns off) the block mode data transfer of the IDE hard disks. The settings are *Auto*, 2, 4, or 8.

Primary Master LBA MODE

- This option enables (turns on) or disables (turns off) the Logical Block Addressing for the primary master IDE hard disk. The settings are *Disabled*, *Enabled*. If the IDE hard disk capacity is greater 528MB, this option should be enabled.

Primary Slave LBA MODE

- This option enables (turns on) or disables (turns off) the Logical Block Addressing for the primary slave IDE hard disk. The settings are *Disabled*, *Enabled*. If the IDE hard disk capacity is greater 528MB, this option should be enabled.

Secondary Ctrl Drivers Present

- This option specifies whether the number of the secondary hard disk present. The settings are *0, 1 or 2*.

Secondary Master LBA MODE

- This option enables (turns on) or disables (turns off) the Logical Block Addressing for the secondary master IDE hard disk. The settings are *Disabled*, *Enabled*. If the IDE hard disk capacity is greater 528MB, this option should be enabled.

    Secondary Slave LBA MODE

- This option enables (turns on) or disables (turns off) the Logical Block Addressing for the primary slave IDE hard disk. The settings are *Disabled*, *Enabled*. If the IDE hard disk capacity is greater 528MB, this option should be enabled.

3.9 Chipset Setup

The Chipset Setup option is selected by choosing the "**Chipset**" icon from the Setup section of the AMI WinBIOS Setup main menu selection screen.
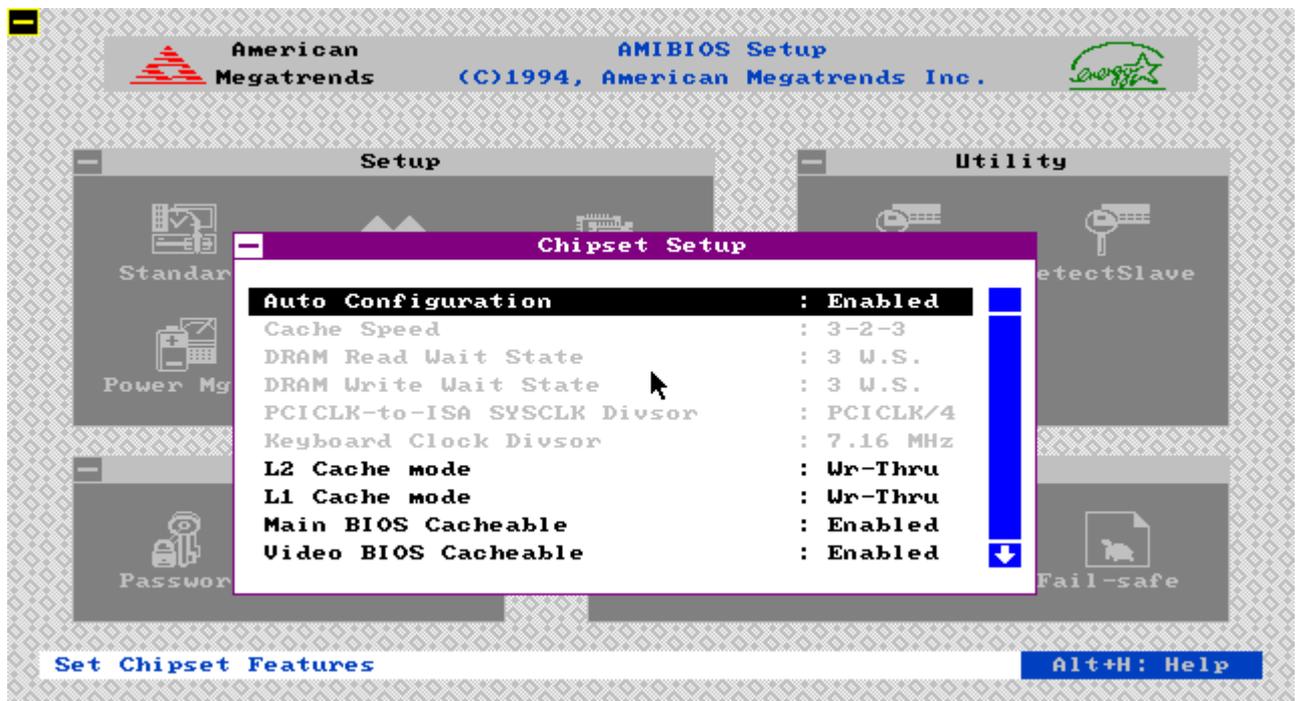
AUTO Configuration

