MAIN BOARD
USER'S MANUAL
(VER:TX1 VER:1.31/2.0)

CE

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CHAPTER 1. INTRODUCTION

1-1 OVERVIEW :

The main board is designed with Intel PENTIUM® chipset which provides an integrated IDE controller with two high performance IDE interfaces for up to four IDE devices (hard devices , CD-ROM devices , etc), an USB (universal serial bus) features enhances the overall performance and expensibility for this board.

It supports Intel P54CX/P55CX PENTIUM® CPUs family running at 75 /90 /100 /120 /133 /150 /166 /180 /200 /233 Mhz speed, Cyrix® 6X86/6X86L P120+ /P133+ /P150+ /P166+ And AMD 5K86 75 - 200 / K6 166, 200 CPUs, supports 256K / 512K cache memory is ideal for MS-DOS, WINDOWSTM, WINDOW-95, WINDOW NT, NOVELL, OS/2, UNIX., softwares.

The performance, speed and expensibility of this main board make it the perfect choice for building a LAN server, a high-end workstation or a multi-user system.

1-2 SPECIFICATIONS

CPU : 75 - 233 MHZ INTEL PENTIUM® P54C & P55C ,
CYRIX® 6X86/6X86L P120+, P133+, P150+, P166+
AMD K5 75 - 200 /K6 166, 200, 233 MHZ CPUs.

MEMORY : 4 OF 72-PIN **SIMMs** AND 2 OF 168-PIN **DIMM**
(DUAL-IN-LINE-MEMORY-MODULE)UP TO 256MB.
SIMM CAN BE FAST PAGE, EDO OR BURST EDO,
DIMM FOR **JEDEC 3.3V OR 5V** TYPES OF
SDRAM (SYNCHRONOUS DRAM) , BURST EDO ,
EDO OR FAST PAGE.

EXP. SLOT : 3 X ISA AND 4 X PCI SLOTS.

CHIPSET : INTEL PENTIUM® **I430 TX** CHIPSET
82439TX SYSTEM CONTROLLER
82371AB PCI ISA IDE XCELERATOR.

CACHE SIZE : 256K, 512K.

BIOS : AWARD FULL **PnP** (PLUG & PLAY) BIOS.

I/O FUNCTION : ON BOARD 2 x PCI IDE DEVICES , 1 x FDC , 2 x
SERIAL PORTS(16550 FAST COM),1x PARALLEL
PORT DEVICE /EPP/ECP, AND OPTIONAL USB
(UNIVERSAL SERIAL BUS) CONNECTOR.

BOARD SIZE : 26 CM x 22 CM.

GREEN FUNCTION : COMPLIED WITH **APM** (ADVANCED **P**OWER
MANAGEMENT).

SPECIAL FUNCTION

* PROVIDE AT/ATX DUAL POWER CONNECTORS (VER 1.31/2.0)
  ACPI (ADVANCED CONFIGURATION POWER INTERFACE)
  NEEDS ATX TYPE POWER SUPPLY.
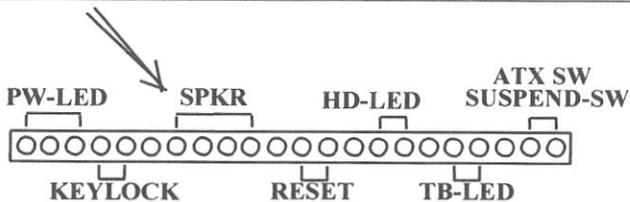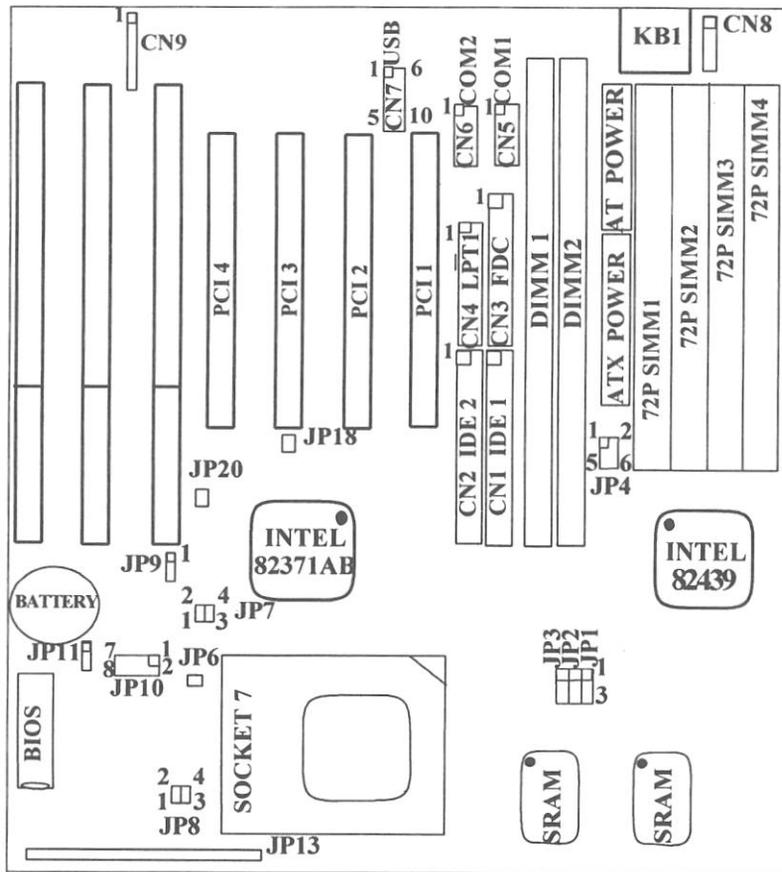* PROVIDE OVER HEAT ALARM (OPTIONAL).

1-3 UNPACKING :

THE MAIN BOARD PACKAGE CONTAINS:

* MAIN BOARD
* MANUAL
* CABLES
* DRIVER DISKETTE / CD
* NO PROCESSOR INCLUDED

IF ANY OF THESE ITEMS IS MISSING OR DAMAGED,CONTACT THE
DEALER FROM WHOM YOU PURCHASED. LEAVE THE MAIN BOARD IN
ITS ORIGINAL PACKING UNTIL YOU ARE READY TO INSTALL IT.

CHAPTER 2. INSTALLATION
2-1 LAYOUT REFERENCE

2-2 JUMPER SETTINGS

INTEL PENTIUM® CPU	CLOCK SPEED	RATIO	JP1	JP2	JP3	JP6	JP7	JP8	JP10
P54C 75 3.3V	(50MHZ)	1.5	1-2	1-2	1-2	ON	OFF	OFF	1-2,5-6,7-8
P54C 90 3.3V	(60MHZ)	1.5	1-2	1-2	2-3	ON	OFF	OFF	1-2,5-6,7-8
P54C 100 3.3V	(66MHZ)	1.5	1-2	2-3	1-2	ON	OFF	OFF	1-2,5-6,7-8
P54C 120 3.3V	(60MHZ)	2	1-2	1-2	2-3	ON	1-2	OFF	1-2,5-6,7-8
P54C 133 3.3V	(66MHZ)	2	1-2	2-3	1-2	ON	1-2	OFF	1-2,5-6,7-8
P54C 150 3.3V	(60MHZ)	2.5	1-2	1-2	2-3	ON	1-2, 3-4	OFF	1-2,5-6,7-8
P54C 166 3.3V	(66MHZ)	2.5	1-2	2-3	1-2	ON	1-2, 3-4	OFF	1-2,5-6,7-8
P55C 166 2.8/3.3V	(66MHZ)	2.5	1-2	2-3	1-2	OFF	1-2, 3-4	1-2,3-4	7-8
P54C 180 3.3V	(60MHZ)	3	1-2	1-2	2-3	ON	3-4	OFF	1-2,5-6,7-8
P54C 200 3.3V	(66MHZ)	3	1-2	2-3	1-2	ON	3-4	OFF	1-2,5-6,7-8
P55C 200 2.8/3.3V	(66MHZ)	3	1-2	2-3	1-2	OFF	3-4	1-2,3-4	7-8
P55C 233 2.8/3.3V	(66MHZ)	3.5	1-2	2-3	1-2	OFF	OFF	1-2,3-4	7-8

