

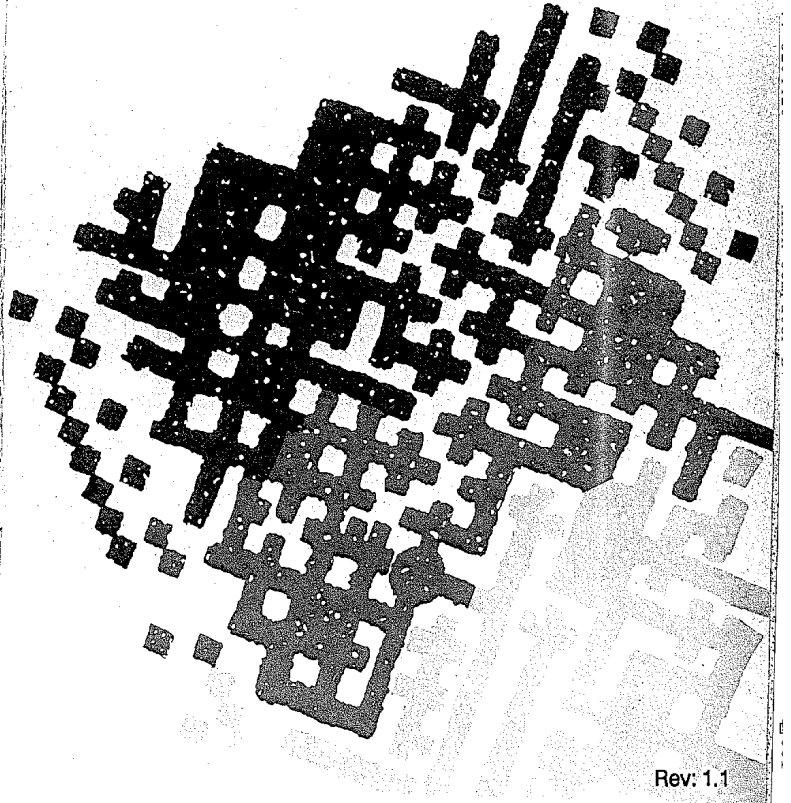
USER'S MANUAL

PE5 PCI MAIN BOARD



Recycled Papers

Part Number: MN-070-B12-51



Rev: 1.1

PROBLEM REPORT FORM

DATE: / /

COMPANY NAME :
CONTACT PERSON:

TEL:
FAX:

MODEL NO : _____
CPU : _____
COPROCESSOR : _____
MEMORY : _____
BIOS : _____
HDC : _____
HDD : _____
VGA CARD : _____
SOFTWARE : _____
OTHERS : _____

PROBLEM DESCRIPTION:

PCI Local Bus introduction

Graphics-oriented operating systems such as Windows and OS/2 have created a data bottleneck between the processor and its display peripherals in standard PC I/O architectures. Moving peripheral functions with high bandwidth requirements closer to the system's processor bus can eliminate this bottleneck. Substantial performance gains are seen with Graphical User Interfaces (GUIs) and other high bandwidth functions (i.e., full motion video, SCSI, LANs, etc.) when a "local bus" design is used.

The advantages offered by local bus designs have motivated several versions of local bus implementations. The benefits of establishing an open standard for system I/O buses have been clearly demonstrated in the PC industry. It is important that a new standard for local buses be established to simplify designs, reduce costs, and increase the selection of local bus components and add-on cards.

The PCI Local Bus, a high performance, 32-bit or 64-bit bus with multiplexed address and data lines, has been defined with the primary goal of establishing an industry standard, high performance local bus architecture that offers low cost and allows differentiation. It is intended for use as an interconnect mechanism between highly integrated peripheral controller components, peripheral add-on board, and processor/memory systems.

Features

- 32-bit data path (132 MB/s peak transfer rate)
- Concurrency with processor/memory
- Synchronous bus operating at up to 33 MHz
- Auto configuration support of PCI Local Bus add-on boards
- Processor independence
- Multi-master capability
- Parity on both data and address lines

Chapter 3

On-board PCI IDE Drivers

The software drivers on the support floppy disk that increase the performance of the on board IDE controller and speed up hard disk drive I/O operations. The driver software includes MS-DOS, Windows, OS/2, Netware, SCO UNIX, Windows NT.

To install the driver, please refer to the files on the support floppy disk, and follow the instructions in the "readme" text file.

- Note:
1. To use the IDE drivers you must set the "IDE HDD Block Mode" item in the BIOS Feature Setup Screen of the BIOS Setup utility to "Disabled".
 2. The mainboard supports dual IDE channel. IRQ14 is assigned to the primary channel (IDE_1), and IRQ15 is assigned to the secondary channel (IDE_2).

