Chapter 1

INTRODUCTION

The ATX GX1 Dual-P mainboard is a state-of-the-art dual-processor server mainboard based on Intel® Pentium® II Xeon™ processor. The Intel® Pentium® II Xeon™ processor is designed exclusively for powerful servers and workstations.

The mainboard uses the highly integrated Intel® 82440GX chipset to support the PCI/ISA and Green standards, and to provide the Host/AGP bridge. The 82371EB chipset integrates all system control functions such as ACPI (Advanced Configuration and Power Interface). The ACPI provides more Energy Saving Features for the OSPM(OS Direct Power Management) function. The Intel® 82371EB chipset also improves the IDE transfer rate by supporting Ultra DMA/33 IDE that transfers data at the rate of 33MB/s.

The mainboard also supports the System Hardware Monitor Controller as an optional function. This function includes: CPU /power supply/chassis fan revolution detect, CPU/system voltage monitor, system temperature monitor, and chassis intrusion detect.

1.1 Mainboard Features

CPU

- Dual Slot 2 for Intel® Pentium® II Xeon processor.
- Support 400MHz or faster with 512KB, 1MB or 2MB integrated L2 cache.

Chipset

- Intel® 82440GX AGPset.
- Intel® 82371EB chipset.

Onboard SCSI Connector

- Adaptec AIC-7890/AIC3860
  - support high performance 80Mbytes/sec Ultra 2 SCSI peripherals at a cable length up to 12 meters.

PCI-To-PCI Bridge

- Digital 21152
  - complies fully with Revision 2.1 of PCI Local Bus Specification.
  - support six PCI master.

Main Memory

- Support eight memory banks using four 168-pin gold-lead DIMM sockets.
- Support a maximum memory size of 2GB.
- Support unbuffered or registered ECC(1-bit Error Code Correct) SDRAM.
- Support 3.3v SDRAM DIMM.

Slots

- One AGP (Accelerated Graphics Port) slot
  - data transfer rates at 133MHz (with AC timing)
- Six 32-bit Master PCI Bus slots and one ISA bus slot (wherein 1 PCI/ISA is shared).
- Support 3.3v/5v PCI bus Interface.

On-Board IDE

- An IDE controller on the Intel® 82371EB Chipset provides IDE HDD/CD-ROM with PIO, Bus Master and Ultra DMA/33 operation modes.
- Can connect up to four IDE devices.

Integrated Super I/O Controller

- Winbond W83977F-AW I/O controller
  - 1 floppy port supports 2 FDD with 360K, 720K, 1.2M, 1.44M and 2.88Mbytes.
  - 2 serial port (COM A + COM B)
  - 1 parallel port supports SPP/EPP/ECP mode
  - 1 IrDA connector for SIR.

Network

- Intel® 82558 10/100MB Ethernet
  - ACPI
  - Magic packet filtering to support wake-up on LAN.
  - ARP & FLEXIBLE frame filtering.
  - Software drivers are backwards compatible.
  - 1 Lan Connector (RJ-45)

USB

- Two USB ports

BIOS

- The mainboard BIOS provides “Plug & Play” BIOS which detects the peripheral devices and expansion cards of the board automatically.
- IDE drive auto configure, Advanced Power Management (APM) 1.2, ACPI 1.0, DMI 2.0, ECC/Parity support, LS120 support, Auto enable onboard SCSI terminator.