AMD CPU	CLOCK SPEED	RATIO	JP1	JP2	JP3	JP6	JP7	JP8	JP10
PR75 3.52V	(50MHZ)	1.5	1-2	1-2	1-2	ON	OFF	OFF	1-2,3-4,5-6,7-8
PR90/PR120 3.52V	(60MHZ)	1.5	1-2	1-2	2-3	ON	OFF	OFF	1-2,3-4,5-6,7-8
PR100/PR133 3.52V	(66MHZ)	1.5	1-2	2-3	1-2	ON	OFF	OFF	1-2,3-4,5-6,7-8
PR150 3.52V	(60MHZ)	2.5	1-2	1-2	2-3	ON	1-2, 3-4	OFF	1-2,3-4,5-6,7-8
PR166 3.52V	(66MHZ)	2.5	1-2	2-3	1-2	ON	1-2, 3-4	OFF	1-2,3-4,5-6,7-8
K6 PR166 2.9/3.3V	(66MHZ)	2.5	1-2	2-3	1-2	OFF	1-2, 3-4	1-2,3-4	1-2, 7-8
K6 PR200 2.9/3.3V	(66MHZ)	3	1-2	2-3	1-2	OFF	3-4	1-2,3-4	1-2, 7-8
K6 PR233 3.2/3.3V	(66MHZ)	3.5	1-2	2-3	1-2	OFF	OFF	1-2, 3-4	5-6, 7-8

CYRIX® CPU	CLOCK SPEED	RATIO	JP1	JP2	JP3	JP6	JP7	JP8	JP10
P120+ 3.52V	(50MHZ)	2	1-2	1-2	1-2	ON	1-2	OFF	1-2,3-4,5-6,7-8
P133+ 3.52V	(55MHZ)	2	2-3	1-2	1-2	ON	1-2	OFF	1-2,3-4,5-6,7-8
P150+ 3.52V	(60MHZ)	2	1-2	1-2	2-3	ON	1-2	OFF	1-2,3-4,5-6,7-8
P166+ 3.52V	(66MHZ)	2	1-2	2-3	1-2	ON	1-2	OFF	1-2,3-4,5-6,7-8
P133+ 2.8/3.3V 6X86L	(55MHZ)	2	2-3	1-2	1-2	OFF	1-2	1-2, 3-4	7-8
P150+ 2.8/3.3V 6X86L	(60MHZ)	2	1-2	1-2	2-3	OFF	1-2	1-2, 3-4	7-8
P166+ 2.8/3.3V 6X86L	(66MHZ)	2	1-2	2-3	1-2	OFF	1-2	1-2, 3-4	7-8
MX PR166 2.9/3.3V	(60MHZ)	2.5	1-2	1-2	2-3	OFF	1-2, 3-4	1-2, 3-4	1-2,7-8
MX PP166 2.9/3.3V	(66MHZ)	2	1-2	2-3	1-2	OFF	1-2	1-2, 3-4	1-2,7-8
MX PR200 2.9/3.3V	(75MHZ)	2	2-3	1-2	2-3	OFF	1-2	1-2, 3-4	1-2,7-8

EXPLANATION OF JUMPER SETTING
JP1-JP3 CPU CLOCK SELECTOR

	50 MHZ	55 MHZ	60 MHZ	66.6 MHZ	75 MHZ
JP1	1-2	2-3	1-2	1-2	2-3
JP2	1-2	1-2	1-2	2-3	1-2
JP3	1-2	1-2	2-3	1-2	2-3

JP3 JP2 JP1
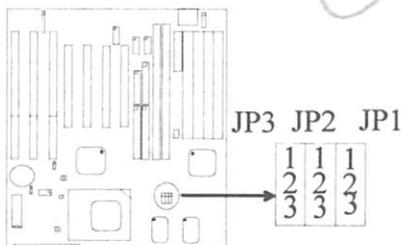
JP6,JP8 SINGLE /DUAL VOLTAGE CPU SELECTOR

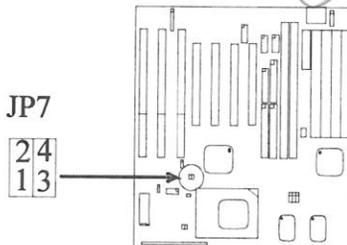|	SINGLE VOLTAGE CPU	DUAL VOLTAGE CPU
JP6	ON	OFF
JP8	OFF	1-2, 3-4

JP6

JP8
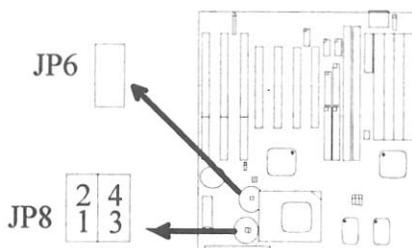
☞CAUTION !
CPU WILL BE SERIOUSLY DAMAGED IF JP6 & JP8(1-2, 3-4)
ARE SET "ON" SYNCHRONOUSLY.

oK

JP7 : CPU FREQUENCY RATIO SELECTOR

	1.5 X	2.0 X	2.5 X	3.0 X	3.5 X
JP7	OFF	1-2	1-2, 3-4	3-4	OFF

JP7

2	4
1	3

JP10 : VCORE VOLTAGE SELECTOR

JP10	VOLTAGE OUTPUT	JP10	VOLTAGE OUTPUT
1-2, 3-4, 5-6, 7-8	3.50V	1-2, 7-8	2.90V
1-2, 5-6, 7-8	3.30V	7-8	2.80V
5-6, 7-8	3.20V	1-2, 5-6	2.50V
1-2, 3-4, 7-8	3.10V	1-2	2.10V
3-4, 7-8	3.00V	OFF	2.00V

JP10

7	5	3	1
8	6	4	2
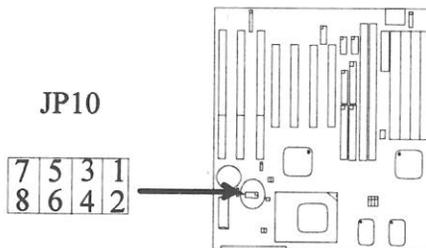
JP4 : DIMM VOLTAGE SELECTOR

	3.3V DIMM	5V DIMM
JP4	3-5, 4-6	1-3, 2-4

JP4

1	2
3	4
5	6
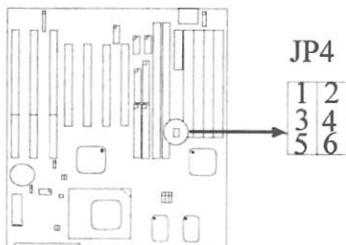
JP9 : BATTERY SELECTOR

	NORMAL	CLEAR CMOS
JP9	1-2 (DEFAULT)	2-3

JP9

1
2
3
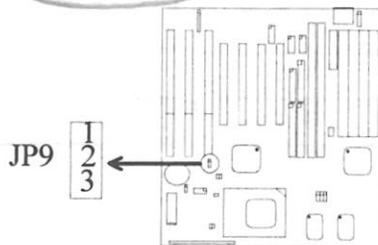
JP11 : FLASH ROM VOLTAGE SELECTOR

	5V FLASH ROM	12V FLASH ROM
JP11	1-2	2-3

JP11

1
2
3
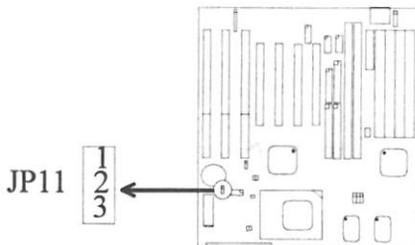
JP13 : CASE CONNECTOR
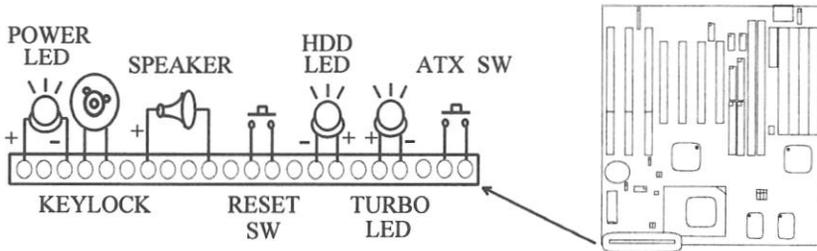
NOTE : ATX SWITCH ONLY AVAILABLE FOR MAIN BOARD VER 1.31/2.0.

