82430TX PCIset

P55-BT

ISA PCI MainBoard

with Onboard PCI IDE and Super Multi-I/O.

TRADEMARK

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their respective holders.

The specification is subject to change without notice.

V043

Package Checklist

Please make sure your package containg all items listed below before your installation. If you find any damaged items or missing items, please contact your retailer.

- One Mainboard
- One manual
- One IDE ribbon cable
- One floppy ribbon cable

Contents

NOTE :

The "**LOAD SETUP DEFAULTS**" function loads the system default data directly from ROM and initializes the associated hardware properly. This function is necessary when you accept this Mainboard, or the system CMOS data is corrupted.

```
┌────────────────────────────────────────────────────────────────────┐
│                      ROM PCI/ISA BIOS                                │
│                    CMOS SETUP UTILITY                                │
│                   AWARD SOFTWARE, INC.                               │
├──────────────────────────────────┬─────────────────────────────────┤
│  STANDARD CMOS SETUP              │   SUPERVISOR  PASSWORD           │
│  BIOS FEATURES SETUP              │   USER  PASSWORD                 │
│  CHIPSET FEATURES SETUP           │   IDE HDD AUTO DETECTION         │
│  POWER MANAGEMENT SETUP           │   HDD LOW LEVEL FORMAT           │
│  PNP/PCI  CONFIGURA ┌──────────────────────────────┐ ETUP           │
│  INTEGRATED PERIPH  │ Load SETUP Default (Y/N)? Y   │ SAVING        │
│  LOAD SETUP DEFAULTS└──────────────────────────────┘                │
├──────────────────────────────────┴─────────────────────────────────┤
│ ESC: QUIT                        ↑↓→←  :SELECT ITEM                  │
│ F10:Save & Exit Setup              (Shift)F2 :Change Color           │
├─────────────────────────────────────────────────────────────────────┤
│          Load  Setup  Defaults  Except  Standard COMS SETUP          │
└─────────────────────────────────────────────────────────────────────┘
```

LOAD SETUP DEFAULT

Chapter 1
Introduction

The P55-BT mainboard is a high performance system hardware based on Intel Pentium®processor and is equipped with four PCI slots, four standard ISA slots, a PnP Super I/O controller and two dual-port PCI-IDE connectors for the future expansion. The hardware dimension is an AT form-factor that is 220mm x 260mm with a four-layer design technology.

Specification

- Intel 82430TX PCIset chipset.

- Intel **Pentium**®Processor operating at**100 ~ 333 MHz** (Easy CPU CLK Setting JP4 : One Jumper Only) and **P55C** with **321 ZIF socket 7** for scalability to accept faster processors in the future.

- Supports an onboard Switching Voltage Regulator to increase CPU and System's reliability.

- Supports CPU Vcore Voltage 2.0V/2.8V/2.9V/3.2V selection.

- Supports up to 256 MegaBytes of DRAM(a minimum of 8 MB) on board(72-Pin SIMM x 2, 168-Pin DIMM x 2), BIOS auto FP DRAM, EDO DRAM and SDRAM configuration.(Refer to Chapter 2-4 System Memory Configuration)

- Supports Onboard Burst/Pipelined burst synchronous L2 **Write Back** Cache. The cache memory is 512KB (64KB*32 SRAM).

- Supports four 16-bit ISA slots and four 32-bit PCI slots and provides two independent high performance PCI IDE interfaces capable of supporting **PIO Mode 3 and Mode 4** devices.

- Supports **ATAPI** (e.g. **CD-ROM**) devices and Ultra DMA 33 for both IDE interface.

- Supports 1 floppy port, 1 parallel port (EPP,ECP port), and 2 serial ports (16550 Fast UART compatible) with PnP Super I/O chip.

- Supports both **PS/2** style mouse and PS/2 style AT keyboard connectors

- Supports Award Plug & Play BIOS . The BIOS is stored in Flash EPROM form. It provides better upgradeability for the system.

- Supports a CPU Hardware sleep and SMM (System Management Mode) function.
- Supports a PWR/ON connector with an ATX power supply for a Remote ON/OFF controller, a Ring-in (External Modem only) Power-On and a Keyboard Power-on function.

● Supports a USB connector

● Utilizes a Lithium battery which provides environmental protection and longer life-time

● Supports a CPU temperature alarm so that when CPU's cooling fan is malfunction or CPU overheats, CPU automatically slow down.

● Supports a dual-button configuration which consists of POWER button for Off/On transitions and SLEEP button for Sleep/Wake transitions. The configuration is for ACPI-defined 4-second override feature of the SLEEP button. When the user presses the power button for less than 4 seconds, the system enters into sleep mode. When the user presses the power button for more than 4 seconds, the system is powered off.
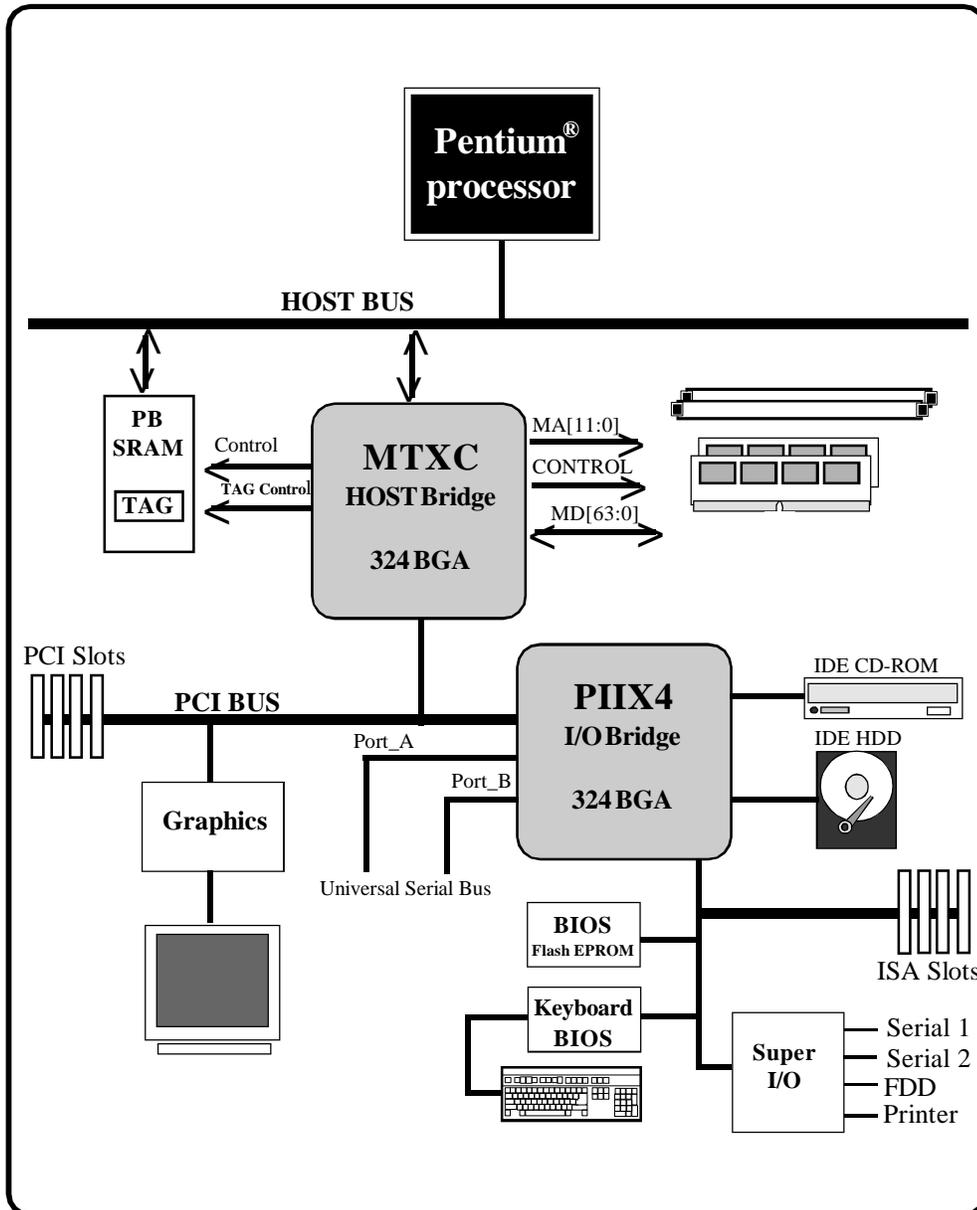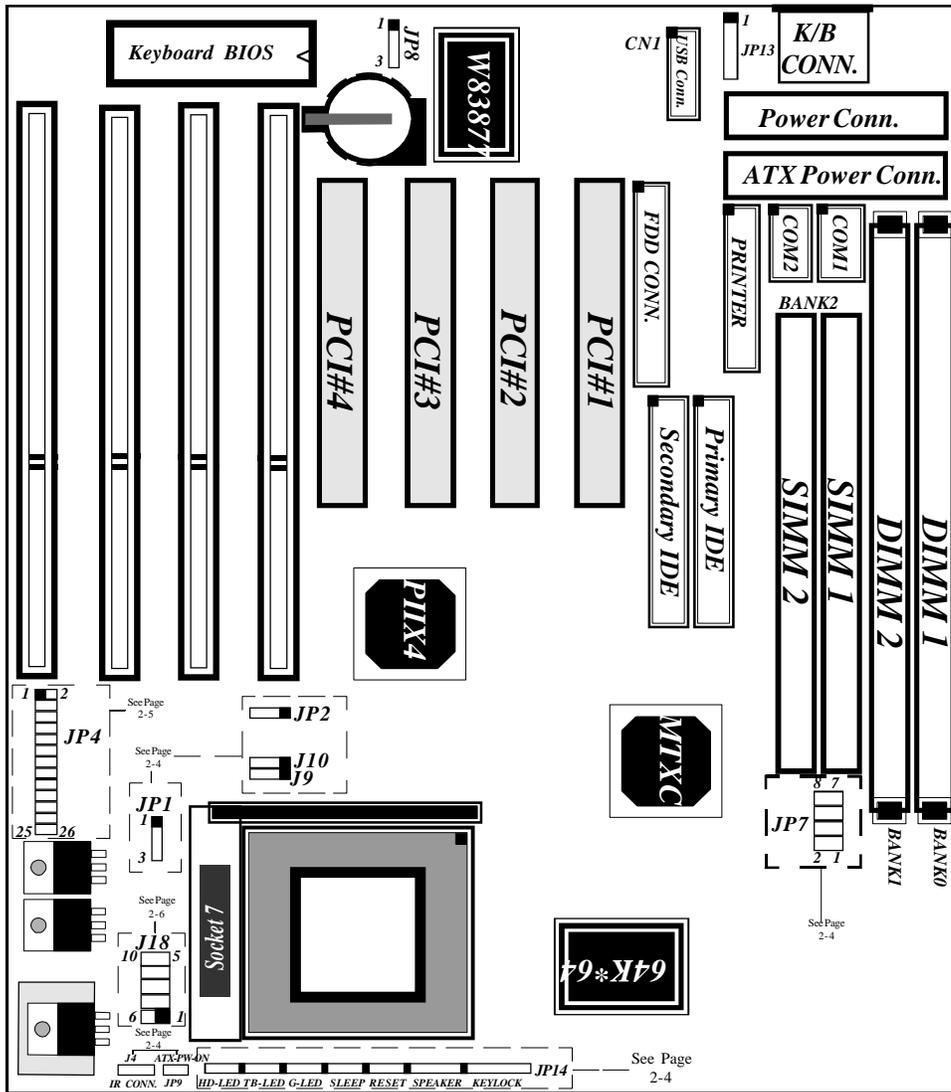
● Supports onboard ATX and AT power connectors.

