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# Chapter 1

## 1. Introduction

The 82430TX PCI consists of the TX System Controller (MTXC) and PCI ISA IDE Xcelerator (PIIX4). The PCIset forms a Host-to-PCI bridge and provides the second level cache control and a full function 64-bit data path to main memory. The MTXC integrates the cache and main memory DRAM control function and provides bus control to transfers between the CPU, cache, main memory, and the PCI Bus. The second level (L2) cache controller supports a write-back cache policy for cache size of 256 Kbytes and 512 Kbytes. Using the snoop ahead feature, the MTXC allows PCI masters to achieve full PCI bandwidth. For increased system performance, the MTXC integrates posted write and read prefetch buffers. The Intel 430TX PCIset integrates many Power Management features that will enable the system to save power whenever the system resources become idle.

The PCI ISA IDE Xcelerator (PIIX4) is a multi-function PCI device implementing a Universal Serial Bus host/hub function, and an Enhanced Power Management function. As a PCI-to-ISA bridge, the PIIX4 integrates many common I/O function found in ISA-based PC system—a seven channel DMA Controller, two 82C59 Interrupt Controllers, an 8254 Time/Counter, and a Real Time Clock. In addition to Compatible transfers, each DMA channel supports Type F transfers. The PIIX4 also contains full support for both PC/PCI and Distributed DMA protocols implementing PCI based DMA. The Interrupt Controller has Edge or Level sensitive Programmable inputs and fully supports the use of an external I/O Advanced Programmable Interrupt Controller (APIC) and Serial Interrupts. Chip select decoding is provided for BIOS, Real Time Clock, Keyboard Controller, second external Microcontroller, as well as 2 Programmable Chip Selects. The PIIX4 provides full Plug and Play compatibility. The PIIX4 can be configured as a Subtractive Decode bridge or as a Positive Decode bridge.

The PIIX4 supports two IDE connectors for up to four IDE device providing an interface for IDE hard disks and CDROMs. Up to four IDE device can be supported in Bus Master mode. The PIIX4 contains support for “Ultra 33” synchronous DMA compatible devices.

PIIX4 contains a Universal Serial Bus (USB) Host Controller that is Universal Host Controller Interface (UHCI) compatible. The Host Controller’s root hub has two programmable USB ports.

The PIIX4 supports Enhanced Power Management, including full Clock Control, Device Management for up to 14 devices, and Suspend and Resume logic with Power On Suspend. It fully supports Operating System Directed Power Management via the Advanced Configuration and Power Interface (ACPI) specification. The PIIX4 integrates both a System Management Bus (SMBus) Host and Slave interface for communication with other Power Management peripherals.

## 2. Specifications

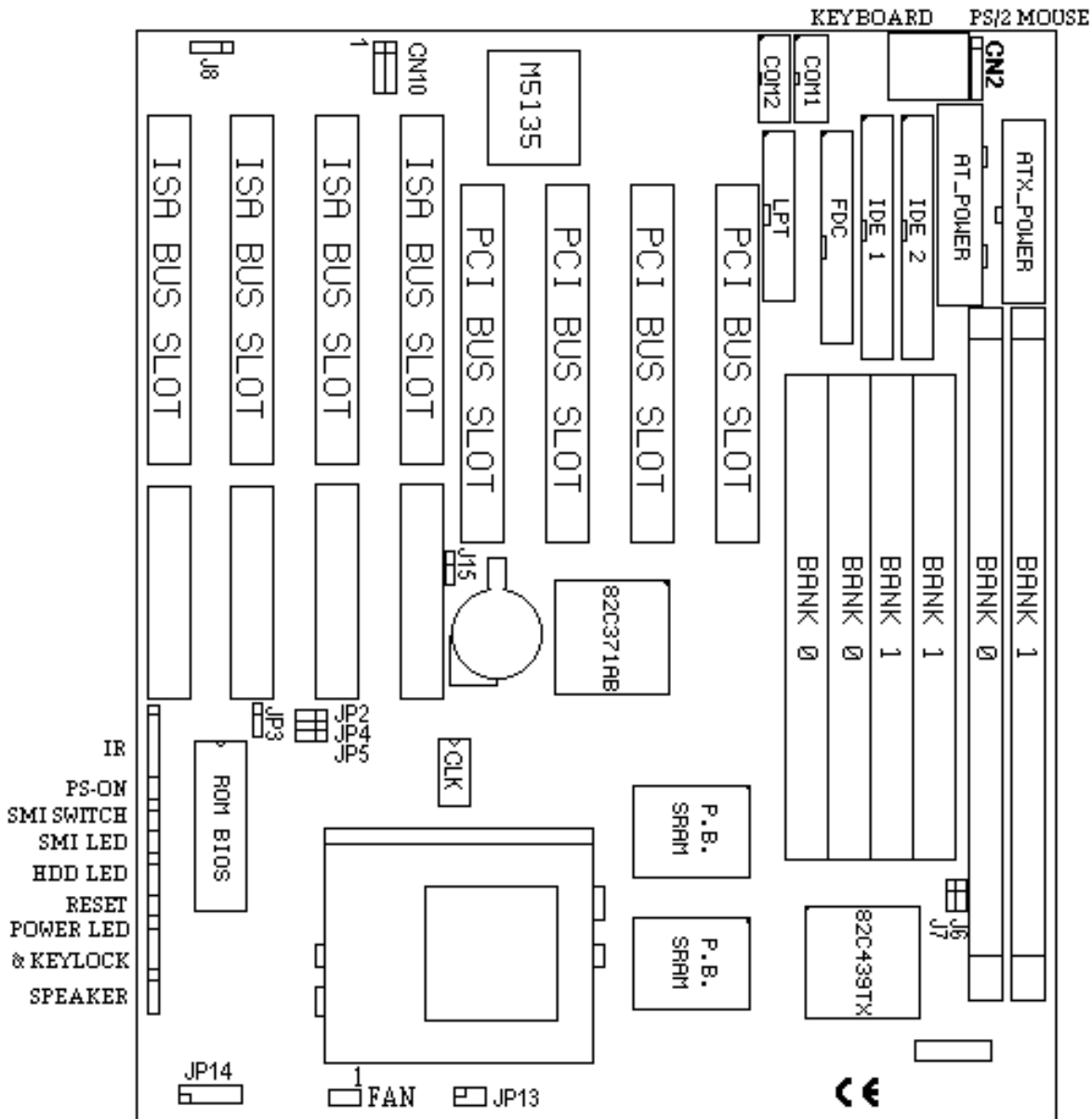
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- 📖 Intel 82430TX PCIsset™ chipset
  - 📖 Support Intel Pentium ,MMX CPUs, Cyrix 6x86, 6x86L, and M2 CPUs, AMD K5, and K6 CPUs, and IDT C6 CPUs.
  - 📖 Support full range CPU's frequency, from 90MHz to 233MHz
  - 📖 256KB or 512KB Pipeline Burst SRAM on board
  - 📖 Support Both Fast Page Mode and Extended Data Output (EDO) DRAM modules
  - 📖 Uses 72-pin SIMM modules X 4 and 168-pin DIMM modules X 2 auto banking in multiple configuration, the maximum on board MEMORY BANK is two.
  - 📖 Up to 256MB
  - 📖 Support SDRAM/EDO DRAM/FPM DRAM use 168-pin DIMM modules
  - 📖 4X PCI Local Bus slots, and 4X 16Bits ISA Bus slots
  - 📖 Up to four IDE device can be support in Bus Master mode
  - 📖 Support for “Ultra 33” synchronous DMA compatible device
  - 📖 Support the Universal Serial Bus (USB)
  - 📖 Support LS-120MB floppy disk
  - 📖 Support Microprocessor Thermal Management (Temperature Controller/ Fan Controller/ Melody)
  - 📖 Support ACPI(Advanced Configuration and Power Interface)
  - 📖 AWARD BIOS (Boot Block Flash ROM), Support “Plug and Play” function
  - 📖 Remote Ring On ( Modem on line)
  - 📖 Software Power-Off (Must be ATX Power Supply)
  - 📖 Dual Function Switch Button (Power Management Setup)
-