ATX SWITCH FUNCTION

The system power is controlled by a momentary switch (when "power switch type" is set to momentary) connected to this lead. Pushing the button once will turn on the system and pushing another time will turn off the system.

The system power led shows the status of the system's power. This connection does not have a function when a standard power supply is used.

JP18, JP20 : AT / ATX POWER SELECTOR (FOR VER 1.31/2.0)

	AT POWER	ATX POWER
JP18	OFF	ON
JP20	OFF	ON

NOTE : IF USING ATX TYPE POWER SUPPLY, PLEASE PUT JUMPER CAP NO/OFF "JP18" FOR SOFTWARE POWER DOWN (SOFT-OFF) FUNCTION.
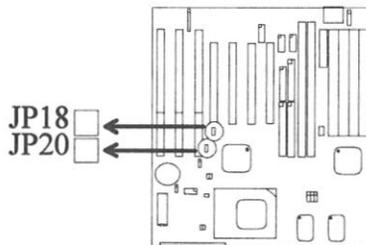
CN1, CN2 : PRIMARY / SECONDARY IDE CONNECTOR
PCI IDE controller connector supports up to four hard disk drivers ,CD-ROM ,
120MB floppy (reserved for future BIOS) and other devices to CN1 and CN2.

PIN1

SECONDARY

PRIMARY
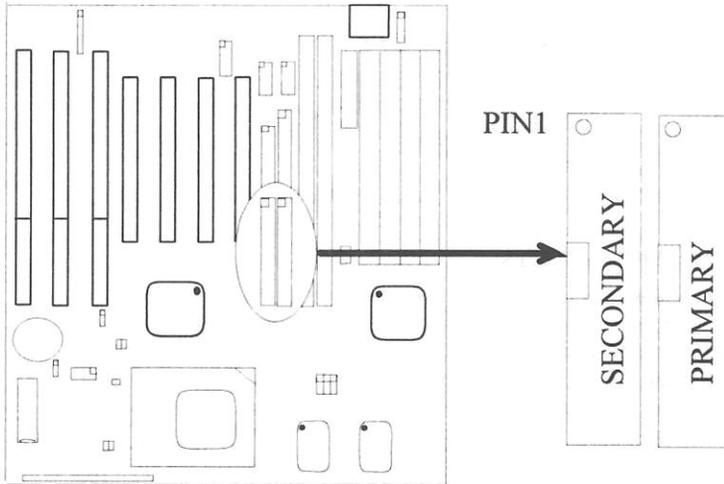
CN3 : FLOPPY DISK CONNECTOR
Standard floppy disk connector supports 360K , 720K ,1.2M , 1.44M , and 2.88M
floppy disk type.

PIN1

FLOPPY
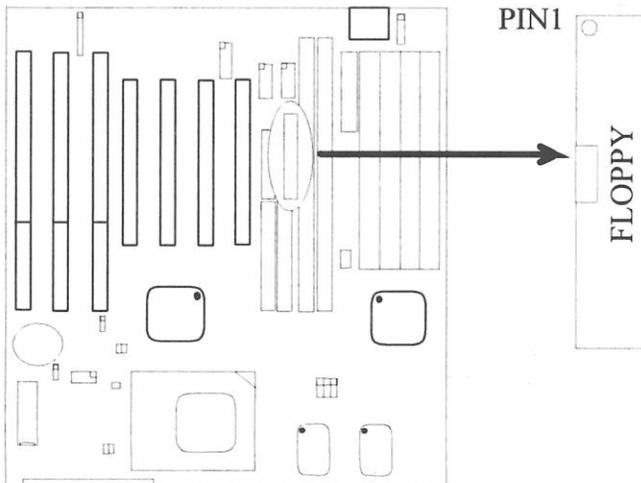
CN4 : PARALLEL PORT CONNECTOR

Parallel port connector supports standard printer port,enhanced parallel port (EPP), extended capabilities parallel port (ECP).

PIN1

PARALLEL
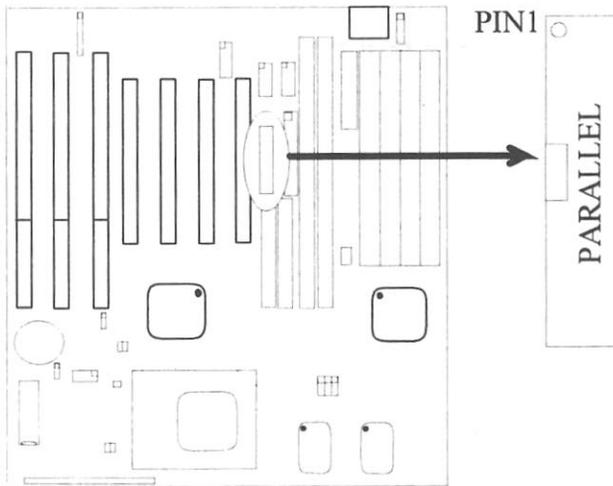
CN5,CN6 : SERIAL PORT CONNECTOR.

Serial port connector supports 16550a high speed communication port that send/receive 16 bytes fifos.

PIN1

COM2   COM1
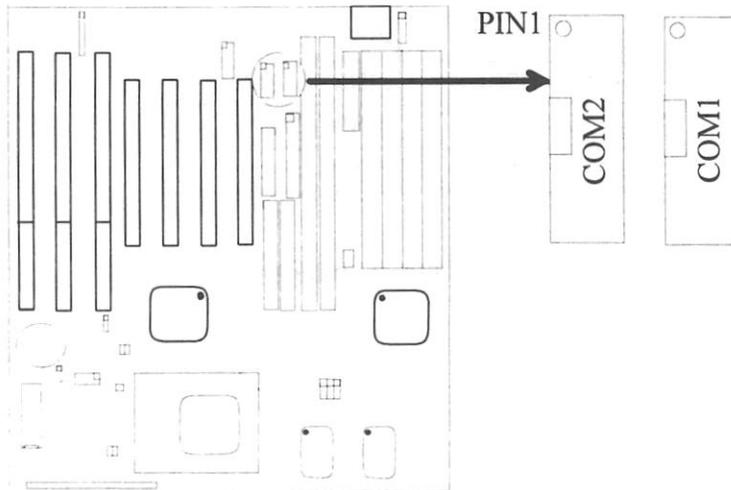
CN7 : USB (UNIVERSAL SERIAL BUS) CONNECTOR .

