

PRM-0082I

High Performance
Pentium II PCI Mainboard



Edition 1.00

1998 DTK Computer, Inc.

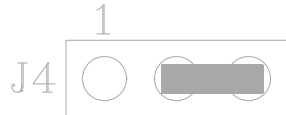
P/N: 155100-8613



EPA POLLUTION PREVENTER

WARNING

For the system to operate normally, please make sure J4 of the mainboard is set as below. Refer to Fig. 4 in this manual for the location J4.



If J4 is shorted to 1-2, no CMOS data can be retained.

CAUTION

The motherboard is an electrostatic sensitive device. Don't open or handle except at a static-free workstation.

POWER OFF

It needs to hold the power switch 4 seconds to turn off the power.

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CONTENTS

CHAPTER 1	INTRODUCTION	1
CHAPTER 2	JUMPER SETTINGS	3
2.1	JUMPERS PRESENTATION	3
2.2	GRAPHICAL DESCRIPTION OF JUMPER SETTINGS	4
2.3	CPU SPEED	5
2.4	J4 - CLEAR CMOS DATA	6
2.5	J24 - POWER ON/OFF AFTER POWER FAILURE	6
2.6	MEMORY CONFIGURATION	6
CHAPTER 3	CONNECTOR CONFIGURATION	7
3.1	J1 - SPEAKER	8
3.2	J2 - POWER ON/OFF SWITCH	8
3.3	J3 - RESET	8
3.4	J5 - KEYLOCK CONNECTOR	8
3.5	J6 - HDD LED	9
3.6	J7 - IrDA CONNECTOR	9
3.7	J9, J10 - PRIMARY/SECONDARY IDE CONNECTORS	9
3.8	J11 - CD-ROM AUDIO CONNECTOR (SONY)	10
3.9	J15 - CD-ROM AUDIO CONNECTOR (MITSUMI/PANASONIC)	10
3.10	J16 - CPU FAN CONNECTOR	10
3.11	J19 - FLOPPY DRIVE CONTROLLER	10
3.12	JP5 - WAKE UP ON LAN	10
3.13	SLOT 1 FOR PENTIUM II CPU	11
3.14	PS1 - ATX POWER SUPPLY CONNECTOR	11
3.15	PS/2 KEYBOARD CONNECTOR	12
3.16	PS/2 MOUSE CONNECTOR	12
3.17	UNIVERSAL SERIAL BUS PORT 0 & 1	12
3.18	SERIAL PORT COM1 & COM2	12
3.19	PARALLEL PORT CONNECTOR	12
3.20	AUDIO PORT CONNECTOR	13
3.21	RETENTION MECHANISM KITS INSTALLATION GUIDE	13
CHAPTER 4	AWARD BIOS SETUP GUIDE	17
4.1	AWARD BIOS SETUP	17
4.2	STANDARD CMOS SETUP	19
4.3	BIOS FEATURES SETUP	20
4.4	CHIPSET FEATURES SETUP	22
4.5	POWER MANAGEMENT SETUP MENU	24
4.6	PCI CONFIGURATION	26
4.7	INTEGRATED PERIPHERALS SETUP MENU	28
4.8	LOAD SETUP DEFAULTS MENU	30
4.9	SUPERVISOR PASSWORD	30
4.10	USER PASSWORD	30

4.11	IDE HDD AUTO DETECTION	31
4.12	SCSI HARD DISK INSTALLATION	31
4.13	SAVE & EXIT SETUP MENU	31
4.14	EXIT WITHOUT SAVING MENU	31
CHAPTER 5	SOFTWARE INSTALLATION	33
5.1	INTEL 82440EX PCI AGP CHIPSET PATCH UTILITY FOR WINDOWS 95	33
5.2	INTEL BUS MASTER IDE DRIVER FOR WIN 95 INSTALLATION	33
5.3	SOUND DRIVER INSTALLATION	34
5.4	THE AUDIORACK32 FOR WIN95	34
5.4.1	INTRODUCTION	35
5.4.2	INSTALLING THE <i>AudioRack32</i>	35
5.4.3	UNINSTALLING THE <i>AudioRack32</i>	38
CHAPTER 6	FLASH AND DMI UTILITY	39
6.1	AWARD FLASH UTILITY	39
6.2	DESKTOP MANAGEMENT INTERFACE (DMI) OVERVIEW	41
APPENDIX A	QUICK GUIDE	45

CHAPTER 1

INTRODUCTION

Preface

The motherboard is a 4 layer, Mini ATX form factor high performance PCI/AGP mainboard. It includes Intel i82440EX system chipset, Winbond W83977TF Super I/O controller, ESS 1869 Sound Chip.

Features

Processor

- Intel Pentium II series.
- The mainboard can run with following speeds:
233, 266, 300 and 333MHz

Chipset

- Intel i82443EX (PCI A.G.P. Controller)
- Intel 82371AB (PCI ISA IDE Xcelerator)
- Winbond W83977TF (Super I/O Controller)
- ESS 1869 (Audio Drive Sound Controller)

Main Memory

- Memory configurations up to 256MB SDRAM or 512MB EDO.
- DIMM socket for SDRAM (3.3V unbuffered).
- Support both Synchronous DRAM and Extended Data Output (EDO) Mode DRAM Modules.
- ECC Function ensure data correction and integrity.

Multi I/O

- On board Multi-I/O supports two serial, one parallel ports and floppy drive controller.
- Serial ports are 16550 Fast UART compatible.
- Parallel port has EPP and ECP capabilities.
- PS/2 keyboard and PS/2 mouse connector is provided.
- IrDA supported.
- USB supported.

Accelerated Graphics Port (AGP) Interface

- A.G.P. specification compliant
- A.G.P. 66/133MHz devices supported

PCI IDE

- On board supports PCI Master IDE Controller, two connectors support up to four IDE devices such as HDD, CD ROM drive and Tape Back-up drives, etc.
- PCI Master IDE controller supports PIO Mode 3 and 4 devices, I/O data transfer rate can be up to 16.6MB/s.
- Ultra DMA Mode supported. Transfer rate can be up to 33MB/s.

Chapter 1

Sound Controller (Optional)

- Compatible with all major PC sound standards, including Sound Blaster™ Pro, MPU-401 and Windows Sound System™.
- Plug-and-Play support for Audio, Joystick, FM Controller, MPU-401.
- Wave Audio support sample rates from 4KHz to 44KHz.
- Full-duplex monophonic mode, half-duplex stereo mode.

System BIOS

- Award BIOS (128KB Flash EPROM).

Slots

- One AGP slot
- Two PCI slots
- Two ISA slots

Form Factor

- Mini ATX Form Factor Size (244mm x 210mm) 4 Layer

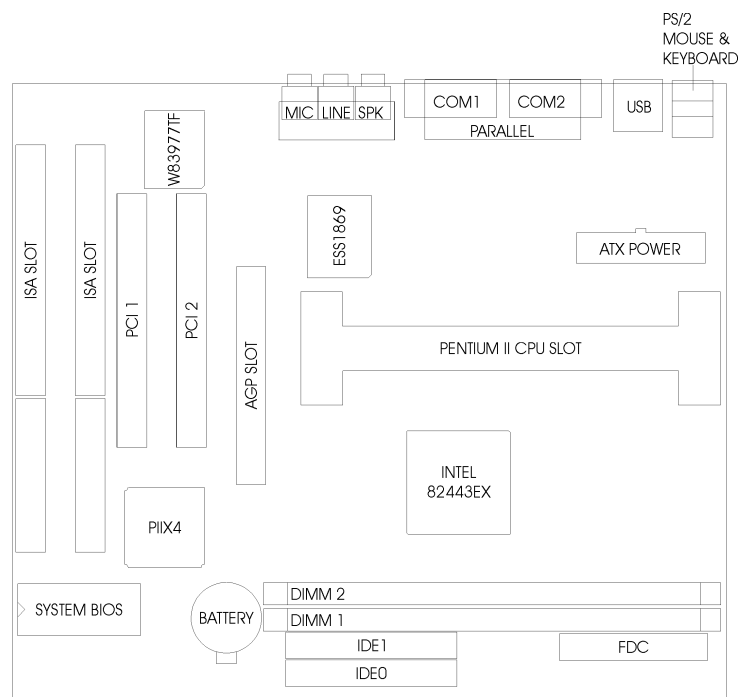
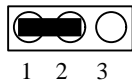


Fig. 1 Key Components of the Mainboard

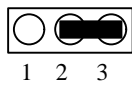
CHAPTER 2

JUMPER SETTINGS

2.1 JUMPERS PRESENTATION



Pins 1 and 2 are shorted with a jumper cap.



Pins 2 and 3 are shorted with a jumper cap.



The jumper is shorted when the jumper cap is placed over the two pins of the jumper.



The jumper is open when the jumper cap is removed from jumper.

