

486 VLB/ISA MAIN BOARD
(486SX / DX / DX2 / DX4)

PT-430

USER'S MANUAL

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



See Picture 1

The Green Connection :

Please refer to page 6 section 1.3.

Trademark Acknowledgments:

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- * 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.
- * VESA is registered trademark of Video Electronics Standards Association.

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SECTION 1

INTRODUCTION

1.1 Overview

- PT-430 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 UM82C498F-AS and UM82C496F which provides the most cost effective and high performance solution for a 486 computer system.
- The UM82C498F-AS contains a sophisticated direct-mapped cache controller with write-back operation, and fast page mode DRAM Controller, AT Bus control logic, data bus conversion logic, CPU reset logic, clock generation for CPU, keyboard and timer, DMA/refresh logic and peripheral interface logic. The UMC493F contains a sophisticated VESA Controller which can run up to 50MHz.
- A block of 128K memory of the system DRAM is used for system and video shadow RAM to increase the system performance. The video shadow RAM consists of four 16K pages which can be enabled respectively.
- PT-430 is a VESA Local Bus motherboard. The three Local Bus slots fully comply with the VESA (Video Electronics Standards Association) Master mode specifications. This means the I/O data can run as fast as the CPU. The speed of I/O peripherals can be dramatically increased by connecting VESA compatible controller cards to the VESA Local Bus slots on the PT-430.
- PT-430 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-430 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-430 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-430 slows down the CPU clock to zero. This will help save the power consumption, reducing energy related pollution and protecting our environment. PT-430 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 the same connector can also be used to control the vertical and horizontal sync of your monitor when connected to a range of "PT-xxxx" VGA cards. For further information on the ECO-PAD or other "PT" products please contact your dealer or sales representative.

"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."

"It runs with Netware"

The PT-430 was authorized by Novell to use the Novell Yes, It runs with Netware certification mark.

"FCC Approval"

The PT-430 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	JJPINE429G109
Procase	PC-609 T/M	JJPINE429G609
Procase	PC-709 T/M	JJPINE429G709

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-430 package to ensure that it contains the following items :

- PT-430 Main Board
- PT-430 User’s Manual

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-430 can stop the CPU clock under this mode.

The PT-430 extends the Green PC feature to a Green AUX connector (JP35). Through this connector, the user can connect the PT-430 with a ECO-PAD or a range of “PT-xxxx” VGA cards and IDE I/O cards which have the unique Green Aux connector. This enables :

- ECO-PAD - Turn off video monitor,
- ECO-PAD - Turn off printer (or other peripheral) power.
- PT-xxxx VGA CARD - Turn off the vertical & horizontal sync of the monitor.
- PT-xxxx VLB ENHANCED IDE I/O CARD (APT-2000A) - Turn off the I/O chipset.

(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-430 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 be configured 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 <CTRL> <ALT> <\\>.

Through system activity monitoring and management, the PT-430 will not go into Green PC mode if any of the following activity is detected:

- VESA 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

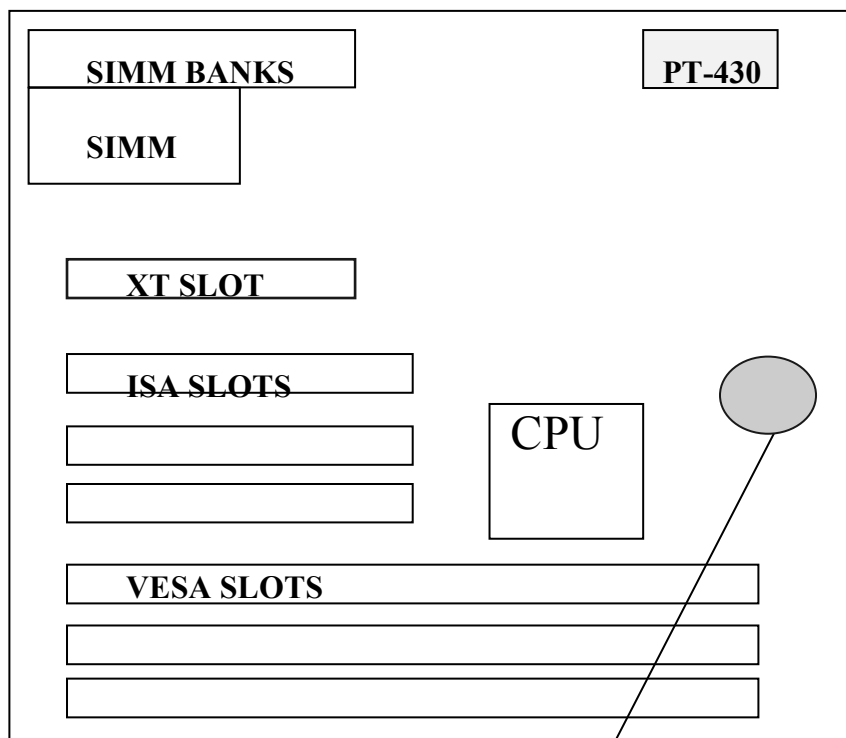
2.1 PT-430 System Board Specifications

- IBM AT compatible.
- Applied High performance CMOS technology.
- Supports up to 36MB memory on board.
- Mix 256K, 1M, and 4M SIMM (8 bit/32 bit) Module DRAM memory
- 32K, 64K, 128K, 256K cache memory size selectable.
- Fast CPU reset and Fastgate A20 logic.
- Speed switching with hardware and software selection.
- Board size 220 mm by 250 mm.
- Six 16-bit ISA slots; one 8-bit ISA slot.
- Three VESA slots (Master Mode).
- Clock chip design makes CPU speed changing easier.
- I/O slot signal protector on: IRQ9, DRQ2, 0WS#.
- 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
P1	Power Supply Connector
KB1	Keyboard Connector
JP1	Battery Connector
JP2	Flash ROM type Select
JP3	Key-lock Select
JP4,JP5,JP6	Clock Chip Speed Select
JP7,JP8,JP9,JP10	Cache Size Select
JP11-JP13,JP17-JP19	CPU Type Select
JP20	P24C Internal Clock Select
JP21	VESA Clock Select
JP22	VESA Wait State Select
JP24	Suspend LED
JP25	Suspend switch
JP26	Reset Switch
JP27	Turbo Switch
JP28	Speaker Connector
JP29	Power LED & Key-lock Connector
JP30,JP31,JP32,JP37	3.3V Daughter Board (DX4DB) Connectors
JP33	CPU Fan Power Connector
JP34	CPU Fan control Select
JP35	ECO-PAD / PT-VGA Connector
JP36	Power Good Select
D1	Turbo LED 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.

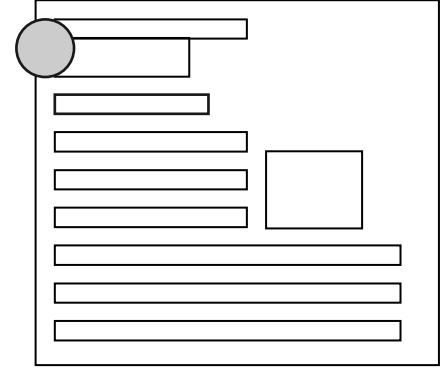


JUMPER / CONNECTOR POSITION

 Default Setting

P1: Power Supply Connector Pin Assignment

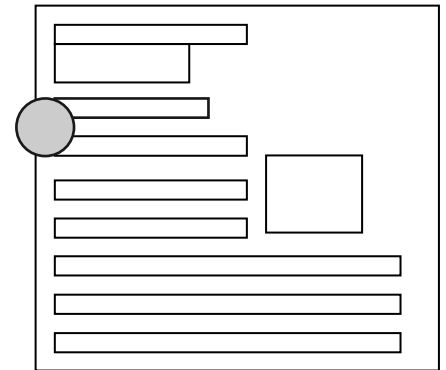
1	Power Good
2	+5V
3	+12V
4	-12V
5	Ground
6	Ground
7	Ground
8	Ground
9	-5V
10	+5V
11	+5V
12	+5V



These jumpers 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 : Battery Connector Pin Assignment

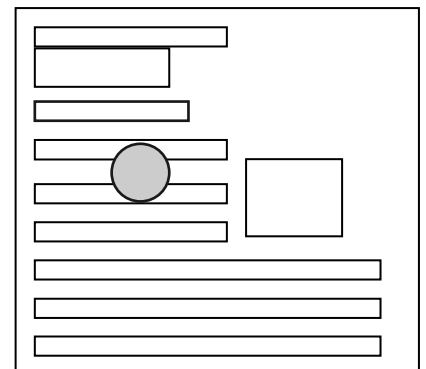
2-3	Normal on-board battery
3-4	Reset CMOS setting
For external battery: pin 1 is "+" ; pin 4 is "-"	



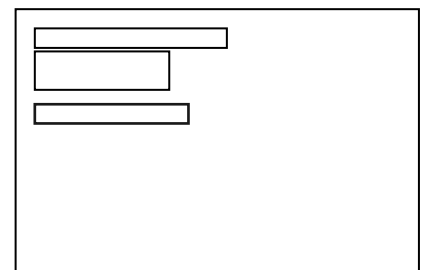
Default is using on-board battery. Should you set the CMOS incorrectly and wish to reset this, then change jumpers as shown. Should you wish to use an external battery, pull off the jumper and ensure that the "+" and "-" of the external battery pack cable are correct as shown.