Figure 1-2 System Block Diagram

P55-BT Layout

Note : ■   *Means Pin 1*

Figure 1-1

Chapter 2
Hardware design

2-1 Overview

The P55-BT is designed with Intel 82430TX PCIset chipset which is developed by INTEL Corporation to fully support Pentium®Processor PCI/ISA system. The Intel 82430TX PCIset chipset can increase integration and improve performance designs. The chipset provides an integrated IDE controller with two high performance IDE interfaces for up to four IDE devices (hard devices, CD-ROM device, etc). The PnP Super I/O controller provides the standard PC I/O functions: a floppy interface, two 16 Byte FIFO serial ports and an EPP/ECP capable parallel port. The **P55-BT** layout is shown in the previous page for user's reference. **Care must be taken** when inserting memory modules, inserting CPU or even plugging PCI card into the associated slots to avoid damaging any circuits or sockets on board. A cooling fan is strongly recommended when installing P54C/P54CTB/P55C (MMX)/K5/K6/6x86 (6x86L) processor due to possible overheat. The P55-BT supports CPU temperature monitor and alarm to prevent CPU's cooling fan from malfunction or CPUoverheat. When CPU overheats there is a heat sensor to monitor CPU temperature, than speaker will alarm and CPU slow down to save you data and shutdown system.

The P55-BT supports a minimum of 8MB of System Memory and a maximum of 256MB with 512KB synchronous SRAM Onboard to increase system performance.

The P55-BT supports standard Fast Page, EDO (Extended Data Out or Hyper Page Mode) or synchronous DRAM. **The P55-BT** provides two 72-pin SIMM and two 168-pin DIMM sites for memory expansion. Each socket supports 1M x 32(4MB), 2M x 32(8MB), 4M x 32(16MB), and 8M x 32(32MB) single-sided or double-sided memory modules. The memory timing requires 70 ns for Fast page devices or 60 ns for EDO DRAM. This mainboard has two 168-pin DIMM sites to support 3.3V (power level) Unbuffered Synchronous DRAMs(SDRAM) or 5.0V (power level) Fast Page, EDO DRAM. **Memory parity generation and checking are not supported.** (DRAM Modules may be parity[x 36] or non-parity[x 32].

The P55-BT supports **two Onboard PCI IDE** connectors that can support PIO Mode/ Ultra DMA 33 device and detect IDE harddisk type by BIOS utility automatically.

The P55-BT supports Award Plug & Play BIOS for the ISA and PCI cards. The BIOS can be located in Flash EPROM. The advantage of having Flash EPROM is much easier to replace BIOS code if necessary.

The P55-BT has been designed with AT form-factor with ATX/AT power connector. The mainboard layout and system block diagram are shown in Figure 1-1 and Figure 1-2.

2-2 Connectors and Jumpers

This section describes all of the connectors and jumpers equipped in the mainboard. Please refer to **Figure 1-1** for the location of each connector and jumper.The figure in the following means connecting pin 1&2 and means connecting pin 2&3. Jumpers with two pins are shown as for open and for close.

1 **JP14**   **KeyLock** - Keyboard lock switch & Power LED connector.
      1.Power LED(+)
      2.N/C
      3.GND
      4.Keylock
5   5.GND

7   **Speaker** - connect to the system's speaker for beeping.
     7. Speaker
     8. N/C
     9. GND
10   10. VCC

  Reset - Close to restart system.

  Sleep/Resume switch : Close to enter sleep mode.
A keystrobe or mouse movement (mouse driver exists) will
instantly "wake up"the system.(for AT Power Supply Only)

+ **Power Saving LED indicator -** LED ON when the system is in any saving mode.

+ **Turbo LED indicator** - LED ON when a higher speed is selected.

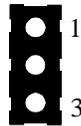**+** **Harddisk LED indicator** - LED ON when Onboard PCI IDE Harddisks activites.

JP9   **System Power ON/OFF Switch (For ATX Power Suppply Connector)**
Pressing the button once will switch the system on and enter the
SLEEP MODE(Suspend mode). While in the SLEEP MODE, a
keystrobe or mouse movement(mouse driver exists) will instantly
"wake up"the system. Pressing the button while the system is on for
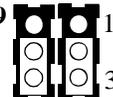more than 4 seconds will turn the system off.
Note : The button should be a momentary switch that is normally on.

JP1   **The Power Supply (+12V) of the CPU Cooling FAN:**
         1.GND
         2.+12V
         3.GND

J10/J9   **EPROM BIOS Selection :**
         1-2 : 12V Flash EPROM (Intel).
         2-3 : 5V Flash EPROM.(SST, Winbond).(Default)

JP8   **Clear CMOS:**
         1-2 : Normal operation (Default)
         2-3 : Clear CMOS Values
This setting allows users to clear current CMOS data to back to
default by setting the jumper to 2-3 when system is off. This
jumper should be brought back to pin 1-2 to restore the normal
operation. Here, we strongly recommend you pull out the power
cable for safety and from damage befor clearing CMOS data.

JP2   **Keyboard Power ON function:**
         1-2 : Enabled
         (For the details, please refer to Chapter 3-1: Keyboard
         Power On Function)
         2-3 : Disabled
**Note: When Enabled or Disabled the Keyboard Power ON function.
Make sure to pull out the power cable or disconnect the 20-PIN
power supply.**

JP7   **DIMM1, DIMM2 (168PIN) DRAM TYPE Select:**
         1-2, 3-4 : Support 3.3V SDRAM (Default)
         5-6, 7-8 : Support 5V EDO/FP DIMM TYPE DRAM
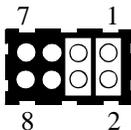
J4   **IrDA/ASKIR CONNECTOR:**
         1.VCC
         2.NC
         3.IRRX
         4.GND
         5.IRTX

CN1 **1** **2** **USB CONNECTOR:**

Reserved for USB port Adapter
(refer to APPENDIX B: I/O Connectors)

15 **16**

JP13 **1** **PS/2 MOUSE CONNECTOR:**

1. Data (Red Wire)
2. Clock (Blue Wire)
3. GND (Green)
4. NC
5 5. VCC (Yellow)
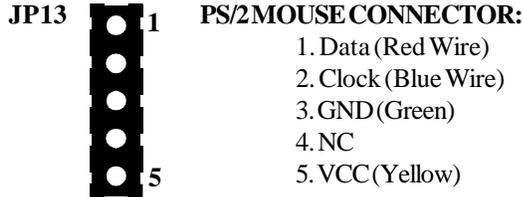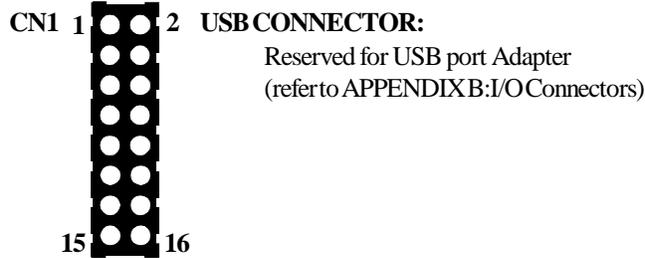
JP4: CPU Clock Rate Select. (Easy One Jumper Setting Only)

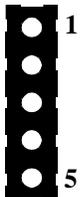| JP4 CPU	Pentium® Processor P54C / P55C AMD K5 / K6	Cyrix 6x86 / 6x86L / M2 IBM 6x86	
1-2	66/100MHz		
3-4	60/120MHz	6x86-PR150+(120MHz)	
5-6	66/133MHz	6x86-PR166+(133MHz)	(Default)
7-8	75/150MHz	6x86-PR200+(150MHz)	✱
9-10	60/150MHz	6x86MX-PR166(M2)	
11-12	66/166MHz	6x86MX-PR200(M2)	
13-14	75/188MHz	6x86MX-PR233(M2)	✱
15-16	66/200MHz	6x86MX-PR233(M2)	
17-18	75/225MHz	6x86MX-PR266(M2)	✱
19-20	66/233MHz	6x86MX-PR266(M2)	
21-22	66/266MHz		✱
23-24	60/300MHz		✱
25-26	66/333MHz		✱

1 2

25 26

✱ *These jumper settings are reserved for the future CPU versions. When the future CPU versions are ready and suitable for this mainboard, these jumper settings will be correctly updated.*
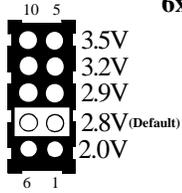
J18　　　　　　　　**CPU Vcore voltage selection for Pentium MMX / AMD K6 / Cyrix 6x86L or 6x86MX**

10 5

3.5V
3.2V
2.9V
2.8V **(Default)**
2.0V

6   1

1-6　 : 2.0V for AMD K6 fast processor (Reserved)

2-7　 : 2.8V for Pentium P55C(MMX)/Cyrix 6X86L(Dual Voltage)

3-8　 : 2.9V for AMD K6 PR166/PR200 or 6x86MX-PR166/PR200/
　　　　RP233/PR266(Dual Voltage)

4-9　 : 3.2V for AMD K6 PR233/PR266(Dual Voltage)

5-10 : 3.5V for Pentium P54C/P54CS/P54CTB/AMD K5/Cyrix
　　　　6X86(Single Voltage for Dual or Single plane)

2-3   Real Time Clock Battery Replacement

The battery can be replaced by a Sanyo / Panasonic CR2032, or other equivalent coin lithium battery. Please follow the steps below to replace the battery.