Jumpers Convention

Different color of jumper caps (mini-jumpers) are used on the board to represent different usage of the jumpers:

Red: CPU Clock setting

Black: Other

2.2 GRAPHICAL DESCRIPTION OF JUMPER SETTINGS

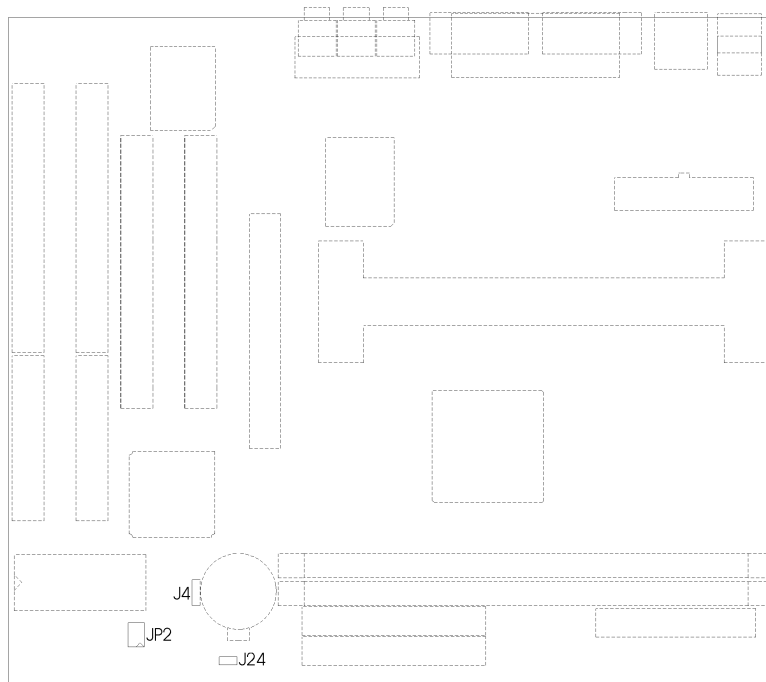


Fig. 2 Jumper Location of the mainboard

2.3 CPU SPEED



Fig. 3

The table below summarizes the CPU frequency and settings of each jumper of the motherboard.

CPU Type	Freq.	Ratio	Bus Freq.	Rating Setting
Pentium II	233MHz	3.5x	66MHz	JP2: 1-2 OFF 3-4 OFF 5-6 ON
Pentium II	266MHz	4.0x		JP2: 1-2 ON 3-4 ON 5-6 OFF
Pentium II	300MHz	4.5x		JP2: 1-2 OFF 3-4 ON 5-6 OFF
Pentium II	333MHz	5.0x		JP2: 1-2 ON 3-4 OFF 5-6 OFF

Table 1: Jumper Setting

2.4 J4 - CLEAR CMOS DATA

J4 is used to clear the content of the CMOS Data in the RTC (build in PIIX4 chip).

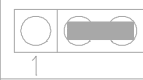
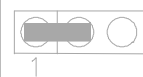
J4	Description
	Normal
	Clear CMOS Data

Table 2: Clear CMOS Data

2.5 J24 – POWER ON/OFF AFTER POWER FAILURE

This jumper sets the power of the system after the main power has failed then recovered.

J24	System After Power Failure
ON	ON
OFF	OFF

Table 3

2.6 MEMORY CONFIGUARTION

The mainboard lets user upgrade system memory via DIMM sockets on the mainboard. On board memory is located in four banks: Bank 0 - 3. Two DIMM sockets are provided for EDO DRAM or Synchronous DRAM. Table 4 provide the typical memory configurations supported by the mainboard.

The maximum memory size is up to 256MB (SDRAM) or 512MB (EDO). The size of each DIMM can be 8MB, 16MB, 32MB, 64MB or 128MB.

Bank 0/1 (DIMM2)	Bank 2/3 (DIMM1)
Installed	None
None	Installed
Installed	Installed

Table 4

CHAPTER 3

CONNECTOR CONFIGURATION

Once the mainboard has been fastened into system case, the next step is to connect the internal cables. The internal cables are wire leads with plastic female connectors that attach to the connectors. The mainboard connectors have varying numbers of pins and are the points of contact between the mainboard and other parts of the computer.

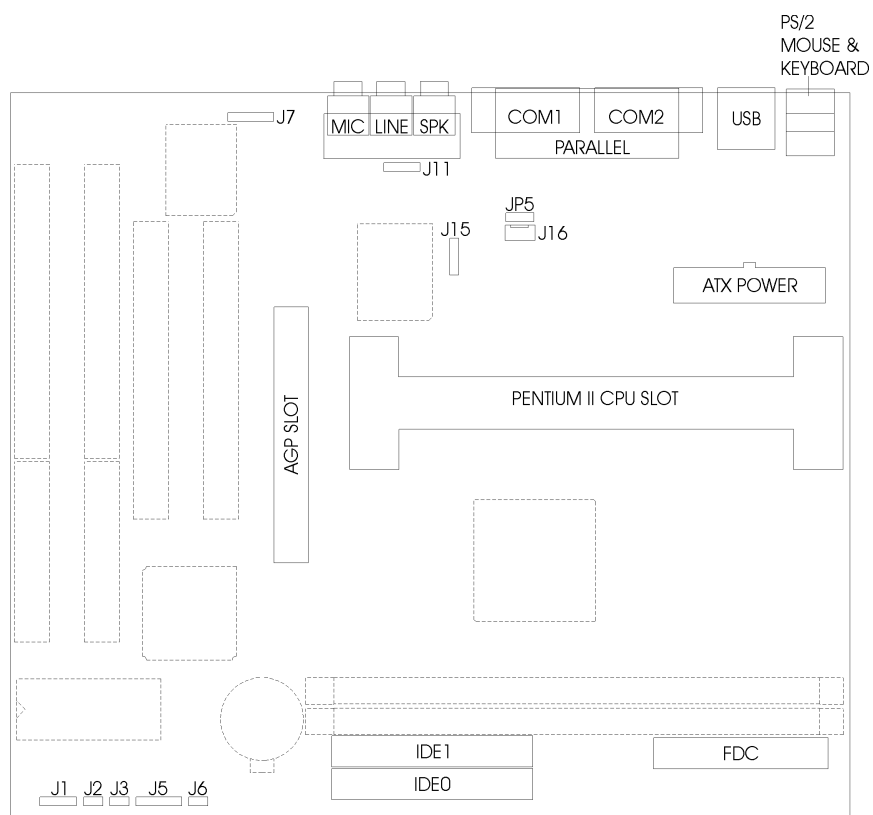


Fig 4 Connector Location

3.1 J1 - SPEAKER

J1 is a four pins connector, which is used to connect the system speaker.



Fig. 5 Speaker

3.2 J2 - POWER ON/OFF SWITCH

It is used to switch on or off the ATX power supply. The power is turned on by short the power switch once. It needs to hold the power switch about 4 seconds to turn it off when it has not start to display.

3.3 J3 - RESET

Attach the Reset switch cable to this connector. The Reset switch restarts the system.

3.4 J5 – KEYLOCK CONNECTOR

Attach the power led cable to this connector. If the system is power on, the indicator lights.

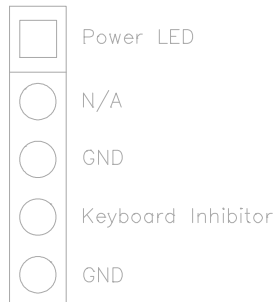


Fig. 6 Keylock Connector

3.5 J6 - HDD LED

J6 is usually connected to a HDD LED on front of the system case. If the HDD is in operation, the indicator lights during operation.

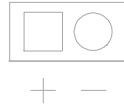


Fig. 7 HDD LED

3.6 J7 - IrDA CONNECTOR

J7 is a IrDA connector that use UART2 as interface of IrDA Infrared and ASKIR.



Fig. 8 IrDA Connector

3.7 J9, J10 – PRIMARY/SECONDARY IDE CONNECTORS

These connectors support the provided IDE hard disk ribbon cable. After connecting the single end to the board, connect the two plugs on the other end to your hard disk or other device.

3.8 J11 – CD-ROM AUDIO CONNECTOR (SONY)

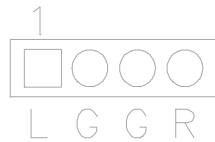


Fig. 9 CD-ROM Audio

3.9 J15 – CD-ROM AUDIO CONNECTOR (MITSUMI/PANASONIC)

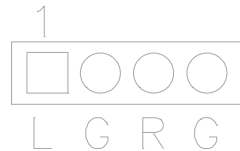


Fig. 10 CD-ROM Audio

3.10 J16 – CPU FAN CONNECTOR

J16 is a three pin connector, which is used to connect with the CPU Fan Power cable.

3.11 J19 - FLOPPY DRIVE CONTROLLER

This connector supports the floppy drive ribbon cable. After connecting the single end to the board, connect the two plugs on the other end to the floppy drive.