USB connector supports USB device.
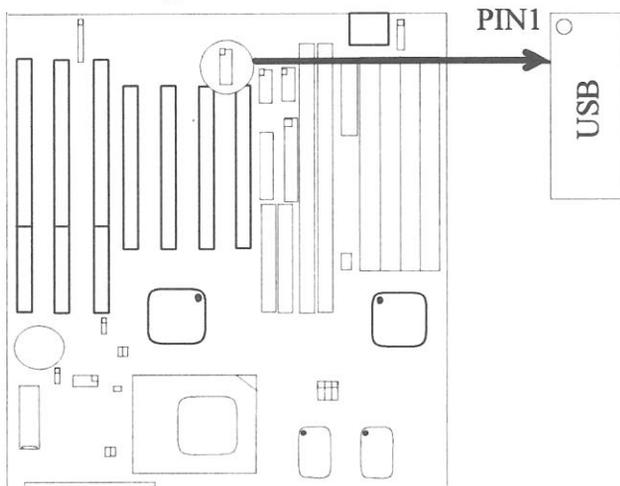
USB PIN OUT	
USB1	USB2
PIN1 +5V	**PIN6** +5V
PIN2 USBP0-	**PIN7** USBP1-
PIN3 USBP0+	**PIN8** USBP1+
PIN4 GND	**PIN9** GND
PIN5 GND	**PIN10** GND

**NOTE : USB (UNIVERSAL SERIAL BUS) AND IRCON CONNECTOR
          ARE OPTIONAL.**

CN8 : PS/2 MOUSE CONNECTOR.
mouse connector supports 5-pin PS/2 mouse .
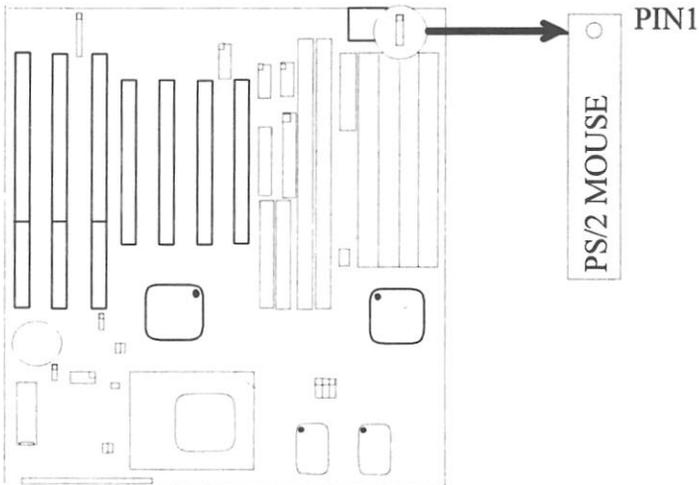
PS/2 MOUSE PIN OUT

PIN # 1	MOUSE CLOCK
PIN # 2	MOUSE DATA
PIN # 3	NONE
PIN # 4	GND
PIN # 5	VCC

CN9 : IRCON (INFRARED) CONNECTOR

IR connector supports 7-pin IR device.
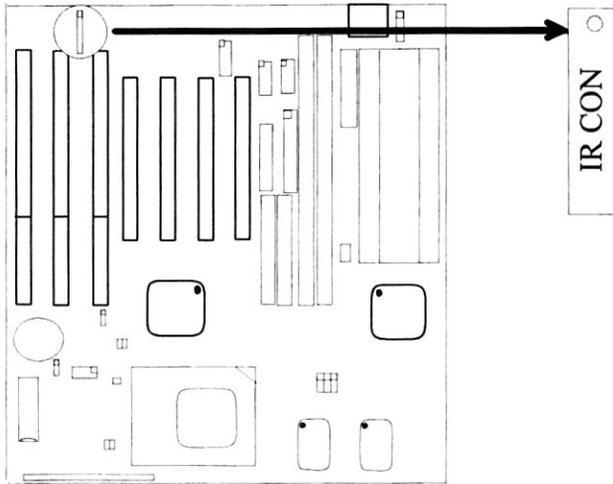
IR CONNECTOR PIN OUT						
PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7
RX	GND	TX	+5V	RXH	VCC	GND

NOTE : **IR uses same I/O port as COM2. There is no any hardware jumper setting for IR/COM2 on this main board but customer needs to set proper BIOS setting for "HPSIR" , "ASKIR" or "Disabled"(Default) Under "INFRA RED (IR) function" of "Integrated Peripheral" according to the following table:**

	IRDA 1.0	ASKIR	DISABLED
(UNDER INTEGRATED PERIPHERALS)"Infrared (IR) FUNCTION "	USE IRDA 1.0 ON IRCON.	USE AMPLITUDE SHIFT KEYED IR ON IRCON .	USE COM2 **(DEFAULT)**

2-3 OVER HEAT ALARM (OPTIONAL)

This main board provides over heat alarm function.   It has been set as 80 C as maximum suffering temperature, once over 80 C it will alarm. User need to check system immediately if it happens
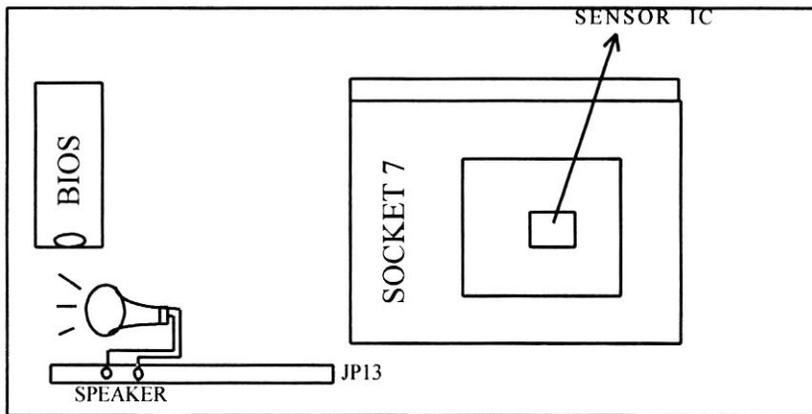
2-4 DRAM MEMORY INSTALLATION PROCEDURES

The SIMM memory modules will only fit in one orientation as show because of a "plastic safety tab" on one end of the SIMM slots which requires the "notched end" of the SIMM memory modules.

NOTCHED END
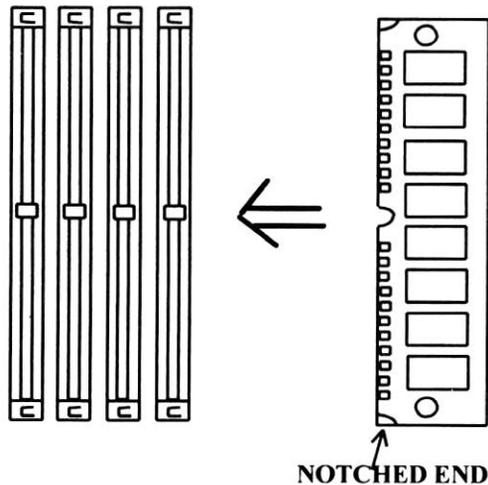
Press the memory module firmly into place starting from a 45 degree angle making sure that all the contacts are aligned with the socket.

2-5 DIMM MEMORY INSTALLATION PROCEDURES

Insert the module as shown.   Because the number of pins are different on either side of the breaks, the module will only fit in the orientation as shown.   DRAM SIMM modules have the same pin contact on both sides.   SDRAM DIMM modules have different pin contact on each side and therefore have a higher pin density.