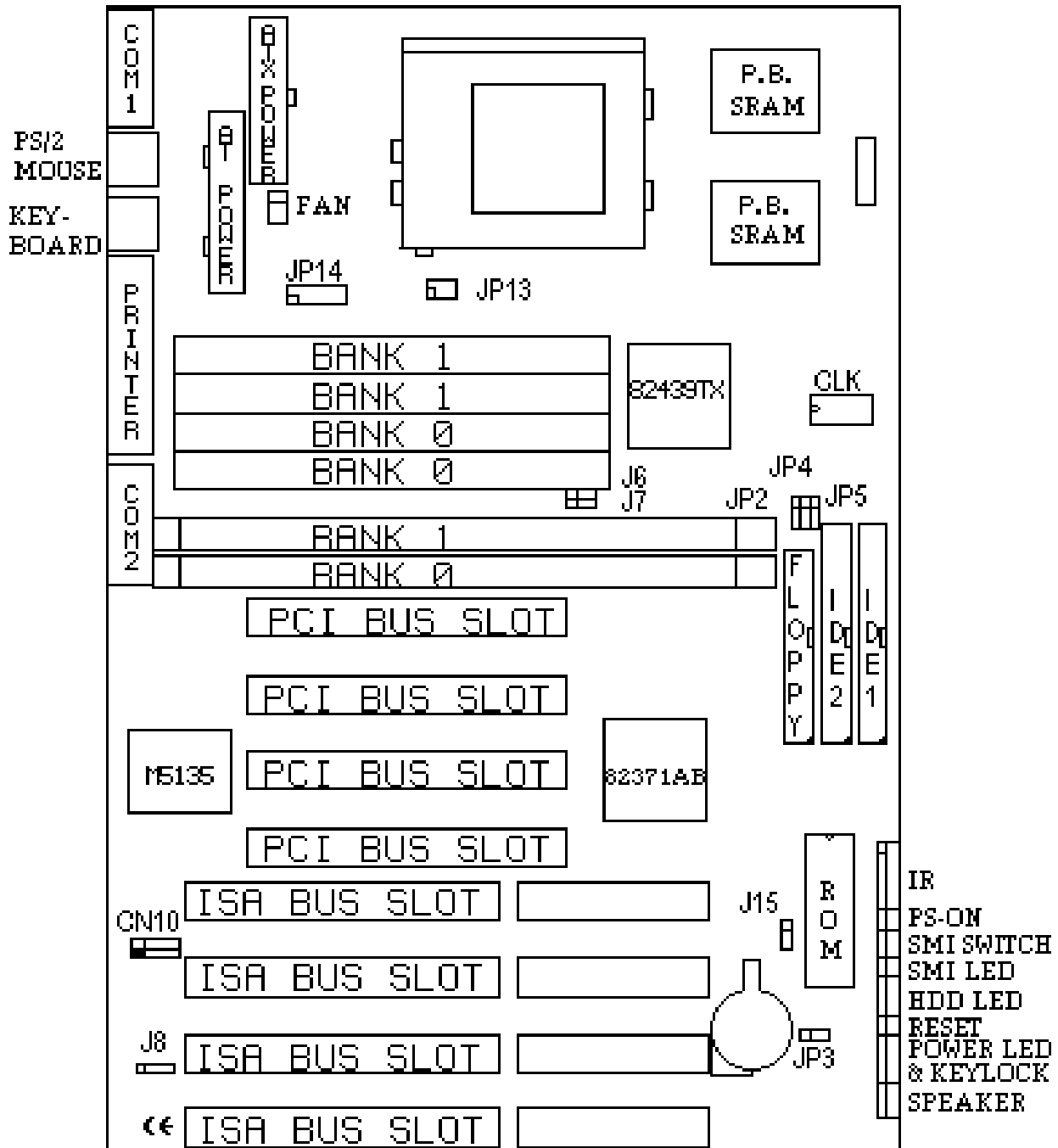
# Chapter 2

## Hardware Configuration

### 1. AT Layout placement(Intel 82430TX-A)



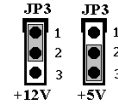
## 2. ATX Layout placement(Intel 82430TX-B)



### 3. Jumper Setting (\* : default)

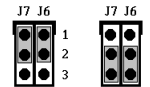
#### ①. JP3 Flash ROM Type Voltage (Factory)