JP2 : Flash ROM Type Select

1-2	5V flash ROM
2-3	12V flash ROM

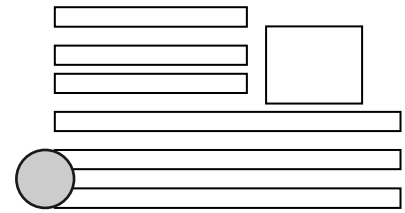


This motherboard can use a FLASH ROM in order to change the system BIOS through software. This allows you to constantly update your system BIOS as changes are made. Should you wish to use this feature then you must set this jumper according to the voltage of that FLASH ROM. Default is 5V. When using FLASH ROMs a Flash Memory Writer Utility software driver is required. For details on this driver please contact your dealer or sales representative.



JP3 : Key-lock Select

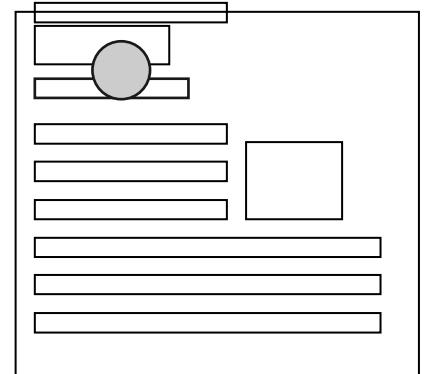
Open	External KBC key-lock
Short	Internal KBC key-lock



The UMC chipset used on this motherboard has an internal keyboard controller (KB BIOS). The motherboard design also allows for an external KB BIOS chip for extra flexibility should the parameters of the BIOS change. In order for the system to recognize the keyboard-lock signal you must first tell it which KB BIOS you are using. Default is internal.

JP4,JP5,JP6 : Clock Chip Speed Select

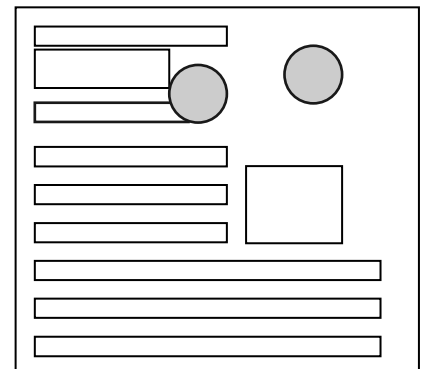
	JP4	JP5	JP6
25 MHz	OFF	OFF	ON
33 MHz	ON	ON	ON
40 MHz	OFF	ON	ON
50 MHz	ON	OFF	OFF



This selects the speed of the CPU signal to the clock chip. Please note that some CPUs, such as 486DX2-80, have an external clock signal of 40MHz while internally it works at 80MHz. In this case set this to 40MHz. This is generally the rule for all clock-doubling or clock-tripling CPUs.

JP7,JP8,JP9,JP10 : Cache Size Select

	JP7	JP8	JP9	JP10	SRAM
64K	OFF	OFF	OPEN	2-3	8K8 X 8
128K	OFF	ON	1-2	1-2	32K8 X 4
256K (1 bank)	ON	ON	1-2,3-4	1-2	64K8 X 4
256K (2 bank)	ON	ON	2-3	2-3	32K8 X 8



This selects the size and type of cache ram on the motherboard. This motherboard can work with three types of cache ram which allows for extra flexibility should you wish to upgrade. The jumpers will be set accordingly during production.

PT-430 80486 VESA system board supports 64KB/128KB/256K cache size.

Size	SRAM Type	Quantity	Designation
64KB	8K x 8	8 pcs.	Bank 0 & Bank 1
128KB	32K x 8	4 pcs.	Bank 0
256KB	32K x 8	8 pcs.	Bank 0 & Bank 1
256KB	64K x 8	4 pcs.	Bank 0

- U10,U11,U12,U13 is Bank 0.
- U17,U18,U19,U20 is Bank 1.
- U14 is TAG RAM.

JP11,JP12,JP13,JP17,JP18,JP19 : CPU Type Select

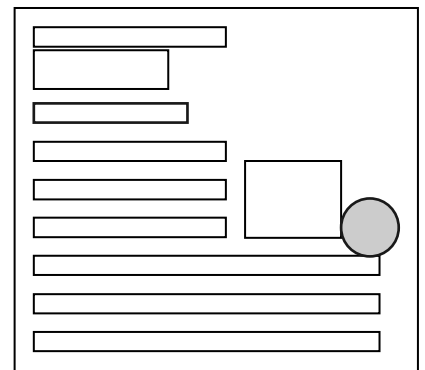
	JP11	JP12	JP13	JP17	JP18	JP19
486SX	OPEN	2-3	2-3	OPEN	OPEN	OPEN
486DX/DX2	OPEN	2-3	1-2,3-4	1-2	OPEN	OPEN
486DX-SL	1-2	1-2	1-2,3-4	1-2	5-6	1-2,3-4
P24D/Write-Back	1-2,4-5	1-2,4-5	1-2,3-4	1-2	3-4,5-6	1-2,3-4
P24T	1-2	1-2	1-2,3-4	2-3	5-6	1-2,3-4
DX4	1-2	1-2	1-2,3-4	1-2	5-6	1-2,3-4
M6	1-2,3-4,5-6	1-2,3-4,5-6	2-3	OPEN	2-3,4-5	2-3,4-5
M7	1-2,3-4,5-6	1-2,3-4,5-6	1-2,3-4	1-2	2-3,4-5	2-3
486DXL	2-3	2-3	1-2,3-4	1-2,3-4	1-2	OPEN
UMC486	2-3	2-3	2-3	3-4	1-2	OPEN

This motherboard has been designed to work with a wide range of CPUs from various vendors. Set this according to the type of CPU used. **Please Note...**

If you are using a CPU with *Write-Back Cache* architecture then set as 'P24D'.

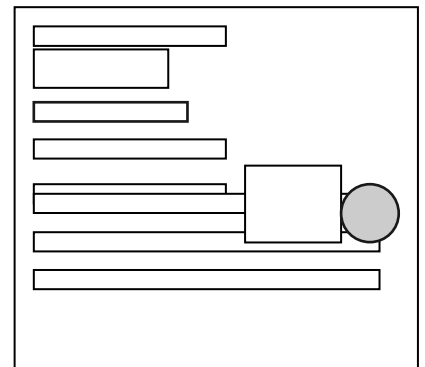
The majority of CPUs at present are *Write-Through Cache*.

WARNING - If you are using a 3.3V/3.45V or 4V CPU please ensure you have the optional 'DX4DB' converter connected (See Page 16)



JP20: DX4 Internal Clock Select

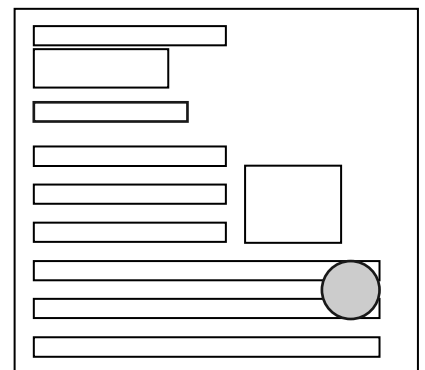
Open	3 x External Clock
------	--------------------



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 speeds. However CPU vendors recommend that it more stable to use the 3x clock method. Therefore this is the default.