Dimension

- Custom ATX Form Factor : 33cm(L) x 30.5cm(W) x 6 layers PCB

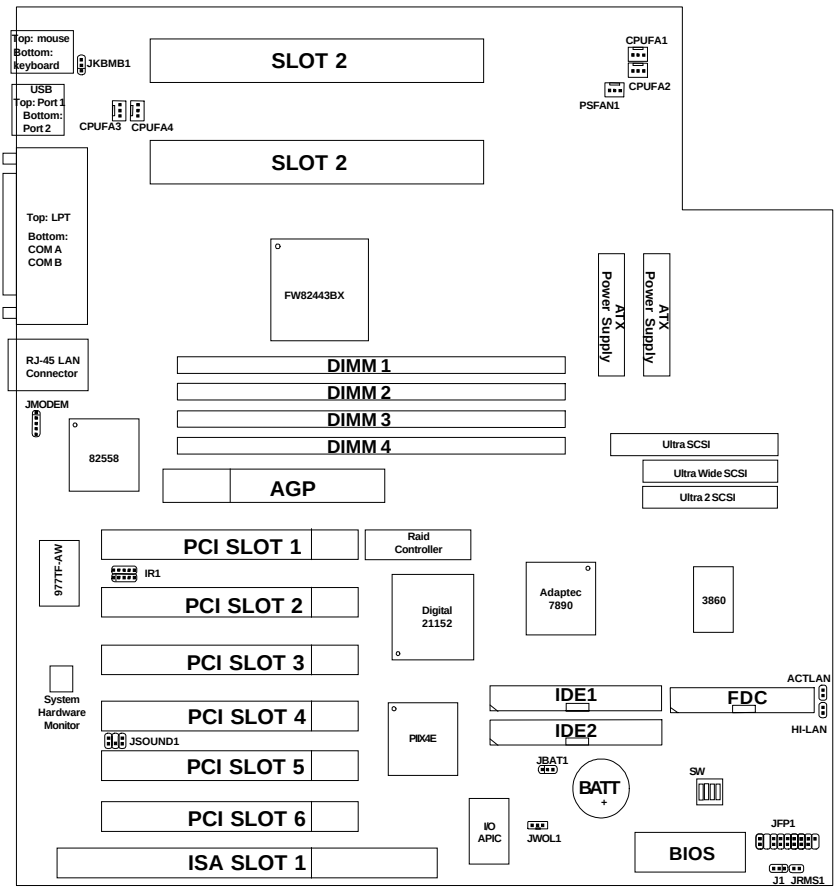
Mounting

- 12 mounting holes.

System Hardware Monitor

- CPU/Power Supply/Chassis Fan Revolution Detect
- CPU Fan Control (the fan will automatically stop when the system enters suspend mode)
- System Voltage Detect
- CPU Overheat Warning.
- Display Actual Current Voltage

1.2 Mainboard Layout



MS-6135 ATX GX1 Dual-P Mainboard

Chapter 2

HARDWARE INSTALLATION

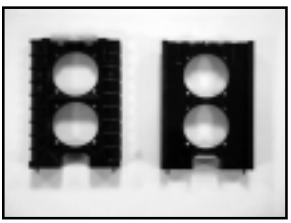
2.1 Central Processing Unit: CPU

The mainboard operates with **Intel® Pentium® II Xeon™ processor**. The mainboard uses a CPU Slot called Slot 2 for easy CPU installation and a DIP switch (SW1) to set the proper speed for the CPU. The CPU should always have a Heat Sink attached to prevent overheating.

2.1-1 CPU Installation Procedures

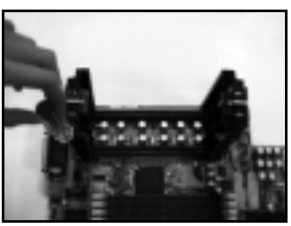
Intel® Pentium® II Xeon™ processor Installation Procedures

Retention Mechanism
Plastic Guide that holds and secure the processor into the Slot 2 connector

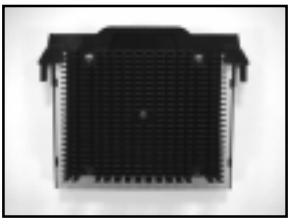


Retention Cap
Plastic Guide that secure the processor to the Retention Mechanism.

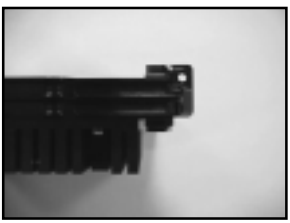
1. Secure the mainboard into the chassis. Then, connect the Retention Mechanism into the mainboard. Secure with screws.



2. Connect the Retention Cap into the processor. Processor will only fit in one direction.



3. The Retention Cap got two mounting holes, which should match with the Retention Mechanism.

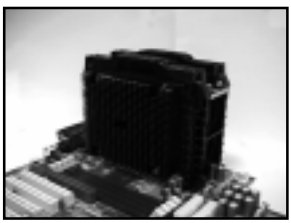


4. Insert the processor into the Slot 2.

5. Secure with screws.

6. Repeat steps 2 to 5 for the second processor.

7. The installation is now complete.



Note: To install a single Intel Pentium II Xeon™ processor, refer to Chapter 2 section 2.1-4.

