Main Board User's Guide

Sep. 1994

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Introduction

Incorporating advanced design techniques and the most recent technology, this 486 VIP (VESA / ISA / PCI) system board provides you the ability of building a high performance 486 personal computer system and the flexibility to upgrade your system in the future. In addition, the board features VESA & PCI standard Local Bus Design to enable your system to exploit the enhanced I/O performance available from a CPU Local Bus.

The first chapter of the manual introduced some of the technology incorporated into the system board and describes the board's features and peripheral connections. A brief overview of the contents for the rest of the manual is in the section 1.1 below.

The VIP system board is designed to be used for all 486 serial microprocessors from 486SX, 486DX, 486DX2, 486DX4 up to Pentium OverDrive (P24T) 66Mhz.

The system board is a four-layer construction and 220mm x 260mm board dimension. The eight mounting holes on the board are designed primarily for using Baby AT size desktop and tower cases but will fit many other cases as well.

The system board supports up to 128Mb of RAM (Random Access Memory) installed on-board. Various Combinations of 1MB, 2MB, 4MB or 8MB 16MB x 32/36 bits 70/80 ns DRAM modules may be installed in the two memory banks on the board.

1-1   About this Manual

This manual is arranged to help you set up and run this 486 main
board as soon as possible.

Information is presented in three chapters: In this *Introduction*, we tell
you what you should receive in your 486 main board as well as
provide information on the features and specifications of the product.
The chapter enclosed with a diagram showing the layout of the 486
main board.

Chapter 2, *Main Board Setup*, includes detailed information on how to
install and configure your 486 main board.

Chapter 3, *Memory installation*, describes the size and configuration of
your system's on-board memory and external cache memory and gives
instructions for installing the memory devices on the system board.
When the above steps have all been completed, you will need to adjust
the BIOS setup using the software utility described in the *Appendix.*

1-2 Main Board Specifications :

❏   **Fully PC/AT Compatible System**

❏   **CPU** :

the board supports the following CPUs

Intel 80486SX/DX2/DX4/SL- enhanced /OverDrive CPUs

AMD Am486™ DX /DX2 /DXL /DXL2 CPUs

Cyrix CX486 DX/DX2 (M7) CPUs

UMC U5S -25/33/40 CPUs

System clock 25/33/40/50MHz

Optional 239-pin PGA or 237-pin ZIF CPU socket

❏   **Memory**:

   30pin SIMM Socket x 4 (1MB/4MB/16MB 8/9bits SIMM 70/80
   ns Modules acceptable)

   72-pin SIMM Socket x 2 (4MB/8MB/16MB/32MB 32/36bit
   SIMM 70/80 ns Modules acceptable)

   Maximum 128MB on board

   Auto bank function provided, the SIMM can be installed into
   any location and any combinations.

❏   **External cache memory** :   0K/128K/256K (32Kx8 DIP type)

❏   **I/O Slots**:

   ISA bus 16 bits x 4, 8 bits x1

   VESA Local bus x 2 (both are master mode)

   PCI local bus x 3 (all are master mode)

❏   **BIOS**:

   Award system BIOS (supports NCR SCSI driver)

❏   **Shadow RAM**:

   System BIOS, Video BIOS and Adapter ROM BIOS

❏   **PCB Size** :   220mm x 260mm

❏   **Software/Hardware turbo speed toggle**

❏   **Green PC** :

   meet EPA green PC standard : power consumption under 30W
   on the Doze, Standby or Inactive mode