P21: VESA Clock Select

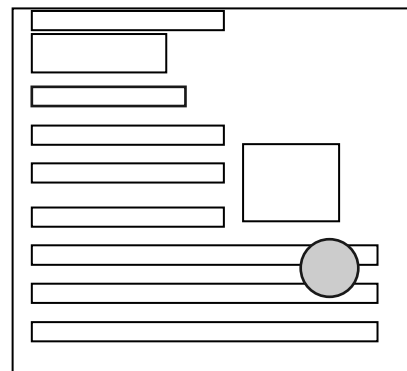
OPEN	<= 33MHz
CLOSE	> 33 MHz



This determines the clock speed / signal to the VESA BUS. Should your external CPU speed exceed 33MHz then set to CLOSE

JP22: VESA Wait State Select

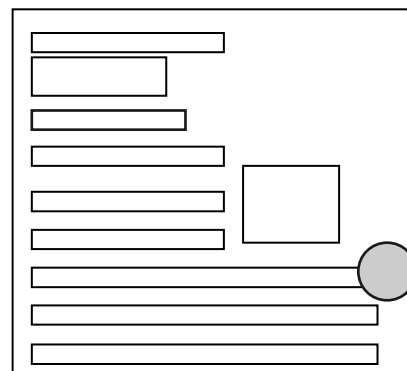
OPEN	VESA 0 wait state
CLOSE	VESA 1 wait state



VESA Local Bus is a high performance system, and as such it places extra burden on other VESA add-on cards. Some cards may not be able to cope with this burden, and may cause symptoms such as system hang. Adding a 'wait state' gives those add-on cards an extra split second to react. This feature increases this motherboards compatibility with other products.

JP24: Supsend LED

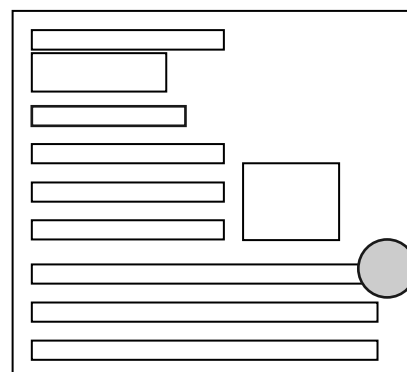
1	LED anode
2	LED cathode



This is a Green power saving motherboard. Some system case power supplies have a connector for an LED on the case which lights up when the system enters 'suspend' mode. If your case has this feature, connect the cable here.

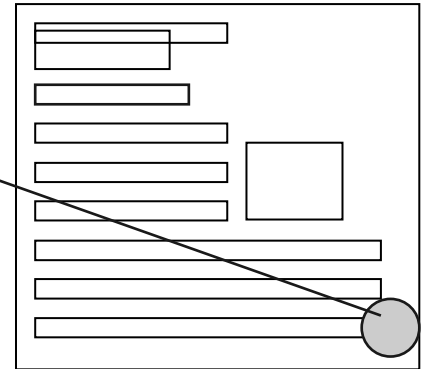
JP25: Suspend Switch

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 a switch on the case front which when pressed will automatically put the system in to / and out of 'suspend' mode. Connect that cable here.

All the following jumpers share the same position



JP26: Reset Switch

OPEN	Normal
SHORT	Reset

For the system reset switch on your system case. Connect the cable here.

JP27: Turbo Switch

OPEN	Turbo speed
CLOSE	Normal speed (soft-key disabled)

Connect the turbo switch cable from your system case here.

JP28: Speaker Connector

1	Speaker data
2	NC
3	Ground
4	+ 5V

Connect the speaker cable from your system case here.

JP29: Power LED & Key-lock Connector

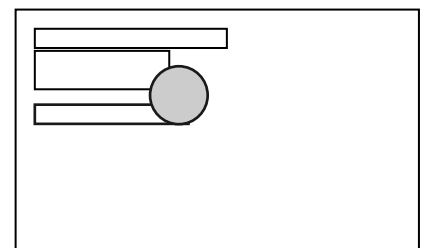
1	+ 5V
2	NC
3	Ground
4	Key-lock
5	Ground

For the power LED and Key-lock of your system case, connect cables here.

D1: Turbo LED Connector

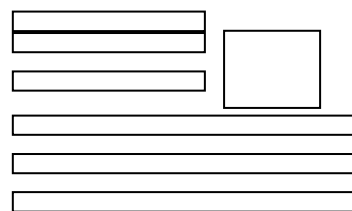
1	LED anode
2	LED cathode

For the TURBO LED of your system case, connect cable here.



JP34: CPU Fan Control Select

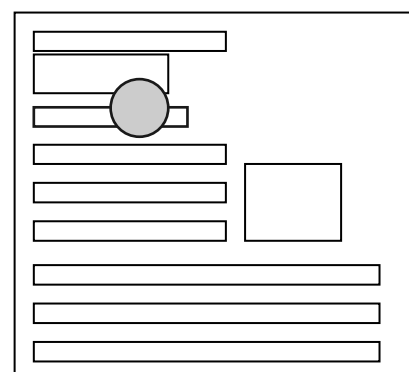
1-2	CPU fan control by green mode
2-3	CPU fan always on



This motherboard has been equipped with an on-board 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.

JP35: ECO-PAD / GREEN VGA & IDE Card Connector

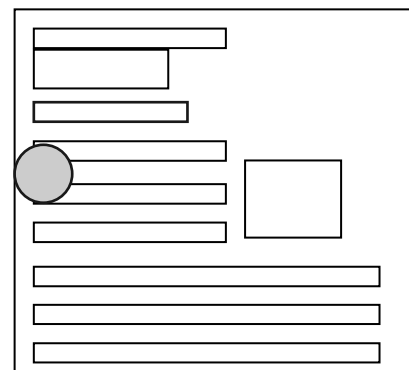
1	+ 5V	For ECO PAD
2	Ground	For ECO PAD/VGA/IDE
3	Control signal	For ECO PAD/VGA/IDE



This connector can add further power saving Green features to your system when used in conjunction with either an ECO-PAD or 'PT-xxxx' Green VGA Card / Green IDE I/O card with hardware connection. For further details refer to the 'Green PC Power Management' section of this manual.

JP36: Power Good Select

1-2	Internal Power good
2-3	External 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 motherboard also includes an on-board Power Good circuit for additional safety.

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

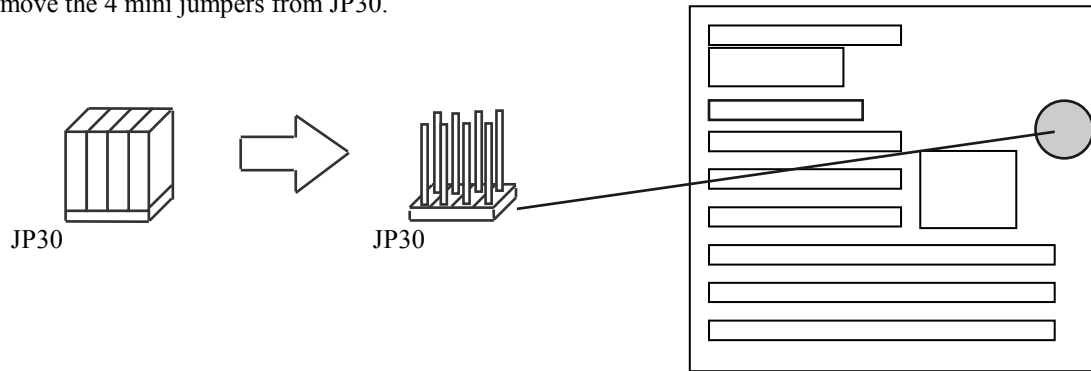
Remark : The user should read carefully all the procedures shown below before they go to install the 3.3V/3.45V CPU and the 3.3V/3.45V daughter board (DX4DB).

JP30,JP31,JP32 : 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 purchased this component beforehand please contact your dealer or sales representative.

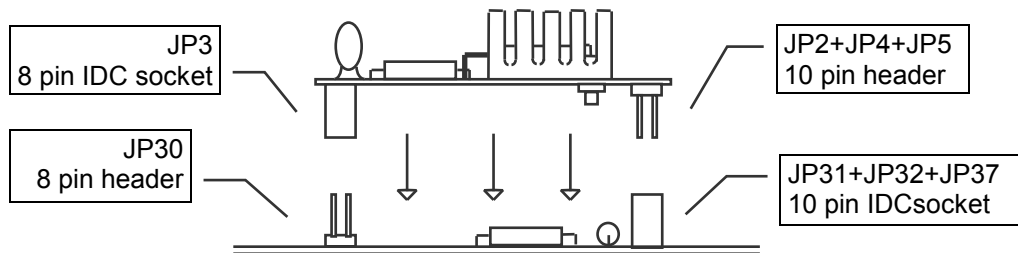
5V to 3.3V/3.45V Daughter Board Installation (DX4 CPU or 3.3V/3.45V CPU)

Step 1, remove the 4 mini jumpers from JP30.



