Notice to End Users

This User's Guide & Technical Reference is for assisting system manufacturers and end users in setting up and installing the mainboard.

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SL-54P2/P5 SERIAL
SL-54R2/R5 SERIAL
SL-54S2/S5 SERIAL

Contents

Chapter 1
Introduction

Features

CPU

1. Supports Intel Pentium P54C/MMX (P55C) CPUs at 90 ~ 233 MHz;
2. Supports Cyrix 6x86(L) CPUs at PR133$^+$ ~ PR200$^+$ MHz and 6x86MX (M2) CPUs at PR166 ~ PR266 MHz;
3. Supports AMD K5: PR90 ~ PR200MHz and AMD K6: 166 ~ 266MHz and AMD K6 3D: 250 ~ 350 MHz;
4. Supports IDT C6: 200 ~ 266MHz;
5. Provides SOCKET 7 ZIF Socket;
6. Supports CPU voltage auto detect circuit.

Chipset

1. Intel 82430TX chipset
2. PCI Rev 2.1 and APM 1.1/1.2 compliant

L2 Cache

1. Onboard supports 256K/512k write back cache with Pipelined Burst SRAMs

Main Memory

1. Memory range from 4MB (minimum) to 256MB (maximum) with DRAM Table Free configurations
2. Supports Fast Page Mode/EDO/Synchronous DRAM with 60ns/70ns DRAM speed
3. Supports 4 pcs 72pin SIMM sockets and 2 pcs 168pin DIMM sockets (3.3V unbuffered type)

BIOS

1. AWARD Plug and Play BIOS
2. Supports Advanced Power Management Function
3. Flash Memory for easy upgrade
4. Built-in IOMEGA, LS-120 driver

I/O Function

1. Integrated USB (Universal Serial Bus) controller with two USB ports.
2. Supports 2 IDE channels with 4IDE devices (including 120MB IDE floppy)
3. Provides PCI IDE Bus Master function (Ultra DMA 33MB/sec)
4. One floppy port (including 3.5", 1.2MB Mode 3 function)
5. Two high speed 16550 FIFO UART ports
6. One parallel port with EPP/ECP/SPP capabilities
7. PS/2 mouse connector
8. ACPI power management function support
9. Supports Infrared Connector

Other Functions

1. AT Form Factor with 22cm x 26cm
2. 5 PCI slots (4 Masters and 1 Slave) and 3 ISA slots
3. Supports SCSI/CD-ROM Boot function.

SL-54R2/R5 Extra Features

1. Supports CPU overheat and protects circuit
2. Supports voltage, fan speed, board temperature, monitor circuit.

Note: 1. Make sure that the SDRAM module not only has to be 168 pin DIMM but designed for 3.3V unbuffered SDRAM as well. Double check with the SDRAM supplier before install any SDRAMs. The mainboard manufacturer has no obligation to any damage of the board by using the incorrect specification of SDRAM.

2. This mainboard supports CPU voltage autodetect circuit. User only needs to set the CPU working voltage (refer to page 4 for CPU working voltage).

Mainboard Setting for Pentium MMX-166

The settings of the following figure is for the INTEL Pentium **MMX-166/66** with the 256K (or 512K) cache. To get the best cooling effect, make sure that the airflow from the CPU fan is facing the heatsink.

Figure 1–1. SL–54P2/P5 Motherboard Layout

Chapter 2
Hardware Setup

CPU V$_{CORE}$ Voltage Setting

JP14: CPU V$_{Core}$ Voltage Setting

V$_{Core}$ Voltage	JP14	V$_{Core}$ Voltage	JP14	V$_{Core}$ Voltage	JP14	V$_{Core}$ Voltage	JP14
2.0V		2.4V		2.8V MMX, 6x86L		3.2V* K6–233	
2.1V K6–233		2.5V		2.9V K6–166/200 6x86MX (M2)		3.3V IDT C6	
2.2V K6–266 K6 3D		2.6V		3.0V*		3.4V	
2.3V		2.7V		3.1V*		3.5V Pentium (P54C) 6x86 K5	

*: AMD K6 CPU voltage may be set at 3.2V or 2.2v, depends on their process.

CPU Type	V$_{Core}$
Pentium (P54C), 6x86, K5	3.52V
MMX (P55C), 6x86L	2.8V
IDT C6	3.3V
K6-166/200, 6x86MX (M2)	2.9V
K6-233	3.2V
K6 3D, K6-266	2.2V

INTEL Pentium MMX CPUs Settings

Intel Pentium MMX–166/200/233

Figure 2–1. CPU Type Configuration

Note: **INTEL Pentium MMX (P55C) is a dual voltage CPU. JP14 must be set correctly (refer to page 4). Check with your CPU supplier for CPU voltage specification.**

AMD K6 CPU Settings

AMD K6 – 166/200/233

Figure 2–2. CPU Type Configuration

Note:
1. *AMD K6 is a dual voltage CPU. JP14 must be set correctly (refer to page 4). Check with your CPU supplier for CPU voltage specification.*

2. *K6– 166/200 are 2.9V CPUs.*

3. *K6–233 are 3.2V or 2.2V CPUs, depends on the type or process. Refer to the CPU Spec.*

AMD K6 & K6 3D– 266/300/333/366

(2.2V)

(See Note 3)

JP14

SW1

1
2
3
4
5
6

AMD K6
CPU

AMD K6/K6 3D– 266

ON

1	On
2	Off
3	Off
4	Off
5	On
6	On

SW1

AMD K6/K6 3D–300

ON

1	On
2	On
3	Off
4	Off
5	On
6	On

SW1

AMD K6/K6 3D–333

ON

1	Off
2	On
3	Off
4	Off
5	On
6	On

SW1

AMD K6/K6 3D–366

ON

1	Off
2	Off
3	Off
4	Off
5	On
6	On

SW1

Figure 2–3. CPU Type Configuration

Note: 1. *AMD K6 is a dual voltage CPU. JP14 must be set correctly (refer to page 4). Check with your CPU supplier for CPU voltage specification.*