+5V	+12V
2 - 3	1 - 2



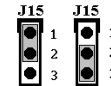
#### ②. J6,J7 DIMM Modules Voltage

+5V	* +3.3V
1 - 2	2 - 3



#### ③. J15 CMOS Clear Function Select

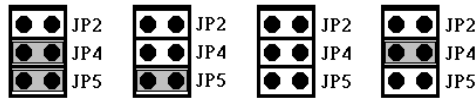
* 1 - 2	Internal Battery
2 - 3	Clear CMOS RAM data



**Note:** To clear CMOS setup memory if there has been any inappropriate operation incurring the system failure

#### ④. CPU Clock Select

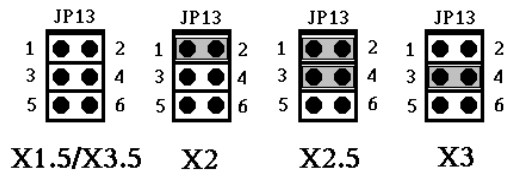
Clock(MHz)	55MHz	60MHz	*66MHz	75MHz
JP2	OFF	OFF	OFF	OFF
JP4	ON	OFF	OFF	ON
JP5	ON	ON	OFF	OFF



55MHz    60MHz    66MHz    75MHz

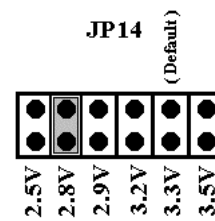
### ⑤. CPU Vcore Frequency Ratio

Frequency Ratio	X1.5/X3.5	*X2	X2.5	X3
JP13	OFF	1 - 2	1-2, 3-4	3 - 4

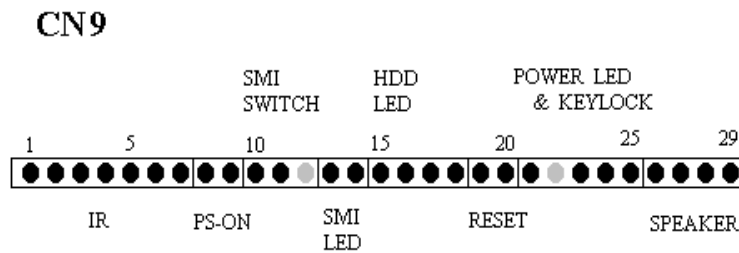


### ⑥. CPU Vcore Voltage Select

CPU Voltage	JP14
2.5V	1 - 2
2.8V	3 - 4
2.9V	5 - 6
3.2V	7 - 8
3.3V	* 9 - 10
3.5V	11 - 12



### ⑦. Others Jumper Setting



Pin No.	Assignment	Function	Pin No.	Assignment	Function
1	IRRX	<b>IR</b>	16	HDD LED -	<b>HDD LED</b>
2	GND		17	HDD LED -	
3	IRTX		18	HDD LED +	
4	+5V		19	GND	<b>RESET BUTTON</b>
5	NC		20	RESET	
6	+5V		21	PWR LED +	<b>POWER LED &amp; KEYLOCK</b>
7	GND		22	NC	
8	SB3V	<b>PS-ON</b>	23	PWR LED -	
9	POWER-ON		24	KEYLOCK	
10	GND	<b>SMI SWITCH</b>	25	GND	<b>SPEAKER</b>
11	EXTSMI		26	+5V	
12	NC	<b>SMI LED</b>	27	NC	
13	SMI LED +		28	NC	
14	SMI LED -		29	SPK OUT	
15	HDD LED +				

**Note 1 :** “PS-ON” is connect **POWER ON-OFF** switch of the “ATX” Power Supply

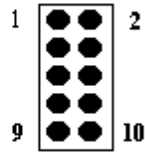
### ⑧. Connectors

<b>J1</b>	Connector of ATX Power Supply
<b>J4</b>	Connector of AT Power Supply
<b>CN2</b>	PS/2 Mouse
<b>CN3</b>	Keyboard
<b>CN1</b>	Serial Port 1
<b>CN5</b>	Serial Port 2
<b>CN4</b>	Parallel Port
<b>CN6</b>	Ultra IDE 1
<b>CN7</b>	Ultra IDE 2
<b>CN8</b>	Floppy Driver Port

### ⑨. CN10 Universal Serial Bus (USB) Connectors

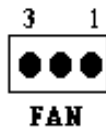
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Pin1 : +5V                      Pin2 : +5V  
 Pin3 : USBP1-                Pin4 : USBP0-  
 Pin5 : USBP1+                Pin6 : USBP0+  
 Pin7 : GND                    Pin8 : GND  
 Pin9 : GND                    Pin10: GND

⑩. FAN                      FAN Device Connector



Pin1 : GND  
 Pin2 : Fan Voltage (+12V)  
 Pin3 : GND

**DRAM Installation :**

- \* SIMM 1 & 2(BANK0) & DIMM5(BANK0) can not install simultaneously.
- \*\* SIMM 3 & 4(BANK1) & DIMM6(BANK1) can not install simultaneously.

∫ ∫ ∫. CPU Quick Index 1.

**INTEL CPU.**

CPU TYPE	PRINTING	MUL/MHz	JP13	JP2	JP4	JP5
Pentium	90	1.5/60	OFF	OFF	OFF	ON
Pentium	100	1.5/66	OFF	OFF	OFF	OFF
Pentium	120	2.0/60	1-2	OFF	OFF	ON
Pentium	133	2.0/66	1-2	OFF	OFF	OFF
Pentium	150	2.5/60	1-2,3-4	OFF	OFF	ON
Pentium/MMX	166	2.5/66	1-2,3-4	OFF	OFF	OFF
Pentium/MMX	200	3.0/66	3-4	OFF	OFF	OFF
Pentium MMX	233	3.5/66	OFF	OFF	OFF	OFF

### AMD CPU.

CPU TYPE	PRINTING	MUL/MHz	JP13	JP2	JP4	JP5
AMD-K5	PR-90	1.5/60	OFF	OFF	OFF	ON
AMD-K5	PR-100	1.5/66	OFF	OFF	OFF	OFF
AMD-K5	PR-133	2.0/66	1-2	OFF	OFF	OFF
AMD-K5/K6	PR-166/PR2-166	2.5/66	1-2,3-4	OFF	OFF	OFF
AMD-K6	PR2-200	3.0/66	3-4	OFF	OFF	OFF
AMD-K6	PR2-233	3.5/66	OFF	OFF	OFF	OFF