Step 2, insert the DX4DB 3.3V daughter board on to the 8 pin header (JP30) and the 10 pin IDC socket (JP31+JP32+JP37).

DX4DB 3.3V/3.45V Daughter Board

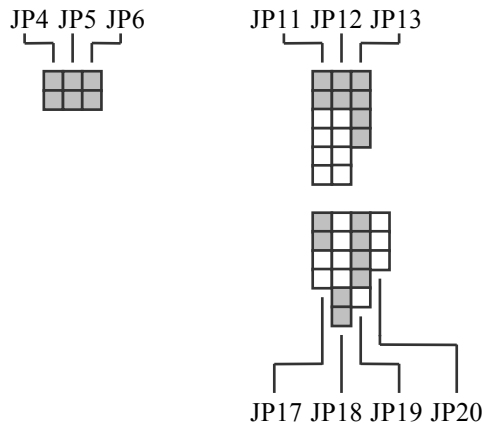


PT-430 Mother Board

Step 3, according to section 2.2 CPU Type Select, set the jumpers: JP11,12,13,17,18,19 to DX4 CPU (or other 3.3V/3.45V CPU setting) setting.

Step 4, according to section 2.2 Clock Chip Speed Select, set the jumpers: JP4,5,6 to 33MHz (or the 3.3V/3.45V CPU speed setting) setting.

Step 5, according to section 2.2 DX4 Internal Clock Select, set the jumpers: JP20 to X3 setting (or the 3.3V/3.45V CPU setting).



Remark : For system stability, the X2 and X2.5 internal clock for DX4 CPU is not recommended.

Step 6, insert the DX4 (or 3.3V CPU) CPU to the CPU socket (U15), user should make sure they put the CPU in the correct direction.

Step 7, connect the CPU cooling fan power cord to the on-board power socket (JP33). Then apply the CPU cooling fan on the top of the 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.

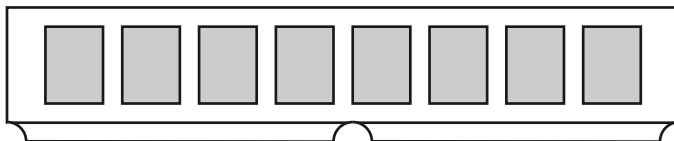
This motherboard supports two types of SIMM module, namely 30-Pin and 72-Pin. These types differ in the following way

- 30-Pin



These are 8-bit modules (sometimes referred to as 'x3' or 'x9' because of parity chip). The 486 CPU uses 32-bit architecture. Therefore for your system to fully address the modules you must use 4 pieces of this type - 4 multiply by 8-bit = 32-bit. This is referred to as "One Bank" of SIMM.

- 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 as opposed to 4 pieces of 30-Pin module above. 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.

Whilst 4 pieces of 30-pin SIMM module (equal to 1 bank) will only use up one RAS signal, 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. Therefore in some circumstances you cannot utilize all the SIMM sockets at once, however for the majority of set-ups this will not occur. 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	With 2 Pcs of this type of 72-Pin SIMM on board can I install 30-pin SIMM as well ?
256k x 32 (Non-Parity)	one - single bank	1 MB	√ - Yes
256k x 36 (Parity)	one - single bank	1 MB	√ - Yes
512k x 32 (Non-Parity)	two - dual bank	2 MB	X - No
512k x 36 (Parity)	two - dual bank	2 MB	X - No
1M x 32 (Non-Parity)	one - single bank	4 MB	√ - Yes
1M x 36 (Parity)	one - single bank	4 MB	√ - Yes
2Mx 32 (Non-Parity)	two - dual bank	8 MB	X - No
2M x 36 (Parity)	two - dual bank	8 MB	X - No
4M x 32 (Non-Parity)	one - single bank	16 MB	√ - Yes
4M x 36 (Parity)	one - single bank	16 MB	√ - Yes
8M x 32 (Non-Parity)	two - dual bank	32 MB	X - No
8M x 36 (Parity)	two - dual bank	32 MB	X - No

Examples

30-Pin sockets x 4	72-Pin Socket x 1	72-Pin Socket x 1	Total Memory on board
4 pcs 4MB x 9 SIMM	1 pc 1MB x 32/36 single	1 pc 1MB x 32/36 single	24 MB
4 pcs 4MB x 9 SIMM	1 pc 1MB x 32/36 single	1 pc 2MB x 32/36 dual	28 MB
- Cannot use -	1 pc 2MB x 32/36 dual	1 pc 2MB x 32/36 dual	16 MB

SECTION 3

AMI BIOS Setup

3.1 About CMOS Setup

After the PT-430 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, if you want 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 :

RUN SETUP UTILITY
Press <F1> to resume

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 window contains several icons. Clicking on each icon activates a specific function. The windows are: **Setup / Utilities / Security / 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.

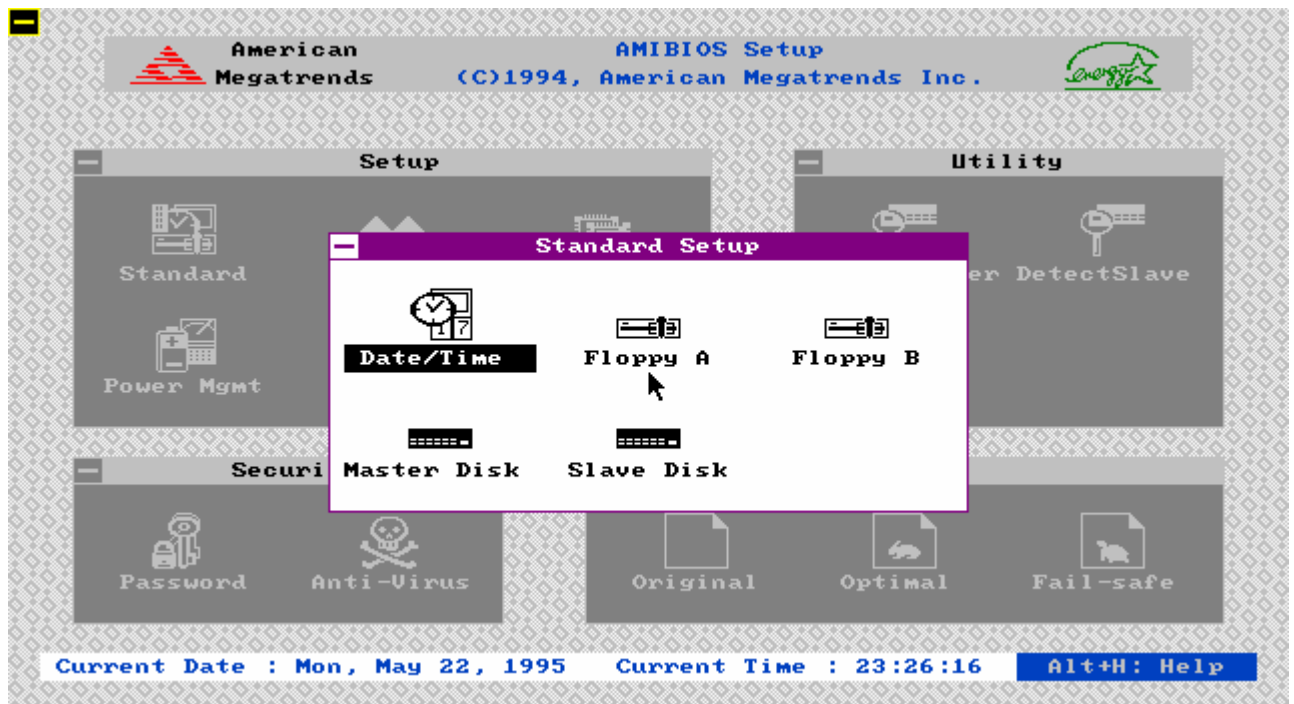
Fail-Safe these settings are more likely to configure a workable computer when something is wrong. If you cannot boot the computer successfully, select the Fail-Safe WinBIOS Setup options and try to diagnose the problem after the computer boots. These settings do not provide optimal performance.