3.12 JP5 – WAKE UP ON LAN

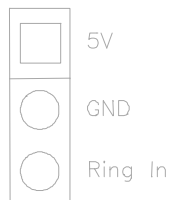


Fig. 11 Wake up On LAN

3.13 SLOT 1 FOR PENTIUM II CPU



Fig. 12 Slot 1 for Pentium CPU

3.14 PS1 - ATX POWER SUPPLY CONNECTOR

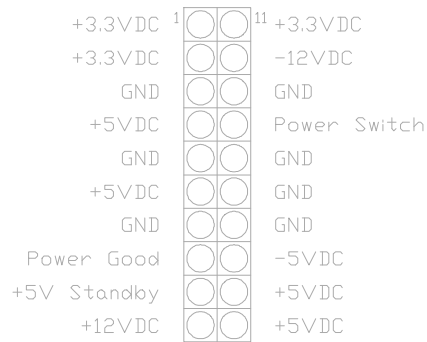


Fig. 13 ATX Power Supply Connector

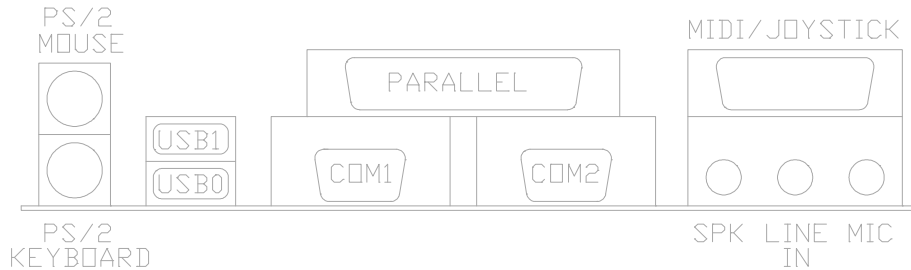


Fig. 14 I/O Connector

3.15 PS/2 KEYBOARD CONNECTOR

This connector is a six-pin female mini DIN connector using a PS/2 plug. If a standard AT size keyboard plugs, you may use the DIN to mini DIN adaptor.

3.16 PS/2 MOUSE CONNECTOR

This connector is a six-pin female mini DIN connector using a PS/2 plug. Plug the jack on the PS/2 keyboard cable into this connector.

3.17 UNIVERSAL SERIAL BUS PORT 0 & 1

These connectors are two four pin female sockets which are available for connecting USB device.

3.18 SERIAL PORT COM1 & COM2

This is a D-Type 9 pin male connector for pointing devices or other serial devices.

3.19 PARALLEL PORT CONNECTOR

This is a D-Type 25 pin female connector.

3.20 AUDIO PORT CONNECTOR

Three 1/8" female connectors used as speaker, line in and microphones. **SPK** can be connected to headphones or preferably powered speakers. **Line In** allows tape players or other audio sources to be recorded by your computer or played through the SPK. **MIC** allows microphones to be connected for inputting voice.

3.21 RETENTION MECHANISM KITS INSTALLATION GUIDE

Retention Mechanism Kits includes following components:

1. Retention mechanism Assembly

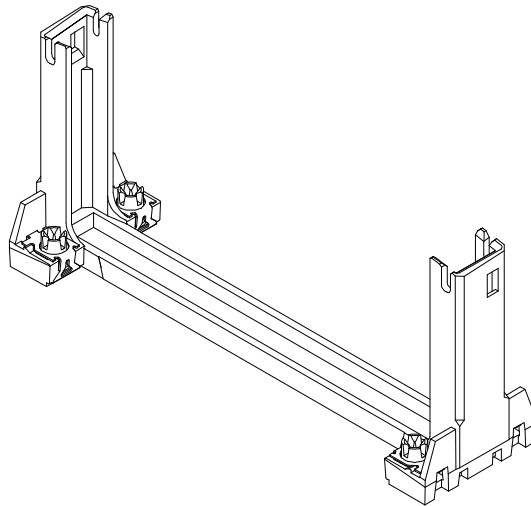


Fig. 15

Chapter 3

2. Retention Mechanism Attach Mount

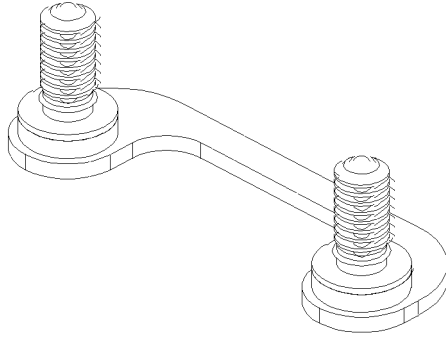


Fig. 16

3. Heatsink Top Support

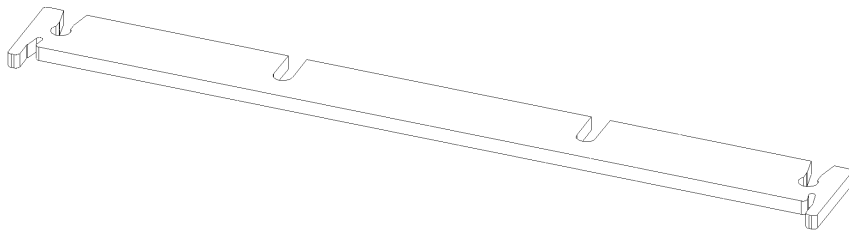


Fig. 17

4. Heatsink Support Base

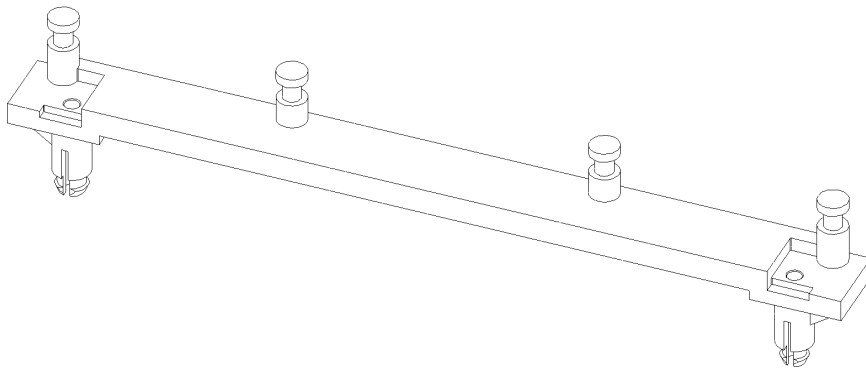


Fig. 18

Connector Configuration

Before the installation of RM Kits find the six holes on the motherboard for RM installation. The hole position and usage is as following:

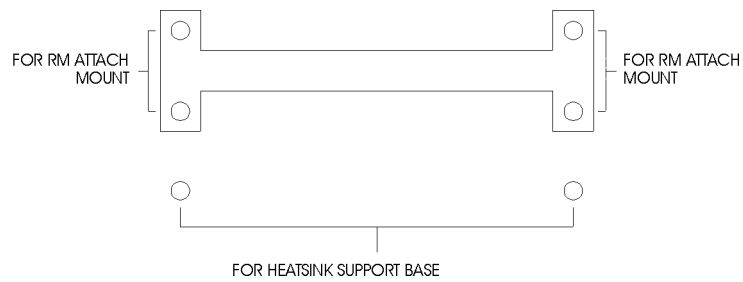


Fig. 19

Installation Guide

1. Mount the two RM Attach Mounts onto the motherboard from bottom side. These mounts will be used to attach the RM Assembly.
2. Put the RM Assembly on the Slot 1 and use the four screws to fix RM Assembly to the RM Attach Mount.
3. Install the Heatsink Support Base onto the motherboard, insert the two plastic nail to the hole in the Heatsink Support Base as following diagram:

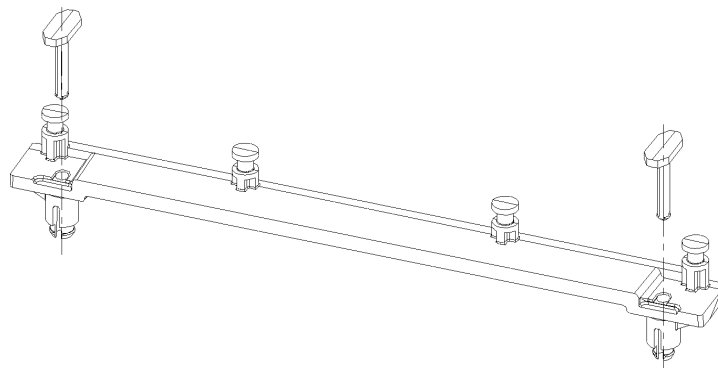


Fig. 20

Chapter 3

4. Insert the Heatsink Top Support to the Pentium II Heatsink and the Heatsink Support Base as the following diagram:

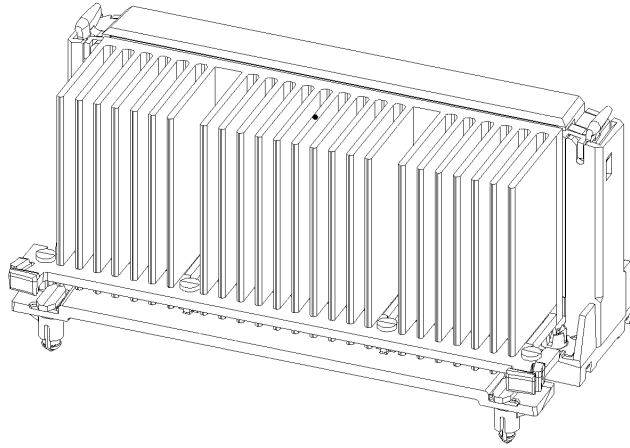


Fig. 21

CHAPTER 4

AWARD BIOS SETUP GUIDE

This following manual is specially provided for the BIOS supported system. After the configuration of the mainboard, and have assembled the components, user can turn on the completed system. At this point, run the software setup to ensure that the system information is correct.