1-3 Main Board Layout
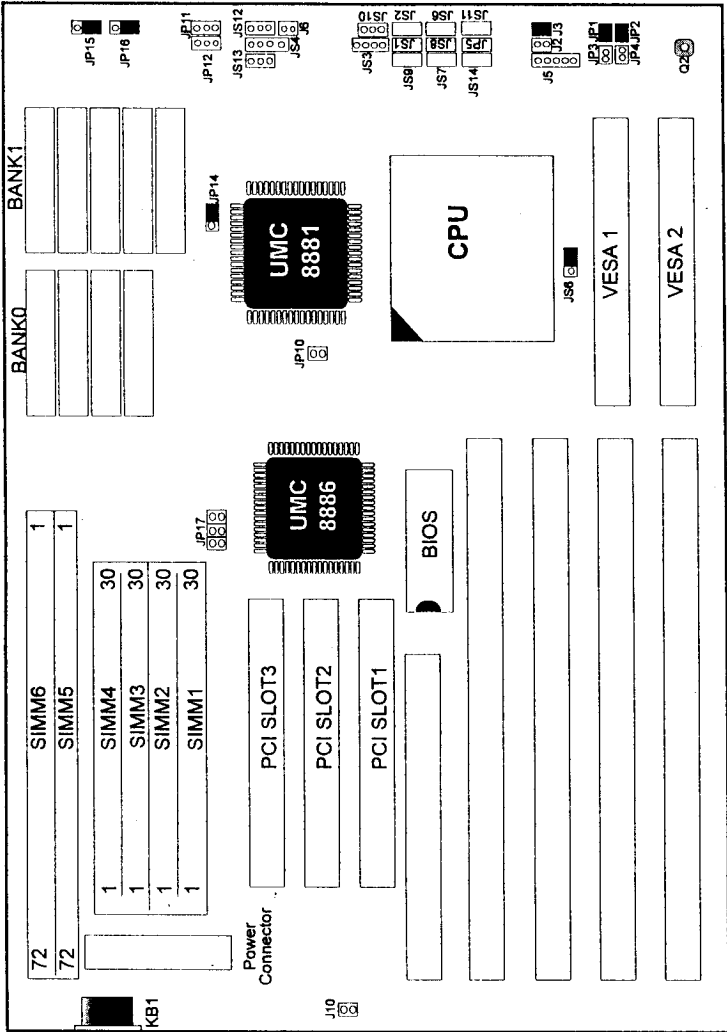
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Main Board Setup

If your main board has already been installed by the dealer, you will still want to refer to this chapter in case you plan to make any changes or upgrade your system.

2-1 Jumper Switch

Jumper switch is used to select between various operating modes. A jumper switch consists of two or three gold pins projecting up from the system board. Placing the plastic jumper cap over two pins connects those pins and makes a particular selection. Using the cap to connect two pins, in this way is commonly referred to as shorting those pins. If the cap is not placed on any pins , this is referred to leave the pins open.

This section will discuss the functions and settings for all of the user-configurable jumpers on the main board. Consult the diagram below to find the location of the various jumpers on the main board.
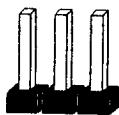
Pins	Cap	Setting
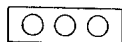
3 Pin Jumper	1-2 : Pin 1 and Pin 2 short

2-2 CPU Type and System Clock Configuration

The main board can support all 486 serial microprocessors up to Pentium OverDrive, running at system clock speed up to 50Mhz. If you are installing or upgrading the CPU on this board, you must set the CPU type (JS1~JS14, JP11~JP12, JP17) and configure the system clock generator jumper (JP17) to match the speed rating of the Microprocessor

CPU Type Selection (JS1 ~ JS14)

CPU TYPE	486DX/DX2/ DX4 SL-Enhanced	486SX SL-Enhanced	486DX /DX2	486SX	UMC U5S	CYRIX M7	* Am486DXL/ DXL2	P24T
JS1	1-2	1-2	3-4	3-4	3-4	2-3	3-4	1-2
JS2	1-2	1-2	3-4	3-4	3-4	2-3	3-4	1-2
JS3	1-2	2-3	1-2	2-3	2-3	1-2	1-2	1-2
JS4	1-2	1-2	3-4	3-4	3-4	2-3	3-4	1-2
JS5	1-2	1-2	1-2	1-2	1-2	3-4	1-2	2-3
JS6	1-2	1-2	1-2	1-2	1-2	3-4	1-2	2-3
JS7	1-2	1-2	3-4	3-4	2-3	1-2	2-3	1-2
JS8	1-2	1-2	1-2	1-2	1-2	3-4	1-2	2-3
JS9	1-2	1-2	3-4	3-4	3-4	1-2	3-4	1-2
JS10	1-2	2-3	1-2	2-3	2-3	1-2	1-2	1-2
JS11	1-2	1-2	1-2	1-2	2-3	1-2	2-3	1-2
JS12	1-2	1-2	1-2	1-2	2-3	1-2	2-3	2-3
JS13	1-2	2-3	1-2	2-3	1-2	1-2	1-2	2-3
JS14	1-2	1-2	1-2	1-2	1-2	1-2	1-2	2-3

*   The green functions of Am486DXL/DX2 CPU will be available in Oct.1994

*   The "1-2" means Pin1 and Pin2 short together

CPU Brand Selection (JP11 ~ JP12)

CPU Brand	JP11	JP12
Intel		
Cyrix		
AMD/UMC		

WARNING!!