- The settings of this option are Enable / Disabled. If it is enabled, the BIOS will automatically set up the "Cache Read Hit Wait State", "Cache Write Hit State", "DRAM Wait State Select", "DRAM Page Mode", "Keyboard Clock Select", "AT Clock Select" options in the Chipset Setup. When it is disabled, user can set these options to their own choice.

Cache Speed

- This option specifies the number of wait state when cache read hit. The settings are *3-2-2*, *3-1-1-1*, or *2-1-1-1*.

DRAM Read Wait State

- This option specifies the number of wait state of DRAM. The settings are *3W.S., 2 W.S.*, *1 W.S.*, or *0 W.S.*

DRAM Write Wait State

- This option specifies the number of wait state of DRAM. The settings are *3W.S., 2 W.S.*, *1 W.S.*, or *0 W.S.*

PCICLK- to-ISA SYSCLK Divsor

- This option specifies the clock speed of ISA Bus which is divided by the PCICLK. The setting are PCICLK/2, PCICLK/3, PCICLK/4.

Keyboard Clock Divsor

- This option specifies the clock speed of the keyboard controller. The settings are *PCICLK/4*, *PCICLK/3*, or *7.16MHz.*

L2 Cache Mode

- This option specifies the mode of external cache on board. The settings are *write-back or write-through*.

L1 Cache Mode

- This options specifies the mode of internal cache in CPU. The settings are *write-back or write-through*.

- **Main BIOS Cacheable**

- This option enables or disable the caching function of the contents of the system BIOS EPROM. The settings are *Enabled or Disabled.*

Video BIOS Cacheable

- This option enables or disables the caching function of the contents of the video BIOS EPROM. The settings are *Enabled or Disabled*.

Resource Lock for Local DRAM
- This option enables or disables the resource lock for local DRAM. The settings are *Disabled or Enabled*.

Host-to-PCI POST Write wait state
- This option specifies the wait state for host-to-PCI devices. The settings are *0 or 1*.

Host -to-PCI Burst Write
- This option enables or disables the host-to-PCI burst write. The settings are *Disabled or Enabled*.

Host-to-DRAM Burst Write
- This option enables or disables the host-to-DRAM burst write. The settings are *Disabled or Enabled*.

LDEV# Sampling Point
- This option specifies the sampling time of the LDEV# signal. The settings are *1T2 or 2T2*.

PCI Parity Check
- This option enables or disables the parity check for PCI devices. The settings are *Disabled or Enabled*.

On Board DRAM Parity Check
- This option enables or disables the hardware DRAM parity check function. The settings are *Disabled or Enabled*.

De-Turbo Speed
- This option specifies the speed of normal mode. The settings are *1/3 or 1/6*.

I/O Recovery Time Control
- This option specifies the I/O recovery time period. The settings are *2BCLKs, 4BCLKs, 8BCLKs or 12BCLKs*.

POST Write Buffer
- This option enables or disables the PCI pose write buffer. The settings are *Disabled ot Enabled*.

Slow Refresh
- This option specifies the system refresh rate. The settings are *Disabled or Enabled*.

Bus Park
- This option enables or disables the PCI Bus Park function. The settings are *Disabled or Enabled*.

Bus/ Resource Lock Option
- This option specifies the lock option for Bus or resource. The settings are *BUS or Resource*.

Slot# of NCR810 Use AD#17
- This option specifies the NCR SCSI device location. The settings are *Slot1, Slot2, Slot3 or Slot4*.