1.Remove

❶

❷

❸

❹

2.Insert

❶

❷

❸
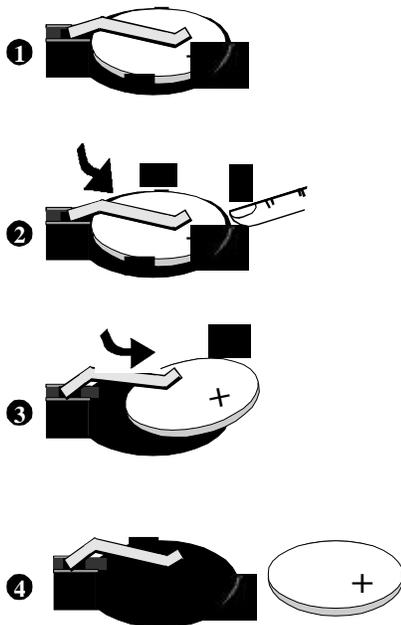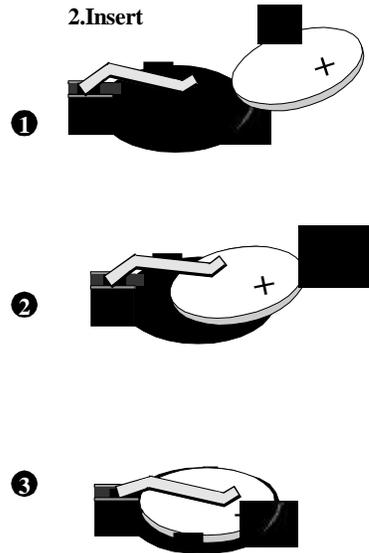
2-4 System Memory Configuration

The **P55-BT** supports different types of settings for the system memory. There is a jumper JP7 for SDRAM hardware setting needed for memory configuration. The following figures show all possible memory combinations.

DIMM1 > BANK 0   **3.3V Synchronous DRAM or 3.3V FP / EDO DRAM**

DIMM2 > BANK 1   **3.3V Synchronous DRAM or 3.3V FP / EDO DRAM**

SIMM1
SIMM2 > BANK 2   **5V FP / EDO DRAM**
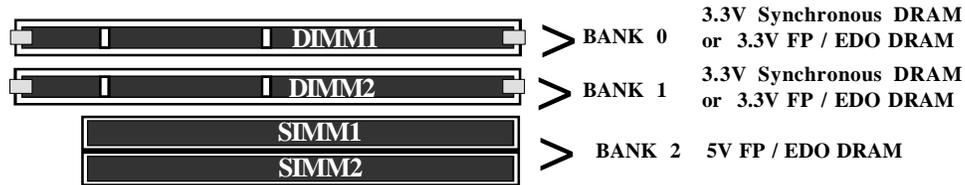
Memory Configuration Table

DIMM (M1) (BANK 0)	DIMM2 (M2) (BANK 1)	SIMM1,SIMM2 (BANK 2)	TOTAL Memory
SDRAM 8MB, 16MB 32MB x 1	SDRM 8MB, 16MB 32MB x 1	EDO/FD DRAM 4M x 2 (8MB) 8M x 2 (16MB) 16M x 2 (64MB) x 2	MAX. =256MB =
64MB, 128MB	64MB, 128MB	Empty	=

NOTE: 1. P55-BT supports both Fast Page DRAM and EDO DRAM SIMMs, however they cannot be mixed in the same memory bank.
2. DIMM module specification is 3.3V / unbuffered.

LEFT KEY ZONE (UNBUFFERED)   **CENTER KEY ZONE (3.3 V DRAM)**
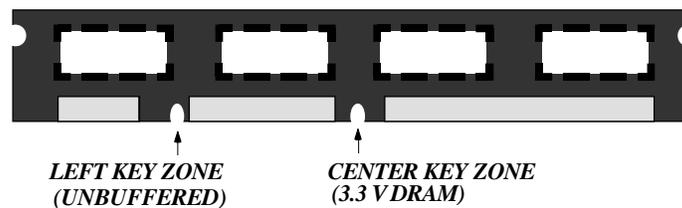
The **P55-BT** supports two 168-pin DIMM module sockets to extend system memory size. You can install (5V, JP7 1-2, 5-6, 7-8 Close) Fast Page, EDO or (3.3V / UNBUFFERED JP7 1-2, 3-4 Close) Synchronous DRAM.

When you have a DIMM module to plug into a 168-pin dual readout connnector, you must make sure that the DIMM module is 3.3V/Unbuffered to supports Intel Pentium[®]Processor System or 5V Fast Page, EDO DRAM.

* P55-BT Supports and extends many memory configurations on its 2 SIMM and
  2 DIMM sites. The memory size of any configuration can be combined flexibly.
  BIOS will detect your memory configurations and sizes automaticallly.

* The 70ns Fast Page Mode or 60ns EDO is necessary.

* "BANK" = 64Bit = SIMM1, SIMM2 = DIMM1 = DIMM2

2-5 Cache Memory Configuration

The second level (L2) cache is installed in the mainboard to increase the system
performance. The **P55-BT** supports 512KB burst and piplined burst synchronous
SRAM.

U18

U21

**TAG
SRAM**

64K*64

DATA SRAM

2-6 Integrated PCI Bridge

The **P55-BT** utilizes **Intel 430TX PCIset** chipset to support Intel Pentium®Processor PCI/ISA system. The Intel 82430TX PCIset chipset consists of one 82439TX system controller (MTXC) and one 82371AB PCI ISA/IDE Accelerator (PIIX4) bridge chip. It provides an interface which translates CPU cycle into PCI bus cycle and PCI burst read/write capability. In addition, it provides a high performance PCI arbiter and supports four PCI Masters, Rotating Priority Mechanism, and Hidden Arbitration Scheme Minimizes Arbitration Overhead. The 82371AB(PIIX4) supports PCI Specification Revision 2.1 Compliant and contains a Universal Serial Bus interface with both host and hub control functions. P55-BT reserves a USB connector to provide two USB ports for serial transfer at 12 or 1.5 Mbit/sec. This supports legacy keyboard and mouse software with USB-Base Keyboard and mouse.

There are four interrupts in each PCI slot : INTA#, INTB#, INTC#, and INTD#, since the **P55-BT** adapts the PCI auto-configuration with the system BIOS Setup utility. When the system is turned on after adding a PCI add-in card, the BIOS automatically configure interrupts, DMA channels, I/O space, and other paramaters. You do not have to configure jumpers or worry about potential resource conflicts. Because PCI cards use the same interrupt resource as ISA cards, you must specify the interrupts used by ISA add-in cards in the BIOS Setup utility.

If a "Legacy card" (such as plug paddle card and cable for the ISA slot.) is plugged in the system, modification in the **ROM SETUP UTILITY** becomes necessary. First, enter **PCI CONFIGURATION SETUP** utility from **ROM SETUP UTILITY** main menu to set the "**PCI IDE IRQ MAP TO**: **ISA**".

Second, you must enter **CHIPSET FEATURES SETUP UTILITY** from **ROM SETUP UTILITY** main menu and set the " **Onboard Primary PCI IDE: Disabled** and **Onboard Secondary PCI IDE: Disable**." When you plug the PCI/ISA IDE card into the system, You should **Disabled Onboard Primary and Secondary PCI IDE** from **CHIPSET FEATURES SETUP UTILITY** too.

When no paddle card and cable, you can set the system interrupt request (IRQ) on the "Legacy card" (refer to user's manual of the card) to a proper system IRQ level (In general, card's Primary is assigned to INTA and Secondary is assigned to INTB). If the card is plugged into slot 1(marked PCI#1), you cannot use the second slot (marked PCI#2) because the Secondary INT signal takes INTB from the slot (refer to Page 3-12 for circuit diagram). The user then enters **PCI CONFIGURATION SETUP** utility from **ROM SETUP UTILITY** main menu and sets the " **PCI IDE IRQ MAP TO**: **PCI-Slot 1**" (It depends on the slot # where the Legacy card is plugged).

Chapter 3

ATX Power Connector

Except for the AT power connector, the P55-BT also equips with ATX power connector which is a single 20-PIN input device for ATX power supply (see Figure 3-3). To implement the built-in Remote ON/OFF function on ATX power supply, a momentary switch which is normally open should be connected to the position JP9 as the system ON/OF button. However, an AT power supply does not come with this function.

Based on the ATX power connector, the P55-BT has been designed to support both ACPI and Soft-OFF functions. According to the definition of ACPI, a Suspense mode will be enabled while you push the JP9(system ON/OFF) button less than 4 seconds. Nevertheless, the system will be turned off by pressing for more than 4 seconds. Regarding the Soft-OFF(coming from the P55-BT onboard circuit control-ler), it is another way to turn off your system. Your system can be shut down automatically by an operation system such as Windows 95.