### Cyrix ( IBM ) 6x86/6x86L

CPU TYPE	PRINTING	MUL/MHz	JP13	JP2	JP4	JP5
6x86/6x86L	PR-133+	2.0/55	1-2	OFF	ON	ON
6x86/6x86L	PR-150+	2.0/60	1-2	OFF	OFF	ON
6x86/6x86L	PR-166+	2.0/66	1-2	OFF	OFF	OFF
6x86/6x86L	PR-200+	2.0/75	1-2	OFF	ON	OFF
6x86MX	PR-166+(150)	2.5/60	1-2,3-4	OFF	OFF	ON
6x86MX	PR-200+(166)	2.5/66	1-2,3-4	OFF	OFF	OFF
6x86MX	PR-233+(188)	2.5/75	1-2,3-4	OFF	ON	OFF
6x86MII	PR-300+(233)	3.5/66	OFF	OFF	OFF	OFF

### IDT CPU

CPU TYPE	PRINTING	MUL/MHz	JP13	JP2	JP4	JP5
Winchip C6	150	2.5/60	1-2,3-4	OFF	OFF	ON
Winchip C6	180	3.0/60	3-4	OFF	OFF	ON
Winchip C6	200	3.0/66	3-4	OFF	OFF	OFF
Winchip C6	200	3.0/66	3-4	OFF	OFF	OFF
Winchip C6	225	3.0/75	3-4	OFF	ON	OFF

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## ∫ ∫ ∫. CPU Quick Index 2.,

### CPU Vcore Voltage Select

CPU	JP14
<b>2.5V</b>	1 - 2
<b>2.8V</b>	3 - 4
<b>2.9V</b>	5 - 6
<b>3.2V</b>	7 - 8
<b>3.3V</b>	* 9 - 10
<b>3.5V</b>	11 - 12

#### Note:

INTEL Pentium MMX/Cyrix 6x86L CPU Setting by 2.8V

AMD K6-166/200 Setting by 2.9V

AMD K6-233 Setting by 3.2V

INTEL Pentium / AMD K5 CPU Setting 3.3V

AMD K5-166 Setting 3.52V

CYRIX 6x86 CPU Setting 3.3V or 3.52V

CYRIX 6x86MX, MII Setting 2.9V

IDT Winchip C6 150/180/200 Setting 3.3V

IDT Winchip C6 200/225 Setting 3.5V

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# Chapter 3

## BIOS Setup

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### Starting Setup

While the BIOS is in control, the Setup program can be activated in one of two ways:

1. By pressing <Del> immediately after turn on the system, or
2. by pressing the <Del> key when the following message appears briefly at the bottom of the screen during the POST (Power On Self Test).

## Section 1. Main Menu

ROM PCI/ISA 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 BIOS DEFAULTS	SAVE & EXIT SETUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING
Esc : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift)F2 : Change Color
Time, Date, Hard Disk Type...	

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#### Standard CMOS Setup

This setup page includes all the items in a standard, AT-compatible BIOS.

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#### BIOS Features Setup

This setup page includes all the items of Award special enhanced features.

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<b>Supervisor/ User Password Setting</b>	Change, set, or disable password. It allows you to limit access to the system and Setup, or just to Setup.
<b>Chipset Features Setup</b>	This setup page includes all the items of chipset special features.
<b>Power Management Setup</b>	This entry only appears if your system supports Power Management, "Green PC", standards.
<b>PNP / PCI Configuration Setup</b>	This entry appears if your system supports PNP / PCI.
<b>Load BIOS Defaults</b>	The BIOS defaults have been set by the manufacturer and represent settings which provide the minimum requirements for your system to operate.
<b>Load Setup Defaults</b>	The chipset defaults are settings which provide for maximum system performance. While Award has designed the custom BIOS to maximize performance, the manufacturer has the right to change these defaults to meet their needs.
<b>Integrated Peripherals</b>	This section page includes all the items of IDE hard drive and Programmed Input / Output features.
<b>IDE HDD Auto Detection</b>	Automatically detect and configure hard disk parameters. The Award BIOS includes this ability in the event you are uncertain of your hard disk parameters.
<b>HDD Low Level Format</b>	If supported by your system, this provides a hard disk low level format utility.
<b>Save &amp; Exit Setup</b>	Save CMOS changes to CMOS and exit setup.
<b>Exit Without Save</b>	Abandon all CMOS changes and exit setup.

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## Section 2. Standard CMOS Setup

ROM PCI/ISA BIOS  
STANDARD CMOS SETUP  
AWARD SOFTWARE, INC.

Date (mm:dd:yy) : Fri, Mar 14 1997																			
Time (hh:mm:ss) : 11 : 9 : 4																			
HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE											
Primary Master	: Auto	0	0	0	0	0	0	0	AUTO										
Primary Slave	: Auto	0	0	0	0	0	0	0	AUTO										
Secondary Master	: Auto	0	0	0	0	0	0	0	AUTO										
Secondary Slave	: Auto	0	0	0	0	0	0	0	AUTO										
Drive A : 1.44M, 3.5 in.					<table border="1"> <tr> <td>Base Memory:</td> <td>640K</td> </tr> <tr> <td>Extended Memory:</td> <td>15360K</td> </tr> <tr> <td>Other Memory:</td> <td>384K</td> </tr> <tr> <td colspan="2"><hr/></td> </tr> <tr> <td>Total Memory:</td> <td>16384K</td> </tr> </table>					Base Memory:	640K	Extended Memory:	15360K	Other Memory:	384K	<hr/>		Total Memory:	16384K
Base Memory:	640K																		
Extended Memory:	15360K																		
Other Memory:	384K																		
<hr/>																			
Total Memory:	16384K																		
Drive B : None																			
Video : EGA/VGA																			
Halt On : All Errors																			
ESC : Quit			↑ ↓ → ← : Select Item			PU/PD/+/- : Modify													
F1 : Help			(Shift)F2 : Change Color																

---

### Date

The date format is <day>, <date> <month> <year>.