The software setup of the system board is achieved through Basic Input-Output System (BIOS) programming. Use the BIOS setup program to tell the operating system what type of devices (such as disk drives) are connected to the system board.

The system setup is also called CMOS setup. Normally, users need to run system setup if either the hardware configuration is not identical with information contained in the CMOS RAM, or the CMOS RAM has lost power.

4.1 AWARD BIOS SETUP

The setup program provided with the mainboard is the Award BIOS from Award Software, Inc. Enter the AWARD Setup program's Main Menu as follows:

1. Turn on or reboot the system. After a series of diagnostic check, the following message appear:

“Press DEL to enter SETUP”

Chapter 4

2. Press the key to enter the AWARD BIOS setup program and the following screen appears:

ROM PCI/ISA BIOS (2A69JD1F)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION
PNP/PCI CONFIGURATION	SAVE & EXIT SETUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING
Esc : Quit F10 : Save & Exit Setup	↑ ↓ → ← : Select Item (Shift)F2 : Change Color
Time, Data, Hard Disk Type...	

Fig. 22

3. Choose an option and press <Enter>. Modify the system parameters to reflect the options installed in the system. (see the following sections for more information).
4. Press <ESC> at anytime to return to the Main Menu.
5. In the Main Menu, choose "SAVE AND EXIT SETUP" to save change and reboot the system. Choosing "EXIT WITHOUT SAVING" to ignore all changes and exists the program.

4.2 STANDARD CMOS SETUP

ROM PCI/ISA BIOS (2A69JD1F)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

Date (mm:dd:yy) : Wed, May 21 1997	
Time (hh:mm:ss) : 20 : 27 : 55	
<u>HARD DISKS</u> <u>TYPE</u> <u>SIZE</u> <u>CYLS</u> <u>HEAD</u> <u>PRECOMP</u> <u>LANDZ</u> <u>SECTOR</u> <u>MODE</u>	
Primary Master :	Auto 0 0 0 0 0 0 0 AUTO
Primary Slave :	None 0 0 0 0 0 0 0 -----
Secondary Master :	None 0 0 0 0 0 0 0 -----
Secondary Slave :	None 0 0 0 0 0 0 0 -----
Drive A : 1.44M , 3.5in.	Base Memory: 0K Extended Memory: 0K <u>Other Memory: 512K</u>
Drive B : None	
Video : EGA/VGA	Total Memory: 512K
Halt On : All Errors	
Esc : Quit	↑ ↓ → ← : Select Item
F1 : Help	(Shift)F2 : Change Color
	PU/PD/+/- : Modify

Fig. 23

Date(mm/dd/yy)	Type the current date.
Time(hh:mm:ss)	Type the current time.
Hard Disks	Choose from the standard hard disk types 1 to 45. Type 47 is user definable. Type Auto is for auto detect the hard disk type.
Drive A&B	Choose 360K, 5.25in.; 1.2M, 5.25in.; 720K, 3.5in.; 1.44M, 3.5in.; 2.88MB 3.5in. or None
Video	Choose EGA/VGA, CGA 40, CGA 80, or MONO,
Halt On	Choose All Errors; No Errors; All, But Keyboard; All, But Diskette or All, But Disk/Key

4.3 BIOS FEATURES SETUP

ROM PCI/ISA BIOS (2A69JD1F)
 BIOS FEATURES SETUP
 AWARD SOFTWARE, INC.

Virus Warning	: Enabled	Video BIOS Shadow	: Disabled
CPU Internal Cache	: Disabled	C8000-CBFFF Shadow	: Disabled
External Cache	: Disabled	CC000-CFFFF Shadow	: Disabled
Quick Power On Self Test	: Disabled	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	: Disabled	DC000-DFFFF Shadow	: Disabled
Boot Up Numlock Status	: Off		
Boot Up System Speed	: Low		
Gate A20 Option	: Normal		
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec)	: 6		
Typematic Delay (Msec)	: 250		
Security Option	: Setup		
PCI/VGA Palette Snoop	: Disabled		
Assign IRQ For VGA	: Disabled		
OS Select For DRAM > 64MB	: Non-OS2		
HDD S.M.A.R.T. capability	: Disabled		
Report No FDD For WIN 95	: No		
		ESC: Quit	↑ ↓ → ←: Select Item
		F1: Help	PU/PD/+/-: Modify
		F5: Old Values	(Shift)F2: Color
		F7: Load Setup Defaults	

Fig. 24 BIOS Setup Defaults

A short description of the screen items follows:

Virus Warning: When enabled, you receive a warning message if a program (specifically, a virus) attempts to write to the boot sector or the partition table of the hard disk drive. You should then run an anti-virus program. The default is Disabled.

CPU Internal Cache: Choose Enabled or Disabled. This option lets user choose whether to use CPU internal cache memory. The default is Enabled.

External Cache: Choose Enabled or Disabled. This option lets user choose whether to use secondary cache memory. The default is Enabled.

Quick Power On Self Test: Choose Enabled or Disabled. This option let the POST sequence runs longer for through tests.

Boot Sequence: With the default setting the BIOS first attempts to boot from drive A: and then, if unsuccessful, from hard disk C:. User can select other boot up sequence. Available sequences are “A,C,SCSI”, “C,A,SCSI”, “C,CDROM,A”, “CDROM,C,A”, “D,A,SCSI”, “E,A,SCSI”, “F,A,SCSI”, “SCSI,A,C”, “SCSI,C,A”, “C only”, “LS120/ZIP,C”.

Swap Floppy Drive: Choose Enabled or Disabled. This option lets end users to change the Drive A: or B: to others.

Boot Up NumLock Status: Choose On or Off. On puts numeric keypad in Num Lock mode at boot-up. Off puts numeric keypad in arrow key mode at boot-up.

Boot Up System Speed: Choose High or Low. Set the CPU timing at Boot Up, the default is high.

Gate A20 Option: Choose Fast (chipset handled) or Normal (keyboard handled). The gate A20 is a device used to address memory above 1Mbytes. Initially, the gate A20 was handled via a pin on the keyboard. Today, while keyboards still provide this support, it is more common, and much faster, for the system chipset to provide support for gate A20.

Typematic Rate Setting: Choose Enabled or Disabled. Enabled will determines the typematic rate defined by following two options.

Typematic Rate: The number selected 6,8,10... indicates how fast the number of characters can response in one second.

Typematic Delay (Msec): The number selected indicates the time period between two identical keys appear.

Security Option: Choose Setup or System. If system is selected, the password should be set.

PCI/VGA Palette Snoop: Select Disabled or Enabled. If Enabled the MPEG Card can synchronised with PCI/VGA.

Assign IRQ For VGA: Choose Enabled or Disabled. Enabled will assign an IRQ to Graphic Controller.

OS Select For DRAM > 64MB: Select Disabled or Enabled. If the system memory is larger than 64MB and running OS/2, please enable this item. However, if it use other operating system, please disable this feature. Furthermore, if the system memory is less than 64MB, the BIOS will ignore this function.

HDD S.M.A.R.T. capability: Choose Enabled or Disabled. Enabled will support the hard driver S.M.A.R.T. feature (Self-Monitoring, Analysis and Reporting Technology).

Chapter 4

Report No FDD For WIN 95: Choose Yes or No. Yes will show a removable disk in Windows 95 when the floppy drive is set as None.

Video BIOS Shadow: ROM Shadow copies Video BIOS code from slower ROM to faster RAM. Video BIOS can then execute from RAM.

C8000-DFFFF Shadow: If enabled and BIOS is present in this segment, then the BIOS is shadowed.

4.4 CHIPSET FEATURES SETUP

The Advanced Chipset Setup option is used to change the values of the chipset registers. These registers control most of the system options in the computer.

Note: Change these Settings only if user is familiar with the Chipset.