Figure 3-3: Simple ATX Power ON/OFF Controller
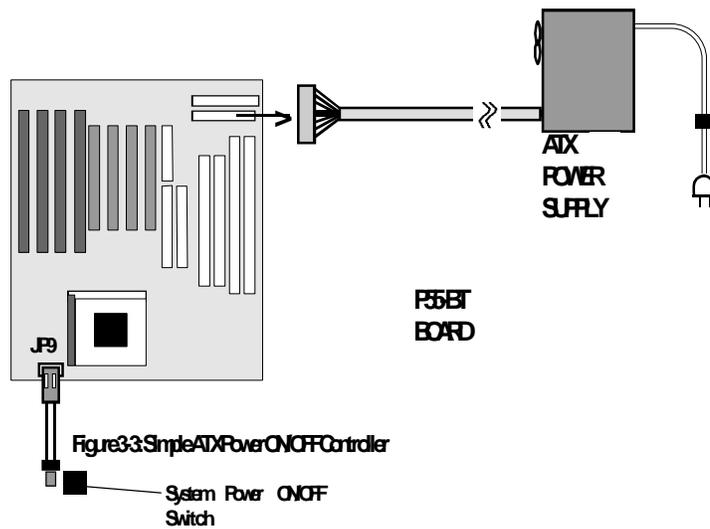
3-1 External Modem Ring-in Power ON and Keyboard Power ON Functions

On the basis of bounded functions in I/O chipset, the two serial ports are able to support the External Modem Ring-in Power ON function. Once users connect the external modem to COM1 or COM2, the P55-BT mainboard allows them to turn on their system through the remote and host's dial-up control.

Exclusive Keyboard Power ON Function

To innovate a unique feature to benefit users, we devoted ourselves to create the easiest and most convenient way to turn on your system based on the 5.0VSB provided by the ATX power supply. This function is available only under system being connected to ATX power.

How to work with it

Step 1: Please push the momentary switch (JP9 button) to turn on your system and then push again to hold for more than 4 seconds to shut down as soon as you turn it on.

Step 2: You can enjoy the Keyboard Power-ON function by pressing any 1 or 2 keys at the same time for 1-2 seconds. After releasing the keys, your system will be turned on automatically. And through the existing Soft-OFF, your system can be powered off by Windows 95.

Notes:

1. Once you pull out the power cable or disconnect the 20-PIN power supply, you have to repeat the Step 1 to re-enable this function.
2. The number of keys needed to turn on a system depends on the type of keyboard you are appplying since the different loading on each keyboard. Here, we would like to suggest you push 2 keys together.
3. Intel ATX version 2.0 specification has recommended you use the power supply with 0.72A(720mA). With our P55-BT mainboard, the 5.0VSB standby power only has to be $> = 0.1A$ (100mA) then you can enjoy this unique benefit. However, the ATX power supply which is < 0.1 (100mA) is still applicable to your system by setting the JP2 to 2-3 to disable this feature.
4. When Enabled or Disabled the Keyboard Power ON function by JP2. Make sure to pull out the power cabled or disconnect the 20-PIN power supply.

Chapter 4
Award BIOS Setup

Award's ROM BIOS provides a built-in Setup program which allows user to modify the basic system configuration and hardware parameters. The modified data will be stored in a battery-backed CMOS RAM so data will be retained even when the power is turned off. In general, the information saved in the CMOS RAM stay unchanged unless there is configuration change in the system, such as hard drive replacement or new equipment change.

It is possible that the CMOS battery is dead. This will cause data lose in CMOS RAM. If so, it is necessaiy to re-enter system configuration parameters.

To enter Setup Propgram

Power on the computer and press <**Del**> key immediately. This will bring you into BIOS **CMOS SETUP UTILITY**.

```
ROM PCI/ISA BIOS(2A59IPA9)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP          SUPERVISOR  PASSWORD

BIOS FEATURES SETUP          USER  PASSWORD

CHIPSET FEATURES SETUP       IDE HDD AUTO DETECTION

POWER MANAGEMENT SETUP       HDD LOW LEVEL FORMAT

PNP/PCI CONFIGURATION        SAVE & EXIT SETUP

INTEGRATED PERIPHERALS       EXIT WITHOUT SAVING

LOAD SETUP DEFAULTS

 ESC : QUIT                  ↑ ↓ → ←  :  SELECT ITEM

 F10  :  Save & Exit Setup    (Shift)F2  :  Change Color

            Time, Date, Hard Disk Type...
```

Figure 4-1 CMOS SETUP UTILITY

The menu displays all the major selection items and allows user to select any shown items. 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 selected item will appear so the user can modify the associated configuration parameters.

4-1 Standard CMOS Setup

Choose "**STANDARD CMOS SETUP**" in the **CMOS SETUP UTILITY** Menu (Fig.4-1). 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 <PgDn> or <PgUp> keys or user can enter new data directly from the keyboard.

```
               ROM  PCI/ISA  BIOS(2A59IPA9)
                  STANDARD  CMOS  SETUP
                  AWARD  SOFTWARE,  INC.

Date (mm:dd:yy) : Wed, Apr 17 1996
Time (hh:mm:ss) :  14 : 30 : 50

HARD DISKS      TYPE  SIZE  CYLS    HEAD   PRECOMP  LANDZONE  SECTORS  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
Floppy 3 Mode Support  :  Disabled          Base Memory  :      640K
Video       :  EGA/VGA                   Extended Memory  :     5360K
Halt  On   :  All Errors                    Other Memory  :      384K

                                            Total Memory  :   16384K

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

Figure 4-2 STANDARD CMOS SETUP

NOTE: If hard disk Primary Master/Slave and Secondary Master/Slave were used Auto, then the hard disk size and model will be auto-detected on display during POST.

NOTE: The "**Halt On :**" field is to determine when to halt the system by the BIOS if error occurrs during **POST**.

4-2 BIOS Features Setup

Selecting 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 P55-BT. Again, user can move the cursor by pressing direction keys and <PgDn> or <PgUp> keys to modify the parameters. Pressing [F1] key to display help message of the selected item.

This setup program also provides 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/ISA  BIOS(2A59IPA9)
                 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
Gate A20 option            : Fast
Typematic Rate Setting     : Disabled
Typematic Rate (Chars/Sec) : 6
Type matic Delay (Msec)    : 250
Security  Option           : Setup       Esc : Quit          ↑ ↓ → ←  : Select Item
PCI/VGA Palette Snoop      : Disabled     F1  : Help          PU/PD/+/- : Modify
OS  Select For DRAM > 64MB : Non-OS2      F5  : Old Values        (Shift)F2 : Color
                                          F7  : Load Setup Defaults
```

Figure 4-3 BIOS FEATURES SETUP

Note: The **Security Option** contians "**setup**" and "**system**". The "**setup**" indicates
that the password setting is for CMOS only while the " **system**" indicates the
password setting is for both CMOS and system boot up procedure.

● **Virus Warning:** This category flashes on the screen. During and after the system
boots up, any attempts to write to the boot sector or partition table of the hard disk
drive will halt the system and an error message will appear. You should then run an
anti-virus program to locate the virus. Keep in mind that this feature protects only the
boot sector, not the entire hard drive. Default value is Disabled
Enabled   **:** Activates automatically when the system boots up causing a warning
                      message to appear when anything attempts to access the boot sector.
Disabled   **:** No warning message to appear when anything attempts to access the
                      boot sector.
Note : Many disk diagnostic programs that access the boot sector table can trigger the
virus warning message. If you plan to run such a program, we recommend that you
first disable the virus warning.

● **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 is
without Internal Cache then this item "CPU Internal Cache" will not be shown.
Enabled   **:** Enable cache.
Disable   **:** 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. The default is Enabled.
Enabled **:** Enable quick POST.
*Disabled***:** Normal POST.

● **Boot Sequence:**This category determines which drive is searched first for the O/S (Operating System). Default value is A, C, SCSI. The following is your list of options.
[A, C, SCSI]-[C, A, SCSI]-[C, CDROM, A]-[CDROM, C, A]-[D, A, CDROM]
[E, A, CDROM]-[F, A, CDROM]-[SCSI, A, C]-[SCSI C, A]-[C Only], [LS/ZIP, 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 the CDROM drive (If the CDROM has a bootable CD title.) and second search hard disk drive then flopp disk drive.
C,CDROM,A: System will first search for the hard disk drive and second search the CDROM drive (If the CDROM has a bootable CD title.) then floppy disk drive.

● **Swap Floppy Drive:**This will swap your physical drive letters A & B if you are using two floppy disks. Default value is Disabled.
Enabled **:** Floppy A & B are able to swap under DOS.
*Disabled***:** Floppy A & B are not able to swap.

● **Boot Up Floppy Seek:** During Power-On-Self-Test (POST), BIOS will determine if the floppy disk drive installed is 40 or 80 tracks. Only is 360K type 40 tracks while 760K, 1.2M and 1.44M are all 80 tracks. The default value is Enabled.
Enabled **:** BIOS searches for floppy disk drive to determine if it is 40 or 80 tracks, Note that BIOS cannot tell from 720K, 1.2M or 1.44M drive type as they are all 80 tracks.
*Disabled***:** BIOS will not search for the type of floppy disk drive by track number. Note that there will not be any warning message if the drive installed is 360K.

● **Boot Up NumLock Status:**Control the state of the Numlock key when the system boots. The default value is On.
On **:** Keypad is number keys.
Off **:** Keypad is arrow keys.

● **Boot UP System Speed**: Select Hight to boot at the default CPU speed; select Low to boot at the speed of the AT bus.
High: Set the speed to high.
Low : Set the speed to low.

- **Gate A20 Option:** This refers to the way the system addresses memory above 1MB (extended memory). The default value is Fast.
  Normal **:** The A20 signal is controlled by keyboard controller or chipset hardware.
  Fast   **:** The A20 signal is controlled by Port 92 or chipset specific method.

- **Typematic Rate Setting:** This determines the keystroke repeat rate.
  Enabled **:** Enable typematic rate and typematic delay programming.
  *Disabled***:** Disable typematic rate and typematic delay programming. The rate will be controlled by keyboard controller in your system.

- **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 : 250msec.
  500 : 500 msec.
  750 : 750 msec.
  1000: 1000 msec.

- **Security Option:** This category allows you to limit access to the system and Setup, or just to Setup. The default value is Setup.
  *System***:** The system will not boot and the access to Setup will be denied if the correct password is not entered at the prompt.
  Setup **:** The system will boot, but the access to Setup will be denied if the incorrect password is not entered at the prompt.