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 rebooting 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

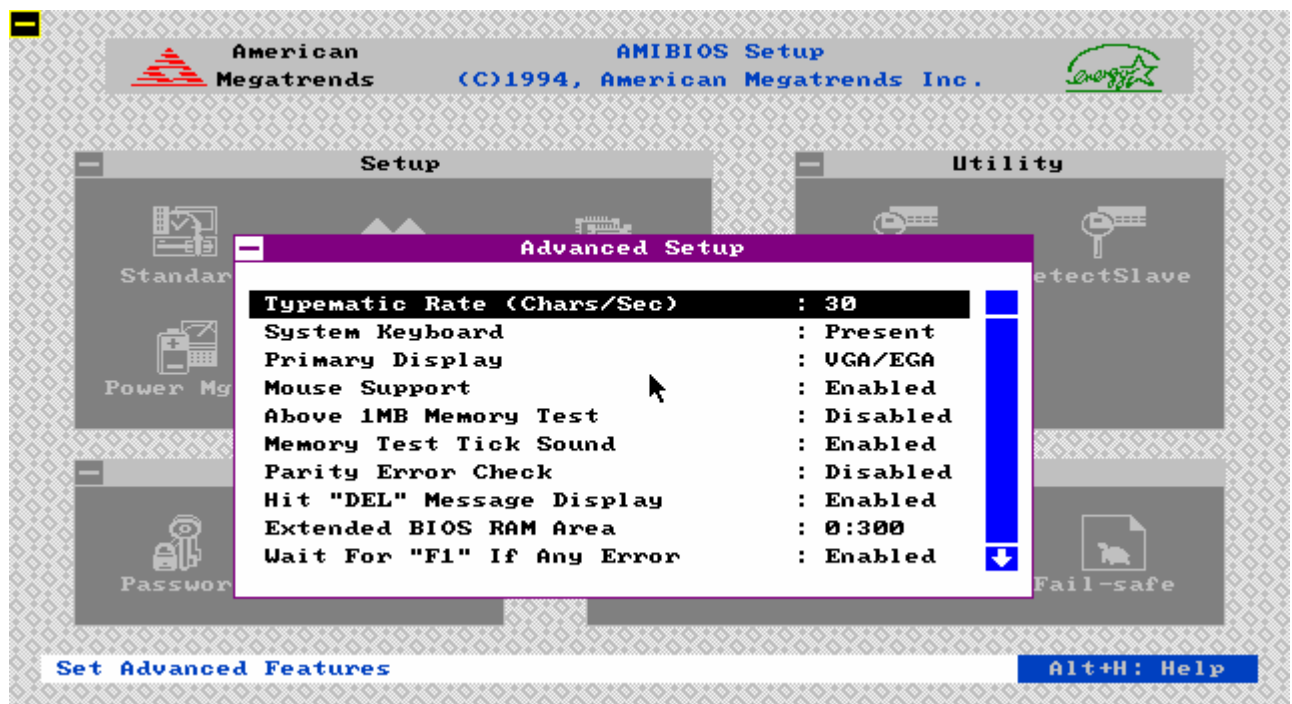
- Select one of these hard disk drive icons to configure the drive named in the option. A scrollable screen that lists all valid disk drive types is displayed. Select the correct type and press <Enter>. If the hard disk drive is an IDE drive, select Detect C: or Detect D: from the Utility section of 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 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 specifies 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.

Video Shadow C400,16K

- When this option is set to *Enabled*, the video ROM area from C4000h - C7FFFh 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*.

Shadow E000,32K

- 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*.

Main BIOS Shadow F000,64K

- 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*.

Pri-Master 32 Bit Transfer

- This option enables (turns on) or disables (turns off) the 32 bit transfer function for the primary master IDE hard disk. The settings are *Disabled, Enabled*.

Pri-Master Block MODE

- This option enables (turns on) or disables (turns off) the Block Mode for the primary master IDE hard disk. The settings are *Disabled, Enabled*.

Pri-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.

Pri-Slave 32 Bit Transfer

- This option enables (turns on) or disables (turns off) the 32 bit transfer function for the primary slave IDE hard disk. The settings are *Disabled, Enabled*.

Pri-Slave Block MODE

- This option enables (turns on) or disables (turns off) the Block Mode for the primary slave IDE hard disk. The settings are *Disabled, Enabled*.

Pri-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 Master Present

- This option specifies whether the secondary master hard disk present. The settings are *disabled, Enabled*.

Sec-Master 32 Bit Transfer

- This option enables (turns on) or disables (turns off) the 32 bit transfer function for the secondary master IDE hard disk. The settings are *Disabled, Enabled*.

Sec-Master Block MODE

- This option enables (turns on) or disables (turns off) the Block Mode for the secondary master IDE hard disk. The settings are *Disabled, Enabled*.

Sec-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 Present

- This option specifies whether the secondary slave hard disk present. The settings are *disabled, Enabled*.

Sec-Master 32 Bit Transfer

- This option enables (turns on) or disables (turns off) the 32 bit transfer function for the secondary slave IDE hard disk. The settings are *Disabled, Enabled*.

Sec-Master Block MODE

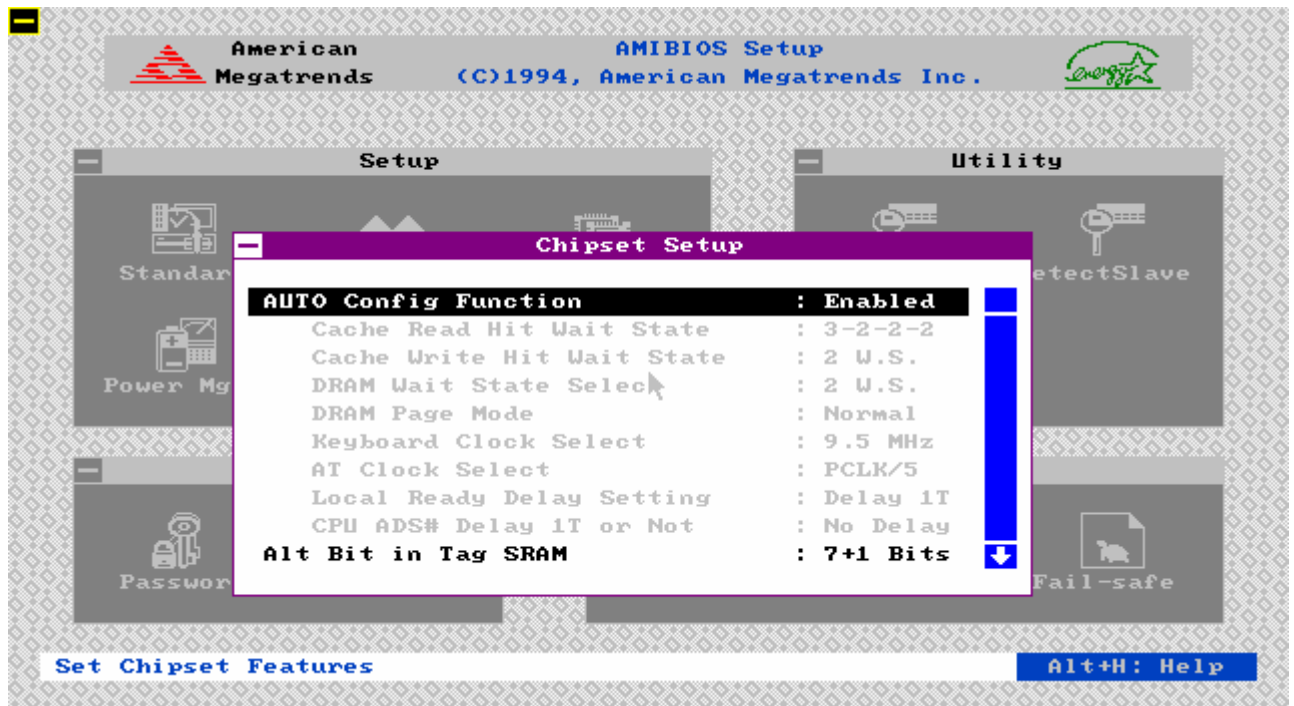
- This option enables (turns on) or disables (turns off) the Block Mode for the secondary slave IDE hard disk. The settings are *Disabled, Enabled*.

Sec-Master LBA MODE

- This option enables (turns on) or disables (turns off) the Logical Block Addressing for the secondary 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 Config Function

- 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 Read Hit Wait State

- 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.

Cache Write Hit Wait State

- This option specifies the number of wait state when cache write hit. The settings are 2 W.S., 1 W.S., or 0 W.S.

DRAM Wait State Select

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

DRAM Page Mode

- This option specifies the DRAM supported Page Mode method. The settings are Normal, or Fast.

Keyboard Clock Select

- This option specifies the clock speed of the keyboard controller. The settings are PCLK/6, PCLK/5, PCLK/4, PCLK/3, PCLK/2, 9.5 MHz, or 7.2 MHz.