2.1-2 CPU Core Speed Derivation Procedure

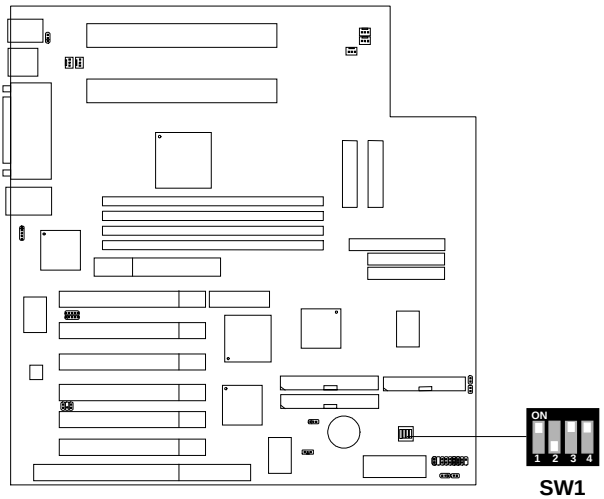
The DIP Switch SW1 (1, 2, 3, and 4) is used to set the Core/Bus (Fraction) ratio of the CPU. The actual core speed of the CPU is the Host Clock Frequency multiplied by the Core/Bus ratio. For example:

If	CPU Clock	=	100MHz
	Core/Bus ratio	=	4.5
then	CPU core speed	=	Host Clock x Core/Bus ratio
		=	100MHz x 4.5
		=	450MHz

SW1				CPU
1	2	3	4	Core/Bus Ratio
OFF	ON	ON	ON	4
OFF	ON	OFF	ON	4.5
OFF	OFF	ON	ON	5
OFF	OFF	OFF	ON	5.5
ON	ON	ON	OFF	6

2.1-3 CPU Speed Setting: SW1

To adjust the speed of the CPU, you must know the specifications of your CPU (*always ask the vendor for CPU spec.*). Then look at **Table 2.1 (400 ~ 600MHz Intel® Pentium® II Xeon™ processor)** for setting.



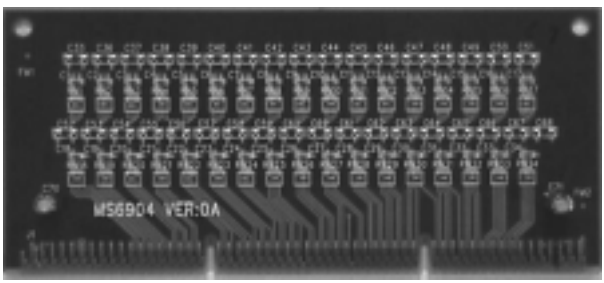
SW1

Table 2.1 400 ~ 600MHz Intel® Pentium® II Xeon™ processor

CPU SPEED (FSB 100MHz)	CORE/BUS RATIO SW1
400MHz	
450MHz	
500MHz	
550MHz	
600MHz	

2.1-4 CPU Terminator

The CPU terminator is used, when only one CPU is installed. You must always install the CPU terminator on the empty CPU 2 slot.

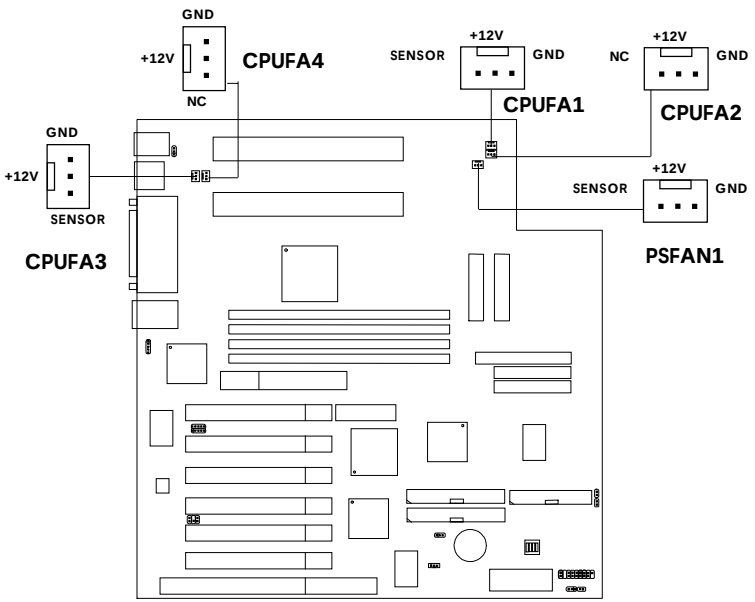


CPU Terminator

Important:
To use dual CPU, it is strongly adviced that same CPU speed and CPU stepping is used: which means that if you install 400MHz in the 1st CPU slot, then you must also install 400MHz on the 2nd slot.