ROM PCI/ISA BIOS (2A69JD1F)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

Auto Configuration	: Enabled	H/W Reset Protection	: Disabled
DRAM Speed Selection	: 60ns	S/W Flash ROM Protection	: Disabled
MA Wait State	: Slow	Current System Temp.	:
EDO RAS# To CAS# Delay	: 3	Current CPU Temperature	:
EDO RAS# Precharge Time	: 4	Current CPU FAN Speed	:
EDO DRAM Read Burst	: x222	Vcore(V)	: 2.5(V)
EDO DRAM Write Burst	: x333	3.4(V)	: + 5 V
System BIOS Cacheable	: Enabled	+12 V	: -12 V
Video BIOS Cacheable	: Enabled	- 5 V	:
Video RAM Cacheable	: Disabled		
Memory Hole At 15M-16M	: Disabled		
		ESC: Quit	↑ ↓ → ←: Select Item
		F1: Help	PU/PD/+/-: Modify
		F5: Old Values	(Shift)F2: Color
		F7: Load Setup Defaults	

Fig. 25

A short description of the screen items follows:

Auto Configuration: When Auto Configuration is Enabled, BIOS will sets the CPU Clock according to CPU speed. Otherwise, set it manually.

DRAM Speed Selection: Choose 60ns or 70ns according to the DRAM SIMM Module on the motherboard.

MA Wait State: When this option is slow. One additional wait state is inserted before the assertion of first MA and CAS#/RAS# during DRAM read or write leadoff cycles. The affects pages hit, row miss and page miss cases. The settings are Slow or Fast.

EDO RAS# To CAS# Delay: When EDO DRAM is refreshed, both rows and columns are addressed separately. This setting item select the delay cycles between the assertion of RAS# and CAS#.

EDO RAS# Precharge Time: This defines the length of time for Row Address Strobe to precharge.

EDO DRAM Read/Write Burst: This sets the timing for burst mode read/write from DRAM. The options are x222 or x333.

System/Video BIOS Cacheable: Choose Enabled or Disabled. “Enabled” allows system/video BIOS be cacheable.

Video RAM Cacheable: Choose Enabled or Disabled. “Enabled” allows video RAM to be cacheable.

Memory Hole At 15M-16M: Choose Enabled or Disabled. “Enabled” allows some linear VGA cards to run larger frame port, or it can be reserved for some operating system.

H/W Reset Protection: Enabled to disable the function of H/W Reset button.

S/W Flash ROM Protection: Enabled to protect the Flash ROM from programming.

The below items will show only with SYSTEM MONITORING FEATURES:

Current System Temp.: This item will show the temperature of the system board.

Current CPU Temperature: This item will show the temperature of CPU.

Current CPU FAN Speed: This item will show the rotate speed per minute of the CPU FAN connected to FAN1.

Vcore/2.5(V)/3.4(V)/5.0(V)/12(V)/-12(V)/-5(V): These items show the different voltage of the system board.

4.5 POWER MANAGEMENT SETUP MENU

The Power Management Setup option is used to change the values of the chipset registers for system power management functions.

ROM PCI/ISA BIOS (2A69JD1F)	
POWER MANAGEMENT SETUP	
AWARD SOFTWARE, INC.	
Power Management	: Disabled
PM Control by APM	: Yes
Video Off Method	: V/H SYNC + Blank
Video off After	: Suspend
MODEM Use IRQ	: 3
Suspend Mode	: Disabled
HDD Power Down	: Disabled
HDD Down When Suspend	: Enabled
VGA Active Monitor	: Disabled
Soft-Off by PWR-BTNN	: Delay 4 sec.
Resume by Ring	: Enabled
IRQ 8 Break Suspend	: Disabled
** Reload Global Timer Events **	
IRQ [3-7,9-15], NMI	: Enabled
Primary IDE 0	: Disabled
Primary IDE 1	: Disabled
Secondary IDE 0	: Disabled
Secondary IDE 1	: Disabled
Floppy Disk	: Disabled
Serial Port	: Enabled
Parallel Port	: Disabled
ESC: Quit	↑ ↓ → ←: Select Item
F1: Help	PU/PD/+/-: Modify
F5: Old Values	(Shift)F2: Color
F7: Load Setup Defaults	

Fig. 26

A short description of the screen items follows:

Power Management: Available selection are “Disabled”, “User Define”, “Max Saving” and

“Disabled” will disable all the power saving functions.

“User Define” makes the time period waiting for Suspend Mode to be programmed.

 Saving” will set the time period waiting for Suspend Mode to be 1 minute.

“Min Saving” will set the time period waiting for Suspend Mode to be 1 hour.

PM Control by APM: Available options are “Yes” and “No”. To choose “Yes” to let the Power Management Function to be control by the MS APM software.

Video Off Method: Choose V/H SYNC+Blank, DPMS or Blank Screen. This is monitor Power Saving Method. V/H SYNC+Blank means turn off Vertical, Horizontal scanning and blank the screen. Blank Screen will blank the display screen. DPMS (Display Power Management System) can allow the System BIOS control the Display Card to turn off the Display.

Video Off After: As the system moves from lesser to greater power-saving modes. Select the mode in which you want the monitor to blank. The available options are "Suspend" and "NA".

MODEM Use IRQ: Available options are 3,4,5,7,9,10,11 and NA. It is used to choose the interrupt line that the Modem is used. "NA" means not available.

Suspend Mode: To set the time period waiting for Suspend Mode when the Power Management function is set to "User Define".

HDD Power Down: To select the time period will turn the HDD off. Accessing the HDD again will take a few seconds for HDD to spin up for operation.

HDD Down When Suspend: If Enabled, the HDD will turn off when entering Suspend Mode.

VGA Active Monitor: When Enabled, any video activity restarts the global timer for Standby Mode.

Soft-Off by PWR-BTTN: Available options are "Instant-Off" and "Delay 4 sec.". For "Instant-Off" option, the power of the system will be switched off at once when the power button is pressed for turn it off. For "Delay 4 sec." Option, the power of the system will be switched off with 4 seconds later after the power button is pressed.

Resume by Ring: When Enabled the external modem ring in can wake up the system. (ATX power supply required)

IRQ 8 Break Suspend: You can select Enabled or Disabled monitoring of IRQ8 (the Real Time Clock) so it does not awaken the system from Suspend Mode.

Reload Global Timer Event: When Enabled, an event occurring on each device listed below restarts the global time for Standby Mode.

- IRQ[3-7,9-15], NMI
- Primary IDE 0
- Primary IDE 1
- Secondary IDE 0
- Secondary IDE 1
- Floppy Disk
- Serial Port
- Parallel Port

4.6 PCI CONFIGURATION

The PCI Configuration Setup option is used to configure the PCI add-on Cards on PCI Slots. Without proper setup the PCI Add-on Cards might not function properly.

ROM PCI/ISA BIOS (2A69JD1F)
 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#	: A
IRQ-3 assigned to	: PCI/ISA PnP	Used MEM base addr	: C800
IRQ-4 assigned to	: PCI/ISA PnP	Used MEM Length	: 8K
IRQ-5 assigned to	: PCI/ISA PnP		
IRQ-7 assigned to	: PCI/ISA PnP		
IRQ-9 assigned to	: PCI/ISA PnP		
IRQ-10 assigned to	: PCI/ISA PnP		
IRQ-11 assigned to	: PCI/ISA PnP		
IRQ-12 assigned to	: PCI/ISA PnP		
IRQ-14 assigned to	: PCI/ISA PnP		
IRQ-15 assigned to	: PCI/ISA PnP		
DMA-0 assigned to	: PCI/ISA PnP	ESC: Quit	↑ ↓ → ←: Select Item
DMA-1 assigned to	: PCI/ISA PnP	F1: Help	PU/PD/+/-: Modify
DMA-3 assigned to	: PCI/ISA PnP	F5: Old Values	(Shift)F2: Color
DMA-5 assigned to	: PCI/ISA PnP	F6: Load BIOS Defaults	
DMA-6 assigned to	: PCI/ISA PnP	F7: Load Setup Defaults	
DMA-7 assigned to	: PCI/ISA PnP		

Fig. 27

Note: Change these Settings only if user is familiar with the Chipset and all the PCI Add-on Cards functions.

A short description of the screen items follows:

PNP OS Installed: Set this option to Yes if the operating system installed in the computer is Plug and Play-aware (e.g. Windows 95).

Resources Controlled By: The Award Plug and Play BIOS can automatically configure all the boot and Plug and Play compatible device. If you select Auto, all the interrupt (IRQ) and DMA assignment fields disappear, as the BIOS automatically assigns them.

Reset Configuration Data: If enable this option, the BIOS will clear and reset the ESCD after hardware reset.

IRQ#/DMA# assigned to: These items will be shown only when "Resources option is set the "Manual". The available options are "Legacy ISA" and "PCI/ISA PnP". If the option is set to "Legacy ISA", the BIOS will never assign the specified IRQ/DMA resource to PCI or ISA PnP Devices. If "PCI/ISA PnP" is chosen, the BIOS will make the specified IRQ/DMA have a chance to be assigned to the PCI or ISA PnP devices.

PCI IDE IRQ Map To: Choose PCI-AUTO, PCI-SLOT1, PCI-SLOT2, PCI-SLOT3, ISA. The default setting is PCI-AUTO.

Primary/Secondary IDE INT#: Each PCI peripheral connection is capable of activating up to four interrupts: INT#A, INT#B, INT#C and INT#D. By default, a PCI connection is assigned INT#A. Assign INT#B has no meaning unless the peripheral device requires two interrupt services them just one.