2. *K6– 166/200 are 2.9V CPUs.*

3. *K6–266 is 2.2V CPUs.*

Cyrix 6x86MX (M2) – 200/233/266

**6x86MX – PR200
(66MHz x 2.5)**

	ON
1	On
2	On
3	Off
4	Off
5	Off
6	On

SW1

**6x86MX – PR200
(75MHz x 2.0)**

	ON
1	On
2	Off
3	Off
4	On
5	Off
6	On

SW1

**6x86MX – PR233
(66MHz x 3.0)**

	ON
1	Off
2	On
3	Off
4	Off
5	Off
6	On

SW1

JP14

SW1
1
2
3
4
5
6

Cyrix 6x86MX (M2)
CPU

**6x86MX – PR266
(75MHz x 3.0)**

	ON
1	Off
2	On
3	Off
4	On
5	Off
6	On

SW1

**6x86MX – PR233
(75MHz x 2.5)**

	ON
1	On
2	On
3	Off
4	On
5	Off
6	On

SW1
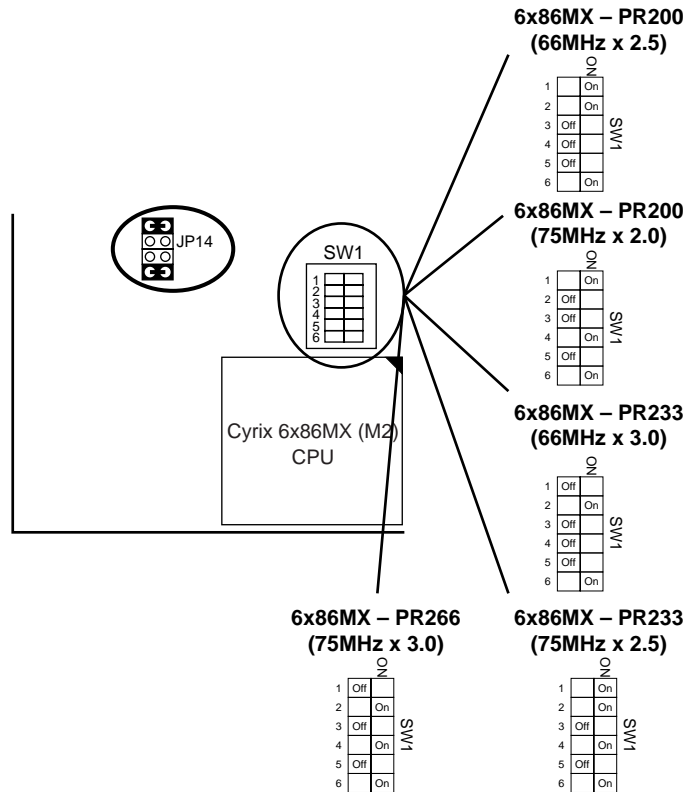
Figure 2–4. CPU Type Configuration

*Note: Cyrix 6x86MX (M2) is a dual voltage CPU. JP14
must be set correctly (refer to page 4). Check with
your CPU supplier for CPU voltage specification.*

Cyrix 6x86L CPUs Setting
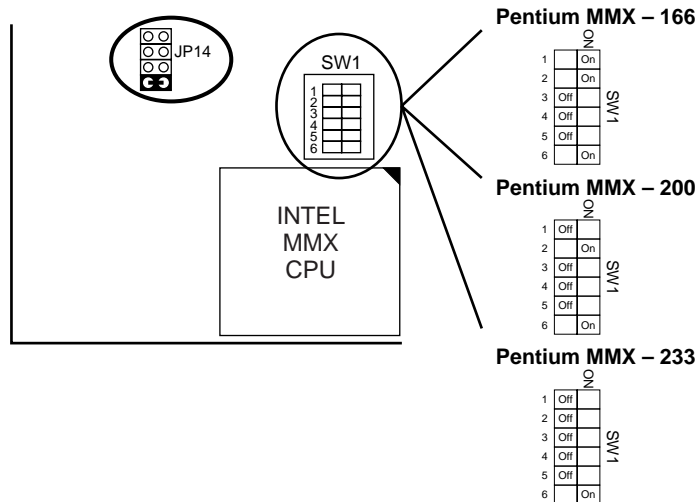
Cyrix 6x86L – PR133⁺/PR150⁺/PR166⁺/PR200⁺ CPUs
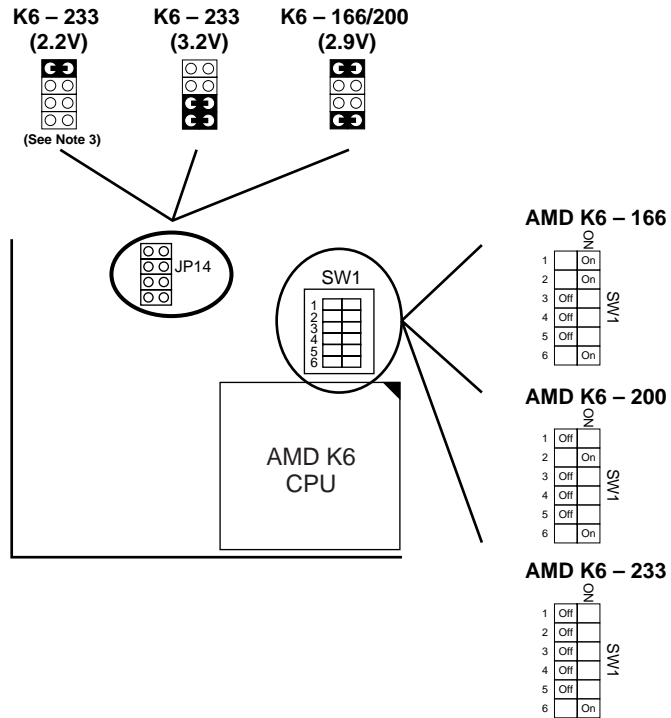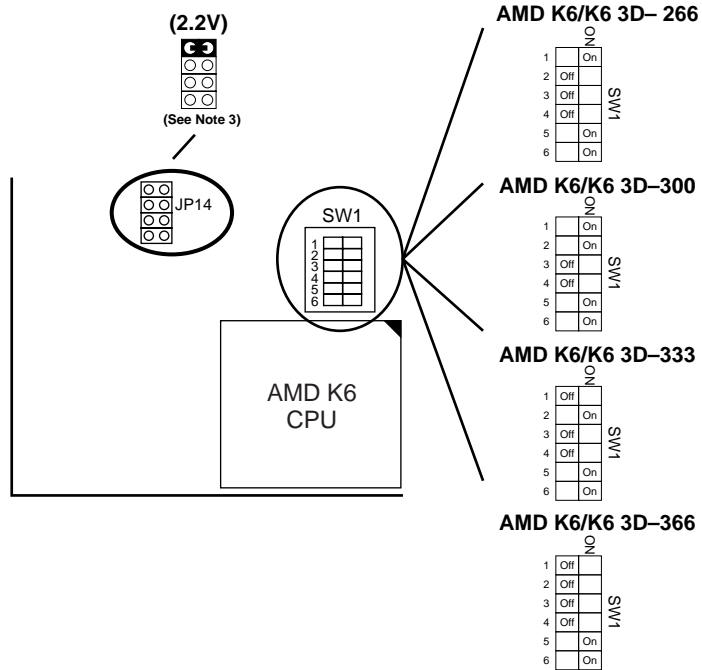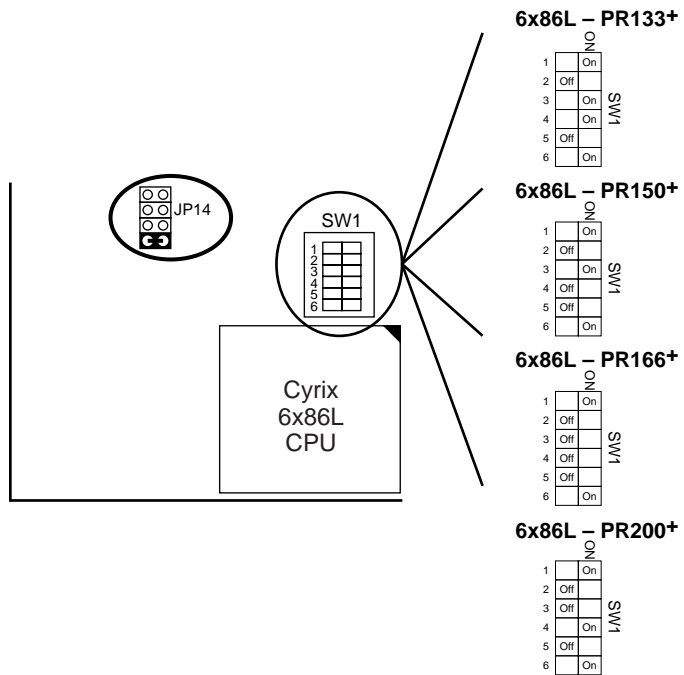

Figure 2–5. CPU Type Configuration

Notes: Cyrix 6x86L is a dual voltage CPU. JP14 must be set correctly (refer to page 4). Check with your CPU supplier for CPU voltage specification.