Pentium 90/100/120 MHz PCI Mainboard

USER'S MANUAL

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Chapter 3 On-board PCI IDE Drivers

2.10 Standard types of hard disks

Type	Size	Cylinders	Heads	W- Pcomp	L- Zone	Sect
1	10MB	306	4	128	305	17
2	20MB	615	4	300	615	17
3	30MB	615	6	300	615	17
4	62MB	940	8	512	940	17
5	81MB	977	10	65535	977	17
6	122MB	919	16	65535	919	17
7	163MB	1011	15	65535	1011	22
8	258MB	944	14	65535	944	40
9	201MB	723	15	65535	723	38
10	20MB	820	3	65535	820	17
11	35MB	855	5	65535	855	17
12	49MB	855	7	65535	855	17
13	20MB	306	8	128	319	17
14	42MB	733	7	65535	733	17
16	20MB	612	4	0000	663	17
17	40MB	977	5	300	977	17
18	56MB	977	7	65535	977	17
19	59MB	1024	7	512	1023	17
20	30MB	733	5	300	732	17
21	42MB	733	7	300	732	17
22	30MB	733	5	300	733	17
23	10MB	306	4	0000	336	17
24	53MB	925	7	0000	925	17
25	69MB	925	9	65535	925	17
26	43MB	754	7	754	754	17
27	68MB	754	11	65535	754	17
28	40MB	699	7	256	699	17
29	68MB	823	10	65535	823	17
30	53MB	918	7	918	918	17
31	93MB	1024	11	65535	1024	17
32	127MB	1024	15	65535	1024	17
33	42MB	1024	5	1024	1024	17
34	10MB	612	2	128	612	17
35	76MB	1024	9	65535	1024	17
36	68MB	1024	8	512	1024	17
37	40MB	615	8	128	615	17
38	24MB	987	3	987	987	17
39	57MB	987	7	987	987	17
40	40MB	820	6	820	820	17
41	40MB	977	5	977	977	17
42	40MB	981	5	981	981	17
43	48MB	830	7	512	830	17
44	68MB	830	10	65535	830	17
45	114MB	917	15	65535	918	17
46	152MB	1224	15	65535	1223	17

2.8 Setting Password

This Main Menu item lets you configure the system so that a password is required every time the system boots or an attempt is made to enter the Setup program. Change the password as follows:

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

"Enter Password:"

2. Enter a password and press <Enter>.

(If you do not wish to use the password function, you can just press <Enter> and a "Password disabled" message appears.)

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

"Confirm Password:"

4. Re-enter your password and then Press <ESC> to exit to the Main Menu.

Important: If you forget or lose the password, the only way to access the system is to set the CMOS RAM discharge jumper to clear the CMOS RAM. All setup information is lost and you must run the BIOS setup program again.

2.9 IDE HDD Auto Detection

This Main Menu item automatically detects the hard disk type and configures the STANDARD CMOS SETUP accordingly.

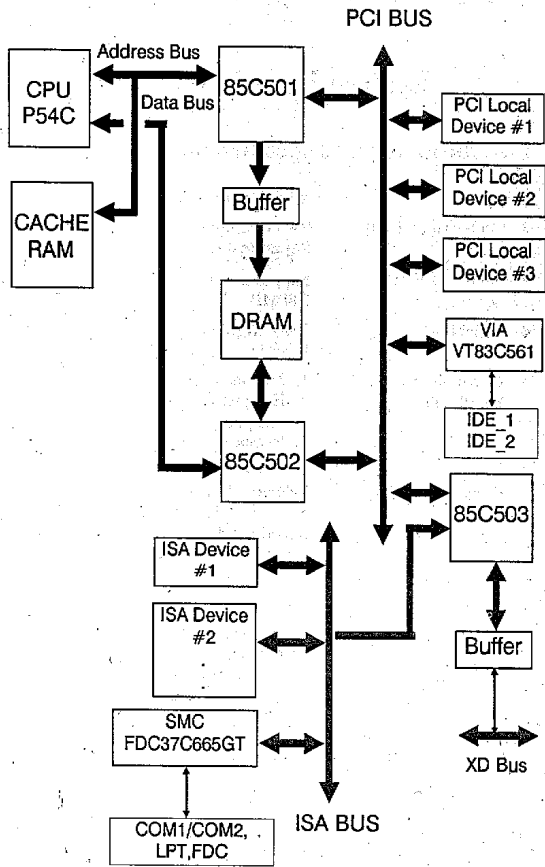
Chapter 1

System Board Overview

1.1 The mainboard specifications

- | | |
|----------------------------------|---|
| 1. CPU: | Intel Pentium (P54C) 90/100/120 MHz |
| 2. On board PCI IDE: | Two IDE channels,
Supports 4 Hard Drives up to Mode 4 |
| 3. On board FDC: | Supports two floppy disk drives up to 2.88MB |
| 4. Serial Port: | Two high speed 16550 compatible UARTs |
| 5. One multi-mode Parallel Port: | 1. Standard & Bidirectional Parallel Port
2. Enhanced Parallel Port (EPP) compatible
3. Extended Capabilities Port (ECP) compatible |
| 6. Cache memories: | Primary: Built-in 16KB in Pentium 8K code, 8K write back data
Secondary: Standard 256KB
Optional: 256K/512K/1024KB |
| 7. I/O slots: | Three 32-bit PCI slots, four 16-bit slots for AT compatible add-on cards. |
| 8. Memories: | 128MB max on board,
Using four 72pin SIMM modules.
Supports very flexible memory configurations. |
| 9. BIOS: | Award BIOS. |
| 10. PCI-Bus function: | Provides three PCI-Bus masters or slaves support PCI-Bus SYNC/ASYNc mode and clock up to 33MHz. |
| 11. PS/2 Mouse Port: | For PE5 Rev:1.2 |