---

### 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.

---

### Primary Master/Primary Slave/Secondary Master/Secondary Slave

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", you will need to know the listed information. Enter the information directly from the keyboard and press <Enter>. This information should be included in the documentation from your hard disk vendor or the system manufacturer.

If the controller of HDD interface is ESDI, the selection shall be "Type 1".

If the controller of HDD interface is SCSI, the selection shall be "None".

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

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.

Choose : None, 360K, 1.2M, 720K, 1.44M, 2.88M

---

**Video**

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

Choose : EGA/VGA, CGA40, CGA80, MONO

---

**Halt On**

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

---

**Memory**

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

## Section 3. BIOS Features Setup

ROM PCI/ISA 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	: Enabled	D0000-D3FFF Shadow	: Disabled
Boot Sequence	: A,C,SCSI	D4000-D7FFF Shadow	: Disabled
Swap Floppy Drive	: Disabled	D8000-DBFFF Shadow	: Disabled
Boot Up Floppy Seek	: Enabled	DC000-DFFFF Shadow	: Disabled
Boot Up NumLock Status	: On		
Boot Up System Speed	: High		
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec)	: 6		
Typematic Delay (Msec)	: 250		
Security Option	: Setup		
PS/2 mouse function control	: Enabled		
PCI/VGA Palette Snoop	: Disabled		
Assign IRQ For VGA	: Disabled		
OS Select For DRAM > 64MB	: Non-OS2		
		ESC : Quit	↑↓←→ : Select Item
		F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values	(Shift)F2 : Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

---

**Virus Warning**

When this item is enabled, the Award BIOS will monitor the boot sector and partition table of the hard disk drive for any attempt at modification. If an attempt is made, the BIOS will halt the system and the following error message will appear. Afterwards, if necessary, you will be able to run an anti-virus program to locate and remove the problem before any damage is done. (default: Disabled)

---

**! WARNING !**

Disk boot sector is to be modified

Type "Y" to accept write or "N" to abort write

Award Software, Inc.

**NOTE:** Many disk diagnostic programs which attempt to access the boot sector table can cause the above warning message. If you will be running such a program, we recommend that you first disable Virus Protection beforehand.

<b>CPU Internal Cache/External Cache</b>	Enabled	Enable cache (default)
	Disabled	Disable cache

<b>Quick Power On Self Test</b>	Enabled	Enable quick POST (default)
	Disabled	Normal POST

<b>Boot Sequence</b>	Choose : A,C,SCSI (default)      C,A,SCSI      C,CDROM,A			
	CDROM,C,A	D,A,SCSI	E,A,SCSI	F,A,SCSI
	SCSI,A,C	SCSI,C,A	C only	LS/ZIP,C

**Swap Floppy Drive** This item allows you to determine whether enable the swap floppy drive or not. If enable, Floppy A: as B: and B: as A:

The choice: Enabled /Disabled(default).

**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. (default: Enabled)

<b>Boot Up NumLock Status</b>	On	Keypad is number keys (default)
	Off	Keypad is arrow keys

<b>Boot Up System Speed</b>	High	Set the speed to high (default)
	Low	Set the speed to low

<b>Typematic Rate Setting</b>	Enabled	Enable typematic rate
	Disabled	Disable typematic rate (default)

<b>Typematic Rate (Chars/Sec)</b>	6,8,10,...,30	"n" characters per second (default:6)
-----------------------------------	---------------	---------------------------------------

<b>TypematicDelay (Msec)</b>	250,500,750,1000	"n" msec (default:250)
------------------------------	------------------	------------------------



<b>PS/2 Mouse Function Control</b>	Enabled	Enable PS/2 Mouse (default)
	Disabled	Disable PS/2 Mouse

<b>Security Option</b>	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. (default)

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.

**OS Select for DRAM > 64MB** This item allows you to access the memory that over 64MB in OS/2. The choice: Non-OS2 (default), OS2.

<b>PCI / VGA Palette Snoop</b>	Enabled	When PCI/VGA working with MPEG ISA/VESA VGA Card.
	Disabled	When PCI/VGA not working with MPEG ISA/VESA VGA Card. (default)

<b>Video BIOS Shadow</b>	Enabled	Video shadow is enabled (default)
	Disabled	Video shadow is disabled

<b>C8000 - CBFFF Shadow/DC000 - DFFFF Shadow</b>	Enabled	Optional shadow is enabled
	Disabled	Optional shadow is disabled (default)

<b>Assign IRQ For VGA</b>	Enabled	IRQ is enabled for VGA card
	Disabled	IRQ is disabled for VGA card (default)

## SECTION 4. SUPERVISOR/USER PASSWORD SETTING

You can set either supervisor or user password, or both of them. The differences between are:

supervisor password : can enter and change the options of the setup menus.  
user password : just can only enter but do not have the right to change the options of the setup menus.

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

#### PASSWORD DISABLED.

When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option (see Section 3). If the Security option is set to "System", the password will be required both at boot and at entry to Setup. If set to "Setup", prompting only occurs when trying to enter Setup.

## Section 5. Chipset Setup/Integrated Peripherals Features Setup

ROM PCI/ISA BIOS  
CHIPSET FEATURES SETUP  
AWARD SOFTWARE, INC.

Auto Configuration	: Enabled	
DRAM Timing	: 70 ns	
DRAM Leadoff Timing	: 10/6/4	
DRAM Read Burst (EDO/FP)	: x333/x444	
DRAM Write Burst Timing	: x333	
Fast EDO Lead Off	: Disabled	
Refresh RAS# Assertion	: 5 Clks	
Fast RAS To CAS Delay	: 3	
DRAM Page Idle Timer	: 2 Clks	
DRAM Enhanced Paging	: Enabled	
Fast MA to RAS# Delay	: 2 Clks	
SDRAM(CAS Lat/RAS-to-CAS)	: 3/3	
SDRAM Speculative Read	: Disabled	
System BIOS Cacheable	: Disabled	
Video BIOS Cacheable	: Disabled	
8 Bit I/O Recovery Time	: 1	
16 Bit I/O Recovery Time	: 2	
Memory Hole At 15M-16M	: Disabled	
PCI 2.1 Compliance	: Disabled	
		ESC : Quit           ↑↓↓* : Select Item
		F1 : Help            PU/PD/+/- : Modify
		F5 : Old Values   (Shift)F2 : Color
		F6 : Load BIOS Defaults
		F7 : Load Setup Defaults

---

**Auto Configuration**

Pre-defined values for DRAM, cache timing according to CPU type & system clock.