3.3V DIMM

20 pins

60 pins
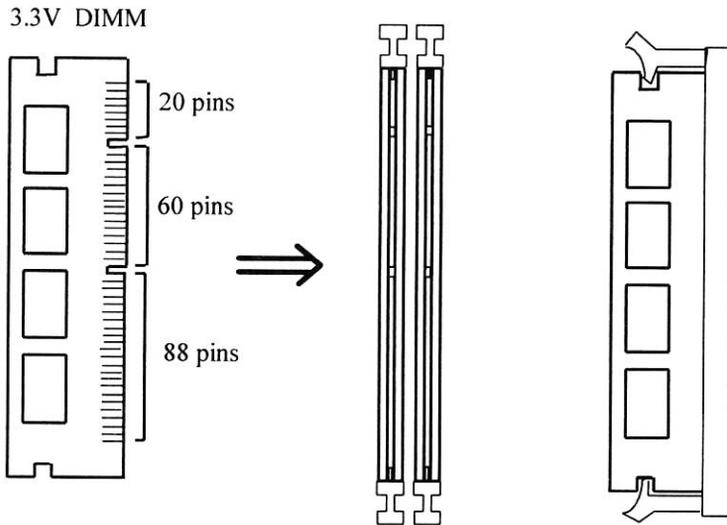
88 pins

2-6 MEMORY INSTALLATION

No jumper setting is necessary for DRAM setting, BIOS will check DRAM type and size automatically. this main board contains 4 by 72-pin SIMM sockets (SIMM1,SIMM2, SIMM3,SIMM4) or 2 by 168-pin DIMM socket (DIMM). SIMM module sockets are divided in two banks : SIMM1, SIMM2 in one bank and SIMM3, SIMM4 in another bank, minimun user has to install two DRAM SIMMs of the same kind into one bank or install one DIMM into DIMM socket. I430TX main board has table-free (or auto-bank) feature and user can install SIMMs into any bank.

SIMM1	SIMM2	SIMM3	SIMM4	DIMM1	DIMM2	TOTAL
4MB	4MB	---	---	---	---	8MBytes
---	---	---	---	8MB(3V)	---	8MBytes
4MB	4MB	4MB	4MB	---	---	16MBytes
4MB	4MB	---	---	---	8MB(5V)	16MBytes
8MB	8MB	---	---	---	---	16MBytes
---	---	---	---	8MB(3V)	8MB(3V)	16MBytes
---	---	---	---	16MB(3V)	---	16MBytes
4MB	4MB	8MB	8MB	---	---	24MBytes
8MB	8MB	4MB	4MB	---	---	24MBytes
8MB	8MB	---	---	---	16MB(5V)	32MBytes
8MB	8MB	8MB	8MB	---	---	32MBytes
16MB	16MB	---	---	---	---	32MBytes
---	---	---	---	16MB(3V)	16MB(3V)	32MBytes
---	---	---	---	32MB(3V)	---	32MBytes
16MB	16MB	4MB	4MB	---	---	40MBytes
8MB	8MB	16MB	16MB	---	---	48MBytes
16MB	16MB	8MB	8MB	---	---	48MBytes
16MB	16MB	---	---	---	32MB(5V)	64MBytes
16MB	16MB	16MB	16MB	---	---	64MBytes
32MB	32MB	---	---	---	---	64MBytes
---	---	---	---	32MB(3V)	32MB(3V)	64MBytes
8MB	8MB	32MB	32MB	---	---	80MBytes
32MB	32MB	8MB	8MB	---	---	80MBytes
16MB	16MB	32MB	32MB	---	---	96MBytes
32MB	32MB	16MB	16MB	---	---	96MBytes
32MB	32MB	32MB	32MB	---	---	128MBytes
---	---	---	---	64MB(3V)	64MB(3V)	128MBytes

CHAPTER 3. BIOS SETUP

3-1. AWARD BIOS CMOS SETUP

ROM PCI BIOS
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION
PNP/PCI CONFIGURATION	HDD LOW LEVEL FORMAT
LOAD SETUP DEFAULTS	SAVE & EXIT SETUP
	EXIT WITHOUT SAVING

Esc : Quit	↓↑→← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color

Time, Date,Hard Disk Type...

The menu displays all the major selection items and allow user to select any one of shown item. The selection is made by moving cursor(press any direction key) to the item and press <enter> key. An on-line help message is displayed at the bottom of the screen as cursor is moving to various items which provides user better understanding of each function. When a selection is made, the menu of selection is made, the menu of selected item will appear so the user can modify associated configuration parameters.

3-2. STANDARD CMOS SETUP

Choose "STANDARD CMOS SETUP" in the CMOS setup utility menu (figure3-1). THE STANDARD CMOS SETUP allows user to configure system setting such as current date and time, type of hard disk drive installed in the system, floppy drive type, and the type of display monitor. memory size is auto detected by the BIOS and displayed for your reference. When a field is highlighted (direction keys to move cursor and <enter> key to select). The entries in the field will be changed by pressing <PAGEDOWN> or <PAGEUP> key or user can enter new data directly from the keyboard.

ROM PCI BIOS
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

```
Date (mm:dd:yy) : Wed Jun 1, 1995
Time  (hh:mm:ss)  : 00 : 00 : 00

HARD DISK        TYPE SIZE  CYLS  HEADS  PRECOMP  LANDZ  SECTOR   MODE

Primary Master    : User(428MB) 899    15      65535     898      62    NORMAL
Primary Slave     : None
Secondary Master : None
Secondary Slave   : None

Drive A  :  1.2M  , 5.25 In
Drive B  :  1.44M , 3.5  In
Floppy 3 Mode Support : Disabled

Video    :  EGA/VGA
Halt On  :  All Errors

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

NOTE: IF HARD DISK PRIMARY MASTER/SLAVE AND SECONDARY MASTER/SLAVE WERE USED AUTO, THEN THE HARD DISK SIZE AND MODEL WILL BE AUTO DETECT ON DISPLAY DURING POST.

NOTE: THE "HALT ON:"FIELD IS TO DETERMINE WHEN TO HALT THE SYSTEM BY THE BIOS IF ERROR OCCURRED DURING POST.

3-3. BIOS FEATURES SETUP

Select the "BIOS FEATURES SETUP" option in the CMOS SETUP UTILITY menu allows user to change system related parameters in the displayed menu. This menu shows all of the manufacturer's default values of I430TX main board. again, user can move the cursor by pressing direction keys and <PAGEDOWN> or <PAGEUP> key to modify the parameters, pressing [F1] key to display help message of the selected item. This setup program also provide 2 convenient ways to load the default parameter data from BIOS [F6] or CMOS [F7] area if shown data is corrupted. This provides the system a capability to recover from any possible error.