1.2 The system block diagram



- Onboard Serial Port 1** Choose Disable, COM3/3E8h, or COM1/3F8h (Default) to set the on-board serial port 1.
- Onboard Serial Port 2** Choose Disable, COM4/2E8h, or COM2/2F8h (Default) to set the on-board serial port 2.
- Onboard Parallel Port** Choose Disable, 3BCh, 278h, or 378h(Default) to set the on-board parallel Port.
- Parallel Port Mode** Choose EPP, ECP, ECP + EPP, or Normal (Default) mode.
- Onboard PCI/IDE Chip** This option enables or disables the on board PCI IDE controller.
- Onboard IDE PIO Mode** Choose Mode 0~ Mode 4, or Auto(Default) to change IDE data transfers speed.

2.6 Load BIOS Defaults

BIOS Defaults indicates the values required by the system for the *minimum* performance. Choose this item and the following message appears:

"Load BIOS Defaults (Y/N)? N"

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

2.7 Load Setup Defaults

Setup Defaults indicates the values of system parameters which will give *maximum* performance. Choose this item and the following message appears:

"Load SETUP Defaults (Y/N)? N"

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

1st Available IRQ means BIOS will assign this IRQ to first INT found on the PCI slots (the assignment sequence is slot1, 2, 3).

PCI IDE 2nd Channel Choose Disable or Enable (Default). If the PCI IDE 2nd channel is not used, switch the option to "Disable". Or IRQ15 can not work on the ISA slots.

PCI IDE IRQ Map to PCI-Auto: If the BIOS can detect PCI IDE on one of the PCI slots, then the appropriate INT# will be auto-assigned to IRQ14.

PCI-slotX: If the BIOS can not detect a PCI IDE card, (because the PCI IDE card does not support this function) the user needs to manually select the PCI-slot occupied by the PCI IDE card.

Primary IDE INT#, Secondary IDE INT#: If the IDE card supports 2 IDE channels, the BIOS needs to assign 2 INT channels for the IDE card. (Don't select same INT#)

ISA: This setting assigns no IRQs to the PCI slots. Use this setting with PCI IDE cards that connect IRQ14 and IRQ15 directly from an ISA slot using a cable from a legacy paddleboard.

Note: M/B PCI Slot INT# hardware is designed as below:
 "Slot1-INT#A", "Slot2-INT#D" and "Slot3-INT#C" are assigned to the same IRQ. (Do not use them at the same time.)
 "Slot1-INT#B", "Slot2-INT#A" and "Slot3-INT#D" are assigned to the same IRQ. (Do not use them at the same time.)
 "Slot1-INT#C", "Slot2-INT#B" and "Slot3-INTA" are assigned to the same IRQ. (Do not use them at the same time.)
 "Slot1-INT#D", "Slot2-INT#C" and "Slot3-INT#B" are assigned to the same IRQ. (Do not use them at the same time.)

Onboard FDD Controller This option enables or disables the on board floppy disk controller.