Intel Pentium/AMD K5 CPU Settings

CPU 1.5X Clock Setting
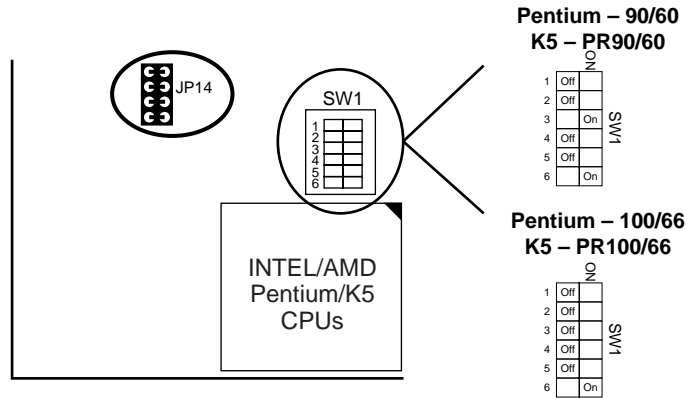
Figure 2–6. CPU Type Configuration

CPU 2.0X Clock Setting
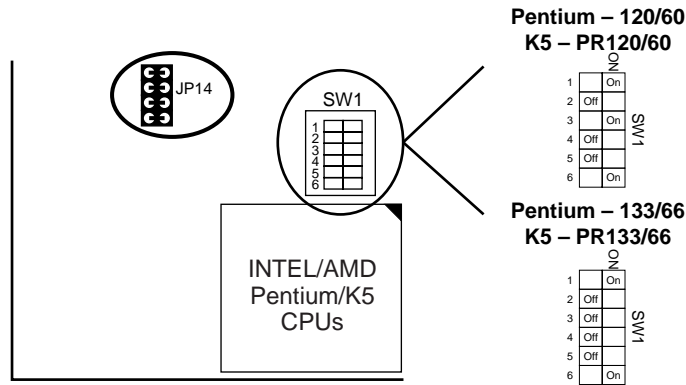
Figure 2–7. CPU Type Configuration

CPU 2.5X Clock Setting

Pentium – 150/60
K5 – PR150/60

	ON
1	On
2	On
3	On
4	Off
5	Off
6	On

SW1 — JP14 — SW1 — INTEL/AMD Pentium/K5 CPUs

Pentium – 166/66
K5 – PR166/66

	ON
1	On
2	On
3	Off
4	Off
5	Off
6	On
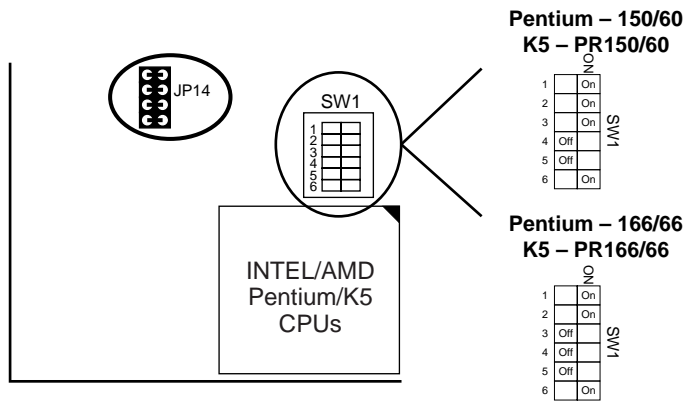
Figure 2–8. CPU Type Configuration

CPU 3.0X Clock Setting

Pentium – 180/60

	ON
1	Off
2	On
3	On
4	Off
5	Off
6	On

JP14 — SW1 — INTEL/AMD Pentium/K5 CPUs

Pentium – 200/66

	ON
1	Off
2	On
3	Off
4	Off
5	Off
6	On
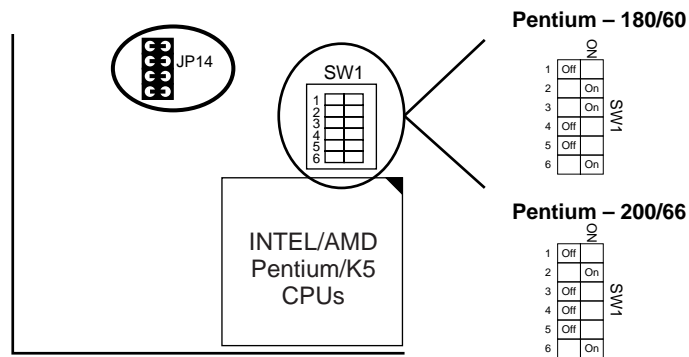
Figure 2–9. CPU Type Configuration

IDT C6 CPUs

IDT C6 – 200/233/266 CPUs

IDT C6 – 200

	SW1	ON
1	Off	
2		On
3	Off	
4	Off	
5	Off	
6		On

IDT C6 – 233

	SW1	ON
1	Off	
2	Off	
3	Off	
4	Off	
5	Off	
6		On

IDT C6 – 266

	SW1	ON
1		On
2	Off	
3	Off	
4	Off	
5		On
6		On

JP14   SW1
1 2 3 4 5 6

IDT
C6
CPU
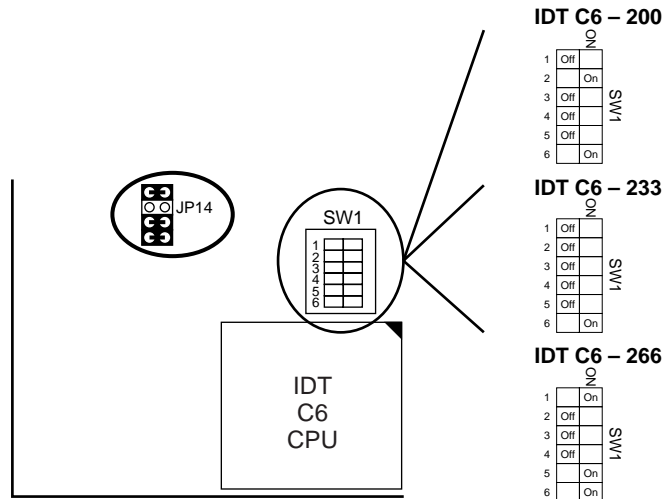
Figure 2–10. CPU Type Configuration

System Memory Configuration

This 82430TX motherboard supports 72-pin SIMMs and 168pin DIMM (3.3V unbuffered type) of 4MB, 8MB, 16MB, 32MB, or 64MB to form a memory size between 4MB to 256MB (total of 6 rows are supported).