PCI IDE card Present on
- This option specifies the presence of PCI IDE card, the default setting is *AUTO*.

PCI IDE IRQ
- This option specifies the trigger method of the PCI IRQ signal, the default setting is *Edge*.

PCI Primary IDE IRQ
- This option specifies the IRQ s ignal for the on board primary IDE, the default setting is *INTA*.

PCI Secondary IDE IRQ
- This option specifies the IRQ signal for the secondary IDE, the default setting is *INTB*.

On board IDE
- This option enables or disables the on board IDE function. The settings are *Disabled or Enabled*.

On board IDE Mode
- This option specifies the on board IDE to support which IDE mode. The settings are *Disabled, Mode1, Mode2, Mode3*.

Video ROM Cache C000, 16K
- This option enables (turns on) or disables (turns off) the caching function of the contents of ROM area named in the option title. The settings are *Disabled*, *Enabled*.

Video ROM Cache C400, 16K
- This option enables (turns on) or disables (turns off) the caching function of the contents of ROM area named in the option title. The settings are *Disabled*, *Enabled*.

Adaptor ROM Cache C800, 16K
- This option enables (turns on) or disables (turns off) the caching function of the contents of ROM area named in the option title. The settings are *Disabled*, *Enabled*.

Adaptor ROM Cache CC00, 16K

- This option enables (turns on) or disables (turns off) the caching function of the contents of ROM area named in the option title. The settings are *Disabled*, *Enabled*.

Adaptor ROM Cache D000, 16K

- This option enables (turns on) or disables (turns off) the caching function of the contents of ROM area named in the option title. The settings are *Disabled*, *Enabled*.

Adaptor ROM Cache D400, 16K

- This option enables (turns on) or disables (turns off) the caching function of the contents of ROM area named in the option title. The settings are *Disabled*, *Enabled*.

Adaptor ROM Cache D800, 16K

- This option enables (turns on) or disables (turns off) the caching function of the contents of ROM area named in the option title. The settings are *Disabled*, *Enabled*.

Adaptor ROM Cache DC00, 16K

- This option enables (turns on) or disables (turns off) the caching function of the contents of ROM area named in the option title. The settings are *Disabled*, *Enabled*.

Adaptor ROM Cache E000, 32K

- This option enables (turns on) or disables (turns off) the caching function of the contents of ROM area named in the option title. The settings are *Disabled*, *Enabled*.

Adaptor ROM Cache F000, 64K

- This option enables (turns on) or disables (turns off) the caching function of the contents of ROM area named in the option title. The settings are *Disabled*, *Enabled*.

LOW A20# Select

- This option specifies the source of the LOW A20# signal. The settings are *KBC* or *Chipset.*

RC Reset Select

- This option specifies the source of the RC Rest signal. The settings are *KBC* or *Chipset.*

IO Recovery Time Select

- This option specifies the I/O recovery time period. The settings are *5 BCLK*, *7 BCLK*, *9 BCLK*, *12 BCLK*, *0 BCLK*, *1 BCLK*, *2 BCLK*, or *3 BCLK.*

Hold CPU Percentage

- This option specifies the percentage of the full performance when non-turbo. The settings are *Disabled*, *1/16*, *2/16*, *3/16*, *4/16*, *5/16*, *6/16*, or *7/16.*

Software Flush 80486

- This option enables (turns on) or disables (turns off) the software flushing CPU internal cache when non-turbo mode. The settings are *Disabled* or *Enabled*.

Enable Force Read Miss

- This option enables (turns on) or disables (turns off) the forcing read miss when non-turbo mode. The settings are *Disabled* or *Enabled*.