2.1-5 Fan Power Connectors: CPUFA1/CPUFA2/CPUFA3/ CPUFA4/PSFAN1

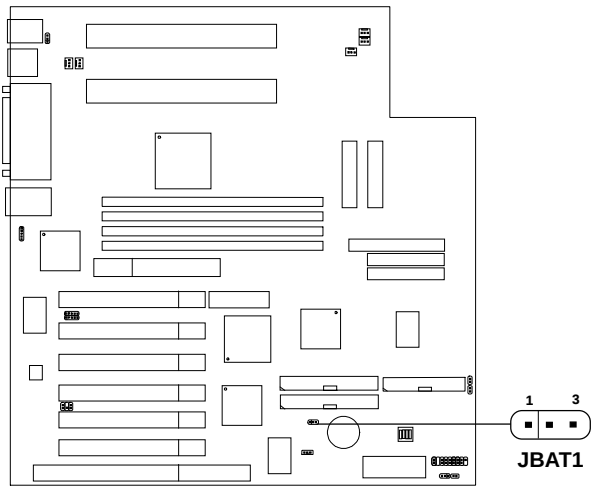
These connectors support system cooling fan with +12V. It supports three pin head connector. When connecting the wire to the connector, always take note that the red wire is the positive and should be connected to the +12V, the black wire is Ground and should be connected to GND. If your mainboard has System Hardware Monitor chipset on-board, you must use a specially designed fan with speed sensor to take advantage of the CPU fan speed monitor feature.



CPUFA1/2 : Processor#1 Fan Connector
CPUFA3/4 : Processor#2 Fan Connector
PSFAN1 : Power Supply Fan Connector

2.2 Clear CMOS Jumper: JBAT1

A battery must be used to retain the mainboard configuration in CMOS RAM. You must short 1-2 pins of JBAT1 to keep the CMOS data.



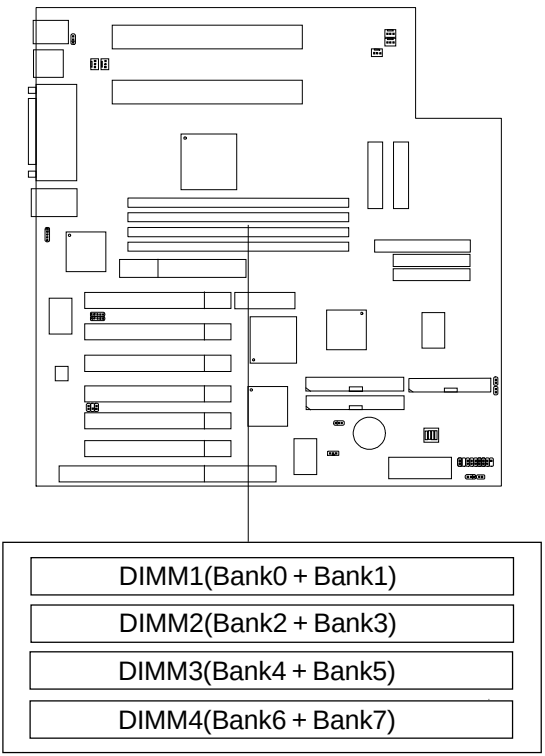
JBAT1	Function
	Keep Data
	Clear CMOS

Note: You can clear CMOS by shorting 2-3 pin, while the system is off. Then, return to 1-2 pin position. To be able to clear the CMOS, you need to unplug the power plug of the system, because there's a 3V standby power which is provided by the power supply. Otherwise, the CMOS will not be cleared.