1.3 Placement

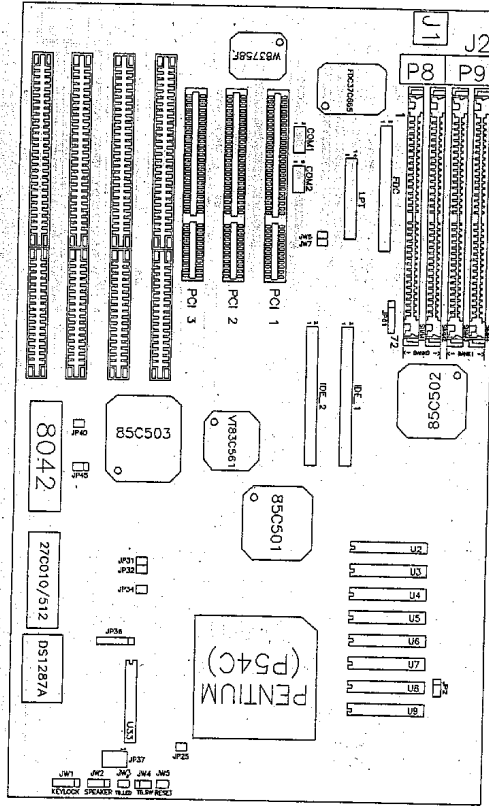


Figure 1-1 PE5 Rev:1.B

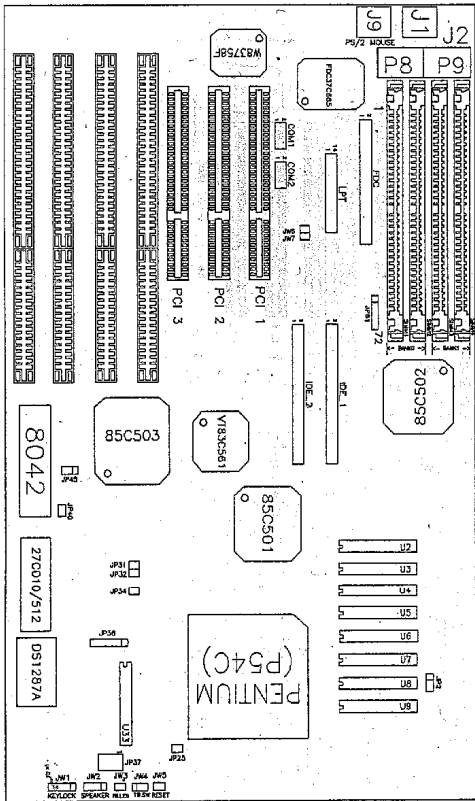


Figure 1-2 PE5 Rev:1.2

2.5 PCI Configuration Setup

The PCI Configuration Setup option lets you assign INT#s, IRQs, and other hardware settings to the mainboard's PCI slots.

ROM PC/MISA BIOS (00000000)
PCI CONFIGURATION SETUP
AWARD SOFTWARE, INC.

Slot 1 Using INT#	: AUTO	Onboard FDD Controller	: Enabled
Slot 2 Using INT#	: AUTO	Onboard Serial Port 1	: COM1/3F6h
Slot 3 Using INT#	: AUTO	Onboard Serial Port 2	: COM2/2F6h
1st Available IRQ	: 10	Onboard Parallel Port	: 376h
2nd Available IRQ	: 11	- Parallel Port Mode	: Normal
3rd Available IRQ	: 9	Onboard PCI/IDE Chip	: Enabled
4th Available IRQ	: 8	- IDE-1 Master PIO Mode	: Auto
PCI IRQ Activated By	: Edge	- IDE-1 Slave PIO Mode	: Auto
PCI IDE 2nd Channel	: Enable	- IDE-2 Master PIO Mode	: Auto
PCI IDE IRQ Map To	: PCI-AUTO	- IDE-2 Slave PIO Mode	: Auto
Primary IDE INT#	: A		
Secondary IDE INT#	: B		

Esc : Quit ↑ ↓ ← → : Select Item
F1 : Help P:U/PD: +/: Modify
F5 : Old Values (SHIT)F2 : Color
F8 : Load BIOS Defaults
F7 : Load Setup Defaults

Figure 2-6 PCI Configuration Setup Menu

Slot X Using INT#

This category selects a INT# for a PCI slots. There are four INT#s(A, B, C, and D) that can be selected for each PCI slot. You can assign PCI slot x using INT#A, B, C, or D. The default is "AUTO", which means the BIOS will auto detect the INT channel for this slot. If the PCI device card does not support this function, the user needs to select an INT#. (Selection of INT channel depends on PCI device card hardware jumper settings or the card's BIOS setup; please refer to the PCI card's manual).

We recommend setting all PCI card INT jumpers at INT#A.

Available IRQ

These categories select a IRQ for INT#. There are ten IRQ selections (3, 4, 5, 7, 9, 10, 11, 12, 14, 15) for available IRQs.

- After you have finished with the Power Management Setup, press the <ESC> key to return to the Main Menu.

1.4 Function of jumpers and connectors

1.4.1 Jumper Settings and Connectors

Connector Name	Pin Assignments	Description
Turbo Connector: JW4 (3 Pins)	Pin 1: +5VDC. Pin 2: Turbo signal. Pin 3: Ground	1-2: Turbo mode. 2-3: Low speed mode. Connect the pin1, pin2 to the cable of the chassis' turbo button.
Turbo LED Connector JW3 (2 Pins)	Pin 1: Cathode terminal of LED. Pin 2: Anode terminal of LED.	If the connection is correct, the turbo LED will light up when the system is in turbo speed mode. Otherwise the turbo LED will be off.
Hardware Reset Connector: JW5 (2 Pins)	Pin 1: Reset input Pin 2: Ground	Connect to the chassis' reset button cable. Press and hold the reset button for at least one second to reset the system.
Keylock and Power LED connector: JW1 (5 Pins)	Pin 1: +5VDC. Pin 2: No connection. Pin 3: Ground. Pin 4: Keyboard inhibit Signal. Pin 5: Ground.	Connect to the chassis' keylock and Power LED' cable.
Speaker connector: JW2 (4 Pins)	Pin 1: Sound signal. Pin 2: Ground. Pin 3: Ground. Pin 4: +5VDC.	Connect to the speaker connector in the front panel of the chassis.
Keyboard connector: J1 (5 Pins)	Pin 1: Keyboard clock. Pin 2: Keyboard data. Pin 3: No connection. Pin 4: Ground. Pin 5: +5VDC.	Connect to the Keyboard connector.
PS/2 Mouse connector: J9 (6 Pins)	Pin 1: Mouse data. Pin 2: No connection. Pin 3: Ground. Pin 4: +5VDC. Pin 5: Mouse clock. Pin 6: No connection.	Connect to the PS/2 mouse connector.