Used MEM Base Addr/Used MEM Length: These items will be shown only when "Resources Controller By" option is set to "Manual". They are used to reserve the memory space for the memory installed on the ISA card in the specified memory segment (such as some network card). The available options for "User Mem Base Addr" are "N/A", "C800", "CC00", "D000", "D400", "D800" and "DC00", which is used to select the base memory address of the ISA card used. With the "Used Mem Base Addr" is selected, the size of the memory installed on ISA card is chosen by "Used Mem Length": "8K", "16K", "32K" or "64K"

4.7 INTEGRATED PERIPHERALS SETUP MENU

The Integrated Peripherals setup option is need to change the values of the I/O chipset registers for I/O functions.

ROM PCI/ISA BIOS (2A69JD1F)
INTEGRATED PERIPHERALS
AWARD SOFTWARE, INC.

IDE HDD Block Mode	: Enabled	Onboard Parallel Port	: 378/IRQ7
IDE Primary Master PIO	: Auto	Parallel Port Mode	: ECP+EPP
IDE Primary Slave PIO	: Auto	ECP Mode Use DMA	: 3
IDE Secondary Master PIO	: Auto	ECP Mode Select	: EPP1.7
IDE Secondary Slave PIO	: Auto		
IDE Primary Master UDMA	: Auto		
IDE Primary Slave UDMA	: Auto		
IDE Secondary Master UDMA	: Auto		
IDE Secondary Slave UDMA	: Auto		
On-Chip Primary PCI IDE	: Enabled		
On-Chip Secondary PCI IDE	: Enabled		
USB Keyboard Support	: Disabled		
Init AGP Display First	: Disabled		
Onboard FDC Controller	: Enabled		
Onboard Serial Port 1	: 3F8/IRQ4	ESC: Quit	↑ ↓ → ←: Select Item
Onboard Serial Port 2	: 2F8/IRQ3	F1: Help	PU/PD/+/-: Modify
UART Mode Select	: IrDA	F5: Old Values	(Shift)F2: Color
RxD, TxD Active	: Hi, Lo	F7: Load Setup Defaults	
IR Transmittion delay	: Enabled		

Fig. 28

A short description of the screen items follows:

IDE HDD Block Mode: This allows your hard disk controller to use the fast block mode to transfer data to your hard disk drive.

IDE Primary Master PIO/IDE Primary Slave PIO/IDE Secondary Master PIO/IDE Secondary Slave PIO: Available selection are “Auto”, “Mode 0”, “Mode 1”, “Mode 2”, “Mode 3” and “Mode 4”. To choose “Auto”, the system BIOS will scan the IDE device and decide which mode of the device is . Otherwise the user should key in the mode of the device to the corresponding field.

Some harddisks cannot work properly with its corresponding timing, please set a slower timing.

IDE Primary Master UDMA/IDE Primary Slave UDMA/IDE Secondary Master UDMA/IDE Secondary Slave UDMA: Available selection are “Auto” or “Disabled”. To choose “Auto”, the system BIOS will scan the IDE device and decide Ultra DMA supported or not.

On-Chip Primary/Secondary PCI IDE: This item is used to set the onboard IDE controller. The settings are Primary, Secondary, Both or Disabled. The default setting is Both.

USB Keyboard Support: Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.

Init AGP Display First: Enabled to let the system initialize the AGP display first prior to the other display adaptor.

Onboard FDC Controller: Choose Enabled or Disabled. “Enabled” allows onboard Floppy Drive Controller to be functioned, otherwise the users should use other sources..

Onboard Serial Port 1: Choose Auto, Disabled, 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4 and 2E8/IRQ3. While choosing proper I/O Address/IRQ, be sure not to cause Address conflict with other I/O devices. The default setting is 3F8/IRQ4.

Onboard Serial Port 2: Choose Auto, Disabled, 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4 and 2E8/IRQ3. While choose proper I/O Address/IRQ, be sure not to cause Address conflict with other I/O devices. The default setting is 2F8/IRQ3.

UART Mode Select: Choose Standard, ASKIR (Amplitude Shift Keyed Infrared Port), IrDA 1.0 for serial Interface.

RxD, TxD Active: The available options are “Hi, Hi”, “Hi, Lo”, “Lo, Hi” and “Lo, Lo”. It is used to configure the logic level of Receive and Transmit signal in IrDA interface.

Onboard Parallel Port: Choose None or with four different I/O Address and corresponding IRQx. While choosing proper I/O Address, be sure not to cause Address conflict with other I/O devices.

Parallel Port Mode: Choose Normal, SPP, ECP, ECP+EPP(1.9) and ECP+EPP(1.7) Mode. Make proper selection with the attached printer port device.

ECP Mode Use DMA: Choose “1” or “3” to select the DMA channel used for the ECP device. This item is shown if the **Onboard Parallel Mode** is chosen as “ECP” or “ECP/EPP” option.

4.8 LOAD SETUP DEFAULTS MENU

This Main Menu item uses the default setup values. Use this option as a diagnostic aid if the system behaves erratically. Choose this item and the following message appears:

“Load SETUP Defaults (Y/N)? N”

To use the Power-On defaults, change the prompt to “Y” and press <Enter>.

4.9 SUPERVISOR PASSWORD

Two level of password is supported. Depending on the setting of the “Security Option” in the “BIOS FEATURES SETUP”, the system BIOS will ask for password every time booting up the System or entering BIOS Setup. With the supervisor password, both the system booting and BIOS setup changing is allowed.

This main menu item lets the user to set up the Supervisor Password.

Change the password as follows:

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

“ENTER PASSWORD:”

2. Enter the Password and press <Enter>. The following message appears:

"CONFIRM PASSWORD:"

Important: Keep a safe record of the new password. If forget or lose the password, the only way to access the system is to disconnect the CMOS batteries and then re-enter the password.

4.10 USER PASSWORD

With the user password, only booting up the system is accepted, but changing the BIOS setup is not allowed.

4.11 IDE HDD AUTO DETECTION

When users can not find the Hard Disk information, it is very helpful to use this option.

1. Choose this item and press <Enter>.
2. After couple seconds, the screen will appear the Hard Disk information and following message:

“SELECT PRIMARY MASTER OPTION(N=SKIP): N”

3. Enter Y or N to confirm the acceptance then enter.
4. The process will repeat for Primary Slave, Secondary Master and Secondary Slave Hard Disks.

4.12 SCSI HARD DISK INSTALLATION

In Standard CMOS Setup Utility, select hard disk type to be “Not Installed”. In Advanced CMOS Setup Utility, Disable “Adapter ROM Shadow DC00”. On the SCSI Controller card, set the jumpers which configure the SCSI card BIOS segment address located at DC00 or DE00. Format the SCSI disk by the Formatter provided in the SCSI BIOS.

4.13 SAVE & EXIT SETUP MENU

When you select this function, the following message will appear at the centre of the screen to assist you to Save data to CMOS and Exit the Setup.

Save to CMOS and Exit (Y/N)?

4.14 EXIT WITHOUT SAVING MENU

When you select this function, the following message will appear at the centre of the screen to assist you to Abandon all Data and Exit Setup.

Quit Without Saving (Y/N)?

CHAPTER 5

SOFTWARE INSTALLATION

In order to let the system board to work efficiently, a series of drivers have to be installed according to the operating system used. The drivers may be delivered via CD-ROM or floppy diskettes. The device driver installation procedures from CD-ROM and floppy diskettes are similar. The only difference is the path of the driver location. Please refer to the following section for the installation procedures for floppy diskettes. For CD-ROM installation, please refer to the README.TXT file on the Root Directory of the CD-ROM.

5.1 INTEL 82440EX PCI AGP CHIPSET PATCH UTILITY FOR WINDOWS 95

This program is used to patch the Intel 82440EX PCI AGP chipset to use with Windows 95.

- a) Under Windows 95, insert the **Intel 82440EX PCISSET** diskette into the floppy drive (say a:)
- b) Click *Start* on the taskbar in Windows 95
- c) Click *Run* on the menu bar in Windows 95
- d) Type *a:\PIIX4\PIIX4* (a: being the letter of the floppy drive)
- e) Closed the DOS Prompt windows. Restart Windows 95 to let the drivers take function.

5.2 INTEL BUS MASTER IDE DRIVER FOR WIN 95 INSTALLATION

- a) With the patch utility installed. Insert the **Intel 82440EX PCISSET** diskette into the floppy drive (say a:)
- b) Click *Start* on the taskbar in Windows 95
- c) Click *Run* on the menu bar in Windows 95
- d) Type *a:\WIN95\setup* (a: being the letter of the floppy drive)
- e) Follow the on screen instructions to complete the installation
- f) After Windows 95 is restarted, it will ask for driver location. Click on the <Win95 directory>\system\iosubsys patch. Then click "OK" when prompted to restart Windows 95.

5.3 SOUND DRIVER INSTALLATION

This section is valid for the system with sound chip built in.