- **PCI/VGA Palette Snoop:** This filed controls the ability of a primary PCI VGA controller to share a common palette(when a snoop write cycles) with an ISA video card. The default value is Disabled.
  Enabled: If an ISA card connects to a PCI VGA card via the VESA connector and that ISA card connects to VGA monitor and that ISA card uses the RAMDAC of PCI card.
  Disabled: Disable the VGA card Palette snoop function.

- **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 other expansion card optional ROM will be copied to RAM by 16K byte or 32K byte per unit and the size depends on chipset. If you install other expansion cards with ROMs on them, you will need to know which addresses the ROMs use to shadow themselves specifically.
  Enabled **:** Optional shadow is enabled.
  *Disabled***:** Optional shadow is disabled.

4-3 Chipset Features Setup

Choose the "**CHIPSET FEATURES SETUP**" in the **CMOS SETUP UTILITY** menu to display the following menu.

```
ROM  PCI/ISA  BIOS(2A59IPA9)
CHIPSET FEATURES SETUP
AWARD  SOFTWARE,  INC.

Auto  Configuration        : Enabled      Current MB Temperature     : 38C/100F
DRAM  Timing               : 60ns         CPU  Warning  Temperature   : 60C/140F
DRAM  Leadoff  Timing       : 10 / 6 / 3
DRAM  Write  Burst  Timing   : x333
Fast  EDO  Lead  Off         : Enabled
Refresh  RAS#  Assertion     : 4 Clks
Fast  RAS  To  CAS  Delay     : 2
DRAM  Page  Idel  Timer      : 2 Clks
DRAM  Enhanced  Paging      : Enabled
Fast  MA  to  RAS#  Delay     : 2 Clks
SDRAM  (CAS  Lat/RAS-to-CAS) : 2/2
SDRAM  Speculative  Read     : Disabled
System  BIOS  Cacheable      : Disabled
Video  BIOS  Cacheabled      : Enabled
8   Bit  I/O  Recovery  Time  : 1
16 Bit I/O Recovery Time    : 2
Memory  Hole  At  15M-16M    : Disabled   ESC : Quit                 : Select Item
PCI 2.1 Compliance          : Disabled   F1  : Help        PU/PD/+/-  : Modify
                                         F5  : Old Values   (Shift) F2  : Color
                                         F7  : Load Setup Defaults
```

Figure 4-4 CHIPSET FEATURES SETUP

- **Auto Configuration:** Selects predetermined optinal values of chipset parameters. When Disabled, chipset parameters revert to setup information stored in COMS. Many fields in this screen are not available when Auto Configuration is Enabled.

Note: When you insert slow memory modules in the system and set a faster timing, the system may hang up.

- **DRAM Timing:** The default value is 60ns.
  60ns **:** 2 (faster) Burst Wait State, for 60~70ns Fast Page Mode/EDO DRAM.
  70ns **:** 3 (slower) Burst Wait State, for 70ns Fast Page Mode/EDO DRAM.

- **DRAM Leadoff Timing:** The default value is 10/6/3 (Read Leadoff / Write Leadoff / RAS# Precharge)
  10/6/3 **:** For EDO / FPM reads and Writes timing.
  11/7/3 **:** For slow EDO /FPM reads and Writes timing.

- **DRAM Writes Burst Timing:** The default value is x222.
  x222 **:** For EDO / FPM of the fast burst mode timings.
  x333 **:** For EDO /FPM of the slow burst mode timings.

- **Fast EDO Lead off :** The default value is Enabled.
  Enabled **:** This field Enables fast timing EDO read cycles.
  Disabled **:** Disables the fast timing EDO read cycles.

- **Refresh RAS# Assertion :** The default value is 4 clks.
  4 **:** This field controls the number of 4 clocks. RAS# is asserted for Refresh.
  5 **:** This field controls the number of 5 clocks. RAS# is asserted for Refresh.

- **Fast RAS To CAS Delay :** The default value is 2.
  2 **:** This field controls a RAS# to CAS# delay is 2.
  3 **:** This field controls a RAS# to CAS# delay is 3.

- **Fast MA to RAS# Delay :** The default value is 2 Clks.
  1 Clks **:** This field controls Memory Address to RAS's timing is 1 HCLKS.
  2 Clks **:** This field controls Memory Address to RAS's timing is 1 HCLKS.

- **SDRAM (CAS Lat / RAS-to-CAS) :** The default value is 2 / 2.
  2/2 **:** This field controls a RAS# to CAS# delay of 2 HCLKS is provided for SDRAM.
  3/3 **:** This field controls a RAS# to CAS# delay of 3 HCLKS is provided for SDRAM.

- **SDRAM Speculative Read :** The default value is Disabled.
  Enabled **:** Enables the SDRAM speculative read logic.
  Disabled **:** Disables the SDRAM speculative read logic.

- **System BIOS Cacheable:**
  Enabled :   Allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.
  Disabled :   System BIOS non-cacheable

- **Video BIOS Cacheable:** The default value is enabled.
  Enabled **:** This field Enables the Video BIOS Cacheable to speed up the VGA Performance.
  *Disabled***:** Disables the Video BIOS Cacheable function.

- **8/16 Bit I/O Recovery Time:** The default value is 1.
  *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.

- **Memory Hole at 15M-16M:** The default value is disabled.
  *Disabled***:** Normal Setting.
  Enabled : This field enables the main memory (15~16MB) remap to ISA BUS. This feature reserves 15MB to 16MB memory address space to ISA expansion card that specifically require this setting.

- **PCI 2.1 Compliance:** The default value is Disabled.
  Enabled: This field Enables the PCI 2.1 Compliance timing.
  Disabled: Disables the PCI 2.1 timing.

- **Current MB Temperature:** This field will Auto-detect the MB temperature when enter the CHIPSET FEATURES SETUP.

- **CPU Warning Temperature:** The default value is 60C/140F.

  The purpose of this setting is to enable the CPU temperature warning & protection function so that we can detect and monitor the fluctuant temperature during system operation.

  If the cooling fan applied to the CPU does not have enough power to control and cool down the heat or is broken while running, the indicator of the current M/B temperature will be higher and higher.

  To protect the CPU while the temperature is up to CPU warning temperature for example 60C(the default value), the alarm will be activated and CPU speed will be slowed down at the same time. At this moment, you have to save your data into disks and then shut down system to cut off the alarm.

  The thermal conductibility of a CPU and the cooling fan are playing two key roles to determine whether the overheat problem could be happened or not. For example, if you are using a high performance CPU but applying a low power cooling fan, the situation mentioned above will happen again.

  The setting value is available from 50C/122F to 70C/158F.

4-4 Power Management Setup

Choose the "**POWER MANAGEMENT SETUP**" in the **CMOS SETUP UTILITY** to display the following screen. This menu allows user to modify the power management parameters and IRQ signals. In general, these parameters should not be changed unless it's absolutely necessary.

```
ROM  PCI/ISA  BIOS  (2A59IPA9)
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
		Secondary IDE 0 : Disabled
Doze Mode	: Disable	Secondary IDE 1 : Disabled
Standby Mode	: Disabled	Floppy Disk : Disabled
Suspend Mode	: Disabled	Serial Port : Disabled
HDD Power Down	: 15 Min	Parallel Port : Disabled
VGA Active Monitor	: Enabled	
Soft-OFF by PWB-BTTN	: Delay 4 Sec.	
** Break Event From Suspend **		
IRQ 8 Clock Event	: Disabled	
		ESC : Quit ↑ ↓ → ← : Select Item
		F1 : Help PU/PD/+/- : Modify
		F5 : Old Values (Shift) F2 : Color
		F7 : Load Setup Defaults

Figure 4-5 POWER MANAGEMENT SETUP

Again, user can move the cursor by pressing direction keys to the field needed to be modified and press <PgDn> or <PgUp> to alter item selection. You can only change the content of **Doze Mode**, **Standby Mode**, and **Suspend Mode** when the **Power Management** is set to '**User Define**'.

Note: When the computer enters suspend mode (setting the suspend mode valid range from 1 minute up to 1 hour) activated by the BIOS power Management. You need to RUN a program POWER.EXE under DOS root, or need to add DEVICE=C:\DOS\POWER.EXE in your CONFIG.SYS. This will keep the system time updated normally when the system wake up from the suspend mode. The supend mode for Windows®95 or Windows®3.1x has to install windows APM feature. Choose "Advanced Power Management" item from "system device". The "system device" field was from "system" icon in the "control panel".

4-4-1 The Description of the Power Management

A. Power Management mode selection :

Disabled	: The system operates in NORMAL conditions (Non-GREEN) and the Power Management function is disabled.
Max. saving	: Maximum power savings. Inactivity period is 1 minute in each mode.
Min. saving	: Minimum power savings. Inactivity period is 1 minute in each mode.
User Define	: Allows user to define PM Timers parameters to control power saving mode.

B. Time-out parameters:

HDD Standby
The HDD Standby timer can be set from 1 to 15 minute(s).

System Doze
The "System Doze" mode timer starts to count when no "PM event"
occurres. The valid time-out setting is from 1 minute up to 1 hour.

System Standby
The "Standby" mode timer starts to count when the "System Doze" mode timer times
out and no "PM events" occurred. The valid range is from 1 minute up to 1 hour.

System Suspend
This function works only when the Pentium ®Procssor is installed.   The timer starts
to count when the "System Standby" mode timer times out and no "PM Event"
occurres. The valid range is from 1 minute up to 1 hour.

4-4-2   Description of the Green Functions

● **PM Control by APM:**
If Advanced Power Management (APM) is installed on your system, selecting *Yes*
gives better power savings.

● **Video Off Method:** Determines the manner in which the monitor is blanked.
V/H SYNC+Blank:
System turns off vertical and horizontal synchronization ports and writes blanks to the
video buffer.
DPMS Support:
Select this option if your monitor supports the Display Power Management Signaling
(DPMS) standard of the Video Electronics Standards Association (VESA). Use the
software supplied for your video subsystem to select video power management values.
Blank Screen:
System only writes blanks to the video buffer.

● **Video off After:** Determines when to activate the video off feature for monitor power
management.·The settings are Video off after Suspend/standby/Doze/(N/A).

● **Soft-off by PWR-BTTN:** This field is for the soft-off function setting. When the board
utilizes an ATX power supply, two types of settings are offered: *Delay 4 Sec.* and
instant-Off. When the setting is *Delay 4 Sec.,* users can power off the system by
pressing JP9 for 4 seconds. However, if users press JP9 for less than 4 seconds, the
system will enter the Suspend Mode. When the setting is *instant-Off,* users' first press
on JP9 will power off the system, but the second press will power on the system.

The P55-BT supports HDD Power Down, Doze and standby power saving functions when Intel Pentium®Processor is installed. In addition, the suspend function is supported when the JP14's sleep (sleep ref. Figure1-1) is closed to enter the green function. The detailed descriptions of these functions are provided in the next page.

HDD Power Down

When the system stops reading or wiriting HDD, the timer starts to count. The system will cut off the HDD power when timer runs out of time. The system will not resume operation until either a read from or a wirte to HDD command is executed again.

Doze Mode

The system hardware will drop down CPU clock from normal working speed when Doze mode timeout occurrs.

Standby Mode

When the system standby mode timer runs out, it will enter the standby mode and retain CPU at slow working speed. The screen will be blanked out.

Suspend Mode

When the system suspend timer times out, the system will enter the suspend mode and the chipset will stop CPU clock immediately. The power consumption in Suspend Mode is lower than in standby mode. The screen is also blanked out.

PM Events:

AWARD BIOS defines Reload Global Timer Events in the power management mode (Doze,standby & suspend). The user can initialize any PM Events to be "Enabled" or "Disabled". When the system detects all of the enabled events which do not have any activity, it will start the system Doze timer first if the "Power Management" isn't "Disabled". Once the system Doze timer is timed out, it will process doze power saving procedure by starting the system standby timer. When the standby timer ran out and all of the "Enabled" events remains silent, the system will enter the standby mode. By now, the system will not only process the standby power saving procedures but also start the system suspend timer. When the suspend timer times out, all of the CPU clock will stop by dropping system clock down to zero and remains this way until any one of the "Enabled" event occurrs.

4-5   PnP/PCI Configuration

The PnP/PCI configuration program is for the user to modify the PCI/ISA IRQ signals when various PCI/ISA cards are inserted in the PCI or ISA slots.

WARNING : Any misplacing IRQ could cause system cannot pick up the rescouces.