Connector Name	Pin Assignments	Function
Power input connector: J2 (12 Pins)	Pin 1: Powergood. Pin 2: +5V. Pin 3: +12V. Pin 4: -12V. Pin 5: Ground Pin 6: Ground Pin 7: Ground Pin 8: Ground Pin 9: -5V Pin10: +5V Pin11: +5V Pin12: +5V.	Connect to the power connector from the power supply. Be sure to connect the power connector in the correct position. Any mistake will cause the mainboard, power supply, or add-on cards to be damaged.

Jumper No.	No. of Pins		Description	Default Setting
JP45	3	2-3 1-2	CMOS RAM Discharge Normal	1-2
JP40	2	ON OFF	Color Mono	ON
JP37	8	1,3,5,7 2,4,6,8	Ground **SM Out	
JW6, JW7	4		HDD LED Connector	
IDE_1	40		*IDE HDD Connector 1	
IDE_2	40		*IDE HDD Connector 2	
FDC	34		Floppy Disk Connector	
LPT	26		Printer Connector	
COM1,2	10		Serial port Connector	
P54C VCC3 Voltage Regulator selector:				
JP25	2	ON OFF	For CPU VRE type For CPU STD, VR type	OFF

Note: *IDE_1, IDE_2 are high performance PCI IDE connectors. Up to four IDE interface devices are supported.
**SM Out are the System Management Output control pins. These pins can be used to control a peripheral's power, clock, etc, for power management. SM Out is an active-low signal.

Standby Mode

The default setting is Disabled. When the Power Management item is switched to "User Define" you can select a time interval from 20 sec to 40 min. When the set time elapses without activity the system enters Standby mode.

If the idle time for all PM events is greater than the Standby time you set the system will enter Standby mode, and the CPU speed slows down, and SM Out changes to low. If the "Video Off Option" is set to "Sus, Stby—Off", the screen will shut off.

Suspend Mode

The default setting is Disabled. When the Power Management item is switched to "User Define" you can select a time interval from 20 sec to 40 min. When the set time elapses without activity the system enters Suspend mode.

If the idle time for all PM events is greater than the Suspend time you set the system will enter Suspend mode, and the CPU Internal frequency drops to 0 MHz, and SM Out changes to low. If the "Video Off Option" is set to "Suspend—Off", the screen will shut off.

About SM Out, please refer to the hardware jumper description.

PCI Master Activity

Choose Disable or Enable (Default). If Enabled the PCI Master (Device) card is monitored.

COM Ports Activity

Choose Disable or Enable (Default). If Enabled the COM (Device) card is monitored.

LPT Ports Activity

Choose Disable or Enable (Default). If Enabled the LPT (Device) card is monitored.

HDD Ports Activity

Choose Disable or Enable (Default). If Enabled the HDD (Device) card is monitored.

Video Ports Activities

Choose Disable or Enable (Default). If Enabled Video activity are monitored.

IRQn

Disabled is the default setting for IRQ 8, the other IRQ defaults are Enabled.

PM Control by APM Choose No (Default) or Yes. APM stands for Advanced Power Management. "Yes" makes your power management more flexible.

Video Off Method Choose DPMS, Blank screen, or V/H Sync + Blank (Default). With this item V/H SYNC is controlled by software. If you have a VGA card that is not compatible with the default option, switch to "Blank screen", even though it consumes more power than "V/H SYNC + Blank". If your VGA card and VGA monitor support VESA DPMS, switch the option to "DPMS".

Video Off Option Choose "Always On" (Default), "All Modes -- Off" (Suspend, Standby and Doze mode), "Susp, Stby -- Off". This item shuts the video off when entering Doze mode, Standby mode or Suspend mode.

HDD Power Down Choose a time interval from 1 to 15 minutes, or "Disabled" (Default) or "Suspend". When the set time has elapsed, the BIOS sends a command to the HDD to enter idle (sleep) mode, turning off the motor. This function is only valid for IDE HDDs that support power saving function.

Doze Mode The default setting is Disabled. When the Power Management item is switched to "User Define" you can select a time interval from 20 sec to 40 min. When the set time elapses without activity the system enters Doze mode.

If the idle time for all PM events — COM Ports Activity, LPT Ports Activity, HDD Ports Activity, PCI/ISA Master Act., and VGA Activity — is greater than the Doze time you set the system will enter Doze mode, and the CPU speed slows down. If the Video Off Option is set to "All Modes -- Off", the screen shuts off.

1.4.2 Installation of DRAMs

In order to provide flexible DRAM configurations between four 72pin SIMM, jumper is implemented to configure the DRAMs.