3.10　Power Management Setup

The Power Management Setup option is selected by choosing the "**Power Mgmt**" icon from the Setup section of the AMI WinBIOS Setup main menu selection screen.
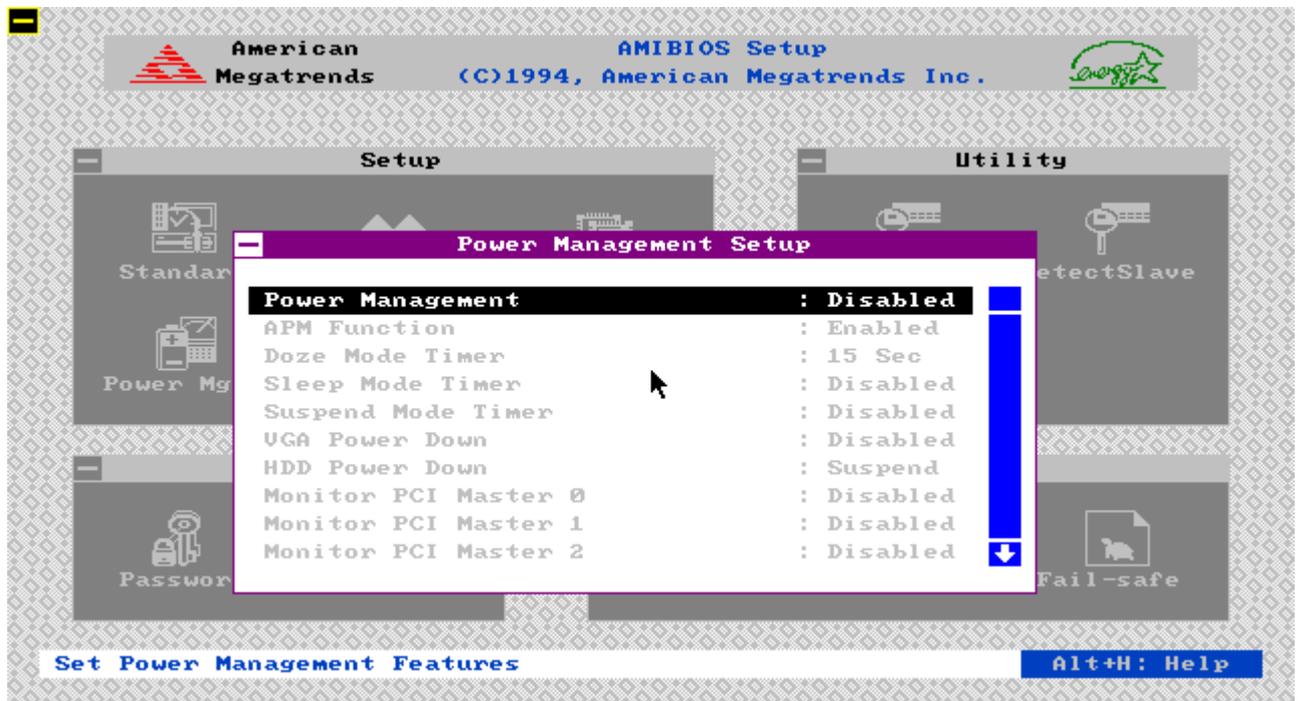
Power Management
- This option enables or disables the System Power Management Mode. The settings are *Enabled or Disabled*.

APM Function
- This option enables or disables the Advanced Power Management function. The settings are *Disabled or Enabled*.

Doze Mode Timer
- This option specifies the length of time of the PT-431A inactivity that must expire before the PT-431A is placed in Doze Mode. The settings are *15sec., 1min., 2Min., 4min., 8min., 16min., 32min., 64min., 128min., 256min. or 512min.*

Sleep Mode Timer
- This option specifies the length of time of the PT-431A inactivity that must expire before the PT-431A is placed in Sleep Mode. The settings are Disabled, *2Min., 4min., 8min., 16min., 32min., 64min., 128min., 256min. or 512min.*

Suspend Mode Timer
- This option specifies the length of time of the PT-431A inactivity that must expire before the PT-431A is placed in Suspend Mode. The settings are Disabled, *2Min., 4min., 8min., 16min., 32min., 64min., 128min., 256min. or 512min.*

VGA Power Down
- This option enables or disables the VGA Power Down function. The settings are *Disabled or Enabled*.