AT Clock Select

- This option specifies the clock speed of the AT BUS I/O. The settings are PCLK/6, PCLK/5, PCLK/4, PCLK/3, PCLK/2, or PCLK/8.

Alt Bit in Tag SRAM

- This option specifies location of the Alt bit and the Tag bit. The settings are 8+0 bits or 7+1 bits. 7+1 means both the Alt and Tag bits are located in the same SRAM. 8+0 means the Alt bit is located in another SRAM.

Local Ready Delay Setting

- This option specifies the delay time of the Local Ready signal. The settings are No Delay, Delay 1T, Delay 2T, or delay 3T.

Signal LDEV# Sample Time

- This option specifies the sampling time of the LDEV# signal. The settings are in T2, in T3, in T4, or in T5.

CPU ADS# Delay 1T or Not

- This option specifies the delay time of the CPU ADS# signal. The settings are No Delay or Delay 1T.

Hardware DRAM Parity Check

- This option enables (turns on) or disables (turns off) the hardware DRAM party check function. The settings are Disabled or Enabled.

ISA Bus Refresh Disable Bit

- This option specifies the ISA Bus refresh cycle. The settings are Slow or Fast.

DRAM Refresh Method

- This option specifies the refresh method of the DRAM. The settings are RAS only or CAS/RAS.

Divider for Refresh

- This option specifies the system refresh. The settings are *1/64, 1/1, 1/2, 1/4, 1/8, 1/16, or 1/32*.

System Memory Remap or Not

- This option enables (turns on) or disables (turns off) the system memory remap function. The settings are *Disabled* or *Enabled*

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*.

LOWA20# Select

- This option specifies the source of the LOWA20# 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

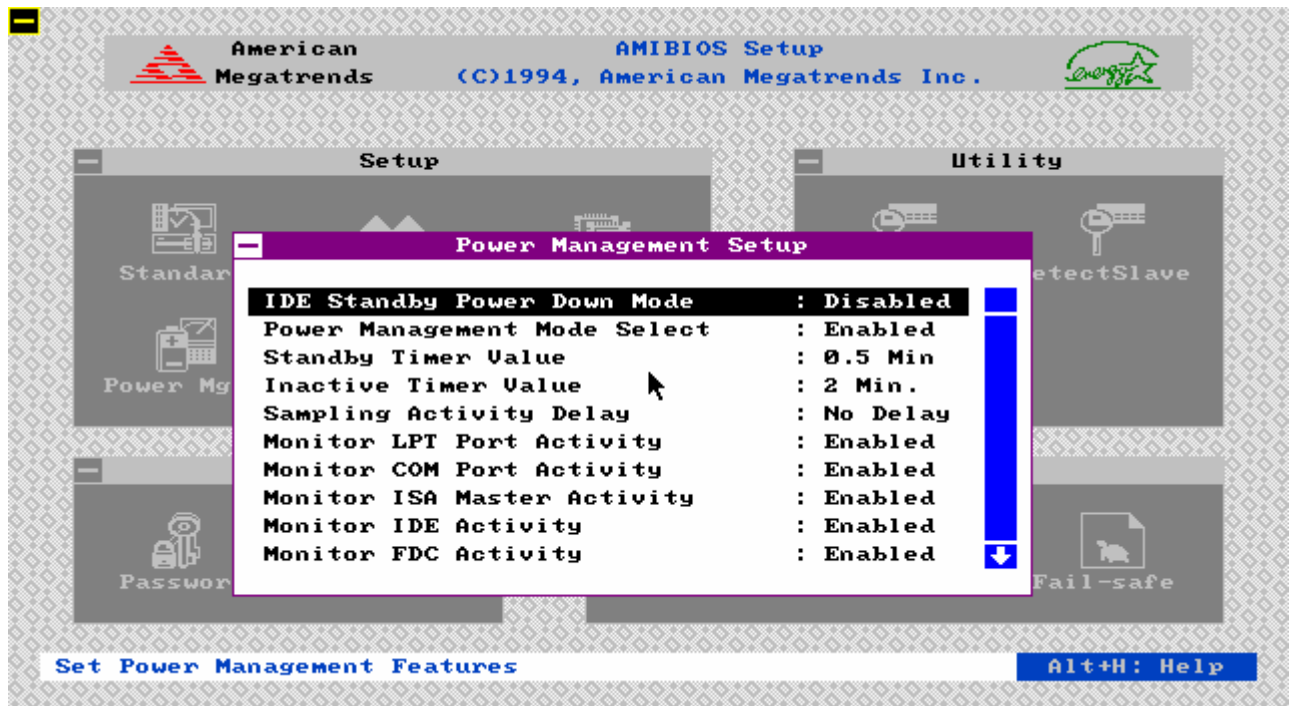
- This option enables (turns on) or disables (turns off) the software flushing CPU internal cache when non-turbo mode. The settings are *Disabled* or *Enabled*.

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.



IDE Standby Power Down Mode

- This option specifies the length of time of hard disk drive inactivity that must expire before the IDE hard disk drive is placed in IDE Standby Power Down Mode. The settings are *Enabled* or *Disabled*.

Power Management Mode Select

- This option enables (turns on) or disables (turns off) the System Power Management Mode. The settings are *Enabled* or *Disabled*.

Standby Timer Value

- This option specifies the length of time of the PT-430 inactivity that must expire before the PT-430 is placed in Standby Mode. The settings are *0.5 Min.*, *1 Min.*, *2 Min.*, *4 Min.*, *8 Min.*, *16 Min.*, *32 Min.*, *64 Min.*, *128 Min.*, *256 Min.*, or *512 Min.*.

Inactive Timer Value

- This option specifies the length of time of the PT-430 inactivity that must expire before the PT-430 is placed in Inactive Mode. The settings are *2 Min.*, *8 Min.*, *32 Min.*, *128 Min.*, *512 Min.*, *4 Min.*, *16 Min.*, *64 Min.*, *256 Min.*, or *Disabled*.

Sampling Activity Delay

- This option specifies the delay time on sampling activity. The settings are *No Delay* or *Delay 1T*.

Monitor LPT Port Activity

- This option specifies whether the PT-430 monitor the LPT port activity. The settings are *Enabled* or *Disabled*.

Monitor COM Port Activity

- This option specifies whether the PT-430 monitor the COM port activity. The settings are *Enabled* or *Disabled*.

Monitor ISA Master Activity

- This option specifies whether the PT-430 monitor the ISA Master Activity. The settings are *Enabled* or *Disabled*.

Monitor IDE Activity

- This option specifies whether the PT-430 monitor the IDE Master activity. The settings are *Enabled* or *Disabled*.

Monitor FDC Master Activity

- This option specifies whether the PT-430 monitor the floppy disk controller activity. The settings are *Enabled* or *Disabled*.

Monitor VGA Activity

- This option specifies whether the PT-430 monitor the VGA Master activity. The settings are *Enabled* or *Disabled*.

Monitor ISA KBC Activity

- This option specifies whether the PT-430 monitor the keyboard controller activity. The settings are *Enabled* or *Disabled*.

Monitor ISA VESA Slave Activity

- This option specifies whether the PT-430 monitor the VESA Slave activity. The settings are *Enabled* or *Disabled*.

SMI# Pulse Width

- This option specifies the pulse width of the SMI# signal. The settings are *Disabled* or *Enabled*.

Supsend Resume Switch

- This option enables (turns on) or disables (turns off) the external Supsend/Resume hard switch function. The settings are *Disabled* or *Enabled*.

Clock Out on Standby Mode

- This option specifies the CPU clock speed when Standby. The settings are *PCLK/1*, *PCLK/2*, *PCLK/3*, *PCLK/4*, *PCLK/5*, *PCLK/6*, *PCLK/7*, OR *PCLK/8*.

VGA Power Control

- This option specifies the VGA power control method. The settings are *Disabled*, *VGA Off*, or *Sync. Off*.

IDE Power Control

- This option enables (turns on) or disables (turns off) the IDE power control function. The settings are *Disabled* or *Enabled*.

APM Function

- This option enables (turns on) or disables (turns off) the Advanced Power Management (APM) function. The settings are *Disabled* or *Enabled*.

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.