There are two banks of Memory (Bank0 to Bank1) on the system board. Each bank consists of two 72pin SIMM sockets.

The possible combinations of bank selection are as below:

JP61	Bank 0	Bank1
1-2, 3-4	SIMM1-2(S)	SIMM3-4(S)
	SIMM1-2(S)	SIMM3-4(D)
2-3, 4-5	SIMM1-2(D)	SIMM3-4(D)
	SIMM1-2(D)	SIMM3-4(S)

Item	SIMM1	SIMM2	SIMM3	SIMM4	Total
0	256K-S	256K-S			2MB
1	512K-D	512K-D			4MB
2	1M-S	1M-S			8MB
3	2M-D	2M-D			16MB
4	4M-S	4M-S			32MB
5	8M-D	8M-D			64MB
6	256K-S	256K-S	256K-S	256K-S	4MB
7	256K-S	256K-S	512K-D	512K-D	6MB
8	512K-D	512K-D	512K-D	512K-D	8MB
9	256K-D	256K-S	1M-S	1M-S	10MB
10	512K-D	512K-D	1M-S	1M-S	12MB
11	1M-S	1M-S	1M-S	1M-S	16MB
12	256K-S	256K-S	2M-D	2M-D	18MB
13	512K-D	512K-D	2M-D	2M-D	20MB
14	1M-S	1M-S	2M-D	2M-D	24MB
15	2M-D	2M-D	2M-D	2M-D	32MB
16	256K-S	256K-S	4M-S	4M-S	34MB
17	512K-D	512K-D	4M-S	4M-S	36MB
18	1M-S	1M-S	4M-S	4M-S	40MB
19	2M-D	2M-D	4M-S	4M-S	48MB
20	4M-S	4M-S	4M-S	4M-S	64MB
21	256K-S	256K-S	8M-D	8M-D	66MB
22	512K-D	512K-D	8M-D	8M-D	68MB
23	1M-S	1M-S	8M-D	8M-D	72MB
24	4M-S	4M-S	8M-D	8M-D	80MB
25	4M-S	4M-S	8M-D	8M-D	96MB
26	8M-D	8M-D	8M-D	8M-D	128MB

- Note: (S) Single density 72pin SIMM
 (D) Double density 72pin SIMM
- | | | | | |
|--------|---|-------------------|---|----------|
| 256K-S | = | 256K x 32bits | = | 1MBytes |
| 1M-S | = | 1M x 32bits | = | 4MBytes |
| 4M-S | = | 4M x 32bits | = | 16MBytes |
| 16M-S | = | 16M x 32bits | = | 64MBytes |
| 512K-D | = | 2 x 256K x 32bits | = | 2MBytes |
| 2M-D | = | 2 x 1M x 32bits | = | 8MBytes |
| 8M-D | = | 2 x 4M x 32bits | = | 32MBytes |

1.4.3 Installation of Cache memory

This mainboard supports very flexible Cache SRAM configuration: 256KB, 512KB, and 1MB.

Main Board Cache Size		256KB	512KB	1MB
TAG SRAM	Location	U33		
	Type	8Kx8	32Kx8	32Kx8
Data SRAM	Location	U2-U9	U2-U9	U2-U9
	Type	32Kx8	64Kx8	128Kx8
Jumper setting	JP36	2-3, 5-6	1-2, 5-6	1-2, 4-5

2.4 Power Management Setup

The Power Management Setup option lets you set the system's power saving functions.

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

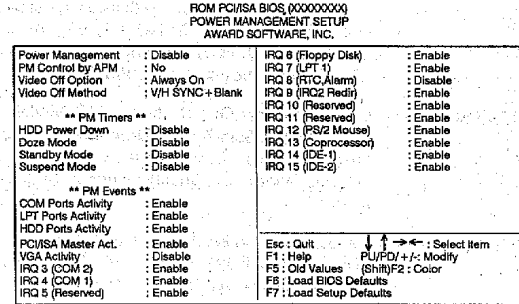


Figure 2-5 Power Management Setup Menu

2. Use the arrow keys to move between items and to select values. Modify the selected fields using the PgUp/PgDn/ +/- keys.

A short description of selected screen items follows:

- Power Management** Options are as follows:
- User Define** You define HDD and system power down times.
 - Disabled** Disables the Green PC Features. (Default)
 - Min Saving** Doze = 40 Min
Standby = 40 Min
Suspend = 40 Min
 - Max Saving** Doze = 20 Sec
Standby = 20 Sec
Suspend = 20 Sec

2.3 Chipset Features Setup Menu

The Chipset Features Setup option changes the values of the chipset registers. These registers control system options in the computer.

Caution: Do not change the default values shown below unless you are familiar with the mainboard's chipset.

Run the Chipset Features Setup as follows.