```
                    ROM PCI/ISA BIOS(2A59CPA9)
                    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
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 Values     (Shift) F2  : Color
DMA-6     assigned  to    : PCI/ISA PnP     F7   : Load Setup Defaults
DMA-7     assigned  to    : PCI/ISA PnP
```

Figure 4-6 PCI CONFIGURATION SETUP

● **Resource Controlled By:** The default value is Manual.
  Manual : PNP Card's resources will be controlled manually. You can set which
            IRQ-X and DMA-X are assigned to PCI/ISA PNP or Legacy ISA Cards.
  Auto   : If your ISA card and PCI card are all PNP cards, BIOS will assign the
            interrupt resource automatically.

● **Reset Configuration Data:** The default value is disabled.
  Disabled: Normal Setting
  Enabled : If you had plugged some Legacuy cards in the system and recorded into
            ESCD(Extended System Configuration Data), you can set this field to
            enabled to clear ESCD.

● **PCI IDE IRQ Map To:** The default value is PCI-AUTO

            When you have true PCI card(s) plugged into the system, you will not need
            to change any thing here in the **SETUP** program. However, if you do not
            know whether you have true PCI card or not, please refer to your PCI card
            user's manual for the details.

            When you have a legacy card (describbed in section 2-6) to be plugged
            into the system,a proper setting is extremely important or it may cause the
            system hang. The diagram shown below tells you how the Rotating
            Priority Mechanism is designed.

● **Used MEM base addr and Used MEM Length : The default value is N/A.**

> The Used MEM base addr (CB00, CC00, D000, D400, D800, DC00) and Used MEM Length (8K, 16K, 32K, 64K) support some specific ISA Legacy cards with requested memory space below 1M address. Now with these two functions, users can define where the used memory address is located and its length of the legacy area corresponding. Based on these, BIOS will skip the UMB area that is used by the legacy device to avoid the memory space conflict. For example, if users select "D000"for"Used MEM base addr" and "16K" for "Used MEM Length", that means the address region D0000H-D3FFFH is occupied by ISA legacy cards, and thus BIOS will not assign this region for PnP/ISA and PCI cards.
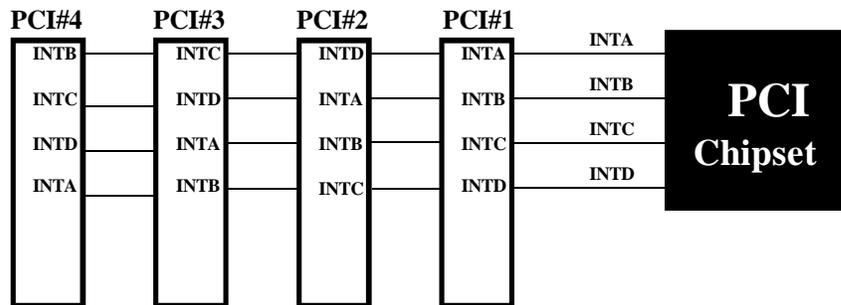

<u>Figure 4-7 The Combination of PCI INT# lines</u>

4-6   Integated Peripherals

```
┌──────────────────────────────────────────────────────────────────────┐
│                  ROM   PCI/ISA   BIOS(2A59IPA9)                         │
│                     INTEGRATED PERIPHERALS                             │
│                     WARD   SOFTWARE, INC.                              │
├──────────────────────────────────────────────────────────────────────┤
│ IDE HDD Block Mode          : Enabled    Onboard Parallel Mode  : ECP / EPP │
│ IDE Primary Master PIO      : Auto       ECP Mode Ise DMA       : 3    │
│ IDE Primary Slave PIO       : Auto       Parallel Port EPP Type : EPP1.9 │
│ 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                                      │
│ Onboard Primary PCI IDE     : Enabled                                   │
│ Onboard Secondary PCI IDE   : Enabled                                   │
│ USB Keyboard Support        : Disabled                                  │
│                                                                        │
│ Onboard FDD Controller      : Enabled                                   │
│ Onboard Serial Port 1       : Auto       ESC : Quit          ↑↓→← : Select Item │
│ Onboard Serial Port 2       : Auto       F1  : Help     PU/PD/+/- : Modify │
│ UART 2 Mode                 : Standard   F5  : Old Values  (Shift) F2 : Color │
│                                          F7  : Load Setup Defaults      │
│ Onboard Parallel Port       : 378/IRQ7                                  │
└──────────────────────────────────────────────────────────────────────┘
```

Note: **If you don't use the Onboard IDE connector, than use On-card (PCI or ISA card) IDE connector. You will set Onboard Primary PCI IDE: Disabled and Onboard Secondary PCI IDE: Disabled from CHIPSET FEATURES SETUP UTILITY.**
The Onboard PCI IDE cable should be equal to or less than 18 inches (45 cm.).

- **IDE HDD Block Mode:** Select enabled only if your hard drives support block mode.
  Enabled **:** Enabled IDE HDD Block Mode. Provides higher HDD transfer rates.
  *Disabled***:** Disable IDE HDD Block Mode.

- **IDE Primary (Secondary) Master/Slave PIO :** The default value is Auto.
  This field is Selectable Primary (Secondary) IDE PIO Mode (0~4) for HDD.

- **IDE Primary (Secondary) Master/Slave UDMA :** The default value is Auto.
  Auto : Select Primary (Secondary) IDE used Ultra DMA HDD.
  Disabled : Disabled Primary (Secondary) IDE used Ultra DMA HDD.

- **Onboard Primary PCI IDE:** The default value is enabled.
  Enabled **:** Enable Onboard 1st channel IDE port.
  Disabled **:** Disable Onboard 1st channel IDE port, when using On-card (PCI or ISA card) IDE connector.

- **Onboard Secondary PCI IDE:** The default value is enabled.
  Enabled **:** Enable Onboard 2nd channel IDE port.
  Disabled **:** Disable Onboard 2nd channel IDE port when using On-card (PCI or ISA card) IDE connector.

- **IDE Primary Master PIO:** The default value is Auto.
  Auto   **:** BIOS will automatically detect the Onboard Primary Master PCI
             IDE HDD Accessing mode.
  Mode0~4 **:** Manually set the IDE Accessing mode.

- **IDE Primary Slave PIO:** The default value is Auto.
  Auto   **:** BIOS will automatically detect the Onboard Primary Slave PCI IDE
             HDD Accessing mode.
  Mode0~4 **:** Manually set the IDE Accessing mode.

- **IDE Secondary Master PIO:** The default value is Auto.
  Auto   **:** BIOS will automatically detect the Onboard Secondary Master PCI
             IDE HDD Accessing mode.
  Mode0~4 **:** Manually set the IDE Accessing mode.

- **IDE Secondary Slave PIO:** The default value is Auto.
  Auto   **:** BIOS will automatically detect the Onboard Secondary Slave PCI
             IDE HDD Accessing mode.
  Mode0~4 **:** Manually set the IDE Accessing mode.

- **Onboard FDC Controller:** The default value is Enabled.
  *Enabled***:** Enable the Onboard SMC CHIP's floppy drive interface controller.
  *Disabled***:** Disable the Onboard SMC CHIP's floppy drive interface controller,
             when using On-card ISA FDC's controller.

- **Onboard UART 1:** This field allows the user to sellect the serial port. The default
  value is 3F8H/IRQ4.
  *COM1***:** Enable Onboard Serial port 1 and address is 3F8H/IRQ4.
  *COM2***:** Enable Onboard Serial port 1 and address is 2F8H/IRQ3.
  *COM3***:** Enable Onboard Serial port 1 and address is 3E8H/IRQ4.
  *COM4***:** Enable Onboard Serial port 1 and address is 2E8H/IRQ3.
  *Disabled***:** Disable Onboard SMC CHIP's Serial port 1.

- **Onboard UART 2:** This field allows the user to sellect the serial port. The default
  value is 2F8H/IRQ3.
  *COM1***:** Enable Onboard Serial port 2 and address is 3F8H/IRQ4.
  *COM2***:** Enable Onboard Serial port 2 and address is 2F8H/IRQ3.
  *COM3***:** Enable Onboard Serial port 2 and address is 3E8H/IRQ4.
  *COM4***:** Enable Onboard Serial port 2 and address is 2E8H/IRQ3.
  *Disabled***:** Disable Onboard SMC CHIP's Serial port 2.

- **Onboard UART 2 Mode:** The default value is standard. This field allows the user to select the COM2 port that can support a serial Infrared Interface.
  standard: Support a Serial Infrared Interface IrDA.
  HPSIR: Support a HP Serial Infrared Interface formats.
  ASKIR: Support a Sharp Serial Infrared Interface formats.

- **Onboard Parallel port:** This field allows the user to sellect the LPT port. The default value is 378H/IRQ7.
  378H   **:** Enable Onboard LPT port and address is 378H and IRQ7
  278H   **:** Enable Onboard LPT port and address is 278H and IRQ5.
  3BCH   **:** Enable Onboard LPT port and address is 3BCH and IRQ7.
  Disabled   **:** Disable Onboard SMC CHIP's LPT port.

  *NOTE***: Parallel Port address is 378H/3BCH that selects the routing of IRQ7 for LPT1.**
  **   Parallel Port address is 278H that selects the routing of IRQ5 for LPT1.**

- **Parallel port Mode:** This field allows the user to sellect the parallel port mode. The default value is ECP+EPP.
  Normal   **:** Standard mode. IBM PC/AT Compatible bidirectional parallel port.
  EPP   **:** Enhanced Parallel Port mode.
  ECP   **:** Extended Capabilities Port mode.
  EPP+ECP   **:** ECP Mode & EPP Mode.

  ECP Mode USE DMA: This field allows the user to sellect DMA1 or DMA3 for the ECP mode. The default value is DMA3.
  DMA1   **:** The filed selects the routing of DMA1 for the ECP mode.
  DMA3   **:** The filed selects the routing of DMA3 for the ECP mode.

4-7 Load Setup Defaults

The "**LOAD SETUP DEFAULTS**" function loads the system default data directly from ROM and initializes the associated hardware properly. This function will be necessary only when the system CMOS data is corrupted.