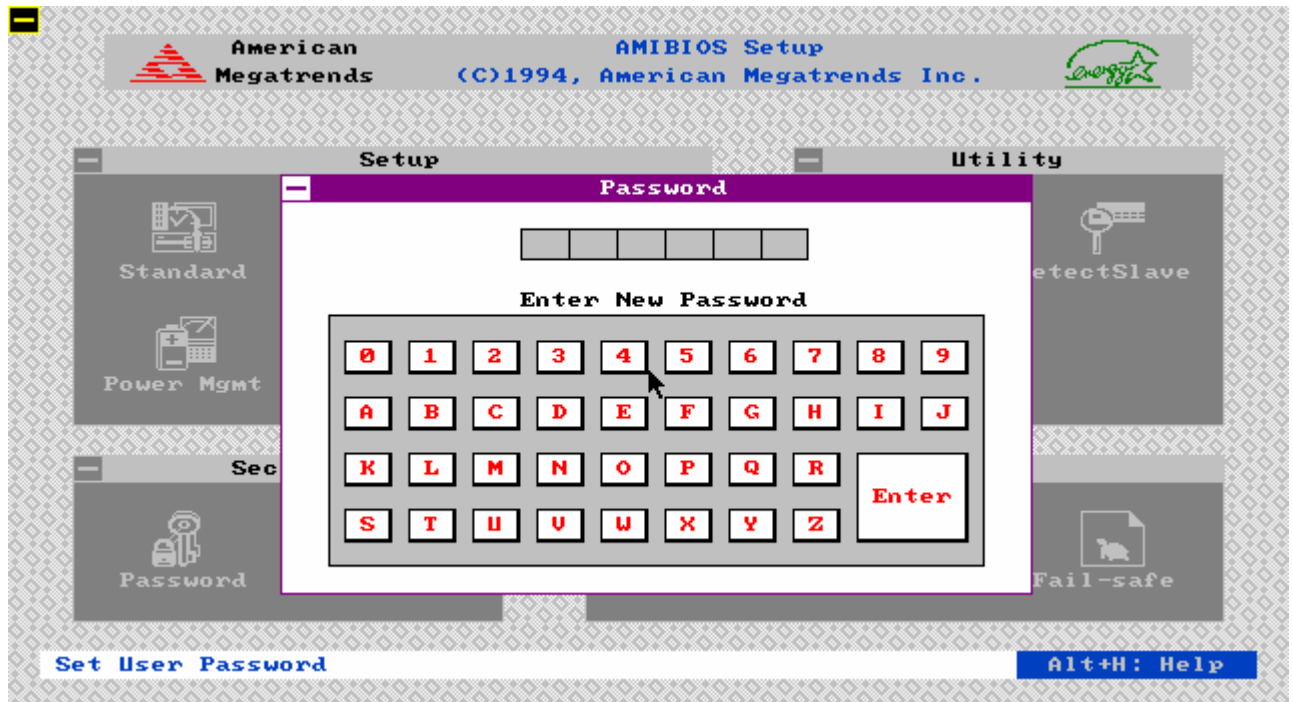
If drive D: is an IDE drive, the hard disk drive parameters for drive D: are automatically detected and reported to the Hard Disk Drive C: screen in Standard Setup, so you can easily configure drive D:. This option enables (turns on) or disables (turns off) the Advanced Power Management (APM) function.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

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.

Remember the Password

Keep a record of the new password when the password is changed. If you forget the password:

- 1) Switch off the computer, remove the computer cover, find the JP1 on the PT-430. It is a 4 pin header near by the on-board battery.
- 2) Set the JP1 to 3-4 position for about 2-3 minutes.
- 3) Set the JP1 back to 2-3 position.
- 4) Switch on the computer and re-configure the CMOS setting as long as the password.

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

AWARD BIOS SETUP

4.1 Using AWARD BIOS Setup

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

Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item in the left hand
Right arrow	Move to the item in the right hand
Esc key	Main Menu -- Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
(Shift)F2 key	Change color from total 16 colors. F2 to select color forward, (Shift) F2 to select color backward
F3 key	Calendar, only for Status Page Setup Menu
F4 key	Reserved
F5 key	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
F6 key	Load the default CMOS value from BIOS default table, only for Option Page Setup Menu
F7 key	Load the default
F8 key	Reserved
F9 key	Reserved
F10 key	Save all the CMOS changes, only for Main Menu

4.2 Getting Help

Main Menu

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Status Page setup Menu/Option Page Setup Menu

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc>.

4.3 Starting AWARD BIOS Setup

Power on the computer and press immediately will allow you to enter Setup. The other way to enter Setup is to power on the computer, when the below message appears briefly at the bottom of the screen during the POST (Power On Self Test), press key or simultaneously press <Ctrl>, <Alt>, and <Esc> keys.

TO ENTER SETUP BEFORE BOOT PRESS CTRL-ALT-ESC OR DEL KEY

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to,

PRESS F1 TO CONTINUE, CTRL-ALT-ESC OR DEL TO ENTER SETUP

4.4 AWARD BIOS Setup Main Menu

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

4.5 Standard CMOS Setup

The Standard CMOS Setup Menu is shown below. Each category includes no, one or more than one setup item. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

Date

The date format is <day>, <date> <month> <year>. Press <F3> to show the calendar.

day	The day, from Sun to Sat, determined by the BIOS and is display-only
date	The date, from 1 to 31 (or the maximum allowed in the month)
month	The month, Jan through Dec

year	The year, from 1900 through 2099
------	----------------------------------

Time

The time format is <hour> <minute> <second>. The time is calculated based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00.

Daylight Saving

The category adds one hour to the clock when daylight-saving time begins. It also subtracts one hour when standard time begins.

Enabled	Enable daylight-saving
Disabled	Disable daylight-saving

Drive C type/Drive D type/Drive E type/Drive F type

The categories identify the types of hard disk drive C or drive D that have been installed in the computer. There are 46 predefined types and a user definable type. Type 1 to Type 46 are predefined. Type User is user-definable.

Press PgUp or PgDn to select a numbered hard disk type or type the number and press <Enter>. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use Type User to define your own drive type manually.

If you select Type User, related information is asked to be entered to the following items. Enter the information directly from the keyboard and press <Enter>. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.

CYLS.	number of cylinders
HEADS	number of heads
PRECOMP	write precom
LANDZONE	landing zone
SECTORS	number of sectors

If a hard disk has not been installed select NONE and press <Enter>.

Drive A type/Drive B type

The category identifies the types of floppy disk drive A or drive B that have been installed in the computer.

None	No floppy drive installed
360K, 5.25 in	5-1/4 inch PC-type standard drive; 360 kilobyte capacity
1.2M, 5.25 in	5-1/4 inch AT-type high-density drive; 1.2 megabyte capacity
720K, 3.5 in	3-1/2 inch double-sided drive; 720 kilobyte capacity
1.44M, 3.5 in	3-1/2 inch double-sided drive; 1.44 megabyte capacity
2.88M, 3.5 in	3-1/2 inch double-sided drive; 2.88 megabyte capacity

Video

The category selects the type of adapter used for the primary system monitor that must match your video display card and monitor. Although secondary monitors are supported, you do not have to select the type in Setup.

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

Error halt

The category determines whether the computer will stop if an error is detected during power up.

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

Memory

The category is display-only which is determined by POST (Power On Self Test) of the BIOS.

Base Memory

The POST of the BIOS will determine the amount of base (or conventional) memory installed in the system. The value of the base memory is typically 512K for systems with 512K memory installed on the motherboard, or 640K for systems with 640K or more memory installed on the motherboard.

Extended Memory

The BIOS determines how much extended memory is present during the POST. This is the amount of memory located above 1MB in the CPU's memory address map.

Expanded Memory

Expanded Memory is memory defined by the Lotus/Intel/Microsoft (LIM) standard as EMS. Many standard DOS applications can not utilize memory above 640K, the Expanded Memory Specification (EMS) swaps memory which is not utilized by DOS with a section, or frame, so these applications can access all of the system memory. Memory can be swapped by EMS is usually 64K within 1MB or memory above 1MB, depending on the chipset design. Expanded memory device driver is required to use memory as Expanded Memory.

Other Memory

This refers to the memory located in the 640K to 1024K address space. This is memory that can be used for different applications. DOS uses this area to load device drivers to keep as much base memory free for application programs. Most use for this area is Shadow RAM

4.6 BIOS Feature Setup

Virus Warning

This category flashes on the screen. During and after the system boots up, any attempt to write to the boot sector or partition table of the hard disk drive will halt the system and the following error message will appear, in the mean time, you can run an anti-virus program to locate the problem.

! WARNING !
Disk boot sector is to be modified
Type "Y" to accept write or "N" to abort write
Award Software, Inc.

Enabled	Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table.
Disabled	No warning message to appear when anything attempts to access the boot sector or hard disk partition table.

CPU Internal Cache

These two categories speed up memory access. However, it depends on CPU/chipset design. The default value is disable.