The 82430TX chipset supports "Table Free" configuration so that DRAM module can be installed at any capacity except **SIMM1, 2 and SIMM 6 can't be installed at the same time.**

Jumper Settings

SW1: Bus Ratio and External Bus Clock Select

Set the jumper according to your CPU clock. (Default is set at AT POWER)
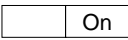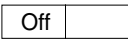
Ratio	Clock	SW1 Setting	External BUs Clock
1.5 x clock	90MHz	ON 1 Off 2 Off 3 On 4 Off 5 Off 6 On	60 MHz
	100 MHz	ON 1 Off 2 Off 3 Off 4 Off 5 Off 6 On	66 MHz
2.0 x clock	120 MHz	ON 1 On 2 Off 3 On 4 Off 5 Off 6 On	60 MHz
	133 MHz	ON 1 On 2 Off 3 Off 4 Off 5 Off 6 On	66 MHz
2.5 x clock	150 MHz	ON 1 On 2 On 3 On 4 Off 5 Off 6 On	60 MHz
	166 MHz	ON 1 On 2 On 3 Off 4 Off 5 Off 6 On	66 MHz

3.0 x clock	180 MHz	ON 1 Off 2 On 3 On 4 Off 5 Off 6 On	60 MHz
	200 MHz	ON 1 Off 2 On 3 Off 4 Off 5 Off 6 On	66 MHz
3.5 x clock*	233 MHz	ON 1 Off 2 Off 3 Off 4 Off 5 Off 6 On	66 MHz
4.0 x clock	266 MHz	ON 1 On 2 Off 3 Off 4 Off 5 On 6 On	66 MHz
4.5 x clock	300 MHz	ON 1 On 2 On 3 Off 4 Off 5 On 6 On	66 MHz
5.0 x clock	333 MHz	ON 1 Off 2 On 3 Off 4 Off 5 On 6 On	66 MHz
5.5 x clock*	366 MHz	ON 1 Off 2 Off 3 Off 4 Off 5 On 6 On	66 MHz

*:   For MMX, K6, and 6x86MX (M2) CPUs, this is not 1.5X
      clock but 3.5x clock.

Note: 1. *1, 2 of SW1 determine the clock ratio.*
        2. *3, 4 of SW1 determine the bus clock.*
        3. *5 of SW1 is only used for AMD K6 CPU*
        4. *6 of SW1 is AT/ATX Power Select.*

SW1:6: AT/ATX Power Select

Power Type	SW1:6
AT Power (default)	On / On
ATX Power	On / Off

JP7: Clear CMOS Data

Clear the CMOS memory by shorting this jumper momentarily; then remove the cap to retain new settings.

COMS Data	JP7
Clear Data	(pins 1-2 shorted) 1
Retain Data (default)	(pins 2-3 shorted) 1

JP15: INTEL FLASH Memory Boot Block Programming

This jumper is used for INTEL FLASH memory only. You need to put a cap on pin2-3 of JP15 when programming and change the cap back to pin1-2 after finishing programming.

FLASH	JP15 Programming	JP15 After Programming
Non-INTEL Flash	pin1-2	pin1-2
INTEL Flash	pin2-3	pin1-2

Power and I/O Connectors

The power connector has AT and ATX male header connectors. Plug the dual connectors from the power directly onto the board connector while making sure the black leads are in the center.

MS1 Top View

COM1/2 (Top View)

+5V		N.C.
N.C.		
Mouse Data		
		Mouse Clock
GND		

CD — 1	6 — DSR
RX — 2	7 — RTS
TX — 3	8 — CTS
DTR — 4	9 — RING
GND — 5	10 — N.C.

USB

GND

2								16
1								15

Vcc **D0+** **Vcc** **D1+**
D0– **GND** **D1–** **GND**
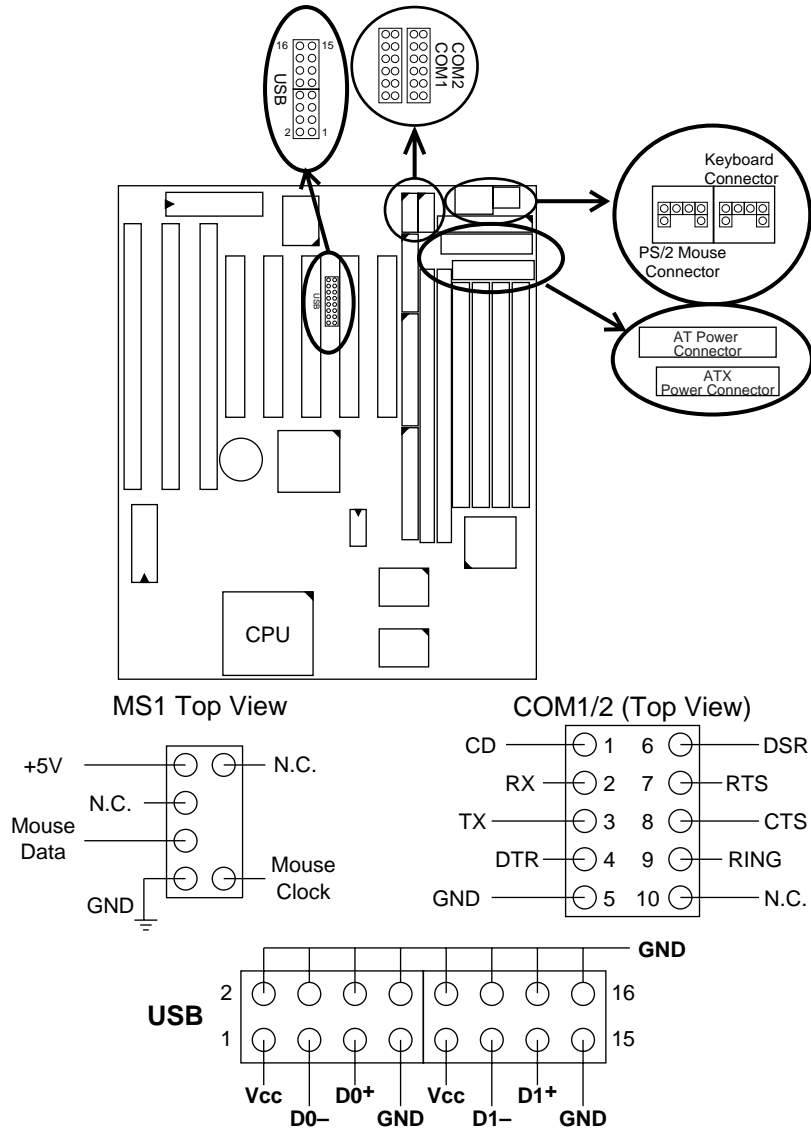
IDE LED Activity Light: (J1 pin1–4)

This connector connects to the hard disk activity indicator light on the case.

Infrared Port Module Connector (J1 pin6–10)

The system board provides a 5-pin infrared connector—IR1 as an optional module for wireless transmitting and receiving. **Pin 6 through 10 are Transmit, GND, Receive (low speed), Receive (high speed), and Vcc, respectively.**

J1 pin12, 13: Power Switch (for ATX Power Only)

Connect the ATX case panel power switch to this connector.