Please set JP3, JP4 short when installing Intel 486DX4 475/100(P24C/P24C)

CPU Core Frequency SettingJP5 (Only for 486DX4)

If 486DX4 CPU (P24C) is used, you must set JP5 for internal CPU speed

JP5	CPU Clock
	2.5 x CLK
	2 x CLK
	3 x CLK

CPU Power Voltage Selection (JP1 ~ JP4)

JP3 JP1

JP3, JP4 short : +3.3v CPU Power Voltage,

such as Intel 486DX4 (P24C),
..Etc iis used.

JP4 JP2

JP3 JP1

JP1, JP2 short : +5v CPU Power Voltage

JP4 JP2

System clock setting configration (JP17)

System Clock	CPU Type	MX8315 / UM9515 (U5) is on board	IMIS466 (U5B) is on board
25MHz	486SX-25 487SX-25 486DX-25 OverDrive-25 486DX2-50 486DX4-75*	1	1
33MHz	486SX-33 487SX-33 486DX-33 OverDriver-33 486DX2-66 486DX4-100*	1	1
40MHz	486SX-40 486DX-40 486DX2-80*	1	1
50MHz	486DX-50 486DX4-100*	1	1

* Intel 486DX4 (P24C) is double/Tripple CPU Clock design

2-3 Connectors

Connectors are used to connect the system board to other parts of the system, including the power supply, the keyboard and the various controllers on the front panel of the system case. When connecting connect-wires to the connectors you should remember that some of them must be aligned in a specific way in order to have proper function.

Power Supply Connector

The power supply connector is located in the right-hand side of the system board, behind the memory banks. When installing the board, the power supply connector is usually the last connector to be connecting before installing the system peripherals. Before connect the power supply, check that it is not connected to power source. Most power supplies have two sets of six-wire connectors that must be connected to the system board. Two of the wires on each connector are black. When connect these two connectors to the power supply connector, align them so that the two black wires on each connector are positioned in the middle.

1	■	POWER	Orange
2	■	+5V	Red
3	■	+12V	Yellow
4	■	-12V	Blue
5	■	GROUND	Black
6	■	GROUND	Black
1	■	GROUND	Black
2	■	GROUND	Black
3	■	-5V	White
4	■	+5V	Red
5	■	+5V	Red
6	■	+5V	Red

Keyboard Lock Connector (J5)

The keyboard lock connector is a five-pin connector located in the front left of the main board, in the right of the speaker connector. When this connector is connected to the keylock on the front panel of the system case, the lock can disable the keyboard, preventing other users to operate your computer. It is important to orient the cable correctly when connecting the keylock to the main board. As clearly labeled on the board, Pin 1 of the keyboard lock connector is counted from the left.

Pin	Definition
1	+ 5V DC
2	No Connection
3	Ground
4	Keylock
5	Ground

Keyboard Lock Connector / Pin Definitions

Keyboard Connector (KB1)

The keyboard connector is located at the rear of the main board in the right-hand side.
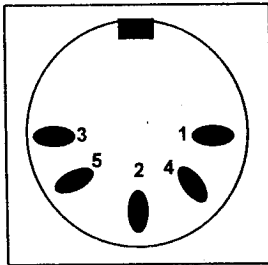
PIN	DESCRIPTION
1	KEYBOARD CLOCK
2	KEYBOARD DATA
3	SPARE
4	GROUND
5	+5V DC

Keyboard Connector / Pin Definitions

Speaker Connector (J4)

The speaker connector is located in the front left of the board. An external speaker mounted inside the case can connect to the main board via this connector.

Pin	Definition
1	Speaker Signal
2	No Connection
3	GND
4	+- 5V DC

speaker connector / Pin Definition

System Reset Switch Connector (J6)

The system reset switch connector is a two-pin connector located in the front left of the main board, behind the speaker connector. This connector should be connected to the Reset switch on the front panel of the system case. The Reset switch may be used to reset the computer, causing it to perform a cold restart from the power-on self test without turning off the power.

Pin	Definition
1	System Reset
2	GND

Reset Switch Connector / Pin Definitons

Turbo LED Connector (J2)

The turbo LED connector, located in the front left of the main board next to the reset connector, is connected to a turbo LED on the front panel of the system case. If connected, the turbo LED will light on whenever the system is running in turbo (high speed) mode. Note that when connect the turbo LED wire to the turbo connector, it is important to orient the wire correctly. The "+" terminal of the connector is the right-hand pin.

Hardware Turbo Switch Connector (J3)

The hardware turbo switch connector, located in the front left of the main board next to turbo LED connector, is used to connect the board to a hardware turbo switch on the front panel of the system unit. If connected, the hardware turbo switch can be used to toggle the turbo (high speed) mode on or off.