The Choice: Enabled (default), Disabled.

Note: When this item is enabled, the pre-defined items will become SHOW- ONLY.

---

**DRAM Timing**

The DRAM timing is controlled by the DRAM Timing Registers. The timings programmed into this register are dependent on the system design. Slower rates may be required in certain system designs to support loose layouts or slower memory.

60ns	DRAM Timing Type.
70ns	DRAM Timing Type. (default)

---

**DRAM Leadoff Timing**

This sets the number of CPU clocks allowed before reads and writes to DRAM are performed.

Choose : 11/7/3, 10/6/3, 11/7/4, 10/6/4

---

**DRAM Read Burst  
<EDO/FPM>**

This sets the timing for burst mode reads from two different DRAM(EDO/FPM). Burst read and write requests are generated by the CPU in four separate parts. The first part provides the location within the DRAM where the read or write is to take place while the remaining three parts provide the actual data. The lower the timing numbers, the faster the system will address memory.

x222/x333	Read DRAM (EDO/FPM) timings are 2-2-2/3-3-3
x333/x444	Read DRAM (EDO/FPM) timings are 3-3-3/4-4-4
x444/x444	Read DRAM (EDO/FPM) timings are 4-4-4/4-4-4

---

**DRAM Write Burst  
Timing**

This sets the timing for burst mode writes from DRAM. Burst read and write requests are generated by the CPU in four separate parts. The first part provides the location within the DRAM where the read or write is to take place while the remaining three parts provide the actual data. The lower the timing numbers, the faster the system will address memory.

x222	Write DRAM timings are 2-2-2-2
x333	Write DRAM timings are 3-3-3-3
x444	Write DRAM timings are 4-4-4-4

---

**Fast EDO Lead Off**

The item allows you to select the Fast EDO Lead Off or not to enhance the performance.

The Choice: Enabled, Disabled.

---

**Refresh RAS#  
Assertion**

This item allows you to select the type of DRAM refresh clock delay.

4,5Clks	The timing type.
---------	------------------

---

---

**Fast RAS To CAS Delay**

This field lets you insert a timing delay to get a faster performance between the Row Address Strobe (RAS) to Column Address Strobe (CAS) strobe signals, used when DRAM is written to, read from, or refreshed.

2,3	The timing delay
-----	------------------

---

**DRAM Page Idle Timer**

This item allows you to select the type of DRAM Page Idle Timer delay.

2,4,6,8Clks	The timing type (default: 2 Clks)
-------------	-----------------------------------

---

**DRAM Enhanced Paging**

This item allows you to determine whether to keep the page open until a page/row miss or use additional information to keep the DRAM page open when host may be "Light back".

The Choice: Enabled (default), Disabled.

---

**Fast MA to RAS# Delay**

This item allows you to select the DRAM Row Miss timing. Note: the timing adjustments are independent of DLT timing adjustment.

1	One clock. (MA setup to RAS# assertion)
2	Two clocks. (default)

---

**SDRAM (CAS Lat / RAS-to-CAS)**

This item allows you to select the CAS# latency for all SDRAM cycles and RAS# to CAS# delay.

2/2,3/3	The timing type. (default:3/3)
---------	--------------------------------

---

**SDRAM Speculative Read**

This item is capable of allowing a DRAM read request to be generated slightly before the address has been fully decoded. This can reduce all read latencies.

More simply, the CPU will issue a read request and included with this request is the place (address) in memory where the desired data is to be found. This request is received by the DRAM controller. When it is enabled, the controller will issue the read command slightly before it has finished determining the address.

The Choice: Enabled, Disabled (default).

---

**System/Video BIOS Cacheable**

Allow the System/Video BIOS to be cached to allow faster execution.

The Choice: Enabled, Disabled (default).

---

**8 Bit I/O Recovery Time**

The recovery time is the length of time, measured in CPU clocks, which the system will delay after the completion of an input/output request. This delay takes place because the CPU is operating so much faster than the input/output bus that the CPU must be delayed to allow for the completion of the I/O.

This item allows you to determine the recovery time allowed for 8 bit I/O. Choices are from NA, 1 to 8 CPU clocks.

---

**16 Bit I/O Recovery Time**

This item allows you to determine the recovery time allowed for 16 bit I/O. Choices are from NA, 1 to 4 CPU clocks.

---

---

**Memory Hole At  
15M-16M**

In order to improve performance, certain space in memory can be reserved for ISA cards. This memory must be mapped into the memory space below 16 MB.

Enabled	Memory hole supported.
Disabled	Memory hole not supported. (default)

---

**PCI 2.1 Compliance**

Enabled	With PCI 2.1 interface card.
Disabled	Normal PCI interface card. (default)

**Note : Most the PCI cards are for PCI V2.0.**

## Section 6. Integrated Peripherals

ROM PCI/ISA BIOS  
INTEGRATED PERIPHERALS  
AWARD SOFTWARE, INC.

IDE HDD Block Mode : Enabled	Onboard FDC Controller : Enabled
IDE Primary Master PIO : Auto	Onboard Serial Port 1 : 3F8/IRQ4
IDE Primary Slave PIO : Auto	Onboard Serial Port 2 : 2F8/IRQ3
IDE Secondary Master PIO : Auto	UR2 Mode : Normal
IDE Secondary Slave PIO : Auto	
IDE Primary Master UDMA : Auto	Onboard Parallel Port : 378/IRQ7
IDE Primary Slave UDMA : Auto	Parallel Port Mode : SPP
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	
	ESC : Quit           ↑↓→← : Select Item
	F1 : Help            PU/PD/+/- : Modify
	F5 : Old Values   (Shift)F2 : Color
	F6 : Load BIOS Defaults
	F7 : Load Setup Defaults

---

**IDE HDD Block Mode**

Enabled	IDE controller uses block mode. (default)
Disabled	IDE controller uses standard mode.