```
┌─────────────────────────────────────────────────────────────────┐
│                  ROM PCI/ISA BIOS(2A59IPA9)                       │
│                     CMOS SETUP UTILITY                            │
│                   AWARD SOFTWARE, INC.                            │
├─────────────────────────────────────────────────────────────────┤
│   STANDARD CMOS SETUP            SUPERVISOR  PASSWORD             │
│   BIOS FEATURES SETUP            USER  PASSWORD                   │
│   CHIPSET FEATURES SETUP         IDE HDD AUTO DETECTION           │
│   POWER MANAGEMENT SETUP         HDD LOW LEVEL FORMAT             │
│   PNP/PCI  CONFIGURA  ┌─────────────────────────┐ ETUP           │
│   INTEGRATED PERIPH   │ Load SETUP Default (Y/N)? Y│ SAVING        │
│   LOAD SETUP DEFAULTS └─────────────────────────┘               │
├─────────────────────────────────────────────────────────────────┤
│   ESC: QUIT                 ↑↓→← :SELECT ITEM                     │
│   F10:Save & Exit Setup      (Shift)F2  :Change Color            │
├─────────────────────────────────────────────────────────────────┤
│          Load Setup Defaults Except Standard COMS SETUP           │
└─────────────────────────────────────────────────────────────────┘
```

Figure 4-8 LOAD SETUP DEFAULT

4-8 Change Supervisor or User Password

To change the password, choose the "**SUPERVISOR PASSWORD or USER PASS-WORD**" option from the **CMOS SETUP UTILITY** menu and press [Enter].

NOTE : Either "**Setup**" or "**System**" must be selected in the "**Security Option**" of the **BIOS FEATURES SETUP** menu (Refer to Figure 4-3 for the details).

1. If CMOS is corrupted or the option was not used, a default password stored in the ROM will be used. The screen will display the following message:

   Enter Password:

   Press the [Enter] key to continue after proper password is given.

2. If CMOS is corrupted or the option was used earlier and the user wish to change default password, the **SETUP UTILITY** will display a message and ask for a confirmation.

   Confirm Password:

3. After pressing the [Enter] key (ROM password if the option was not used) or current password (user-defined password), the user can change the password and store the new one in CMOS RAM. A maximum of 8 characters is acceptable.

4-9 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. **But now** 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.
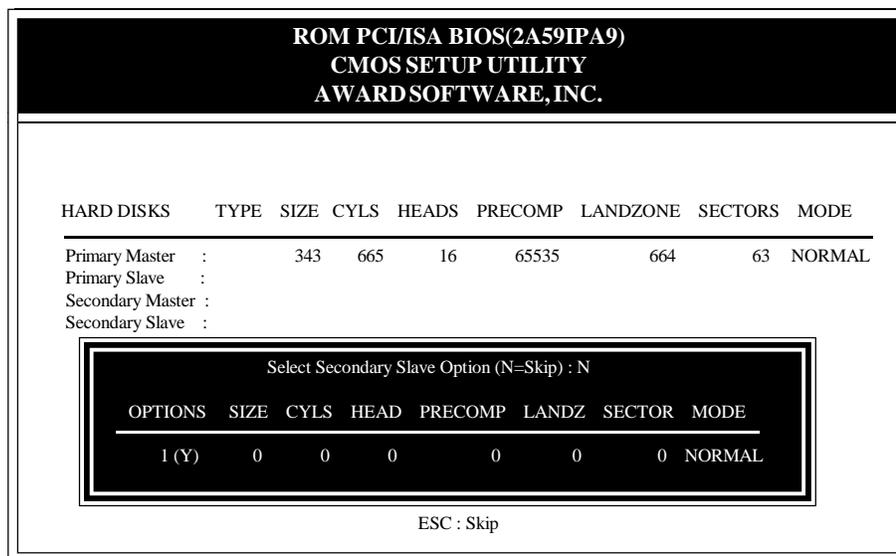
```
          ROM PCI/ISA BIOS(2A59IPA9)
              CMOS SETUP UTILITY
            AWARD SOFTWARE, INC.


  HARD DISKS      TYPE  SIZE  CYLS  HEADS  PRECOMP  LANDZONE  SECTORS  MODE

  Primary Master    :       343   665    16     65535       664        63   NORMAL
  Primary Slave     :
  Secondary Master  :
  Secondary Slave   :

          Select Secondary Slave Option (N=Skip) : N

     OPTIONS   SIZE   CYLS   HEAD   PRECOMP   LANDZ   SECTOR   MODE

      1 (Y)      0      0      0        0        0        0    NORMAL

                      ESC : Skip
```

Figure 4-9 IDE HDD AUTO DETECTION

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, heads and sectors for NORMAL mode are
   1024, 16 and 63.

$$
\begin{array}{lr}
\text{no. Cylinder} & (1024) \\
\times \;\; \text{no. Head} & (\;\; 16) \\
\times \;\; \text{no. Sector} & (\;\; 63) \\
\underline{\times \;\; \text{no. per sector}} & \underline{(\;\; 512)} \\
\text{528 Megabytes} &
\end{array}
$$

   If users set his 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 and sectors shown in the 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 and 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  bytes per secttor    (  512)
            8.4 Gigabytes
```

LARGE mode

Extended HDD access mode is supported by Award Software.

Some IDE HDDs contain more than 1024 cylinder without LBA support (in some cases, users do not want the LBA mode). The Award BIOS provides another alternative to support these kinds of LARGE mode:

CYLS.	HEADS	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  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 (1NT 13h). It may be failed to access a HDD with LBA (LARGE) mode selected if you are running under a Operating System which replaces the whole 1NT 13h. UNIX operating systems do not support either LBA or LARGE and must utilize the Standard mode. However UNIX can support drives larger than 528MB.

4-10 HDD Low Level Format

Interleave
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.

Auto scan bad track
This allows the utility to scan first then format by each track.

Start
Press<Y>to start low level format.

4-11 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.

4-12 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 upduted.

Chapter 5
Technical Information

5-1 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 ports.
[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.
[1F0-1F8]	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.
[3D0-3DF]	CGA adapter.
[3F0-3F7]	FLOPPY DISK controller.
[3F8-3FF]	SERIAL port 1.

5-2 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.

5-3 Interrupt Map

NMI :   Parity check error.

IRQ (H/W) :

0	System TIMER interrupt from TIMER 0.
1	KEYBOARD output buffer full.
2	Cascade for IRQ 8-15.
3	SERIAL port 2.
4	SERIAL port 1.
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.

5-4 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.
	11	Reserve.
	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 ectension memory low byte.
	31	Reserved for extension memory high byte.
	32	DATE CENTURY byte.
	33	INFORMATION FLAG.
	35-3F	Reserved.
	40-7F	Reserved for CHIPSET SETTING DATA.

Appendix A: POST Codes

ISA POST codes are typically output to port address 80h.

POST(hex)	DESCRIPTION
01-02	Reserved.
C0	Turn off OEM specific cache, shadow.

03	1.Initialize EISA registers (EISA BIOS only).
	2.Initialize all the standard devices with default values Standard devices includes.
	    -DMA controller (8237).
	    -Programmable Interrupt Controller (8259).
	    -Programmable Internal Timer (8254).
	    -RTC chip.

04	Reserved
05	1.Keyboard Controller Self-Test. 2.Enable Keyboard Interface.
06	Reserved.
07	Verifies CMOS's basic R/W functionality.
C1	Auto-detection of onboard DRAM & Cache.
C5	Copy the BIOS from ROM into E0000-FFFFF shadow RAM so that POST will go faster.
08	Test the first 256K DRAM.
09	OEM specific cache initialization(if needed).