SLEEP Switch (J1 pin14, 15)

Toggle this jumper forces the system to sleep and the system won't wake up until the hardware event is coming. (The BIOS Power Management setting muse be Enabled.)

Speaker Connector (J2 pin1–4)

The speaker connector is a 4-pin connector for connecting the system and the speaker. (See the following drawing for jumper position.)

Reset Switch (J2 pin5, 6)

The system board has a 2-pin connector for rebooting your computer without having to turn off your power switch. This prolongs the life of the system's power supply.

Power LED and Keylock Switch (J2 pin8–12)

The keylock switch is a 5-pin connector for locking the keyboard for security purposes. (See the following drawing for jumper position, and pin1~3 is connected to power LED and pin 4~5 is connected to keylock switch.)

Turbo LED (J2 pin14, 15)

Connect the case's turbo LED to this connector.

PWR/SW

HD/LED   **IR CON**   **SLEEP**

J1
| 1 | 2 | 3 | 4 | | 6 | 7 | 8 | 9 | 10 | | 12 | 13 | 14 | 15 |

J2
| 1 | 2 | 3 | 4 | 5 | 6 | | 8 | 9 | 10 | 11 | 12 | | 14 | 15 |

SPK

Reset

Power LED

Keylock

Turbo LED
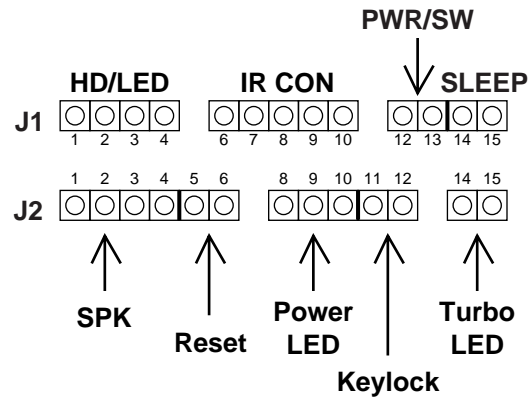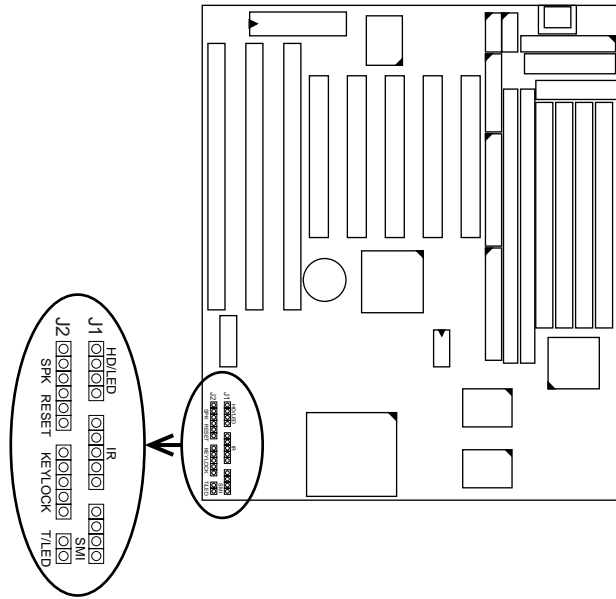
J1 Switch Signal Summary

J1	Pin	Signal Description
HDD LED Connector	1	+5V
	2	HDD LED Signal
	3	HDD LED Signal
	4	+5V
N.C.	5	No Connection
Infrared Connector	6	Infrared Transmit Signal
	7	GND
	8	Infrared Receive Signal (low speed)
	9	Infrared Receive Signal (high speed)
	10	+5V
N.C.	11	No Connection
PWR/SW (for ATX Power Only)	12	Power Switch
	13	Power Switch
SMI (SLEEP)	14	GND
	15	SMI Signal

J2 Switch Signal Summary

J2	Pin	Signal Description
Speaker Connector	1	Speaker Signal
	2	No Connection
	3	Ground
	4	+5V
Reset Switch	5	Reset Signal
	6	Ground
N.C.	7	No Connection
Power LED Connector	8	+5V
	9	No Connection
	10	Ground
Keylock Connector	11	Keylock Signal
	12	GND
N.C.	13	No Connection
Turbo LED Connector	14	Turbo LED Connector
	15	Ground

Chapter 3
Award BIOS Setup

This 82430TX motherboard comes with the AWARD BIOS from AWARD Software Inc. Enter the Award BIOS program's Main Menu as follows:

1. Turn on or reboot the system.

   After a series of diagnostic checks, the following message will appear:

   ```
   PRESS <DEL> TO ENTER SETUP
   ```

2. Press the <DEL> key and the main program screen appears as in the following page.

```
                    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          │   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...                      │
└─────────────────────────────────────────────────────────────────────┘
```

3. Using one of the arrows on your keyboard to select an option and press <Enter>. Modify the system parameters to reflect the options installed in the system.

4. You may return to the Main Menu anytime by press <ESC> .

5. In the Main Menu, "SAVE AND EXIT SETUP" saves your changes and reboots the system, and "EXIT WITHOUT SAVING" ignores your changes and exits the program.

Standard CMOS Setup

Standard CMOS Setup allows you to record some basic system hardware configuration and set the system clock and error handling. You only need to modify the configuration values of this option when you change your system hardware configuration or the configuration stored in the CMOS memory got lost or damaged.

Run the Standard CMOS Setup as follows:

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

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

 Date (mm:dd:yy) : Thu, May 9 1996
 Time (hh:mm:ss) :  15 : 45 : 10

 HARD DISKS         TYPE    SIZE    CYLS HEAD   PRECOMP   LANDZ   SECTOR   MODE

 Primary Master   : Auto      0       0    0         0       0        0   Auto
 Primary Slave    : Auto      0       0    0         0       0        0   Auto
 Secondary Master : Auto      0       0    0         0       0        0   Auto
 Secondary Slave  : Auto      0       0    0         0       0        0   Auto

 Drive A : 1.44M, 3.5 in.           ┌──────────────────────────────
 Drive B : None                         Base Memory:     640K
 Floppy 3 Mode Support : Disabled    Extended Memory:  15360K
                                        Other Memory:     384K
 Video  : EGA/VGA                    ──────────────────────────────
 Halt On : All Errors                   Total Memory:  16384K

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

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/− keys.

A short description of screen options follows:

Date (mm:dd:yy) Set the current date and time.
Time (hh:mm:ss)

Primary This field records the specifications
(Secondary) for all non-SCSI hard disk drives
Master/Slave installed in your system. Refer to
the respective documentation on
how to install the drivers.

Drive A/B Set this field to the types of floppy
disk drives installed in your system.
The choices are:
360KB, 5.25 in.,
1.2MB, 5.25 in.,
720KB, 3.5 in.,
1.44M, 3.5 in. (default),
2.88MB, 3.5 in., or None
120MB, 3.5in., IDE Floppy Drive
(Auto detect).

Floppy 3 Mode Drive A/B, Both: Enabled 3.5-inch,
Support 1.2MB function.
Disabled (default): Disabled 3.5-
inch, 1.2MB function.