> 1-2 open : high / low speed changed by keyboard
>
> " **CTRL - ALT - +** " : set to high speed
> " **CTRL - ALT - -** " : set to low speed
>
> 1-2 short : always high speed

Power Saving Inactive / Resume Connector (JP10)

There are four power management modes in this board: Normal, Doze, Standby and Inactive mode.
If you have power saving control switch on the front panel of the system case, you can trigger system into Inactive mode directly, system will slow down the CPU clock to zero MHz, power down the external cache and so on, then auto wake up by keyboard, mouse and Inactive / Resume switch ...Etc.
JP10 : 1-2 short, enter the Inactive mode directly.

Memory Installation

This 486 main board can operate from 4MB up to 128MB system memory installed on-board. There is also an external cache memory on the system board that may be installed as either 128KB or 256KB in size.

This chapter describes the types of memory devices that should be used with the main board and explains how to install the memory.

3-1 External Cache Memory Configuration

When you first install the cache memory on your system board or each time you upgrade or modify it, you need to adjust the cache memory size setting for the system. The cache memory size for the system is set by JP14, JP15 and JP16.

Cache Memory Size	JP14	JP15	JP16	TAG RAM	DATA RAM
128KB	1 ▪▪▫	1 ▪▪▫	1 ▪▪▫	(8K * 8) 1pc (U5)	(32K * 8) 4pcs (U6-U9)
256KB	1 ▫▪▪	1 ▫▪▪	1 ▫▪▪	(32K * 8) 1pc (U5)	(32K * 8) 8pcs (U6-U13)

3-2   Main Memory Configuration

This board will support any combination of 30-pin and 72-pin SIMMs
up to 128MB. The DRAM SIMM installation is"Jumpless", which
means the SIMM can be installed into any SIMM socket and with any
combinations.
All possible memory configuration are listed below for your selection.

```
 72  ┌──────────────────────────┐  1
     │          SIMM 6          │
     ├──────────────────────────┤
     │          SIMM5           │
     └──────────────────────────┘
      1   ┌──────────────────┐  30
          │      SIMM4       │
          ├──────────────────┤
          │      SIMM3       │
          ├──────────────────┤
          │      SIMM2       │
          ├──────────────────┤
          │      SIMM1       │
          └──────────────────┘
```
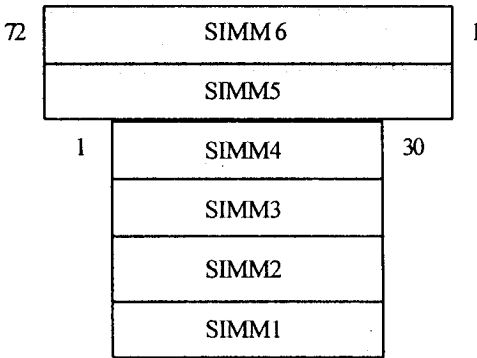
NO	Memory Size	SIMM TYPE SELECTION		
		SIMM 1-4	SIMM 5	SIMM 6
1	4 M B	1 M B * 4	------	------
2	4 M B	------	4 M B * 1	------
3	8 M B	1 M B * 4	4 M B * 1	------
4	8 M B	------	8 M B * 1	------
5	8 M B	------	4 M B * 1	4 M B * 1
6	1 2 M B	1 M B * 4	4 M B * 1	4 M B * 1
7	1 2 M B	------	4 M B * 1	8 M B * 1
8	1 6 M B	4 M B * 4	------	------
9	1 6 M B	------	1 6 M B * 1	------
1 0	1 6 M B	------	8 M B * 1	8 M B * 1
1 1	2 0 M B	4 M B * 4	4 M B * 1	------
1 2	2 0 M B	------	4 M B * 1	1 6 M B * 1
1 3	2 4 M B	4 M B * 4	8 M B * 1	------
1 4	2 4 M B	------	8 M B * 1	1 6 M B * 1
1 5	3 2 M B	4 M B * 4	1 6 M B * 1	------
1 6	3 2 M B	N O	1 6 M B * 1	1 6 M B * 1
1 7	3 2 M B	------	3 2 M B * 1	------
1 8	3 6 M B	4 M B * 4	4 M B * 1	1 6 M B * 1
1 9	3 6 M B	------	4 M B * 1	3 2 M B * 1
2 0	4 0 M B	4 M B * 4	8 M B * 1	1 6 M B * 1
2 1	4 0 M B	------	8 M B * 1	3 2 M B * 1
2 2	4 8 M B	4 M B * 4	1 6 M B * 1	1 6 M B * 1
2 3	4 8 M B	------	1 6 M B * 1	3 2 M B * 1
2 4	6 4 M B	1 6 M B * 4	------	------
2 5	6 4 M B	------	3 2 M B * 1	3 2 M B * 1
2 6	1 2 8 M B	1 6 M B * 4	3 2 M B * 1	3 2 M B * 1