1. Choose "CHIPSET FEATURES SETUP" from the Main Menu and the following screen appears.

ROM PCI/ISA BIOS (00000000)			
CHIPSET FEATURES SETUP			
AWARD SOFTWARE, INC.			
Auto Configuration	: Enabled	Latency from ADS# status	: 2T
PCI Clock Frequency	: CPUCLK/1.5	Refresh When CPU Hold	: Disabled
ISA Bus Clock Frequency	: PCICLK/3	Snoop Filter	: Disabled
Read CAS Pulse Width	: 3T	Post Write CAS Active	: 1T
DRAM Write CAS Width	: 2T	CPU/PCI Post Write Delay	: 1T
DRAM RAS Precharge Time	: 4T	Max. Burstable Range	: 0.5Kb
DRAM RAS to CAS Delay	: 3T	CPU/PCI Burst Mem. Write	: Enabled
Refresh RAS Active Time	: 5T	CPU/PCI Post Mem. Write	: Enabled
SRAM Speed Option	: Faster		
SRAM Burst RW Cycle	: 2T		
L1 Cache Update Mode	: WB	Non-Cacheable Block	: Disabled
L2 Cache Update Mode	: WB	Block Start Address	: 0500000H
L2 (WB) Tag Bit Length	: 8bits	Block Size	: 64KB
Slow Refresh (14)	: Disabled		
System BIOS Cacheable	: Disabled		
Video BIOS Cacheable	: Enabled		
		Esc : Quit	↑ ↓ ← → : Select Item
		F1 : Help	PU/PD/+/-: Modify
		F3 : Old Values (Shift)F2 : Color	
		F8 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

Figure 2-4 Chipset Feature Setup Menu

2. Use the arrow keys to move between items and select values. Modify selected fields using the PgUp/PgDn/+/- keys.
3. After you have finished with the Chipset Features Setup, press the <ESC> key and follow the screen instructions to save or disregard your new settings.

1.4.4 CPU frequency selection

	JP31	JP32	JP34
75 MHz	OFF	OFF	OFF
90 MHz	ON	OFF	OFF
100 MHz	OFF	ON	OFF
120 MHz	ON	OFF	ON
133 MHz	OFF	ON	ON

1.5 Quick reference for installation

- Step 1. Please verify the following jumpers:
- A. JP45: A jumper at pin "1-2" for CMOS RAM normal operation.
 - B. JP31, JP32 :
Make sure the jumper settings are consistent with the installed CPU. (refer section 1.4.4)
- Step 2. Connect the keyboard to J1.
- Step 3. Plug at least 2 DRAM modules into the SIMM starting with SIMM1, SIMM2(BANK0).
- Step 4. Verify the cache size selection jumper JP36 (refer section 1.4.3).
- Step 5. Make the following connectors to your case:
- A. JW5 to H/W reset button.
 - B. JW2 to speaker.
 - C. JW4 to turbo switch.
 - D. JW3 to turbo LED, the LED will light up.
 - E. JW1 to keylock.
- Step 6. Connect IDE cable to IDE_1.
- Step 7. Connect floppy cable to FDC.
- Step 8. Connect COM1, COM2, LPT on the mainboard.
- Step 9. Plug in the display card into slot.
- Step 10. Connect J2 to P8 and P9 of the power supply.
- Step 11. Power on.
- Step 12. Enter the "Setup Menu" screen. Select the display type and drive type.
- Step 13. Quit the "Setup Menu" screen and then select "SAVE & EXIT SETUP" from BIOS Main Menu.

**Video or
Adaptor BIOS
Shadow**

BIOS shadow copies BIOS code from slower ROM to faster RAM. BIOS can then execute from RAM.

IDE HDD Block Mode	This option enables/disables the IDE HDD Block Mode function. Older HDDs do not support this function. (The Default setting is Enabled.)
Boot Up Num Lock Status	Choose On or Off. On puts numeric keypad in Num Lock mode at boot-up. Off puts this keypad in arrow key mode at boot-up.
Boot Up Floppy Seek	Enable this item and the BIOS searches for installed floppy disk drives to determine if they are 40 tracks (360K drive) or 80 tracks (720K, 1.2M, 1.44M, or 2.88MB drives). Disable this item and the BIOS does not search for floppy drive type by track number.
Swap Floppy Drive	Enabled changes the sequence of the A: and B: drives. (The Default setting is Disabled.)
Boot Sequence	The default setting attempts to first boot from drive A: and then from hard disk C:. You can reverse this sequence with "C: A:", but then drive A: cannot boot directly.
Security Option	Choose Setup or System. Use this feature to prevent unauthorized system boot-up or use of BIOS Setup. "System" - Each time the system is booted the password prompt appears. "Setup" - If a password is set, the password prompt only appears if you attempt to enter the Setup program.
Virus Warning	Enable this option and a warning message appears when there is any attempt to access the boot sector or hard disk partition table.
External Cache	This option enables/disables the external cache memory. (The Default setting is Enabled.)
CPU Internal Cache	This option enables/disables the CPU's internal cache. (The Default setting is Enabled.)

- Step 14. The system will re-boot.
- Step 15. If DOS prompt appears on the screen, installation is complete.
- Note: If you have any problems during installation, please refer to chapter 1.4 for the detailed description of jumper settings and connectors.