HDD Power Down
- This option specifies the length of time to power down the HDD. The settings are *Suspend, 1min., 2min., 3min., 4min., 5min., 6min., 7min., 8min., 9min., 10min., 11min., 12min., 13min. or 14min.*

Monitor PCI Master 0
- This option specifies whether the PT-431A monitor the PCI Master 0 device activity. The settings are *Enabled or Disabled*.

Monitor PCI Master 1
- This option specifies whether the PT-431A monitor the PCI Master 1 device activity. The settings are *Enabled or Disabled*.

Monitor PCI Master 2
- This option specifies whether the PT-431A monitor the PCI Master 2 device activity. The settings are *Enabled or Disabled*.

Monitor PCI Master 3

- This option specifies whether the PT-431A monitor the PCI Master 3 device activity. The settings are *Enabled or Disabled*.

Monitor LPT Activity

- This option specifies whether the PT-431A monitor the LPT port activity. The settings are *Enabled or Disabled*.

Monitor COM Activity

- This option specifies whether the PT-431A monitor the COM port activity. The settings are *Enabled or Disabled*.

Monitor ISA Master & DMA Activity

- This option specifies whether the PT-431A monitor the ISA Master & DMA activity. The settings are *Enabled or Disabled*.

Monitor IDE Activity

- This option specifies whether the PT-431A monitor the IDE device activity. The settings are *Enabled or Disabled*.

Monitor FLP Activity

- This option specifies whether the PT-431A monitor the Floppy disk controller activity. The settings are *Enabled or Disabled*

   Monitor VGA Activity

- This option specifies whether the PT-431A monitor the VGA Master activity. The settings are *Enabled or Disabled*.

Monitor KBD Activity

- This option specifies whether the PT-431A monitor the Keyboard activity. The settings are *Enabled or Disabled*.

Monitor I/O Region Activity

- This option specifies whether the PT-431A monitor the I/O port activity. The settings are *Enabled or Disabled*.

Monitor I/O Address

- This option specifies whether the PT-431A I/O port address which will not be monitored by the SMM mode. The default setting is 0.

Mask I/O Address

- This option specifies whether the PT-431A I/O port address which will not be monitored by the SMM mode. The default setting is 0.

Monitor IRQ15

- This option specifies whether the PT-431A monitor the IRQ15 activity. The settings are *Enabled or Disabled*.

Monitor IRQ 14

- This option specifies whether the PT-431A monitor the IRQ14 activity. The settings are *Enabled or Disabled*.

Monitor IRQ 12

- This option specifies whether the PT-431A monitor the IRQ12 activity. The settings are *Enabled or Disabled*.

Monitor IRQ 11

- This option specifies whether the PT-431A monitor the IRQ11 activity. The settings are *Enabled or Disabled*.

Monitor IRQ 10

- This option specifies whether the PT-431A monitor the IRQ10 activity. The settings are *Enabled or Disabled*.

Monitor IRQ 9

- This option specifies whether the PT-431A monitor the IRQ9 activity. The settings are *Enabled or Disabled*.

Monitor IRQ 8

- This option specifies whether the PT-431A monitor the IRQ8 activity. The settings are *Enabled or Disabled*.

Monitor IRQ 7

- This option specifies whether the PT-431A monitor the IRQ7 activity. The settings are *Enabled or Disabled*.

Monitor IRQ 6

- This option specifies whether the PT-431A monitor the IRQ6 activity. The settings are *Enabled or Disabled*.

Monitor IRQ 5

- This option specifies whether the PT-431A monitor the IRQ5 activity. The settings are *Enabled or Disabled*.

Monitor IRQ 4

- This option specifies whether the PT-431A monitor the IRQ4 activity. The settings are *Enabled or Disabled*.

Monitor IRQ 3

- This option specifies whether the PT-431A monitor the IRQ3 activity. The settings are *Enabled or Disabled*.