Award BIOS Setup Program

```
            ROM PCI / ISA BIOS (2A4X5C31)
                 CMOS SETUP UTILITY
               AWARD SOFTWARE, INC.

STANDARD CMOS SETUP          PASSWORD SETTING

BIOS FEATURES SETUP          IDE HDD AUTO DETECTION

CHIPSET FEATURES SETUP       HDD LOW LEVEL FORMAT

POWER MANAGEMENT SETUP       SAVE & EXIT SETUP

PCI/GREEN FUNCTION SETUP     EXIT WITHOUT SAVING

LOAD SETUP DEFAULTS

ESC :  Quit                  ↑↓→←  :  Select Item

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

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

Figure 1 Setup Program Initial Screen

Award's BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This content of information is stored in battery-backed RAM so that the Setup information is retained even the power is turned off.

Entering Setup: Power on the computer and press <Del> immediately will allow you to enter Setup.

Standard CMOS Setup

Choose the "**STANDARD CMOS SETUP**" option from the **CMOS SETUP UTILITY** Menu (Fig. 1) and the below screen is displayed. This standard Setup Menu allows users to configure system components such as date, time, hard disk drive, floppy disk drive, display and memory. Once a field is highlighted, on-line help information is displayed in the left bottom of the Menu screen.

```
ROM PCI / ISA BIOS (2A4X5C31)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.
```

	CYLS.	HEADS	PRECOMP	LANDZONE	SECTORS	MODE
Date (mm:dd:yy) : Wed, Jul 26 1994						
Time (hh:mm:ss) : 13 : 36 : 4						
Drive C : None (0Mb)	0	0	0	0	0	-----
Drive D : None (0Mb)	0	0	0	0	0	-----

Drive A : 1.2M, 5.25 in.
Drive B : None

Video   : EGA/VGA
Halt On : All Errors

Base Memory	640K
Extended Memory	15360K
Other Memory	384K
Total	16384K

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

Figure 2 CMOS Setup Screen

BIOS Features Setup

By choosing the "**BIOS FEATURES SETUP**" option from the **CMOS SETUP UTILITY** Menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the mainboard.

```
                 ROM PCI / ISA BIOS (2A4X5C31)
                      BIOS FEATURES SETUP
                      AWARD SOFTWARE, INC.

 Typematic Rate Setting    : Disabled    Video BIOS    Shadow    : Enabled
 Typematic Rate (Chars/Sec) : 6          C8000-CBFFF  Shadow    : Disabled
 Typematic Delay (Msec)    : 250         CC000-CFFFF  Shadow    : Disabled
 Security Option           : Setup       D0000-D3FFF  Shadow    : Disabled
 Virus Warning             : Disabled    D4000-D7FFF  Shadow    : Disabled
 IDE HDD Block Mode        : Disabled    D8000-DBFFF  Shadow    : Disabled
 CPU Internal Cache        : Enabled     DC000-DFFFF  Shadow    : Disabled
 External Cache            : Enabled     E0000-EFFFF  Shadow    : Disabled
 Swap Floppy Drive         : Disabled
 Boot Up Floppy Seek       : Enabled
 Boot Sequence             : A ,C
                                      ESC : Quit           ↑↓→←   : Select Item
                                      F1  : Help           PU/PD/+/- : Modify
                                      F5  : Old Values      (Shift) F2 : Color
                                      F6  : Load BIOS Defaults
                                      F7  : Load Setup Defaults
```

Figure 3 BIOS Feature Setup

Chipset Features Setup

By choosing the "CHIPSET FEATURES SETUP" option from the
CMOS SETUP UTILITY Menu, the screen below is displayed. This
sample screen contains the manufacturer's default values for the
mainboard.

```
        ROM PCI / ISA BIOS (2A4X5C31)
            BIOS FEATURES SETUP
            AWARD SOFTWARE, INC.