Enabled	Enable L1 cache
Disabled	Disable L1 cache

External Cache

These two categories speed up memory access. However, it depends on CPU/chipset design. The default value is disable.

Enabled	Enable L2 cache
Disabled	Disable L2 cache

Quick Power On Self Test

This category speeds up Power On Self Test (POST) after you power on the computer. If it is set to Enable, BIOS will shorten or skip some check items during POST.

Enabled	Enable quick POST
Disabled	Normal POST

Boot Sequence

This category determines which drive computer searches first for the disk operating system (i.e., DOS). Default value is A,C.

C,A	System will first search for hard disk drive then floppy disk drive.
A,C	System will first search for floppy disk drive then hard disk drive.

Swap Floppy Drive

C,A	System will first search for hard disk drive then floppy disk drive.
A,C	System will first search for floppy disk drive then hard disk drive.

Boot Up Floppy Seek

During POST, BIOS will determine if the floppy disk drive installed is 40 or 80 tracks. 360K type is 40 tracks while 760K, 1.2M and 1.44M are all 80 tracks.

Enabled	BIOS searches for floppy disk drive to determine if it is 40 or 80 tracks. Note that BIOS can not tell from 720K, 1.2M or 1.44M drive type as they are all 80 tracks.
Disabled	BIOS will not search for the type of floppy disk drive by track number. Note that there will not be any warning message if the drive installed is 360K.

Boot Up NumLock Status

The default value is On.

On	Keypad is number keys
Off	Keypad is arrow keys

Boot Up System Speed

It selects the default system speed - the speed that the system will run at immediately after power up.

High	Set the speed to high
Low	Set the speed to low

IDE HDD Block Mode

Enabled	Enable IDE HDD Block Mode
Disabled	Disable IDE HDD Block Mode

Gate A20 Option

Normal	keyboard
Fast	chipset

Memory Parity Check

Enabled	Normal memory parity check
Disabled	Ignore memory parity check

Typematic rate Setting

This determines the typematic rate.

Enabled	Enable typematic rate
Disabled	Disable typematic rate

Typematic rate (Chars/Sec)

6	6 characters per second
8	8 characters per second
10	10 characters per second
12	12 characters per second
15	15 characters per second
20	20 characters per second
24	24 characters per second
30	30 characters per second

Typematic Delay(Msec)

When holding down a key, the time between the first and second character displayed.

250	250 msec
500	500 msec
750	750 msec
1000	1000 msec

Security Option

System	The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.
Setup	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

Note : To disable security, select PASSWORD SETTING at Main Menu and then you will be asked to enter password. Do not type anything and just press <Enter>, it will disable

security. Once the security is disabled, the system will boot and you can enter Setup freely.

Video BIOS Shadow

It determines whether video BIOS will be copied to RAM, however, it is optional from chipset design. Video Shadow will increase the video speed.

Enabled	Video shadow is enabled
Disabled	Video shadow is disabled

C8000 - CFFFF Shadow/E8000 - EFFFF Shadow

These categories determine whether optional ROM will be copied to RAM by 16K byte.

Enabled	Optional shadow is enabled
Disabled	Optional shadow is disabled

4.7 Power Management Setup

Power Management

- This category determines how the power management works. Default value is *Disable*.

User Defined	All the power down time-out values are selected by user.
Max power Saving	Auto setting power down time-out value to maximum power consumption.
Min Power Saving	Auto setting power down time-out value to save minimum.
Disable	Disable whole system power management function.

PM Control By APM

- This category determines whether the Power Management control by the Advanced Power management (APM). The settings are *Enabled* or *Disabled*.

Video Off Method

- This category determines the VGA off method when in system management mode. The settings are *Blank Screen* or *V/H SYNC+Blank*.

HDD Standby Timer

- This option specifies the time-out value for IDE with disk auto standby. This function depends on disk drive, some older mode disk drives don't support auto standby function. System BIOS set this function before booting if HDD supported. The settings are *disabled*, *1 Min*, *2 Min*, *3 Min*, *5 Min*, *6 Min*, *7 Min*, *8 Min*, *9 Min*, *10 Min*, *11 Min*, *12 Min*, *13 Min*, *14 Min* or *15 Min*.

Doze Timer Select

- This option specifies the time-out value for the PT-430 going to Doze Mode. The settings are *0.5 Min*, *1 Min*, *2 Min*, *4 Min*, *8Min*, *16 Min*, *32 Min*, *64 Min*, *128 Min*, *256 Min* or *512 Min*.

Standby Timer Select

- This option specifies the time-out value for the PT-430 going to Standby Mode. The Standby Mode is only supported by the PT-430 with a SMM CPU. The settings are *2 Min*, *8Min*, *32 Min*, *128 Min*, *512 Min*, *4 Min*, *16 Min*, *64 Min* or *256 Min*.

Inactive Timer Select

- This option specifies the time-out value for the PT-430 going to Inactive Mode. The Inactive Mode is only supported by the PT-430 with a SMM CPU. The settings are *2 Min*, *8Min*, *32 Min*, *128 Min*, *512 Min*, *4 Min*, *16 Min*, *64 Min* or *256 Min*.

Doze Mode Control

- This option specifies the control items under Doze Mode: CPU CLK and VGA. The settings for CPU CLK are *1/2 CLKI*, *1/4 CLKI*, *1/6 CLKI* or *1/8 CLKI*. The settings for VGA are *Enabled* or *Disabled*.

Standby Mode Control

- This option specifies the control items under Standby Mode: CPU CLK and VGA. The Standby Mode is only supported by the PT-430 with a SMM CPU. The settings for CPU CLK are *1/2 CLKI*, *1/4 CLKI*, *1/6 CLKI* or *1/8 CLKI*. The settings for VGA are *Enabled* or *Disabled*.

Inactive Mode Control

- This option specifies the control items under Inactive Mode: CPU CLK and VGA. The Inactive Mode is only supported by the PT-430 with a SMM CPU. The settings for CPU CLK are *1/8 CLKI* or *STOPCLK*. The settings for VGA are *Enabled* or *Disabled*.

Suspend Switch Select

- This option specifies whether the external Suspend hard switch function. The settings are *Enabled* or *Disabled*.

VESA Slave Activity

- This option specifies whether the PT-430 monitor the VESA Slave activity. The settings are *Enabled* or *Disabled*.

LPT Port Activity

- This option specifies whether the PT-430 monitor the LPT Port activity. The settings are *Enabled* or *Disabled*.

COM Port Activity

- This option specifies whether the PT-430 monitor the COM Port activity. The settings are *Enabled* or *Disabled*.

ISA Master Activity

- This option specifies whether the PT-430 monitor the ISA Master activity. The settings are *Enabled* or *Disabled*.

IDE Activity

- This option specifies whether the PT-430 monitor the IDE activity. The settings are *Enabled* or *Disabled*.

Floppy Activity

- This option specifies whether the PT-430 monitor the floppy disk drive activity. The settings are *Enabled* or *Disabled*.

VGA Activity

- This option specifies whether the PT-430 monitor the VGA activity. The settings are *Enabled* or *Disabled*.

Keyboard Activity

- This option specifies whether the PT-430 monitor the keyboard controller activity. The settings are *Enabled* or *Disabled*.

4.8 Load BIOS Default

This option loads the AWARD BIOS default settings. The BIOS Defaults indicate the most appropriate value of the system parameter which the system would be in minimum performance.

4.9 Load Setup Default

This option loads the Chipset default settings. Chipset Defaults indicate the values required by the system for the maximum performance.

4.10 Password Setting

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:

Type the password, up to eight characters, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

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

PASSWORD DISABLED.

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

4.11 IDE HDD Auto Detection

This option detect the type of HDD automatically if they are IDE hard disk drives.

4.12 Save & Exit Setup

This option saves the CMOS value changes to CMOS and exit setup.

4.13 Exit Without Saving

This option abandons all CMOS value changes and exit setup.

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 (JP4, JP5, JP6) 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 (BK2, BK0/2, BK1/3) properly and have complete contact with the socket pins. Otherwise there will be a “No Display” problem.

5.2 Cannot Boot Up

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

- The cache RAM setting (JP7, JP8, JP9, JP10) 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 battery select jumper must be set to 2-3 (for on-board battery). Otherwise there will be “Lose CMOS Data” problem.
- Measure the pin 2-3 of JP1 with a multi-meter, there should have a DC voltage not less than 3V. Otherwise there will have “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 (JP11, JP12, JP13, JP17, JP18, JP19) 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-430. Too long a hard disk cable will make the Green PC circuit unable to monitor the hard disk activity.

SECTION 6

DIAGRAM LAYOUT