Monitor IRQ 2

- This option specifies whether the PT-431A monitor the IRQ2 activity. The settings are *Enabled or Disabled*.

Monitor IRQ 1

- This option specifies whether the PT-431A monitor the IRQ1 activity. The settings are *Enabled or Disabled*.

3.11 Detect C:

The Detect C: option is selected by choosing the "**Detect C:**" icon from the Utility section of the AMI WinBIOS Setup main menu selection screen.

If drive C: is an IDE drive, the hard disk drive parameters for drive C: are automatically detected and reported to the Hard Disk Drive C: screen in Standard Setup, so you can easily configure drive C:. This option enables (turns on) or disables (turns off) the Advanced Power Management (APM) function. The settings are *Disabled* or *Enabled*.

3.12 Detect D:

The Detect D: option is selected by choosing the "**Detect D:**" icon from the Utility section of the AMI WinBIOS Setup main menu selection screen.

If drive D: is an IDE drive, the hard disk drive parameters for drive D: are automatically detected and reported to the Hard Disk Drive C: screen in Standard Setup, so you can easily configure drive D:. This option enables (turns on) or disables (turns off) the Advanced Power Management (APM) function. The settings are *Disabled* or *Enabled*.

3.13 Color Set

The Color Set Setup option is selected by choosing the "**Color Set**" icon from the Utility section of the AMI WinBIOS Setup main menu selection screen. This option specifies the color of the AMI Win BIOS Setup screen. The settings are *LCD*, *Army*, *Pastel*, or *Sky*.

3.14 Password Setup

The Password Setup option is selected by choosing the "**Password**" icon from the Security section of the AMI WinBIOS Setup main menu selection screen.
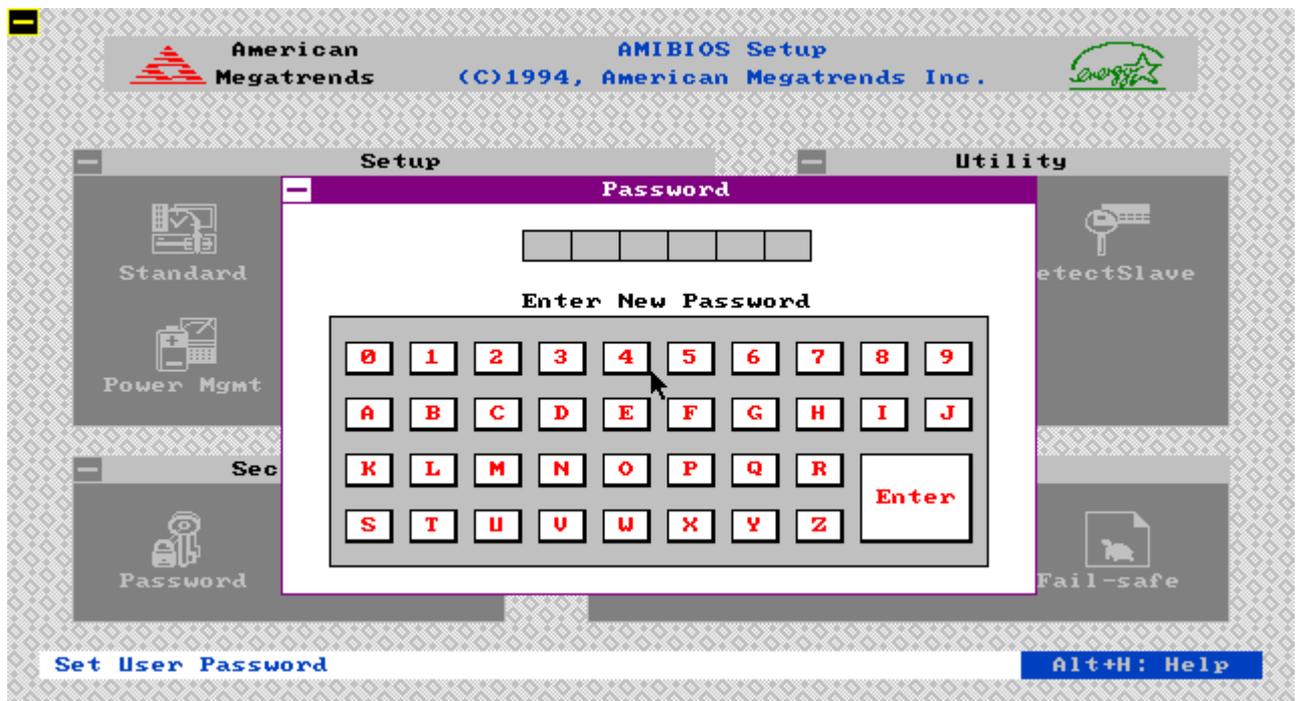
You can enter a password by:

- typing the password on the keyboard,
- selecting each letter via the mouse.

Setting Password

The password check option is enabled in Advanced Setup by choosing either *Always* (the password prompt appears every time the system is powered on) or *Setup* (the password prompt appears only when WinBIOS Setup is run). The password is stored in CMOS RAM. The system asks for a password.

Enter a 1 to 6 character password. The password does not appear on the screen when typed. WinBIOS will ask you to retype the password. Make sure you write it down. **If you forget it, you must drain CMOS RAM and reconfigure the system.**

Changing Password

Select the *Password* icon from the Security section of the WinBIOS Setup main menu. Enter the password and press <Enter>. The screen does not display the characters entered. After the new password is entered, retype the new password as prompted and press <Enter>.

If the password confirmation is incorrect, an error message appears. If the new password is entered without error, press <Esc> to return to the WinBIOS Setup Main Menu. The password is stored in CMOS RAM after WinBIOS Setup completes. The next time the system boots, you are prompted for the password if the password function is present and is enabled.

3.15 Anti-Virus

The Anti-Virus option is selected by choosing the "**Anti-Virus**" icon from the Security section of the AMI WinBIOS Setup main menu selection screen.

When this option is enabled, WinBIOS issues a warning when any program (or virus) issues a Disk Format command or attempts to write to the boot sector of the hard disk drive. The settings are *Disabled* or *Enabled.* If enabled, the following appears when a write is attempted to the boot sector. You may have to type *N* several times to prevent the boot sector write.

```
        Boot Sector Write!!!
        Possible VIRUS: Continue (Y/N)? _
```

The following is displayed after any attempt to format any cylinder, head, or sector of any hard disk drive via the BIOS INT 13 Hard Disk Drive Service:

```
        Format!!!
        Possible VIRUS: Continue (Y/N)? _
```

3.16   Original Setup

The Original Setup option is selected by choosing the "**Original**" icon from the Default section of the AMI WinBIOS Setup main menu selection screen. Use this option to return to the system configuration values present in WinBIOS Setup when you first began this WinBIOS Setup session.

3.17   Optimal Setup

The Optimal Setup option is selected by choosing the "**Optimal**" icon from the Default section of the AMI WinBIOS Setup main menu selection screen. Use this option to load the optimal settings for the WinBIOS Setup options. The optimal default settings are best-case values that should optimize system performance. If CMOS Ram is corrupted, the Optimal settings are loaded automatically.

3.18   Fail-safe Setup

The Fail-safe Setup option is selected by choosing the "**Fail-safe**" icon from the Default section of the AMI WinBIOS Setup main menu selection screen. Use this option to load the Fail-safe WinBIOS Setup option settings. The Fail-safe

settings provide far from optimal system performance, but are the most stable settings. Use this option as a diagnostic aid if the system is behaving erratically.