2.3 Memory Installation

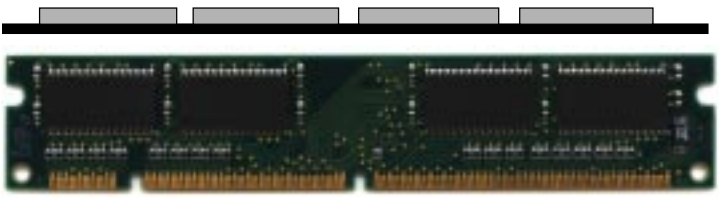
2.3-1 Memory Bank Configuration

The mainboard supports a maximum of 2 GB memory for registered DIMM and 512MB for unbuffered DIMM: It provides four 168-pin DIMMs (Double In-Line Memory Module) sockets. It supports 8 MB to 256 Mbytes DIMM memory module.

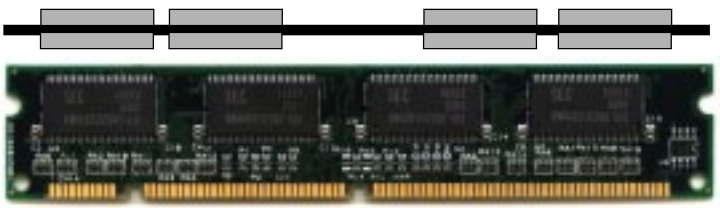


2.3-2 Memory Installation Procedures

A. How to install a DIMM Module



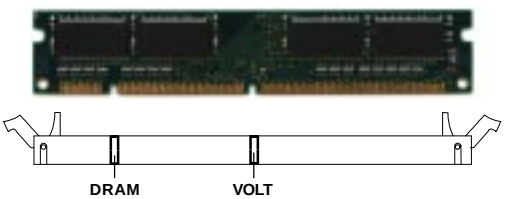
Single Sided DIMM



Double Sided DIMM

1. The DIMM slot has a two Notch Key “VOLT and DRAM”, so the DIMM memory module can only fit in one direction.

2. Insert the DIMM memory module vertically into the DIMM slot. Then push it in.



3. The plastic clip at the side of the DIMM slot will automatically close.

2.3-3 Memory Population Rules

1. Supports SDRAM.

2. Supports **registered/unbuffered** DIMM.

3. To operate properly, at least one 168-pin DIMM module must be installed.

4. This mainboard supports Table Free memory, so memory can be installed on DIMM1, DIMM2, DIMM 3, or DIMM 4 in any order.

5. Supports only 3.3 volt DIMM.

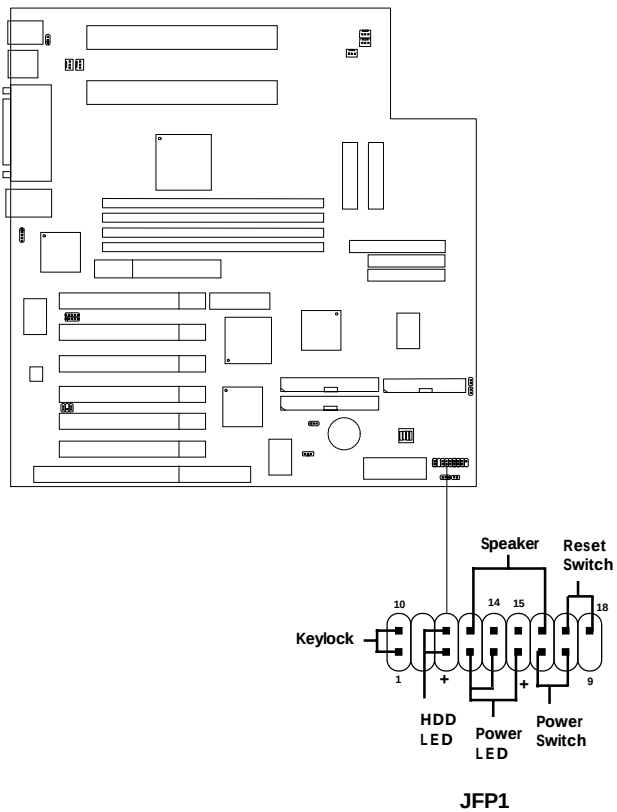
6. The DRAM addressing and the size supported by the mainboard is shown below:

Table 2.3-1 SDRAM Memory Addressing

DRAM Tech.	DRAM Density & Width	DRAM Addressing	Address Size		MB/DIMM	
			Row	Column	Single no. Side(S) pcs.	Double no. Side(D) pcs.
16M	1Mx16	ASYM	12	8	8MBx4	16MBx8
	2Mx8	ASYM	12	9	16MBx8	32MBx16
	2Mx8	ASYM	13	8	16MBx8	32MBx16
	4Mx4	ASYM	12	10	32MBx16	64MBx32
	4Mx4	ASYM	14	8	32MBx16	64MBx32
64M 2 bank	2Mx32	ASYM	12	9	16MBx2	32MBx4
	2Mx32	ASYM	13	8	16MBx2	32MBx4
	4Mx16	ASYM	12	10	32MBx4	64MBx8
	4Mx16	ASYM	14	8	32MBx4	64MBx8
	8Mx8	ASYM	14	9	64MBx8	128MBx16
	16Mx4	ASYM	14	10	128MBx16	256MBx32
64M 4 bank	2Mx32	ASYM	13	8	16MBx2	32MBx4
	4Mx16	ASYM	14	8	32MBx4	64MBx8
	8Mx8	ASYM	14	9	64MBx8	128MBx16
	16Mx4	ASYM	14	10	128MBx16	256MBx32

2.4 Case Connector: JFP1

The Power Switch, Reset Switch, Key Lock, Power LED, Speaker and HDD LED are all connected to the JFP1 connector block.



JFP1

2.4-1 Power Switch

Connect to a 2-pin push button switch. This switch had the same feature with JRMS1.

2.4-2 Reset Switch

Reset switch is used to reboot the system rather than turning the power ON/ OFF. Avoid rebooting while the HDD LED is lit. You can connect the Reset switch from the system case to this pin.

2.4-3 Keylock

Keylock allows you to disable the keyboard for security purposes. You can connect the keylock to this pin.

2.4-4 Power LED

The Power LED is always lit while the system power is on. You can connect the Power LED from the system case to this pin.

Green Color:	Indicate the system is in full on mode.
Orange Color:	Indicate the system is in suspend mode.

2.4-5 Speaker

Speaker from the system case is connected to this pin.
If on-board speaker is available:

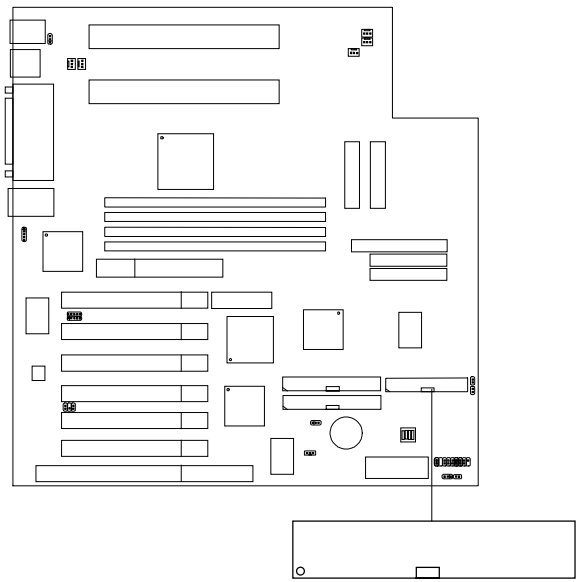
Short pin 14-15:	On-board speaker Enabled.
Open pin 14-15:	On-board speaker Disabled.

2.4-6 HDD LED

HDD LED shows the activity of a hard disk drive. Avoid turning the power off while the HDD led is lit. You can connect the HDD LED from the system case to this pin.

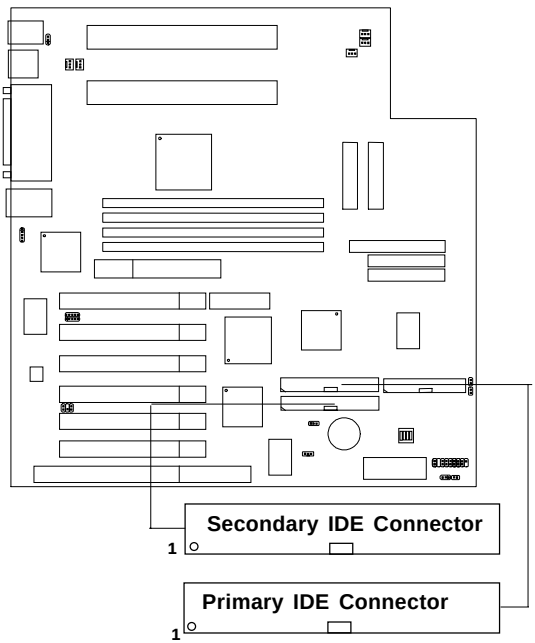
2.5 Floppy Disk Connector: FDC

The mainboard also provides a standard floppy disk connector FDC that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types. This connector support the provided floppy drive ribbon cables.