Auto Configuration        :Enabled      System BIOS Cacheable    : Disabled
L2 Cache Update Scheme     :Wr-Back      Video   BIOS Cachable    : Disabled
L2 Cache Wait States       :3-2-2-2      E0000H  BIOS Cachable    : Disabled
Keyboard Controller Clock  :7.16MHz      D8000H  BIOS Cachable    : Disabled
ISA Bus Clock Option       :PCICLKI/4    D0000H  BIOS Cachable    : Disabled
HOST -to-PCI Burst Write   :Disabled     C8000 H BIOS Cachable    : Disabled
PCI Bus Park Option        :Disabled
Host Clock / PCI Clock     :1 : 1
IBC DEVEL # Decoding       :Slow

                              ESC :  Quit         ↑↓→←    : Select Item
                              F1  :  Help         PU/PD/+/- :  Modify
                              F5  :  Old Values   (Shift) F2  :  Color
                              F6  :  Load BIOS Defaults
                              F7  :  Load Setup Defaults
```

Figure 4 Chipset Features Setup

Note 1 : By choosing the "Enable" option for "AUTO Configuration".
The BIOS will automatically detect the CPU speed and will
auto-configurate the bus frequency, DRAM speed, cache and
read/write cycle.

Power Management Setup

This section provides informations of functioning the Green PC power management features. For enabling the power management function, please select "POWER MANAGEMENT SETUP" option from the "CMOS SETUP UTILITY" Menu. You will be presented with a screen similar to one of the illustrated two screens as below. The following two tables show you the screen with the manufacturer's default setting for this mainboard.

```
          ROM PCI / ISA BIOS (2A4X5C31)
              BIOS FEATURES SETUP
             AWARD SOFTWARE, INC.
```

Power Management : User Define	* Monitor Even In Full On Mode	
Video OFF Method : Bland Screen	PCI Master 3 Check	: Enabled
HDD Standby Timer : 10 Min	PCI Master 2 Check	: Enabled
Doze Timer Select: 8 Min	PCI Master 1 Check	: Enabled
Standby Timer Select : 8 Min	PCI Master 0 Check	: Disabled
Inactive Timer Sele t : 8 Min	VESA Slave Access Check	: Disabled
	LPT Access Check	: Enabled
Inactive Wake-UpTime :0 : 0: 0	COM Access Check	: Enabled
	ISA Master & DMA Check	: Enabled
Mode Control :CPU Speed Display	IDE Access Check	: Enabled
Doze Mode :1/4 HLCK Turn On	Floppy Access Check	: Enabled
Standby Mode : 1/8 HLCK Turn Off	VGA Access Check	: Disabled
Inactive Mode : STOP CLK	Keyboard Access Check	: Enabled

```
ESC : Quit              ↑↓→←   : Select Item
F1  : Help              PU/PD/+/- : Modify
F5  : Old Values        (Shift) F2 : Color
F6  : Load BIOS Defaults
F7  : Load Setup Defaults
```

Figure 5 Power management Setup

A1. Selecting "Power Management" Mode:

The four optional power Management Modes could be set by pressing the arrow keys ↑↓→← . And the system will enter into the respective "Power Management". modes as you selected, onec the keyboard and mouse are detected as in idle.

1. Disable Mode:

This Mode disabled the power management function, and the system will be in the normal operation (Non-Green) mode.

2. Max. saving Mode:

Select this mode, you will be presented the system defaulted Min. figures of four related timers, (HDD power Down Timer at "1 min", system Doze Timer at 0.5Min, system Standby Timer at 2Min, system Inactive at 2Min to facilitate the minimized power management function.

3. Min. saving Mode :

Select this mode, you will be presented the system defaulted **Max. figures of four related timers**, (HDD power Down Timer at "15 min", system Doze Timer at 512 min, system Standby Timer at 512Min, system Inactive at 512Min to facilitate the **minimized power management function.**

4. User Define Mode:

User could define their own required delay timings of PM Timers by setting up the following four related timers:

a. HDD Standby Timer:

The entry period of this flexible standby mode timer is 1~15 min.

Once the system stops reading from or writing to HDD, the standby timer at your defined timing starts counting. If there's no any activity and the programmable time-out period expired, the system will shut off the HDD power to enter standby mode. The HDD won't resume its function until the read/write command is executed.

b. Doze Timer select :

The entry period of this flexible standby mode timer is 0.25Min~512Min.

The option may scale CPU and system clock at the lower frequency (1/2HCLK / 1/4HCLK), and motivate the enabled **PM Events**. By touching the system keyboard or mouse, the CPU and system clock will auto-wake-up to a normal operation.

c. Standby Timer select:

The entry period of this flexible Inactive mode timer is 2Min ~ 512Min.

In this mode, the Inactive timer starts counting. If there's no activity during the programmable period, the system will scale CPU and system clock at the lower frequency (1/4HCLK / 1/8HCLK) and motivate the enabled **PM Events**.

Besides, it will enable the monitor to enter Inactive mode with blank screen. And the monitor won't work again until the system keyboard or mouse is touched.

d. Inactive Timer select :

This timer will be only presented and adjustable / functionable if the system is installed with Intel SL-Enhanced series CPUs.

The entry period of this flexible standby / Inactive mode timer is 2Min ~ 512Min.

If there's no any activity and the programmable time-out period expired, the system will shut off the CPU, HDD and monitor power to enter inactive mode. The power consumption under this mode is even lower than that of standby mode.

A2. Selection "Monitor Events In Full on Mode"

User could define personalized combination of **Monitor Event** by selecting "Enable" which will be checked whether the related function is still working or not before the respective defined power management mode is asked to be motivated.

Events include : PCI Master 3 / PCI Master 2 / PCI Master1
VESA slave Access check / LPT Access check
COM Açcess check / ISA Master & DMA check
IDE Access check / Floppy Access check
VGA Access check / Keyboard Access check

PCI / GREEN Function Setup

"PCI/GREEN FUNCTION SETUP" which sets for corresponding with PCI card's IRQ and M/B.
On the interface card has setting option for interrupt (INT A,B,C,D).
1. INT A (recommended), if there is not any setting for INT, it means the card by default has been set to INT A.
2. If user sets to INT D, the M/B and interface card may have conflict occurred. Only INT A,B,C are recommended.