SECTION 4

SOFTWARE INSTALLATION

4.1   DOS & Windows 3.x Driver Installation

To install the software driver for this on board PCI connectors, please insert the driver diskette in to drive A:

(Type)   INSTALL4

This will then take you through the installation set-up for DOS & Windows 3.x drivers.   It also gives you an opportunity to see the automatic hard disk timing setting of the drive in your system. The driver automatically reads your hard disk drive model # and sets the optimum speed accordingly (0 = lowest / 11 = highest). If you are using an Enhanced hard drive and system BIOS then the card will automatically set the hard drive type in the system BIOS.   If not, you will still need to enter the parameters of the "C" and "D" hard drives you're using (type/cylinders etc) in to the STANDARD CMOS set-up..   If you want to have the driver re-test the optimum speed for your hard drive, you have this option.   The software will re-test the drive by creating a free area on the drive and writing to it / reading from it.

4.2   Other Drivers Supported

Besides DOS and Windows the following drivers are supported ;-
        OS/2 v2.0 & v2.1 (UMC1S506.ADD)
        Novell Netware v3.10 (UMC310.DSK), v3.11 & v3.12 (UMC311.DSK), v4.0 (UMC401.DSK)
        SCO Unix 3.2v4.1 (UNIX.UMC)
        Windows NT 3.x (ATDISK.SYS)

To utilize these drivers you must first copy the driver to your hard drive, and then edit your 'config.sys' file by adding the software driver file name after the line "DEVICE=C:\(Filename)" (If your HDD is device: D, then change accordingly).   **Note :** Subsequent to the printing of this manual some of the drivers may have been updated or others added. Should you notice any drivers not mentioned here please contact your dealer or sales representative for further information.

Please find the details information about the driver installation from the README file inside the PT-431A PCI IDE driver diskette.

SECTION 5

TROUBLE SHOOTING GUIDE

5.1   No Display After Power On

Check the following points if you face a "No Display " problem after power on.

- The interface cards must be inserted into the system slots properly and the gold fingers on them must be clean. The gold fingers can be cleaned with freon or alcohol.
- The CPU must be installed on the CPU socket (U15) in the correct direction. If the CPU is inserted in a wrong direction, it will cause the "No Display" problem. The worst case is that the CPU may be destroyed.
- The clock chip speed (JP32, JP34, JP35) must be set to match with the CPU speed. If the clock chip speed is set faster than the CPU speed, e.g. 50MHz clock chip speed with a 80486SX-25 CPU, the system will have no display after power on.
- The SIMMs must be inserted to the sockets (SIM1, SIM2) properly and have complete contact with the socket pins. Otherwise there will be a "No Dispaly" problem.

5.2   Cannot Boot Up

Check the following points if you face a "Cannot Boot Up" problem.

- The cache RAM setting (JP44) must be correct and the SRAM must be inserted in the correct position. Otherwise there will have "Cannot Boot Up" problem.
- Make sure the hard disk drive / floppy disk drive / IDE controller card / Super I/O card is in good condition. The cables must be connected to them in the correct direction. Otherwise there will be "Cannot Boot Up" problem

5.3   Lose CMOS Data

Check the following points if you face a "Lose CMOS Data" problem.

- The RTC DS12887 must be inserted correctly (which contained a battery inside). Otherwise there will be "Lose CMOS Data" problem.

5.4   No System Management Mode

Check the following points if you face a "No System Management Mode" problem.

- Check the CPU type. The SMM CPUs can support all the DOZE, STANDBY, INACTIVE modes while the non-SMM CPU can support only the DOZE mode.
- The CPU type select jumpers (JP16, JP17, JP21, JP27, JP27-30, JP36, JP40) must be set to match with the CPU type. Otherwise there will be "No System Management Mode" problem.

5.5   General Notes

1. If, on the first time installation, an error message <**CMOS CHECKSUM ERROR**> appears on the screen, please follow these steps : - (a) Leave the system on for about 15-30 minutes to recharge the battery, then you can enter the system configuration. (b) Alternatively, leave your system on for about 24 hours to recharge the battery fully.

2. If you have switched off the computer system for more than two weeks, you might be required to recharge the battery fully.

3. Any hard disk cable longer than the standard type is not recommended for used with PT-431A. Too long a hard disk cable will make the Green PC circuit unable to monitor the hard disk activity.

SECTION 6
DIAGRAM LAYOUT

See Diagram 1