```
                    ROM PCI BIOS
                 BIOS FEATURES SETUP
                 AWARD SOFTWARE, INC.
 ┌──────────────────────────────────┬─────────────────────────────────────┐
 │ Virus Warning           :Disabled│ Video BIOS Shadow          :Enabled  │
 │ CPU Internal Cache      :Enabled │ C8000-CBFFF Shadow         :Disabled │
 │ External Cache          :Enabled │ CC000-CFFFF Shadow ,       :Disabled │
 │ Quick Power On Self Test :Disabled│ D0000-D3FFF Shadow         :Disabled │
 │ Boot Sequence           :C, A, Scsi│ D4000-D7FFF Shadow        :Disabled │
 │ Swap Floopy Driver      :Disabled│ D8000-DBFFF Shadow         :Disabled │
 │ Boot Up Floopy Seek     :Enabled │ DC000-DFFFF Shadow         :Disabled │
 │ Boot Up Numlock Status  :on      │                                      │
 │ Boot Up System Speed    :High    ├─────────────────────────────────────┤
 │ Typematic Rate Setting  :Disabled│ ESC : Quit    ↓↑→←  : Select Item    │
 │ Typematic Rate(Chars/Sec) :6     │ F1 : Help       PU/PD/+/- : Modify   │
 │ Typematic Delay(Msec)   :250     │ F5 : Old Valued   (Shift) F2 : Color │
 │ Security Option         :Setup   │ F6 : Load Bios Defaults              │
 │ PS/2 Mouse Function Control :Enabled│ F7 : Load Setup Defaults          │
 │ PCI VGA Palette Snoop   :Disabled│                                      │
 │ OS Select For DRAM > 64MB :Non-OS2│                                     │
 └──────────────────────────────────┴─────────────────────────────────────┘
```

CPU INTERNAL CACHE / EXTERNAL CACHE:

THESE TWO CATEGORIES SPEED UP MEMORY   ACCESS, HOWEVER, IT DEPENDS ON CPU/CHIPSET DESIGN. THE DEFAULT VALUE IS   ENABLE. IF YOUR CPU WITHOUT INTERNAL CACHE THEN THIS ITEM "CPU INTERNAL CACHE" WILL NOT BE SHOWED.

ENABLED: ENABLE CACHE

DISABLED: DISABLE 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.

ENABLE : ENABLE QUICK POST
DISABLED: NORMAL POST

BOOT SEQUENCE:

THIS CATEGORY DETERMINES WHICH DRIVE COMPUTER SEARCHES FIRST FOR THE DOS (DISK OPERATING SYSTEM). DEFAULT VALUE IS A,C.

A,C: SYSTEM WILL FIRST SEARCH FOR FLOPPY DISK DRIVE THEN HARD DISK DRIVE.
C,A: SYSTEM WILL FIRST SEARCH FOR HARD DISK DRIVE THEN FLOPPY DISK DRIVE.
CDROM,C,A: SYSTEM WILL FIRST SEARCH FOR CDROM DRIVE THEN HARD DISK DRIVE.

SWAP FLOPPY DRIVE:

THE SWAP FLOPPY DRIVE. DEFAULT VALUE IS DISABLED.
ENABLED: FLOPPY A&B WILL BE SWAPPED UNDER THE DOS.
DISABLED: FLOPPY A&B WILL BE NOT SWAPPED.

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 720K, 1.2M AND 1.44M ARE ALL 80 TRACKS. THE DEFAULT VALUE IS ENABLED.

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.

NOTE: THE BOARD DEFAULT VALUE IS LOW IN THE FIELD. BOOT
THE SYSTEM TO CONTROL TURBO OR DE-TURBO BY
ON-BOARD (TURBO SWITCH).

TYPEMATIC RATE SETTING:
THIS DETERMINES THE TYPEMATIC RATE.
ENABLED: ENABLE TYPEMATIC RATE AND TYPEMATIC DELAY
PROGRAMMING.
DISABLED: DISABLE TYPEMATIC RATE AND TYPEMATIC DELAY
PROGRAMMING, THE SYSTEM BIOS WILL USE DEFAULT
VALUE OF THIS 2 ITEMS AND THE DEFAULT IS
CONTROLLED BY KEYBOARD.

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 A KEY, THE TIME BETWEEN THE FIRST AND
SECOND CHARACTER DISPLAYED.

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

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-CBFFF SHADOW:
CC000-CFFFF SHADOW:
D0000-D3FFF SHADOW:
D4000-D7FFF SHADOW:
D8000-DBFFF SHADOW:
DC000-DFFFF SHADOW:

THESE CATEGORIES DETERMINE WHETHER OPTIONAL ROM WILL BE
COPIED TO RAM BY 16K BYTE OR 32K BYTE PER/UNIT AND THE SIZE
DEPENDS ON CHIPSET.
ENABLED : OPTIONAL SHADOW IS ENABLED.
DISABLED: OPTIONAL SHADOW IS DISABLED.

3-4. CHIPSET FEATURES SETUP

ROM PCI BIOS
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

DRAM Leadoff Timing :11/7/4	
DRAM Read Burst (EDO/FP) :X444/X444	
DRAM Write Burst Timing :X444	
Fast EDO Lead Off :Disabled	
Refresh RAS# Assertion :5 CLKS	
Fast RAS TO CAS delay :3	
DRAM Page Idle Timer :2 CLKS	
DRAM Enhanced Pageing :Enabled	
Fast MA To RAS# Delay :2	
SDRAM(CAS Lat/RAS-to-CAS):3/3	
SDRAM Speculative Read :Disabled	
System BIOS Cacheable :Disabled	ESC : Quit ↓↑→← : Select Item
Video BIOS Cacheable :Disabled	F1 : Help PU/PD/+/- : Modify
8 Bit I/O Recovery Time :8	F5 : Old Valued (Shift) F2 : Color
16 Bit I/O Recovery Time :4	F6 : Load Bios Defaults
Memory Hole At 15M-16M :Disabled	F7 : Load Setup Defaults

FAST RAS TO CAS Delay[Control the DRAM page miss and row miss leadoff
timing.]
: 2
: 3 (default)

DRAM Read Burst (EDO/FP) [The timing used depends on the type of DRAM
on a per-basis. The DRAM read burst timing
is controlled by register.]
: X222/X333
: X322/X333
: X333/X444
: X444/X444 (default)

DRAM Write Burst Timing [Slower rate may be required in certain system de-
signs to support layout with longer trace length or
slower DRAM. The DRAM write burst timing are
controlled by register.]
: X222
: X333
: X444(default)

System BIOS Cacheable[Define whether system BIOS area cacheable or not.]
:Enabled
:Disabled (default)

Video BIOS Cacheable[Define whether video BIOS area cacheable or not.]
:Enabled
:Disabled (default)

8 BIT I/O RECOVERY TIME:
THIS FIELD DEFINES THE RECOVERY TIME FROM 1 TO 8 FOR 8-BIT I/O.

16 BIT I/O RECOVERY TIME:
TO DEFINE THE RECOVERY TIME FROM 1 TO 4 FOR 16-BIT I/O.

3-5. INTEGRATED PERIPHERALS

ROM PCI BIOS
INTEGRATED PERIPHERALS
AWARD SOFTWARE, INC.

IDE HDD Block Mode	:Enabled	Onboard Parallel Mode	:SPP
IDE Primary Master PIO	:Auto		
IDE Primary Slave PIO	:Auto		
IDE Secondary Master PIO	:Auto		
IDE Secondary Slave PIO	:Auto		
IDE Primary Master UDMA	:Auto		
IDE Primary Slave UDMA	:Auto		
IDE Secondary Master UDMA	:Auto		
IDE Secondary Slave UDMA	:Auto		
On-Chip Primary PCI IDE	:Enabled		
On-Chip Secondary PCI IDE	:Enabled		
USB Keyboard Support	:Disabled		
KBC Input Clock	:8Mhz		
Onboard FDC Controller	:Enabled		
Onboard Serial Port 1	:AUTO	ESC : Quit ↓↑→← : Select Item	
Onboard Serial Port 2	:AUTO	F1 : Help PU/PD/+/- : Modify	
UR2 Mode	:Standard	F5 : Old Valued (Shift) F2 : Color	
		F6 : Load Bios Defaults	
Onboard Parallel Port	:378/IRQ7	F7 : Load Setup Defaults	

IDE HDD Block Mode[This feature enhances hard disk performance by making multi sector transfer, instead of one sector per transfer, Most of IDE drivers, except very early designs ,can use this feature.]

:Enabled (default)
:Disabled

IDE Primary Master PIO [Detect your Primary Master hard disk device.]

:AUTO (default)
:Mode 0,1,2,3,4

IDE Primary Slave PIO   [Detect your Primary Slave hard disk device.]

:AUTO (default)
:Mode 0,1,2,3,4

IDE Secondary Master PIO[Detect your Secondary Master hard disk device.]

:AUTO (default)
:Mode 0,1,2,3,4

IDE Secondary Slave PIO [Detect your Secondary Slave hard disk device.]
: AUTO (default)
: Mode 0,1,2,3,4
On-Chip Primary PCI IDE [Select use Chip support Primary PCI IDE.]
: Enabled (default)
: Disabled
On-Chip Secondary PCI IDE [Select use Chip support Secondary PCI IDE.]
: Enabled (default)
: Disabled
PCI slot IDE 2nd Channel [Use external IDE. AS ISA IDE or PCI IDE.]
: Enabled (default)
: Disabled
On-board FDD Controller : Enabled (default)
: Disabled
On-board Serial Port 1 : 3F8/IRQ4 (default)
: 2F8/IRQ3
: 3E8/IRQ4
: 2E8/IRQ3
: AUTO
: Disabled
On-board Serial Port 2 : 3F8/IRQ4
: 2F8/IRQ3(default)
: 3E8/IRQ4
: 2E8/IRQ3
: AUTO
: Disabled
On-board Parallel Port : 378H (default)
: 278H
: 3BCH
: Disabled
On-board Parallel Mode : SPP(default)
: EPP
: ECP
: ECP+EPP

3-6. SUPERVISOR/USER PASSWORD

The " SUPERVISOR/USER PASSWORD SETTING " utility sets the password. The mainboard may be shipped with the default password "award_sw" , or with the password disabled. If you want to change the password, you must first enter the current password (" award_sw " in this case).   Then at the prompt, type your new password.   The password is case sensitive and you can use up to 8 alphanumeric characters. Press <Enter> after the password . At the next prompt, confirm the new password by typing it and pressing <Enter> again. when you use this feature, the " security option" line in BIOS FEATURES SETUP will determine whether the password will be required.   To disable the password, press the <Enter> key instead of entering a new password when the " Enter password" dialog box appears. A message will appear confirming that the password is disabled. You may receive your mainboard set up this way.

There are two kinds of password functions in the setup menu : one is **SUPERVISOR PASSWORD**, and the other is **USER PASSWORD.**

The differences between them are:

SUPERVISOR PASSWORD:The supervisor password function allows you the right to change the options of setup menu once you enter the setup menu.

USER PASSWORD:The user password function only allows you to enter the setup menu but do not have the right to change the options of the setup menu except user password, save & exit setup, and exit without saving.

3-7. POWER MANAGEMENT SETUP

ROM PCI BIOS
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

Power Management	:Disabled	** Reload Global Timer Events **	
PM Control By APM	:Yes	IRQ3 (3-7, 9-15), NMI :Enabled	
Video Off Method	:V/H SYNC+blank	Primary IDE 0	:Disabled
Video Off After	:Standby	Primary IDE 1	:Disabled
Modem Use IRQ	:NA	Secondary IDE 0	:Disabled
Doze Mode	:Disabled	Secondary IDE 1	:Disabled
Standby Mode	:Disabled	Floppy Disk	:Disabled
Suspend Mode	:Disabled	Serial Port	:Enabled
HDD Power Down	:Disabled	Parallel Port	:Disabled
Throttle Duty Cycle	:62.5%		
22 Active In Suspend	:Disabled	ESC : Quit ↓↑→← : Select Item	
VGA Active Monitor	:Enabled	F1 : Help PU/PD/+/- : Modify	
Resume by Ring	:Enabled	F5 : Old Valued (Shift) F2 : Color	
Soft-Off by PWR-BTTN	:Instant-Off	F6 : Load Bios Defaults	
IRQ 8 Break Suspend	:Disabled	F7 : Load Setup Defaults	

POWER MANAGEMENT:

Disabled   :Global Power Management will be disabled.

User Define:Users can configure their own power management.

Min.Saving :Pre-define timer value are used such that all timers are in
their MAX . value

Max.Saving :Pre-define timer values are used such that all timers are in
their MIN . value.

PM Control by APM:

NO : System BIOS will ignore APM.

Yes : System BIOS will wait for APM's prompt before it
enter any PM mode, e.g. DOZE, STANDBY or SUSPEND.

**** NOTE **** : 1. IF APM is installed, and there is a task running,
even if the timer is time out, the APM will not prompt
the BIOS to put the system into any power saving mode!
2. IF APM is not installed, this option has no effect.

Video Off Method   :
  Blank Screen   : The system BIOS will only blanks off the screen when
                                disabled.

  V/H SYNC+Blank : BIOS will also turn off the V/H SYNC signal from VGA
                                card to monitor.
Doze Mode   : disabled , 1 Min --- 1 Hour
Standby Mode   : disabled , 1 Min --- 1 Hour
Suspend Mode   : disabled , 1 Min --- 1 Hour
reload global timer events : To COM ports, LPT ports and Drive ports
                        IRQ3.......IRQ15 check point Then Into Green
                        function.

3-8. PNP / PCI CONFIGURATION SETUP

ROM PCI BIOS
PNP / PCI CONFIGURATION SETUP
AWARD SOFTWARE, INC.