```
                 ROM PCI / ISA BIOS (2A4X5C31)

                      BIOS FEATURES SETUP

                     AWARD SOFTWARE, INC.

 Slot 1 Using INT#    : A-PIRQ0   | * WakeUp Even In Inactive Mode
 Latency Timer        : 0         | Monitor IRQ3 Wake Up:    Enabled
 Slot 2 Using INT#    : A-PIRQ2   | Monitor IRQ4 Wake Up:    Enabled
 Latency Timer        : 0         | Monitor IRQ5 Wake Up:    Enabled
 Slot 3 Using INT#    : A-PIRQ1   | Monitor IRQ6 Wake Up:    Enabled
 Latency Timer        : 0         | Monitor IRQ7 Wake Up:    Enabled
 NCR 810 Using INT#   : PIRQ0     | Monitor IRQ9 Wake Up:    Enabled
 Latency Timer        : 0         | Monitor IRQ10 Wake Up:   Enabled
                                  | Monitor IRQ11 Wake Up:   Enabled
 PIRQ0# Connect IRQ  : NA By Single| Monitor IRQ12 Wake Up:   Enabled
 PIRQ1# Connect IRQ  : NA By Single| Monitor IRQ13 Wake Up:   Enabled
 PIRQ2# Connect IRQ  : NA By Single| Monitor IRQ14 Wake Up:   Enabled
 PIRQ3# Connect IRQ  : NA By Single| Monitor IRQ15 Wake Up:   Enabled

                                   ESC : Quit        ↑↓→←   : Select Item
                                   F1  : Help        PU/PD/+/- : Modify
                                   F5  : Old Values   (Shift) F2 : Color
                                   F6  : Load BIOS Defaults
                                   F7  : Load Setup Defaults
```

Figure 6 PCI/GREEN Funcrion Setup

For example :

1. Befor NCR SCSI Card is inserted on the M/B PCI slot 1, please check whether the SCSI Card interrupt is set to INT A, if yes please change A-PIRQ0# Connect IRQ from NA to IRQ9 in the BIOS setup.

2. Before PCI-IDE Card is inserted on the M/B slot 2, please check whether the PCI-IDE Card interrupt is set to INT A, if yes, please change A-PIRQ2# Connect IRQ from NA to IRQ 14 in the BIOS setup.

Load Setup Defaults

"LOAD SETUP DEFAULTS" loads the default system values directly from ROM. If the stored record created by the setup program becomes corrupted (and therefore unusable), these defaults will be loaded automatically when you turn the computer on.