---

## IDE PIO

IDE hard drive controllers can support up to two separate hard drives. These drives have a master/slave relationship which are determined by the cabling configuration used to attach them to the controller. Your system supports two IDE controllers--a primary and a secondary--so you have to ability to install up to four separate hard disks.

PIO means Programmed Input/ Output. Rather than have the BIOS issue a series of commands to effect a transfer to or from the disk drive, PIO allows the BIOS to tell the controller what it wants and then let the controller and the CPU perform the complete task by themselves. This simpler and more efficient (and faster).

Your system supports five modes, numbered from 0 (default) to 4, which primarily differ in timing. When *Auto* is selected, the BIOS will select the best available mode. This is true for the next four setup items:

1. IDE Primary Master PIO
2. IDE Primary Slave PIO
3. IDE Secondary Master PIO
4. IDE Secondary Slave PIO

---

### IDE UDMA

Auto	Ultra DMA is auto detect. (default)
Disabled	Ultra DMA is Disabled.

---

### On-Chip Primary PCI IDE

Enabled	Primary HDD controller used. (default)
Disabled	Primary HDD controller not used.

---

### On-Chip Secondary PCI IDE

Enabled	Secondary HDD controller used. (default)
Disabled	Secondary HDD controller not used.

---

### USB Keyboard Support

Choice are Enabled, Disabled. (default)

---

### Onboard FDC Controller

Choices: Enabled (default), Disabled.

---

### Onboard Serial Port 1/Port 2

Choices are 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Auto, Disabled.  
Port 1: (default:3F8/IRQ4), Port 2: (default:2F8/IRQ3)

---

### UR 2 Mode

Choices are Normal (default), IrDA, ASKIR.

---

### UR2 Duplex Mode

This item allows you to select the IR function when your select the UART 2 Mode is ASKIR

---

### Use UART2 Pins

Choices are Half, Full.

This item allows you to determine the active of RXD, TXD.

Choices are IR-RX2TX2, RXD2 TXD2

---

**Note: The IR-RX2TX2 select IR or Uart2 only one in hardware**

---

**Onboard Parallel Port**

This item allows you to determine access onboard parallel port controller with which I/O address.

Choices are 378H/IRQ7 (default), 278H/IRQ5, 3BCH/IRQ7, Disabled.

---

**Parallel Port Mode**

Select an operating mode for the onboard parallel (printer) port. Normal EPP (Extended Parallel Port) ECP (Extended Capabilities Port) ECP+EPP PC AT parallel port Bi-directional port Fast, buffered port Fast, buffered, bi-directional port.

Select Normal unless you are certain your hardware and software both support EPP or ECP mode.

Choices are PS/2, EPP1.9, ECP, ECPEPP1.9, SPP (default), EPP1.7, ECPEPP1.7

---

**ECP Mode Use DMA**

Select a DMA channel for the parallel port for use during ECP mode.

Choices are 3, 1.

---

# Section 7. Power Management Setup

ROM PCI/ISA BIOS  
POWER MANAGEMENT SETUP  
AWARD SOFTWARE, INC.

Power Management : User Define	** Reload Global Timer Events **
PM Control by APM : Yes	IRQ(3-7,9-15).NMI : Enabled
Video Off Method : V/H SYNC+Blank	Primary IDE 0 : Disabled
Video Off After : Standby	Primary IDE 1 : Disabled
Doze Mode : Disabled	Secondary IDE 0 : Disabled
Standby Mode : Disabled	Secondary IDE 1 : Disabled
Suspend Mode : 8 Min	Floppy Disk : Disabled
HDD Power Down : Disabled	Serial Port : Enabled
Throttle Duty Cycle : 62.5%	Parallel Port : Disabled
ZZ Active in Suspend : Disabled	
VGA Active Monitor : Enabled	
Soft-Off by Pwr-BTTN : Instant-Off	
CPUFAN Off In Suspend : Enabled	
Resume by Ring : Enabled	
** Break Event From Suspend **	ESC : Quit           ↑↓→← : Select Item
IRQ 8 Clock Event : Disabled	F1 : Help            PU/PD/+/- : Modify
	F5 : Old Values (Shift)F2 : Color
	F6 : Load BIOS Defaults
	F7 : Load Setup Defaults
Delay 4 Sec.	

## Power Management

This category allows you to select the type (or degree) of power saving and is directly related to the following modes:

1. Doze Mode
2. Standby Mode
3. Suspend Mode4
4. HDD Power Down

There are four selections for Power Management, three of which have fixed mode settings.

Disable	No power management. Disables all four modes
Min. Power Saving	Minimum power management. Doze Mode = 1 hr. Standby Mode = 1 hr., Suspend Mode = 1 hr., and HDD Power Down = 15 min.
Max. Power Saving	Maximum power management -- <b>ONLY AVAILABLE FOR SL CPU</b> . Doze Mode = 1 min., Standby Mode = 1 min., Suspend Mode = 1 min., and HDD Power Down = 1 min.
User Define (default)	Allows you to set each mode individually. When not disabled, each of the ranges are from 1 min. to 1 hr. except for HDD Power Down which ranges from 1 min. to 15 min. and disable.



---

**PM Control APM**

When enabled, an Advanced Power Management device will be activated to enhance the Max. Power Saving mode and stop the CPU internal clock.

If the Max. Power Saving is not enabled, this will be preset to *No*.

---

**Video Off Method**

This determines the manner in which the monitor is blanked.

V/H SYNC+Blank (default)	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
Blank Screen	This option only writes blanks to the video buffer.
DPMS	Initial display power management signaling.

---

**VIDEO Off After**

This item determines the Video Off timer.

The choice: Suspend, Standby(default), Doze, N/A

---

**PM Timers**

The following four modes are Green PC power saving functions which are only user configurable when *User Defined* Power Management has been selected. See above for available selections.

---

**Doze Mode**

When enabled and after the set time of system inactivity, the CPU clock will run at slower speed while all other devices still operate at full speed.

---

**Standby Mode**

When enabled and after the set time of system inactivity, the fixed disk drive and the video would be shut off while all other devices still operate at full speed.

---

**Suspend Mode**

When enabled and after the set time of system inactivity, all devices except the CPU will be shut off.