0A	1.Initialize the first 32 interrupt vectors with corresponding Interrupt handlers
	  Initialize INT no from 33-120 with Dummy (Suprious)
	  Interrupt Handler.
	2.Issue CPUID instruction to identify CPU type.
	3.Early Power Management initialization (OEM specific).

0B	1.Verify the RTC time is valid or not.
	2.Detect bad battery.
	3.Read CMOS data into BIOS stack area.
	4.PnP initializations including (PnP BIOS only):
	    -Assign CSN to PnP ISA card.
	    -Create resource map from ESCD.
	5.Assign IO & Memory for PCI devices (PCI BIOS only).

POST(hex)	DESCRIPTION
0C	Initialization of the BIOS Data Area. (40:ON - 40:FF)
0D	1.Program some of the Chipset's value according to Setup (Early Setup Value Program). 2.Measure CPU speed for display and decide the system clock speed. 3.Video initialization including Monochromc, CGA and EGA/VGA. If no display device found, the speaker will beep up.

0E	1.Test video RAM (If Monochromc display device found).
	 2.Show messages including:
	    -Award Logo, Copyright string, BIOS Data code & Part No.
	    -OEM specific sign on messages.
	    -Energy Star Logo. (Green BIOS ONLY)
	    -CPU brand, type & speed.
	    -Test system BIOS checksum. (Non-Compress Version only)

0F	DMA channel 0 test.
10	DMA channel 1 test.
11	DMA page registers test.
12-13	Reserved.
14	Test 8254 Timer 0 Counter 2.
15	Test 8259 interrupt mask bits for channel 1.
16	Test 8259 interrupt mask bits for channel 2.
17	Reserved.
19	Test 8259 functionality.
1A-1D	Reserved.
1E	If EISA NVM checksum is good, exccute EISA initialization. (EISA BIOS only)
1F-29	Reserved.
30	Detect Base Memory & Extended Memory Size.
31	1.Test Base Memory from 256K to 640K. 2.Test Extended Memory from 1M to the top of memory.

POST(hex)   DESCRIPTION

32
    1.Display the Award Plug & Play BIOS Extension message (PnP BIOS only).
    2.Program all onboard super I/O chips (if any) including COM ports, LPT
      ports, FDD port ... according to setup value.

33-3B
    Reserved.

3C
    Set flag to allow users to enter CMOS Setup Utility.

3D
    1.Initialize Keyboard.
    2.Install PS/2 mouse.

3E
    Try to turn on Level 2 cache.
    Note : Some chipset may need to turn on the L2 cache in this stage. But
    usually, the cache is turn on later in POST 61h.

3F-40
    Reserved.

BF
    1.Program the rest of the Chipset's value according to Setup (Later Setup Value
      Program).
    2.If auto-configuration is enabled, programmed the chipset with pre-defined
     Values.

41
    Initialize floppy disk drive controller.

42
    Initialize Hard drive controller.

43
    If it is a PnP BIOS, initialize serial and parallel ports.

44
    Reserved.

45
    Initialize math coprocessor.

46-4D
    Reserved.

4E
    If there is any error detected (such as video, kb...), show all the error messages
    on the screen and wait for user to press <F1> key.

4F
    1.If password is needed, ask for password.
    2.Clear the Energy Star Logo (Green BIOS only).

50
    Write all CMOS values currently in the BIOS stack area back into the CMOS.

51
    Reserved.

POST(hex)   DESCRIPTION

52
1. Initialize all ISA ROMs.
2. Later PCI initializations (PCI BIOS only).
    - Assign IRQ to PCI devices.
    - Initialize all PCI ROMs.
3. PnP Initialzations. (PnP BIOS only)
    - Assign IO, Memory, IRQ & DMA to PnP ISA devices.
    - Initialize all PnP ISA ROMs.
4. Program shadows RAM according to Setup settings.
5. Program parity according to Setup setting.
6. Power Management Initialization.
    - Enable/Disable global PM.
    - APM interface initialization.

53
1. If it is NOT a PnP BIOS, initialize serial and paralled ports.
2. Initialize time value in BIOS data area by translate the RTC time value into a timer tick value.

60
Setup Virus Protection (Boot Sector Protection) functionality according to Setup setting.

61
1. Try to turn on Level 2 cache.
   Note : if L2 cache is already turned on in POST 3D, this part will be skipped.
2. Set the boot up speed according to Setup setting.
3. Last chance for Chipset initialization.
4. Last chance for Power Management initialization (Green BIOS only).
5. Show the system configuration table.

62
1. Setup daylight saving according to Setup value.
2. Program the NUM Lock, typematic rate & typematic speed according to Setup setting.

63
1. If there is any changes in the hardware configuration, update the ESCD information (PnP BIOS only).
2. Clear memory that have been used.
3. Boot system via INT 19H.

FF
System Booting. This means that the BIOS already past the control right to the operating system.
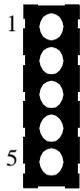
Unexpected Errors:

POST(hex)   DESCRIPTION

B0
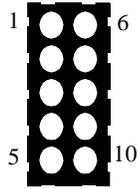If interrupt occurs in protected mode.

B1
Unclaimed NMI occurs.

Appendix B: I/O Connectors

JP13 : PS/2 Mouse Connector:
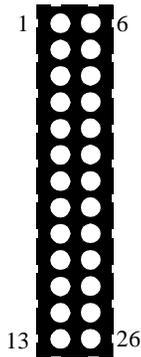
Pin	Signal Name
1	Data (Red Wire)
2	Clock (Blue Wire)
3	GND (Green Wire)
4	NC
5	VCC (Yellow Wire)

### JP10/COM1, JP11/COM2 : Serial Ports Connector

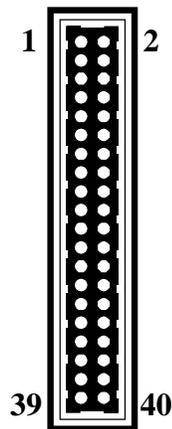| Signal Name	Pin	Pin	Signal Name
DCD	1	6	DSR
SIN	2	7	RTS
SOUT	3	8	CTS
DTR	4	9	RI
GND	5	10	NC

J8 : Parallel Port Connector

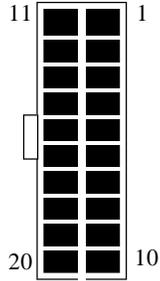| Signal Name	Pin	Pin	Signal Name
STROBE-	1	14	AUTO FEED-
Data Bit 0	2	15	ERROR-
Data Bit 1	3	16	INIT-
Data Bit 2	4	17	SLCT IN-
Data Bit 3	5	18	Ground
Data Bit 4	6	19	Ground
Data Bit 5	7	20	Ground
Data Bit 6	8	21	Ground
Data Bit 7	9	22	Ground
ACJ-	10	23	Ground
BUSY	11	24	Ground
PE	12	25	Ground
SLCT	13	26	NC

J7 : Floppy Disk Connector

1 ▢ **2**

33 ▢ **34**
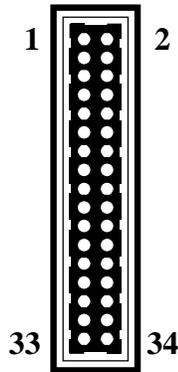
Signal Name	Pin	Pin	Signal Name
Ground	1	2	FDHDIN
Ground	3	4	Reserved
Ground	5	6	FDEDIN
Ground	7	8	Index-
Ground	9	10	Motor Enable
Ground	11	12	Drive Select B-
Ground	13	14	Drive Select A-
Ground	15	16	Motor Enable
Ground	17	18	DIR-
Ground	19	20	STEP-
Ground	21	22	Write Data
Ground	23	24	Write Gate
Ground	25	26	Track 00-
Ground	27	28	Write Protect-
Ground	29	30	Read Data-
Ground	31	32	SIDE 1 SELECT-
Ground	33	34	Diskette

J5/J6 : Primary, Secondray IDE Connector

1 ▢ **2**

39 ▢ **40**

Signal Name	Pin	Pin	Signal Name
Reset IDE	1	2	Ground
Host Data 7	3	4	Host Data 8
Host Data 6	5	6	Host Data 9
Host Data 5	7	8	Host Data 10
Host Data 4	9	10	Host Data 11
Host Data 3	11	12	Host Data 12
Host Data 2	13	14	Host Data 13
Host Data 1	15	16	Host Data 14
Host Data 0	17	18	Host Data 15
Ground	19	20	Key
DRQ3	21	22	Ground
I/O Write-	23	24	Ground
I/O Read-	25	26	Ground
IOCHRDY	27	28	BALE
DACK3-	29	30	Ground
IRQ14	31	32	IOCS16-
Addr 1	33	34	Ground
Addr 0	35	32	Addr 2
Chip Select 0-	37	38	Chip Select 1-
Activity	39	40	Ground

ATX Power Supply Connector:

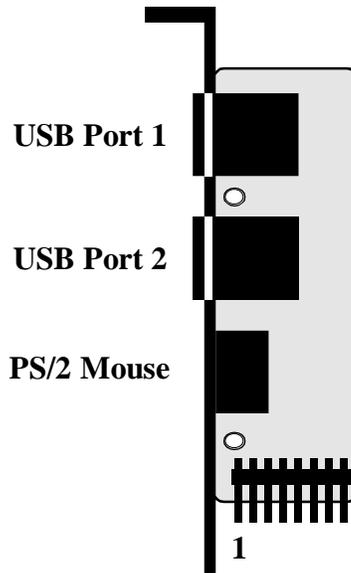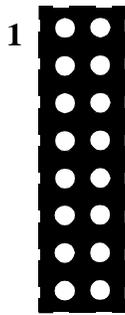| Signal Name	Pin	Pin	Signal Name
3.3V	11	1	3.3V
-12.0V	12	2	3.3V
GND	13	3	GND
PS-ON	14	4	5.0V
GND	15	5	GND
GND	16	6	5.0V
GND	17	7	GND
-5.0V	18	8	PW-OK
5.0V	19	9	5VSB
5.0V	20	10	12.0V

CN1: USB Connector:

Figure 5-1 USB Port Adapter