(I) Windows 3.1

- a) Under Windows 3.1, insert **the ESS ES1869 Sound Driver & Utility Disk 1** diskette into the floppy drive (say A:)
- b) Click *File* on the menu bar in Windows 3.1
- c) Select Run command by clicking *Run*
- d) Type *A:\WIN31\SETUP* (A: being the letter of the floppy drive)
- e) Follow the on screen instructions to complete the installation
- f) After the installation is completed, Windows should be restarted to let the drivers take function

(II) Windows 95

For a newly installed Win95 system:

- a) Upon boot up, the system will detect the “ESS 1869 Plug and Play Audio
- b) Windows 95 will prompt for the driver diskette, then insert the **ESS ES1869 Sound Drive & Utility Disk 2** diskette into the floppy driver (say A:)
- c) When Windows 95 ask for driver, browse for driver A:\WIN95 directory
- d) For the GamePort joy-stick setting, use the default driver provided from Windows 95 CD
- e) Insert the required Windows 95 distribution disk and click *OK*
- f) After the installation is completed, Windows 95 should be restarted to let the drivers take function

5.4 THE AUDIORACK32 FOR WIN95

This section is valid for the system with sound chip built in.

5.4.1 INTRODUCTION

The *AudioRack32* enables you to take advantage of your computer's audio capabilities with all of the controls conveniently in one compact space. You can play audio CDs, wave files (in .WAV and .AUD formats), and MIDI files (in .MID and .RMI formats). With the multi-source Audio Mixer, you can blend these sources with line-in and microphone sources any way you choose. Add tone control and spatialization to your computer with the 3-D/Tone Controller. You can then record your creations as wave files and edit them with the Audio Recorder.

The *AudioRack32* has six main parts:

- Command Center—customizes the appearance of the *AudioRack32*.
- 3-D/Tone Controller—adds 3-D stereo and tone controls to the *AudioRack32*.
- Audio Mixer—controls the volume and balance of the *AudioRack32* devices.
- Digital Audio Player—plays and records files in the .WAV format.
- MIDI Player—enables you to play MIDI files.
- Compact Disk Player—enables you to play audio CDs on a CD-ROM drive.

In addition, the *AudioRack32* has a miniature mode enabling you to control the *AudioRack32* while using minimal screen space.

The Audio Recorder is a separate application from the *AudioRack32*. It can be used to add effects and edit files recorded with the Digital Audio Player or by the Audio Recorder itself. The Audio Recorder can be launched from the *AudioRack32* Digital Audio Player or on its own.

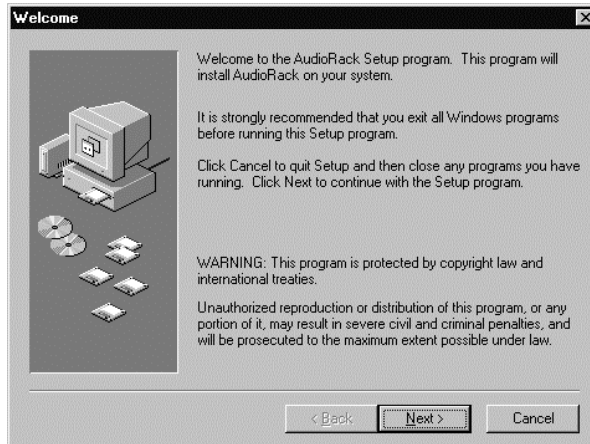
5.4.2 INSTALLING THE *AudioRack32*



Placing the ESS ES1869 Sound Driver & Utility Disk 2 diskette in a floppy drive, click **Start** on the taskbar and choose **Run** from the popup menu.

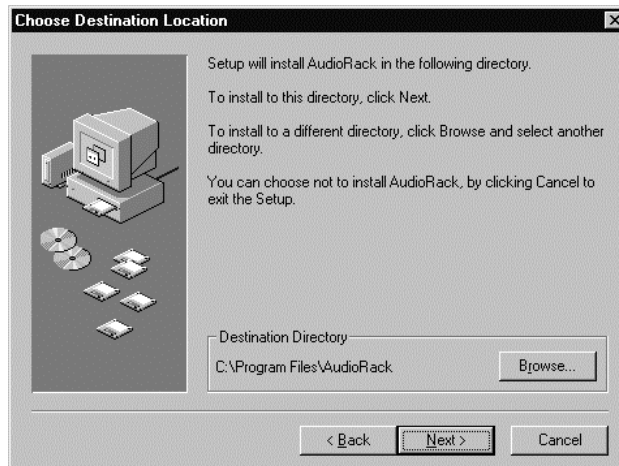
Chapter 5

In the Run dialog box, type the letter of the drive and setup (for example, A:\ARCK32\SETUP), then click **OK**. The first **AudioRack32** Setup dialog box appears.



Note the instructions, then click **Next** to proceed or **Cancel** to leave Setup.

Next the Choose Destination Location dialog box appears.



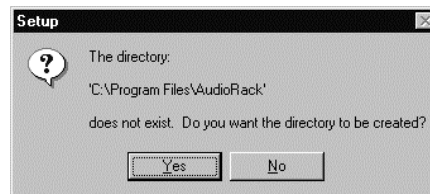
Click **Next** to install the *AudioRack32* in the default directory or **Browse** to choose a different directory. Click on **Cancel** to leave the Setup program or **Back** to return to the Welcome dialog box.

If you wish to install the *AudioRack32* in a directory other than the default directory, enter the directory path in the Browse dialog box.



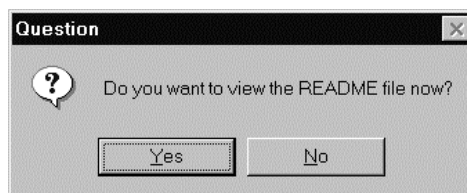
When you are done click **OK** or **Cancel** to return to the Choose Destination Location dialog box.

If the directory you designate doesn't exist, you will be asked to confirm your selection. Click **Yes** to proceed or **No** to go back and enter a new destination directory.



Once you have chosen the default directory or entered a directory of your own choosing, the Setup program will install *AudioRack32*.

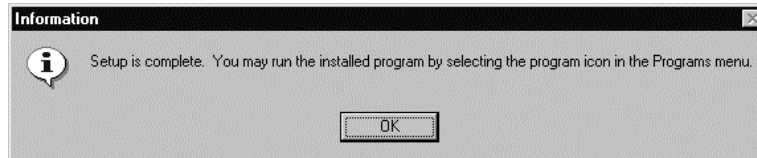
Before completing installation of the *AudioRack32*, you will be given the option to view the README file before exiting the setup program



Click **Yes** to view the README file now or **No** to skip the README file and finish the installation.

Chapter 5

Upon successful completion of the *AudioRack32* installation, the following message will be displayed.



5.4.3 UNINSTALLING THE *AudioRack32*

To remove the *AudioRack32* from your system, start by clicking on (but not releasing) **Start** on the task bar. Move the cursor to **Settings** and select **Control Panel**. From the Control Panel choose **Add/Remove Programs**. Select *AudioRack 2.0* from the list and click **Add/Remove**. After you confirm your decision, the *AudioRack32* will be uninstalled.

CHAPTER 6

FLASH AND DMI UTILITY

6.1 AWARD FLASH UTILITY

This section will provide instructions to guide you through updating your old BIOS. The file name we use to program here is *test.bin*, and the file name to save old BIOS is *2A59F000.OLD*. Please note that those file names are not absolute. They are only examples to let you have a more clear understanding of the updating process.

How to Begin

1. Please type “*awdflash*” and press the **ENTER** key to begin the updating process.
2. Once you enter, you will see a main menu displaying:

FLASH MEMORY WRITER V5.XX Copyright (C) 1996, Award Software, Inc.,	
For I430HX-2A59F000 Flash Type	DATE: 06/18/96
File Name to Program:	
Error Message:	

Fig. 29

3. Type the program name “*test.bin*,” and then press the **ENTER** key.
4. At the bottom of the menu, you will be requested to answer:

Do You Want to Save BIOS (Y/N)?

If you do not wish to save the old BIOS:

5. Please type **N**,”and then press the ENTER key.
6. Then you will be request to answer:

Are You Sure to Program?”

7. Answer “N” if you do not want to program, and then it will exit.

To save the old BIOS:

8. Please respond **Y**,”and then press the ENTER key.
9. Move the cursor to “File Name to Save:”
10. Type file name **2A59F000.OLD**,”and then press the **ENTER**.
(Your old BIOS will be saved in the file name you create. In this case, the old BIOS is saved in the file name, 2A59F000.OLD).
11. Then you will be requested to answer:

Are You Sure to Program (Y/N)?”

12. Type **Y**”to begin programming, and press the **ENTER** key.
13. When the programming is finished, the showing message will appear:

Programming Flash Memory - 1FF00 0K



Message: Please Power off or Reset System”

14. Once you see the showing message **Power Off or Reset System**,”please re-start your system.
15. When you power on the computer again, you will find your old BIOS has already been successfully updated.

Warning

Please note that Award Flash Utility cannot run under EMM386 or QEMM. Thus, when executing the command *awdflash*,”and error message will appear:

Error Message: Fail - Due to EMM386 or QEMM!”