Video Set this field to the type of video
display card installed in the system.
The choices are: Monochrome;
Color 40x25; VGA/EGA (default);
or Color 80x25

Halt On Set this filed to the type of errors
that will cause the system to halt.
The choices are: All Errors (default);
No Errors; All, But Keyboard;
All, But Diskette; or
All, But Disk/Key

3. Press <ESC> to return to the Main Menu when you finish
setting up in the "Standard CMOS Setup".

BIOS Features Setup

BIOS Features Setup allows you to improve your system performance or set up some system features according to your preference.

Run the BIOS Features Setup as follows:

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

```
                    ROM PCI/ISA BIOS
                   BIOS FEATURES SETUP
                  AWARD SOFTWARE, INC.
┌─────────────────────────────────┬─────────────────────────────────────┐
│CPU Internal Cache     : Enabled │ Video  BIOS Shadow  : Enabled       │
│External Cache         : Enabled │ C8000-CBFFF Shadow  : Disabled      │
│Quick Power on Self Test : Enalbed│ CC000-CFFFF Shadow  : Disabled      │
│Boot Sequence          : A,C, SCSI│ D0000-D3FFF Shadow  : Disabled     │
│Swap Floppy Drive      : Disabled │ D4000-D7FFF Shadow  : Disabled      │
│Boot Up Floppy Seek    : Disabled │ D8000-DBFFF Shadow  : Disabled      │
│Boot Up NumLock Status : On       │ DC000-DFFFF Shadow  : Disabled      │
│Typematic Rate Setting : Disabled │                                     │
│Typematic Rate (Chars/Sec): 6     │                                     │
│Typematic Delay (Msec)  : 250     │ ESC : Quit      ↑ ↓ → ←: Select Item│
│Security Option         : Setup   │ F1  : Help      PU/PD/+/- : Modify  │
│PCI/VGA Palette Snoop   : Disabled│ F5  : Old Values (Shift)F2 : Color  │
│OS Select for DRAMs>64MB : Non-OS/2│ F6  : Load BIOS Defaults           │
│Virus Warning           : Disabeld│ F7  : Load Setup Defaults          │
└─────────────────────────────────┴─────────────────────────────────────┘
```

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/– keys. An explanation of the <F> keys follows:

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

Shift <F2>:   Change color.

<F5> :   Get the previous values. These values are the values with which the user started the current session.

<F6>:   Load all options with the BIOS default values.

<F7>:   Load all options with the Setup default values.

A short description of screen options follows:

CPU Internal Cache Choose Enabled (default) or Disabled. This option allows you to enable or disable the CPU's internal cache.

External Cache Choose Enabled (default) or Disabled. This option allows you to enable or disable the external cache memory.

Quick Power On Self Test Choose Enabled (default)or Disabled. This option allows you to speed up the Power On Self Test routine.

Boot Sequence Default is "A, C, SCSI". This option determines which drive to look for first for an operating system.

Swap Floppy Drive Choose Enabled or Disabled (default). This option swaps floppy drive assignments when it is enabled.

Boot Up Floppy Seek Enabled: During POST, BIOS checks the track number of the floppy disk drive to see whether it is 40 or 80 tracks.

Disabled (default): During POST, BIOS will not check the track number of the floppy disk drive.

Boot Up NumLock Status Choose On (default) or Off. This option lets user to activate the NumLock function at boot-up.

Typematic Rate Setting   Choose Enabled or Disabled (default). Enable this option to adjust the keystroke repeat rate.

Typematic Rate (Chars/Sec)   Range between 6 (default) and 30 characters per second. This option controls the speed of repeating keystrokes.

Typematic Delay (Msec)   Choose 250 (default), 500, 750, and 1000. This option sets the time interval for displaying the first and the second characters.

Security Option   Choose System or Setup (default). This option is to prevent unauthorized system boot-up or use of BIOS Setup.

PCI/VGA palette Snoop   Choose Enabled or Disabled (default). It determines whether the MPEG ISA cards can work with PCI/VGA or not.

Virus Warning   Enabled: Activates automatically
                                   when the system boots
                                   up causing a warning
                                   message to appear if
                                   there is anything
                                   attempts to access the
                                   boot sector or hard disk
                                   partition table.
                       Disabled: No warning message
                                   will appear when there is
                                   something attempts to
                                   access the boot sector or
                                   hard disk partition table
                       *Note: Many diagnostic (or boot
                                   manager) 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 disable the
                                   virus protection first.*

Video BIOS   Enabled (default): Map the VGA
Shadow   BIOS to system RAM.
                       Disabled: Don't map the VGA BIOS
                       to system RAM.

C8000-CBFFF to   These options are used to shadow
DC000-DFFF   other expansion card ROMs.
Shadow

3. Press <ESC> and follow the screen instructions to save or
   disregard your settings.

Chipset Features Setup

Chipset Features Setup changes the values of the chipset registers. These registers control the system options.

Run the Chipset Features Setup as follows:

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

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

Auto Configuration      : Enabled    | **  System hardware Monitor  **
DRAM Timing             : 70 ns      | Current CPU Temperature   : 32°C/89°F
                                     | CPU Warning Temperature   : 65°C/149°F
DRAM Leadoff Timing     : 10/6/3     | Current CPUFAN1 Speed     : 0 RPM
DRAM Read Burst (EDO/FP) : x222/x333 | IN0(V) :  2.83V    In1(V) :  2.83V
DRAM Write Burts Timing : x222       | IN2(V) :  3.36V    In3(V) :  5.05V
Fast EDO Lead off       : Disabled   | IN4(V) : 13.18V    In5(V) : -13.63V
Refresh RAS# Assertio   : 4 Clks     | IN6(V) : -5.49V
Fast RAS To CAS Delay   : 3          |
DRAM Page Idel Timer    : 6 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   | ESC : Quit        ↑ ↓ → ←: Select Item
8 Bit I/O Recovery Time : 3          | F1  : Help        PU/PD/+/- : Modify
16 Bit I/O Recovery Time : 2         | F5  : Old Values (Shift)F2 : Color
Memory Hole At 15M-16M  : Disabled   | F6  : Load BIOS Defaults
PCI 2.1 Compliance      : Disabled   | F7  : Load Setup Defaults
```

Note: The System Hardware Monitor settings are only for SL-54R2/R5 and SL-54S2/S5 and they are depended on the input of LDCM utility.

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/– keys.

A short description of screen options follows:

Auto Configuration Choose Enabled (default) or Disabled. The system sets all options on the left side of the screen automatically when choose Enabled.

DRAM Timing Choose 60ns or 70ns (default). Do not change this setting unless you know the DRAM access time spec.

DRAM Leadoff Timing — Use the default setting. This sets the point of time that the CPU is allowed to read and write to DRAM and then perform.

DRAM Read Burst DRAM Write Burst Timing (EDO/FPM) — Use the default setting. Burst read/write requests are generated by the CPU in four separate parts. The 1st 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 number is, the faster the system memory will be addressed.

Fast EDO Lead Off — Use the default setting. This function allows you to enhance the performance by selecting the Fast EDO Lead Off.

Refresh RAS# Assertion — Use the default setting. This function allows you to select the type of DRAM refresh clock delay.

Fast RAS To CAS Delay — Use the default setting. This setup option allows you to determine the delay time in completing the transition from RAS to CAS.

DRAM Page Idle Timer — Use the default setting. Choices are 2, 4, 6, or 8 clk.

DRAM Enhanced Paging — This function allows you to determine either to keep the page open until a page/row missing or to use the additional information to keep the DRAM page open when the host may be right back.

**Fast MA to RAS#
Delay**

This function allows you to select
the DRAM Row Miss timing.

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

Use the default setting (3/3). This
setup option allows you to select the
CAS# latency for all SDRAM cycles
and RAS# to CAS# delay.

**SDRAM
Speculative Read**

Use the default setting. This
function allows a DRAM read
request to be generated slightly
before the address has been fully
decoded.

**System BIOS
Cacheable**

Choose Enabled or Disabled
(default). When Enabled, the access
to the system BIOS ROM addressed
at F0000H-FFFFFH is cached.

**Video BIOS
Cacheable**

Choose Enabled or Disabled
(default). When Enabled, the access
to the VGA BIOS ROM addressed at
C0000H-C7FFFH is cached.

**8 Bit I/O Recovery
Time Select Item**

**16 Bit I/O Recovery
Time Select Item**

This delay happens when the CPU
is running so much faster than the
I/O bus that the CPU must be
delayed to allow for the completion
of the I/O.

The choices for 8 bit I/O are NA, 1
to 8 CPU clock. Default is 3.
The choices for 16 bit I/O are NA, 1
to 4 CPU clock. Default is 2.

Memory Hole At 15M-16M	Choose Enabled or Disabled (default). In order to improve performance, certain space in memory can be reserved for ISA cards. This memory must be mapped into the memory's space below 16MB.
PCI 2.1 Compliance	Enabled: enables the PCI 2.1 features. Disabled: (default setting) disables these features *Note:* *Enabled this function will increase the PCI performance but also create the compatibility problems.*
CPU Warning Temperature	Choose Disabled (default), 60°C/140°F, 65°C/149°F, 70°C/158°F, 75°C/167°F, 80°C/176°F, 85°C/185°F, 90°C/194°F. When CPU temperature is over the setting value, the speaker will sound an alarm and the clock will drop until the temperature is within optimum the temperature range.

3. Press <ESC> and follow the screen instructions to save or disregard your settings.

Power Management Setup

Power Management Setup sets the system's power saving functions.

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

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

Power Management    : Disabled    **  Reload Global Timer Events  **
PM Control by APM   : No          IRQ [3-7, 9-15], MNI  : Enabled
Video Off Method    : V/H SYNC+Blank  Primary IDE 0     : Enabled
Video Off After     : N/A         Primary IDE 1         : Enabled
                                  Secondary IDE 0       : Enabled
Doze Mode           : Disabled    Secondary IDE 1       : Enabled
Standby Mode        : Disabled    Floppy Disk           : Enabled
Suspend Mode        : Disabled    Serial Port           : Enabled
HDD Power Down      : Disabled    Parallel Port         : Enabled
Throttle Duty CYcle : 62.5%
ZZ Active in Suspend : Disabled
VGA Active Monitor  : Enabled     ESC : Quit         ↑↓→←: Select Item
Soft-Off by PWR-BTTN : Instant-Off  F1  : Help       PU/PD/+/- : Modify
Resume by Ring      : Disabled    F5  : Old Values (Shift)F2 : Color
IRQ8 Clock Event    : Disabled    F6  : Load BIOS Defaults
                                  F7  : Load Setup Defaults
```

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/– keys.

A short description of screen options follows:

Power Management	Choose Max. Saving, User Define, Disabled (default), or Min Saving.
PM Control by APM	Choose Yes or No (default). You need to choose Yes when the operating system has the APM functions, choose No otherwise.
Video Off Method	Choose Blank , DPMS, or V/H Sync+Blank (default). You can chose either DPMS or V/H Sync+Blank when the monitor has the Green function. You need to choose Blank when the monitor does not have the Green function. *Note: Some VGA cards don't allow V/H Sync to be turned off directly.*

Video Off After   Choose N/A (default), Doze, Standby, or Suspend. This function determines the timing of the monitor closed down functions.

Doze Mode   This option sets the CPU speed down to 33MHz during this mode.

Standby Mode
Suspend Mode   These two options allow you to choose the mode for the different timers. The Standby Mode turns off the VGA monitor, and the Suspend Mode turns off the CPU and saves the energy of the system.

HDD power Down   Time is adjustable from 1 to 15 minutes. When the set time has elapsed, the BIOS sends a command to the HDD to power down, which turns off the motor.

Throttle Duty Cycle   Choose the duty cycle time: 12.5%, 25%, 37.5%, 50%, 62.5% (default), 75%, or 87.5%. The bigger of the percentage, the more saving power it gets.

ZZ Active in Suspend

Enabled: PB SRAM (cache) still consumes power when entering the power management mode.

Disabled: (default) PB SRAM (cache) will not consume power when entering the power management mode.

VGA Active Monitor	Enabled:	the system can not enter the power saving mode when monitor is on.
	Disabled:	the system can enter the power saving mode when monitor is on.
Soft-Off by PWR-BTTN	Instant-off:	(default) turns off the system power at once after pushing the power button.
	Delay 4 Sec:	turns off the system power 4 seconds after pushing the power button (to meet PC97 spec.)
Resume by Ring	Enabled:	(default) wake up the system from ring signal.
	Disabled:	Ring signal can not wake up the system.
IRQ (#), NMI;	Enabled:	(default) The system can not enter the power saving mode when I/O ports or IRQ# is activated.
Primary IDE 0 Primary IDE 1;		
Secondary IDE 0 Secondary IDE 1;	Disabled:	The system still can enter the power saving mode when I/O ports or IRQ# is activated.
Floppy Disk;		
Serial Port;		
Parallel Port	*Note:*	*These functions can only be activated when the power management option is Enabled.*

3. Press <ESC> and follow the screen instructions to save or disregard your settings.

PnP/PCI Configuration Setup

PnP/PCI Configuration Setup configures the PCI bus slots.

Run the Chipset Features Setup as follows:

1. Choose "PnP/PCI CONFIGURATION SETUP" from the Main Menu and a screen with a list of options appears.

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

 PNP OS Installed      : No        PCI IDE IRQ Map To  : PCI-AUTO
 Resources Controlled By  : Manual    Primary   IDE INT# : A
 Reset 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   Used MEM Length*     : 8K
 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 Values (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
```

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/− keys.

A short description of screen options follows:

PNP OS Installed   Yes: OS supports Plug and Play function.
No (default): OS doesn't support Plug and Play function.

Note: BIOS will automatically disable all PnP resources except the boot device card when select Yes on Non-PnP OS.

Resources Controlled By	Choose Manual (default) or Auto. The BIOS checks the IRQ/DMA channel number on the ISA and PCI card manually if chose Manual and the IRQ/DMA channel number will be checked automatically if choose Auto.
Reset Configuration Data	Choose Enabled or Disabled (default). Disabled means to retain PnP configuration data in BIOS and Enabled means to reset PnP configuration data in BIOS.
IRQ-x assigned to DMA-x assigned to	Legacy ISA: Manually assigns IRQ/DMA to device. PCI/ISA PnP: BIOS assigns IRQ/DMA to device automatically.
PCI IDE IRQ Map To	Select PCI-AUTO (default), ISA, or assign a PCI SLOT number (depending on which slot the PCI IDE is inserted). If PCI-AUTO does not work, then assign an individual PCI SLOT number.
Primary/ IDE INT#	Choose A (default), B, C, or D.
Secondary IDE INT#	Choose A, B (default), C, or D.
Used MEM Base Addr	Choose N/A (default) or ISA legacy card requests to have memory start address.

Used MEM Length*	Choose 8K, 16K, 32K, or 64K.
	With the above two functions, users can define where the used memory address is located and its corresponding length of the legacy area. BIOS will skip the UMB area which is used by the legacy device to avoid memory space conflict.
	* This function actives only when the "Used MEM Base Addr" is chosen.

3. Press <ESC> and follow the screen instructions to save or disregard your settings.

Load Setup Defaults

Load Setup Defaults option loads the default system values to the system configuration fields. If the CMOS is corrupted the defaults are loaded automatically. Choose this option and the following message appears:

```
"Load Setup Defaults (Y/N)? N"
```

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

Integrated Peripherals

Integrated Peripherals option changes the values of the chipset registers. These registers control system options in the computer.

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

```
                          ROM PCI/ISA BIOS
                       INTEGRATED PERIPHERALS
                        AWARD SOFTWARE, INC.
┌─────────────────────────────────────────┬──────────────────────────────────────┐
│ IDE HDD Block Mode       : Enabled       │ ECP Mode Use DMA        : 3*         │
│ IDE Primary Master PIO   : Auto          │ Parallel Port EPP Type  : EPP1.7*   │
│ 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      │                                      │
│                                          │                                      │
│ Onboard FDD Controller   : Enabled       │                                      │
│ Onboard Serial Port 1    : Auto          ├──────────────────────────────────────┤
│ Onboard Serial Port 2    : Auto          │ ESC : Quit       ↑ ↓ → ←: Select Item│
│ UART2 Mode               : Standard      │ F1  : Help       PU/PD/+/- : Modify  │
│ IR Function Duplex       : Half          │ F5  : Old Values (Shift)F2 : Color   │
│ RxD, TxD Active          : Lo, Lo⁺       │ F6  : Load BIOS Defaults             │
│ Onboard Parallel Port    : 378H/IRQ7     │ F7  : Load Setup Defaults            │
│ Onboard Parallel Mode    : SPP           │                                      │
└─────────────────────────────────────────┴──────────────────────────────────────┘
```

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/− keys.

A short description of screen options follows:

IDE HDD Block Mode Choose Enabled (default) or Disabled. If your hard disk size is larger than 540MB, choose Enabled, and, if you are using the IDE HDD Auto Detection option, the BIOS will choose this option automatically. (Note: Some old HDD models don't provide this feature.)

IDE Primary Master/Slave PIO IDE Secondary Master/Slave PIO	Choose Auto (default) or Mode 0~4. The BIOS will detect the HDD Mode type automatically when you choose Auto. You need to set to a lower mode than Auto when your hard disk becomes unstable.
IDE Primary Master/Slave UDMA IDE Secondary Master/Slave UDMA	Choose Disabled or Auto (default). Auto: Automatically detects the HDD Ultra DMA function. Disabled: Disabled the HDD Ultra DMA function.
On-Chip Primary/ Secondary PCI IDE	Enabled (default): Turn on the onboard IDE function. Disabled: Turn off the onboard IDE function.
Onboard FDD Controller	Choose Enabled (default) or Disabled. Choose Disabled when you use an ISA card with FDD function, or , choose Enabled to use the onboard FDD connector.
Onboard Serial Port 1	Choose Auto (default), 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, or Disabled. **Do no set port 1 & 2 to the same value except for Disabled.**
Onboard Serial Port 2	Choose Auto, 3F8/IRQ4 , 2F8/IRQ3 (default), 3E8/IRQ4, 2E8/IRQ3, or Disabled.
UART2 Mode	Choose Standard, HPSIR, or ASKIR.

IR Function Duplex	Choose Half (default), or Full.
	Half: Doesn't transmit and receive activities at the same time.
	Full: Transmit and receive activities at the same time.
RxD, TxD Active	Choose Hi/Hi, Hi/Lo, Lo/Hi, or Lo/Lo (default).
	*: The above 2 options won't work unless UART 2 Mode ASKIR/HPSIR is selected.
Onboard Parallel Port	Choose the printer I/O address: 378H/IRQ7 (default), 3BCH/IRQ7, 278H/IRQ5
Onboard Parallel Mode	Choose SPP (default), ECP + EPP, EPP, or ECP mode. The mode depends on your external device that connects to this port.
ECP Mode Use DMA*	Choose DMA3 (default) or DMA1. Most sound cards use DMA1. Check with your sound card configuration to make sure that there is no conflict with this function.
	*: This option will not be displayed unless the EPP/ECP function is selected..
Parallel Port EPP Type	Choose EPP1.7 (default) or EPP1.9. EPP1.9 supports hardware handshake. This setting is dependent on your EPP device.
	Note: The above 2 options will not be displayed unless the EPP/ECP function is selected.

3. Press <ESC> and follow the screen instructions to save or disregard your settings.

Supervisor/User Password

These two options allows you to set your system passwords. Normally, supervisor has a higher right to change the CMOS setup option than the user. The way to set up the passwords for both Supervisor and User are as follow:

1. Choose "Change Password" in the Main Menu and press <Enter>. The following message appears:

   "Enter Password:"

2. The first time you run this option, enter your password up to only 8 characters and press <Enter>. The screen does not display the entered characters.

3. After you enter the password, the following message appears prompting you to confirm the password:

   "Confirm Password:"

4. Enter exact the same password you just typed again to confirm the password and press <Enter>.

5. Move the cursor to Save & Exit Setup to save the password.

6. If you need to delete the password you entered before, choose the Supervisor Password and press <Enter>. It will delete the password that you had before.

7. Move the cursor to Save & Exit Setup to save the option you did, otherwise the old password will still be there when you turn on your machine next time.

8. Press <ESC> to exit to the Main Menu.

Note: *If you forget or lose the password, the only way to access the system is to clear the CMOS RAM by setting JP7 All setup information will be lost and you need to run the BIOS setup program again.*

IDE HDD Auto Detection

IDE HDD Auto Detection detects the parameters of an IDE hard disk drive and automatically enters them to the Standard CMOS Setup screen.

The screen will ask you to select a specific hard disk for Primary Master after you select this option. If you accept a hard disk detected by the BIOS, you can enter "Y" to confirm and then press <Enter> to check next hard disk. This function allows you to check four hard disks and you may press the <ESC> after the <Enter> to skip this function and go back to the Main Menu.

Save & Exit Setup

Save & Exit Setup allows you to save all modifications you have specified into the CMOS memory. Highlight this option on the Main Menu and the following message appears:

```
SAVE to CMOS and EXIT (Y/N)? Y
```

Press <Enter> key to save the configuration changes.

Exit Without Saving

Exit Without Saving allows you to exit the Setup utility without saving the modifications that you have specified. Highlight this option on the Main Menu and the following message appears:

```
Quit Without Saving (Y/N)? N
```

You may change the prompt to "Y" and press <Enter> key to leave this option.