2.2 BIOS Features Setup Menu

The BIOS Features setup program is equipped with a series of help screens accessed by the <F1> key, which will display the available options for a particular configuration feature and special help for some of the options. If you don't really understand the meanings of each item, please don't change the following default values.

ROM PCI/ISA BIOS (00000000)
 BIOS FEATURES SETUP
 AWARD SOFTWARE, INC.

Typematic Rate Setting	: Enabled	CPU Internal Cache	: Enabled
Typematic Delay (Msec)	: 250	Video BIOS Shadow	: Enabled
Typematic Rate (Chars/Sec)	: 30	C8000-CFFFF Shadow	: Disabled
Quick Power on Self Test	: Enabled	D0000-D7FFF Shadow	: Disabled
IDE HDD Block Mode	: Enabled	D8000-DFFFF Shadow	: Disabled
Boot Up NumLock Status	: On		
Swap Floppy Drive	: Disabled		
Boot Sequence	: A, C		
Security Option	: Setup		
Virus Warning	: Disabled		
External Cache	: Enabled		

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

Figure 2-3 BIOS Feature Setup

A short description of screen items follows:

- Typematic Rate Setting** Enable this option to adjust the keystroke repeat rate.
- Typematic Delay (Msec)** Choose how long after you press a key that a character begins repeating.
- Typematic Rate (Chars/Sec)** Choose the rate a Character keeps repeating.
- Quick Power On Self Test** Enabled provides a fast POST at boot-up

LBA mode: Logical Block Addressing mode is a new HDD accessing method designed to overcome the 528 Megabytes limitation. The number of cylinders, heads, and sectors shown in setup may not be the number physically contained in the HDD. During HDD accessing the IDE controller will transform the logical address described by cylinder, head, and sector number into its own physical address inside the HDD. The maximum HDD size supported by the LBA mode is 8.4 Gigabytes.

LARGE mode: Some IDE HDDs contain more than 1024 cylinders without LBA support. This access mode 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. The maximum HDD size supported by LARGE mode is 1 Gigabyte.

Chapter 2

Award BIOS Setup

All personal computer use a BIOS, or Basic Input/Output system, to provide control for the hardware functions. When system is powered on or reset, the CPU is reset and BIOS will do the following:

- Self-test on CPU.
- Verify ROM BIOS checksum.
- Verify CMOS configuration chip.
- Initialize timer.
- Initialize DMA controller.
- Verify RAM memory.
- Install all BIOS function call utilities.
- Verify/initialize all system configurations, like keyboard, floppy drive, hard disk, initialize EGA or VGA if there is any.
- Hook to the add-in BIOS (include NCR PCI SCSI BIOS) or expansion BIOS to perform initialization and driver link to the system.

Award's BIOS ROM has a built-in setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed RAM so that the setup information is retained when the power is turned off. When the system is powered on or reset, the Award BIOS will display a copyright message on the screen, then the BIOS will perform the system diagnostics test and initialization. When all of the above tests have been passed, the message:

"TO ENTER SETUP BEFORE BOOT PRESS CTRL-ALT-ESC OR DEL KEY"

is displayed. If the [Del] key or Ctrl-Alt-Esc is pressed, the screen will be cleared and then the following message will be shown:

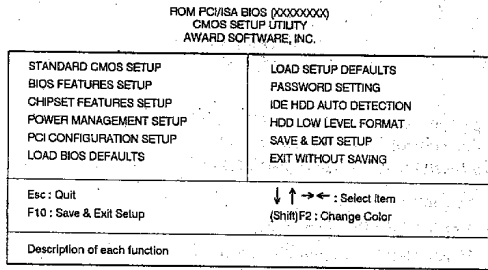


Figure 2-1 Main Menu

2.1 Standard CMOS Setup Menu

The items in Standard CMOS Setup Menu are divided into several categories. Each category includes none, one, or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

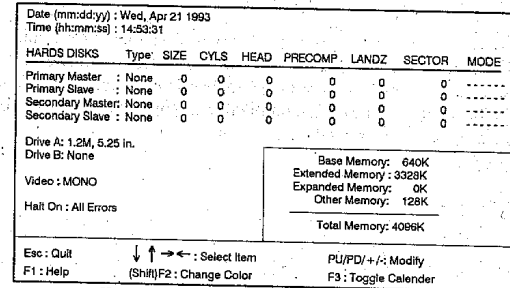


Figure 2-2 Standard CMOS Setup Menu

The setup program is completely menu-driven:

1. Use arrow keys to select entry of **Date, Time, Hard Disk, Floppy, Display and Keyboard.**
2. Use **PgUp/PgDn** key to modify the options of each entry.
3. Use **Esc** to exit.

The Award BIOS supports three HDD modes: **NORMAL, LBA, and LARGE.**

NORMAL mode: Generic access mode in which neither the BIOS nor the IDE controller will make any transformation during accessing. The maximum HDD size supported by the NORMAL mode is 528 Megabytes.