```
PNP OS  Installed      : No        PCI IDE IRQ Map      : PCI-Auto
Resources Controlled By : Manual    Primary IDE INT#    : A
Rest Configuration Data : Disabled  Secondary IDE INT# : B

IRQ-3 assigned to : Legacy ISA      Used MEM Base Addr : N/A
IRQ-4 assigned to : Legacy ISA
IRQ-5 assigned to : PCI/ISA PnP
IRQ-7 assigned to : PCI/ISA PnP
IRQ-9 assigned to : PCI/ISA PnP
IRQ-10 assigned to : PCI/ISA PnP
IRQ-11 assigned to : PCI/ISA PnP
IRQ-12 assigned to : PCI/ISA PnP
IRQ-14 assigned to : PCI/ISA PnP
IRQ-15 assigned to : PCI/ISA PnP
DMA-0 assigned to : PCI/ISA PnP
DMA-1 assigned to : PCI/ISA PnP     ESC : Quit      ↓↑→← : Select Item
DMA-3 assigned to : PCI/ISA PnP     F1 : Help         PU/PD/+/- : Modify
DMA-5 assigned to : PCI/ISA PnP     F5 : Old Valued     (Shift) F2 : Color
DMA-6 assigned to : PCI/ISA PnP     F6 : Load Bios Defaults
DMA-7 assigned to : PCI/ISA PnP     F7 : Load Setup Defaults
```

3-9 .IDE HDD AUTO DETECTION

The "IDE HDD AUTO DETECTION" utility is a very useful tool especially when you do not know which kind of hard disk type you are using. You can use this utility to detect the correct disk type installed in the system automatically or you can set hard disk type to auto in the standard cmos setup. You DON'T need the "IDE HDD AUTO DETECTION" utility. The BIOS will auto-detect the hard disk size and model on display during post.

NOTE: HDD MODES

THE AWARD BIOS SUPPORTS 3 HDD MODES: NORMAL, LBA & LARGE

NORMAL MODE

Generic access mode in which neither the bios nor the ide controller will make any transformations during accessing.

The maximum number of cylinders, head & sectors for normal mode are 1024, 16 & 63.

$$
\begin{array}{lll}
 & \text{no. CYLINDER} & (1024) \\
\text{X} & \text{no. HEAD} & (\ 16) \\
\text{X} & \text{no. SECTOR} & (\ 63) \\
\text{X} & \text{no. PER SECTOR} & (\ 512) \\
\hline
 & \text{528 Megabytes} &
\end{array}
$$

If user set this hdd to normal mode, the maximum accessible HDD size will be 528 megabytes even though its physical size may be greater than that!

LBA (LOGICAL Block Addressing) mode

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

During HDD accessing, the IDE controller will transform the logical address described by sector, head & cylinder into its own physical address inside the HDD.

The maximum hdd size supported by LBA mode is 8.4 gigabytes which is obtained by the following formula:

```
      no. CYLINDER           (1024)
  X   no. HEAD               ( 255)
  X   no. SECTOR             (  63)
  X   no. Bytes PER SECTOR   ( 512)
            8.4 GIGABYTES
```

LARGE MODE

Extended HDD access mode supported by award software.   Some IDE HDDS contain more than 1024 cylinder without LBA support (in some cases, user do not want LBA).   The AWARD BIOS provides another alternative to support these kinds of large mode:

CYLS.	HEAD	SECTOR	MODE
1120	16	59	NORMAL
560	32	59	LARGE

BIOS tricks DOS (or other os) that the number of cylinders is less than 1024 by dividing it by 2. at the same time, the number of heads is multiplied by 2. a reverse transformation process will be made inside int 12H in order to access the right HDD address.

MAXIMUM HDD SIZE:

```
      no. CYLINDER           (1024)
  X   no. HEAD               (  32)
  X   no. SECTOR             (  63)
  X   no. BYTES PER SECTOR   ( 512)
            1 Gigabytes
```

NOTE: TO SUPPORT LBA OR LARGE MODE OF HDDS, THERE MUST
BE SOME SOFTWARES INVOLVED. ALL THESE SOFTWARES
ARE LOCATED IN THE AWARD HDD SERVICE ROUTINE
(INT 13H). IT MAY BE FAILED TO ACCESS A HDD WITH LBA
(LARGE) MODE SELECTED IF YOU ARE RUNNING UNDER AN
OPERATING SYSTEM WHICH REPLACES THE WHOLE INT 13H.
UNIX OPERATING SYSTEMS DO NOT SUPPORT EITHER LBA
OR LARGE AND MUST UTILITY THE STANDARD MODE. UNIX
CAN SUPPORT DRIVES LARGER THAN 528MB.

3-10 .LOAD SETUP DEFAULTS

**"LOAD SETUP DEFAULTS" loads optimized settings which are stored in
the BIOS ROM.** The auto-configured settings only affect the BIOS feature
setup and chipset features setup screens. There is no effect on the standard
CMOS setup. To use this feature, highlight it on the main screen and press the
<ENTER> key. A line will appear on screen asking if you want to load the setup
default values. Press the <Y> key and then press the <ENTER> key . the
setup defaults will then load. Press <N> if you don't want to

3-11 SAVE & EXIT SETUP

The "SAVE & EXIT SETUP" option will bring you back to boot up procedure
with all the changes, you just made which are recorded in the CMOS RAM.

3-12 EXIT WITHOUT SAVING

The "EXIT WITHOUT SAVING" option will bring you back to normal boot up
procedure without saving any data into CMOS RAM. All of the old data in the
CMOS will not be destroyed.

3-13 I/O & MEMORY MAP

MEMORY MAP

ADDRESS RANGE	SIZE	DESCRIPTION
00000-7FFFF	512K	CONVENTIONAL MEMORY
80000-9FBFF	127K	EXTENDED CONVENTIONAL MEMORY
9FC00-9FFFF	1K	EXTENDED BIOS DATA AREA IF PS/2 MOUSE IS INSTALLED
A0000-C7FFF	160K	AVAILABLE FOR HI DOS MEMORY
C8000-DFFFF	96K	AVAILABLE FOR HI DOS MEMORY AND ADAPTER ROMS
E0000-EEFFF	60K	AVAILABLE FOR UMB
EF000-EFFFF	4K	VIDEO SERVICE ROUTINE FOR MONOCHROME & CGA ADAPTER
F0000-F7FFF	32K	BIOS CMOS SETUP UTILITY
F8000-FCFFF	20K	BIOS RUNTIME SERVICE ROUTINE (2)
FD000-FDFFF	4K	PLUG AND PLAY ESCD DATA AREA
FE000-FFFFF	8K	BIOS RUNTIME SERVICE ROUTINE (1)

I/O MAP

000-01F	DMA CONTROLLER (MASTER)
020-021	INTERRUPT CONTROLLER (MASTER)
022-023	CHIPSET CONTROL REGISTERS. I/O POSTS
040-05F	TIMER CONTROL REGISTERS
060-06F	KEYBOARD INTERFACE CONTROLLER (8042)
070-07F	RTC PORTS & CMOS I/O PORTS
080-09F	DMA REGISTER
0A0-0BF	INTERRUPT CONTROLLER (SLAVE)
0C0-0DF	DMA CONTROLLER (SLAVE)
0F0-0FF	MATH COPROCESSOR
1F0-1FB	HARD DISK CONTROLLER
278-27F	PARALLEL PORT 2
2B0-2DF	GRAPHICS ADAPTER CONTROLLER
2F8-2FF	SERIAL PORT 2
360-36F	NETWORK PORTS
378-37F	PARALLEL PORT 1
3B0-3BF	MONOCHROME & PARALLEL PORT ADAPTER
3C0-3CF	EGA ADAPTER
3D0-CDF	CGA ADAPTER
3F0-3F7	FLOPPY DISK CONTROLLER
3F8-3FF	SERIAL PORT-1

3-14 TIME & DMA CHANNELS MAP

TIME MAP: TIMER CHANNEL 0 SYSTEM TIMER INTERRUPT
                    TIMER CHANNEL 1 DRAM REFRESH REQUEST
                    TIMER CHANNEL 2 SPEAKER TONE GENERATOR

DMA CHANNELS: DMA CHANNEL 0 AVAILABLE
                    DMA CHANNEL 1 ONBOARD ECP (OPTION)
                    DMA CHANNEL 2 FLOPPY DISK (SMC CHIP)
                    DMA CHANNEL 3 ONBOARD ECP (DEFAULT)
                    DMA CHANNEL 4 CASCADE FOR DMA CONTROLLER 1
                    DMA CHANNEL 5 AVAILABLE
                    DMA CHANNEL 6 AVAILABLE
                 DMA CHANNEL 7 AVAILABLE

3-15 INTERRUPT MAP

NIMI: NON-MASKABLE INTERRUPT

IRQ(H/W): 0 SYSTEM TIMER INTERRUPT FROM TIMER 0
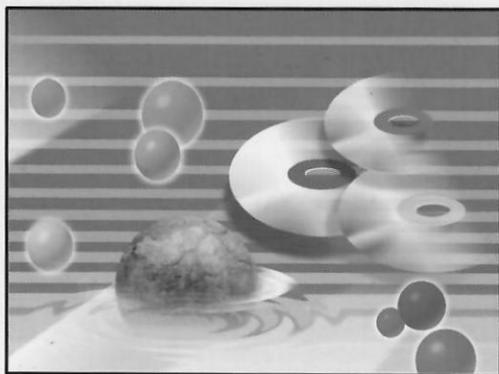   1 KEYBOARD OUTPUT BUFFER FULL
                  2 CASCADE FOR IRQ8-15
                  3 SERIAL PORT2
                  4 SERIAL PORT1
                  5 PARALLEL PORT 2
                  6 FLOPPY DISK (SMC CHIP)
                  7 PARALLEL PORT 1
                  8 RTC CLOCK
                  9 AVAILABLE
                  10 AVAILABLE
                  11 AVAILABLE
                  12 PS/2 MOUSE
                  13 MATH COPROCESSOR
                  14 ONBOARD HARD DISK (IDE1) CHANNEL
                  15 ONBOARD HARD DISK (IDE2) CHANNEL

3-16 RTC & CMOS RAM MAP

RTC & CMOS:00   SECONDS
- 01   SECOND ALARM
- 02   MINUTES
- 03   MINUTES ALARM
- 04   HOURS
- 05   HOURS ALARM
- 06   DAY OF WEEK
- 07   DAY OF MONTH
- 08   MONTH
- 09   YEAR
- 0A   STATUS REGISTER A
- 0B   STATUS REGISTER B
- 0C   STATUS REGISTER C
- 0D   STATUS REGISTER D
- 0E   DIAGNOSTIC STATUS BYTE
- 0F   SHUTDOWN BYTE
- 10   FLOPPY DISK DRIVE TYPE BYTE
- 12   HARD DISK TYPE BYTE
- 13   RESERVE
- 14   EQUIPMENT TYPE
- 15   BASE MEMORY LOW BYTE
- 16   BASE MEMORY HIGH BYTE
- 17   EXTENSION MEMORY LOW BYTE
- 18   EXTENSION MEMORY HIGH BYTE
- 19-2D
- 2E-2F
- 30 RESERVED FOR EXTENSION MEMORY LOW BYTE
- 31 RESERVED FOR EXTENSION MEMORY HIGH BYTE
- 32 DATE CENTURY BYTE
- 33 INFORMATION FLAG
- 34-3F RESERVE
- 40-7F RESERVED FOR CHIPSET SETTING·DATA

---END---

5I-TX1!-2