---

**HDD Power Down**

When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

---

**Throttle Duty Cycle**

The duty cycle for CPU clock thermal mode

The choice: 12.5%, 25.0%, 37.5%, 50.0%, 62.5%(default), 75.0%, 87.5%

---

**ZZ Active in Suspend**

SRAM ZZ mode for L2 power management during CPU Standby. The choice: Enabled, Disabled(default)

---

**VGA Active Monitor**

The choice: Enabled(default), Disabled

---

**Soft-Off by PWR-BTTN**

Delay 4 Sec.	Shut-off the system must <b>delay 4 second</b> for <b>PS-ON</b> Button
Instant-Off (default)	Shut-off the system for one touch

**Note: "PS-ON" button is for ATX POWER only**

---

**CPUFAN Off In Suspend**

Component name is **FAN** for CPU fan use. The fan is stop when Suspend mode is active. (default: Enabled)

---

---

**Resume by Ring**

The Ring signal into the MODEM, than the system is restart. (default: Enabled)

---

## ***Break Event From Suspend***

---

**IRQ 8 Clock Event**

The choice: Enabled, Disabled (default)

---

## ***Reload Global Timer Events***

- Power Down and Resume events are I/O events whose occurrence can prevent the system from entering a power saving mode or can awaken the system from such a mode. In effect, the system remains alert for anything which occurs to a device which is configured as *On*, even when the system is in a power down
-

# Section 8. PnP/PCI Configuration Setup

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

PNP OS Installed : Yes Resources Controlled By : AUTO Reset Configuration Data : Disabled	PCI IDE IRQ Map To : PCI-AUTO Primary IDE INT# : A Secondary IDE INT# : B
	ESC : Quit           ↑↓↓↑ : Select Item F1 : Help            PU/PD/+/- : Modify F5 : Old Values (Shift)F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults

---

**PNP OS Installed**

This item allows you to determine install PnP OS or not.

Choices are Yes(default) and No.

---

**Resource Controlled by**

The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows® 95.

Choices are *Auto*(default) and Manual.

---

**Reset Configuration Data**

This item allows you to determine reset the configuration data or not.

Choices are *Enabled* and *Disabled*(default).

---

**IRQ3/4/5/7/9/10/11/12/14/15, DMA0/1/3/5/6/7 assigned to**

This item allows you to determine the IRQ /DMA assigned to the ISA bus and is not available to any PCI slot.

Choices are *Legacy ISA* and *PCI/ISA PnP*.

---

**PCI IDE IRQ Map to,  
Primary IDE INT#,  
Secondary IDE INT#**

This allows you to configure your system to the type of IDE disk controller in use. By default, Setup assumes that your controller is an ISA (Industry Standard Architecture) device rather than a PCI controller. The more apparent difference is the type of slot being used.

If you have equipped your system with a PCI controller, changing this allows you to specify which slot has the controller and which PCI interrupt (A, B,C or D) is associated with the connected hard drives.

Remember that this setting refers to the hard disk drive itself, rather than individual partitions. Since each IDE controller supports two separate hard drives, you can select the INT# for each. Again, you will note that the primary has a lower interrupt than the secondary as described in “Slot x Using INT#” above.

Selecting “PCI Auto” allows the system to automatically determine how your IDE disk system is configured.

**Used MEM base addr**

This item allows you to determine which basic addresses do not be occupied by PCI Card and leave these addresses for some special ISA Card used only.

Choices are C800, CC00, D000, D400, D800, DC00.

**Used MEM Length**

This item determines the memory length of addresses which is for some special ISA Card used.

Choices are 8K, 16K, 32K, 64K.

## Section 9. Low-Level Format Utility

<p>Hard disk Low-level-format</p> <p>SELECT DRIVE BAD TRACK LIST PREFORMAT</p> <hr/> <p>Current select drive is : C</p> <p>DRIVE : C CYLINDER : 0 HEAD : 0</p>	<p>BAD TRACKS TABLE</p> <table border="1"><thead><tr><th>NO.</th><th>CYLS</th><th>HEAD</th></tr></thead><tbody><tr><td> </td><td> </td><td> </td></tr></tbody></table>	NO.	CYLS	HEAD																	
NO.	CYLS	HEAD																			
<table border="1"><thead><tr><th></th><th>CYLINDERS</th><th>HEADS</th><th>SECTORS</th><th>PRECOMP</th><th>LANDZONE</th></tr></thead><tbody><tr><td>Drive C :</td><td>40Mb</td><td>977</td><td>5</td><td>17</td><td>300</td><td>977</td></tr><tr><td>Drive D :</td><td>None</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr></tbody></table>			CYLINDERS	HEADS	SECTORS	PRECOMP	LANDZONE	Drive C :	40Mb	977	5	17	300	977	Drive D :	None	0	0	0	0	0
	CYLINDERS	HEADS	SECTORS	PRECOMP	LANDZONE																
Drive C :	40Mb	977	5	17	300	977															
Drive D :	None	0	0	0	0	0															
<p>Up/Down—Select item      Enter—Accept      ESC—Exit/Abort</p> <p>Copyright (c) Award Software, Inc. 1992 All Rights Reserved</p>																					

---

## ***SELECT DRIVE***

Select from installed hard disk drive C or D. Listed at the bottom of the screen is the drive automatically detected by the utility.

---

## ***BAD TRACK LIST***

<b>Auto Scan Bad Track</b>	The utility will automatically scan bad tracks and list the bad tracks in the window at the right side of the screen.
<b>Add Bad Track</b>	Directly type in any information about known bad tracks in the window at the right side of the screen.
<b>Modify Bad Track</b>	Modify information about the added bad tracks in the window at the right side of the screen.
<b>Delete Bad Track</b>	Delete the added bad tracks in the window at the right side of the screen.
<b>Clear Bad Track Table</b>	Clear the whole bad track list in the window at the right side of the screen.

## ***PREFORMAT***

<b>Interleave</b>	Select the interleave number of the hard disk drive you wish to perform low level format. You may select from 1 to 8. Check the documentation that came with the drive for the correct interleave number, or select 0 for utility automatic detection.
<b>Auto Scan Bad Track</b>	This allows the utility to scan for bad sectors first then format by each track.
<b>Start</b>	Press <Y> to start low level format.

---