```
┌────────────────────────────────────────────────────────────────┐
│                                                                  │
│                 ROM PCI / ISA BIOS (2A4X5C31)                    │
│                     CMOS SETUP UTILITY                           │
│                     AWARD SOFTWARE, INC.                         │
│                                                                  │
├────────────────────────────────┬─────────────────────────────┤
│  STANDARD CMOS SETUP           │   PASSWORD SETTING            │
│                                 │                              │
│  BIOS FEATURES SETUP           │   IDE HDD AUTO DETECTION      │
│                                 │                              │
│  CHIPSET FEATURES SETUP        │   HDD LOW LEVEL FORMAT        │
│                                 │                              │
│  POWER MANAGEMEN  Load SETUP Default (Y/N)? Y    UP            │
│  PCI/GREEN FUNCTION SETUP         EXIT WITHOUT SAVING          │
│  LOAD SETUP DEFAULTS           │                              │
├────────────────────────────────┴─────────────────────────────┤
│   ESC  :  Quit                      ↑↓→←   :  Select Item       │
│   F10  :  Save & Exit Setup         (Shift) F2  :  Change Color │
├────────────────────────────────────────────────────────────────┤
│                  Time, Date, Hard Disk Type...                   │
└────────────────────────────────────────────────────────────────┘
```

Figure 7 Load Setup Defaults Screen

Password Setting

To change password, choose the "**PASSWORD SETTING**" option from the setup main menu and press [Enter]

1. If the CMOS data is not connect or this option has never been used, there is a default password which is stored in the ROM. The screen will display the following messages: ▐ **Enter Password** ▌

    Press the [Enter] key and continue to change the password

2. If the CMOS data is correct or this option has been used to change the default password, the user is asked for the password stored in the CMOS. The screen will display the following message: ▐ **Enter Password** ▌

3. After pressing the [Enter] key (ROM password) or current password (user-defined password), you can change the password stored in the CMOS. The password can be at max. 8 characters length.

Remember, to enable this feature, you must first select the "Security Option" either "Setup" or "System" in the BIOS FEATURES SETUP (Please refer to Figure 3).

Auto Detect Hard Disk

"**IDE HDD AUTO DETECTION**" This utility can **AUTO DETECT IDE HARD DISK TYPE**. If you do not know the HARD DISK TYPE

```
               ROM ISA BIOS (2C4I9C31)
               CHIPSET FEATURES SETUP
               AWARD SOFTWARE, INC.


                 CYKS,  Heads  PRECOMP  LANDZONE  SECTORS    MODE
  Drive C: (124Mb)  936   16     65535      935       17      mormal
  Drive D: (0Mb)     0     0       0         0         0

        ┌──────────────────────────────────────────────────────┐
        │         Select Drive C option (N:skip) : Y            │
        │                                                        │
        │ OPTIONS  SIZE   CYLS  HEAD PRECOMP LANDZONE SECTORS MODE│
        │  1 (Y)  124Mb   936    16   65535     935      17  NORMAL│
        └──────────────────────────────────────────────────────┘

                        ESC : Skip
```

Figure 7 IDE HDD Auto Detection Screen

Hard Disk Low Level Format utility

"HARD DISK UTILITY" This utility is basic drive setup software. All of the options are destructive to data existing on a disk and are used for low-level format before the DOS "FDISK" and "FORMAT", or similar utilities. You can use this utility on MFM encoded hard drivers if they require but have not been low-level formatted by the manufacture. IDE, ESDI and SCSI drives don't need this utility and you should not use it on them.

```
┌─────────────────────────────────────────────────┬──────────────────────┐
│        Hard Disk Low Level Format Utility        │  BAD TRACKS TABLE    │
│                                                  │                      │
│                  SELECT DRIVE                    │  NO.  CYLS HEAD       │
│                                                  │                      │
│                 BAD TRACK LIST                   │                      │
│                                                  │                      │
│                   PREFORMAT                      │                      │
├──────────────────────────────────────────────┐  │                      │
│           Current select drive is : C          │  │                      │
│    Drive C :   CYLINDER : 0       HARD : 0      │  │                      │
├──────────────────────────────────────────────┴──┴──────────────────────┤
│                  CYKS,  Heads  PRECOMP  LANDZONE  SECTORS    MODE         │
│   Drive C: (329Mb)    790    15     65535      789       57      NORMAL   │
│   Drive D: (0Mb)       0      0       0          0        0      NORMAL   │
├─────────────────────────────────────────────────────────────────────────┤
│   Up / Down -Select item             ENTER - Accept       ESC - Exit / Abort │
│         Copyright (c) Award Software, Inc.  1992-94 All Rights Reserved   │
└─────────────────────────────────────────────────────────────────────────┘
```

Figure 6 Hard Disk Low Level Format Screen

Save and Exit Setup

"SAVE & EXIT SETUP". If you select this and press the [enter] key, the values entered in the setup utilities will be recorded in the CMOS memory of the chip set. The microprocessor will check this whenever you turn on your system, and compare this to what it finds as it checks the system. This record is required for the system operation.

Exit Without Saving

"EXIT WITHOUT SAVING". Selecting this option and pressing the [Enter] key let you exit the Setup program without recording any new values or changing old ones.