6.2 DESKTOP MANAGEMENT INTERFACE (DMI) OVERVIEW

This motherboard can support DMI within the BIOS level. DMI is able to auto-detect and record information pertinent to a computer's system such as the CPU type, CPU speed, and internal/external frequencies, and memory size. The onboard BIOS will detect as many system information as possible and store those collected information in a 4KB block in the motherboard's flash EPROM and allow the DMI to retrieve data from this database.

The DMI Configuration Utility (DMICFG.EXE) must be used in real mode in order for the program to run the base memory must be at least 180K. Memory managers like HIMEM.SYS (required by windows) must not be installed. You can boot up from a system diskette without AUTOEXEC.BAT and CONFIG.SYS files, "REM" HIMEM.SYS in the CONFIG.SYS, or press <F5> during bootup to bypass your AUTOEXEC.BAT and CONFIG.SYS files.

Using the DMI Configuration Utility

Edit DMI

```

Award DMI Configuration Utility V1.04a, Copyright Award Software Inc. 1995
[Edit DMI] [Add DMI] [Load DMI FILE] [Save DMI FILE]

  BIOS
  System
  Base Board
  Enclosure/Chassis
  Processor
  Memory Controller
  Memory Module
  Memory Module
  Memory Module
  Memory Module
  Cache
  Cache
  Port Connector
  Port Connector
  Port Connector
  Port Connector
  Port Connector
  Port Connector
  Port Connector
  System Slots

==== Display Component ====
Type : BIOS Information
Handle : 0000
Vendor Name : Award Software International, Inc.
BIOS Version : 4.51 PG
BIOS starting Address Segment : E000
BIOS Build Date : 05/12/97
BIOS Characteristics : Press [ENTER] for detail
Size of BIOS ROM : 0128K

↑↓←→-Move cursor  ENTER-accept  DEL-Delete  ESC-Abort&Exit

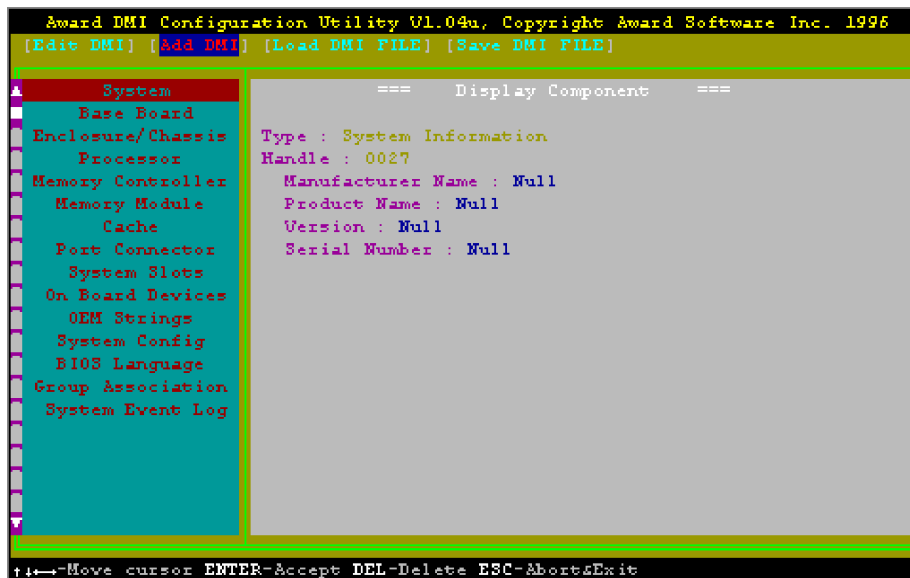
```

Chapter 6

Use the ←→ (left-right) cursors to move the top menu items and the ↑↓ (up-down) cursor to move between the left hand menu items. The bottom of the screen will show the available keys for each screen. Press enter at the menu item to enter the right hand screen for editing. “Edit component” appears on top. The reversed color field is the current cursor position and the blue text are available for editing. The orange text shows auto-detected information and are not available for editing. The blue text “Press [ENTER] for detail” contains a second pop-up menu is available, use the + - (plus-minus) keys to change the settings. Enter to exit and save, ESC to exit and not save.

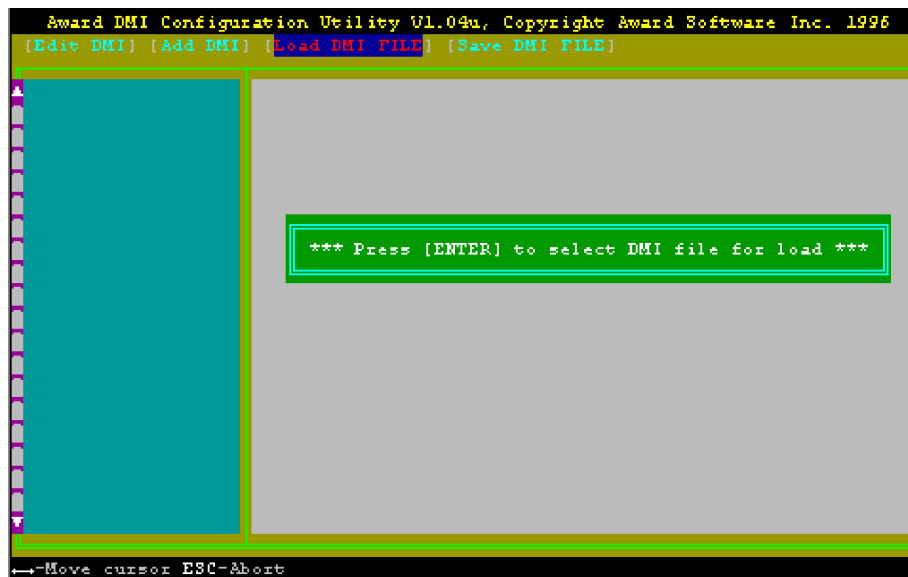
If the user has made changes, ESC will prompt you to answer Y or N. Enter Y to go back to the left-hand screen and save, enter N to go back to left-hand screen and not save. If editing has not been made, ESC will send you back to the left hand menu without any messages.

Add DMI



This DMI Configuration Utility also allows the system integrator or end user to add additional information into the DMI database such as serial numbers, housing configurations, and vendor information. Those information not detected by the motherboard BIOS and has to be manually entered through the DMI Configuration Utility and updated into the DMI database.

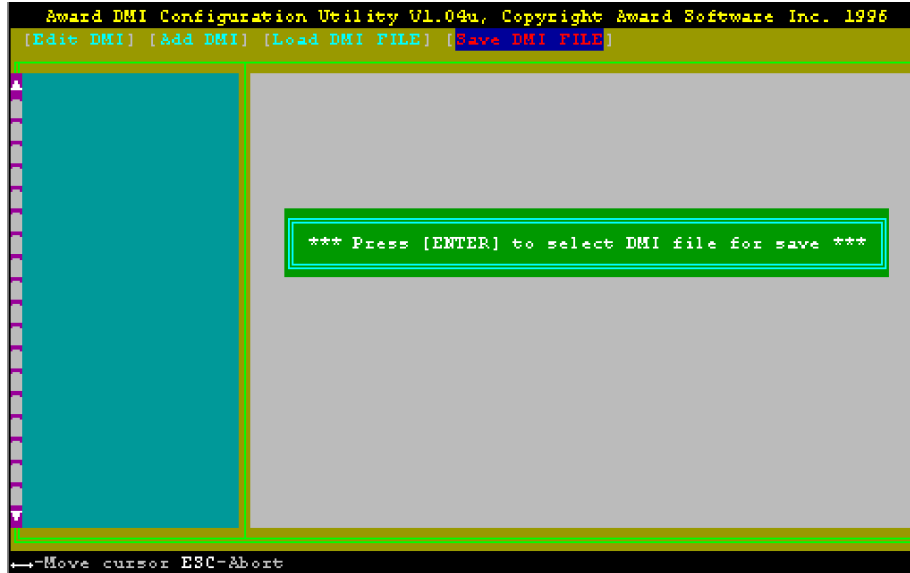
Load DMI File



You can load the disk file to memory by entering a drive and path and file name here.

Chapter 6

Save DMI File



You can save the DMI (normally only saved to flash ROM) to a file by entering the drive and path here. If you want to cancel save, you may press ESC and a message "Bad File Name" appears here to show it was not saved.

APPENDIX A

QUICK GUIDE

The table below summarizes the functions and settings of each jumper of the motherboard.

Function		Jumper Settings	
CPU Speed Selection	Pentium II 233MHz	JP2	1-2 off 3-4 off 5-6 on
	Pentium II 266MHz	JP2:	1-2 on 3-4 on 5-6 off
	Pentium II 300MHz	JP2:	1-2 off 3-4 on 5-6 off
	Pentium II 333MHz	JP2:	1-2 on 3-4 off 5-6 off
Clear CMOS Data	Normal	J4:	2-3 short
	Clear	J4:	1-2 short

Appendix A

Appendix A

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