2.6 Hard Disk Connectors: IDE1 & IDE2

The mainboard has a 32-bit Enhanced PCI IDE Controller that provides PIO mode 0~4, Bus Master, and Ultra DMA/33 function. It has two HDD connectors IDE1 (primary) and IDE2 (secondary). You can connect up to four hard disk drives, CD-ROM, 120MB Floppy and other devices to IDE1 and IDE2. These connectors support the provided IDE hard disk cable.



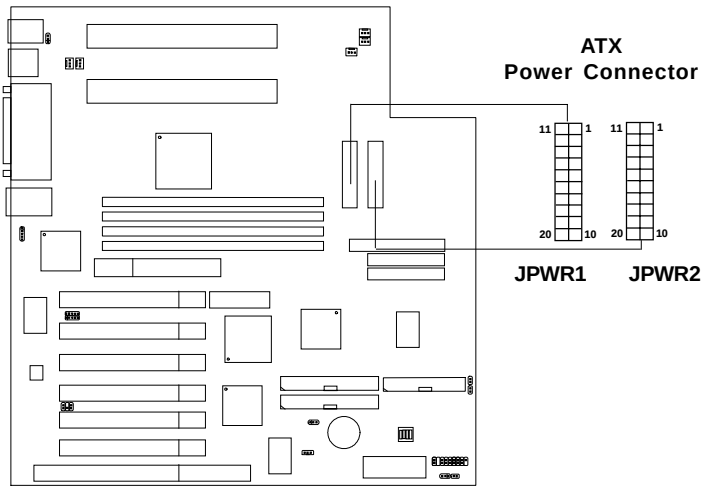
IDE1 (Primary IDE Connector)
The first hard drive should always be connected to IDE1. IDE1 can connect a Master and a Slave drive. You must configure second hard drive to Slave mode by setting the jumper accordingly.

IDE2 (Secondary IDE Connector)
IDE2 can also connect a Master and a Slave drive.

2.7 Power Supply

2.7-1 ATX 20-pin Power Connector: JPWR1/JPWR2

There are two power supply connectors. **If the system power requirements exceed 300W, a power supply with two 20-pin connectors can be used. Avoid using two power supply.**



PIN DEFINITION

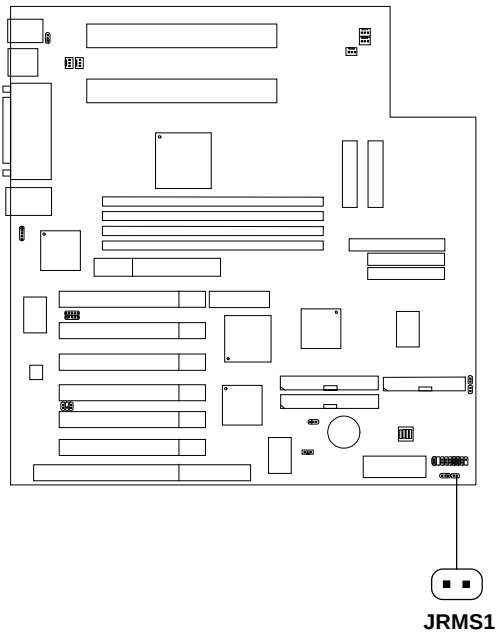
PIN	SIGNAL	PIN	SIGNAL
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	GND	13	GND
4	5V	14	PS_ON
5	GND	15	GND
6	5V	16	GND
7	GND	17	GND
8	PW_OK	18	-5V
9	5V_SB	19	5V
10	12V	20	5V

Warning: Since the mainboard has the instant power on function, make sure that all components are installed properly before inserting the power connector to ensure that no damage will be done.

Note: To be able to use this function, you need a power supply that provide enough power for this feature.
(power supply with 750mA 5V Stand-by)

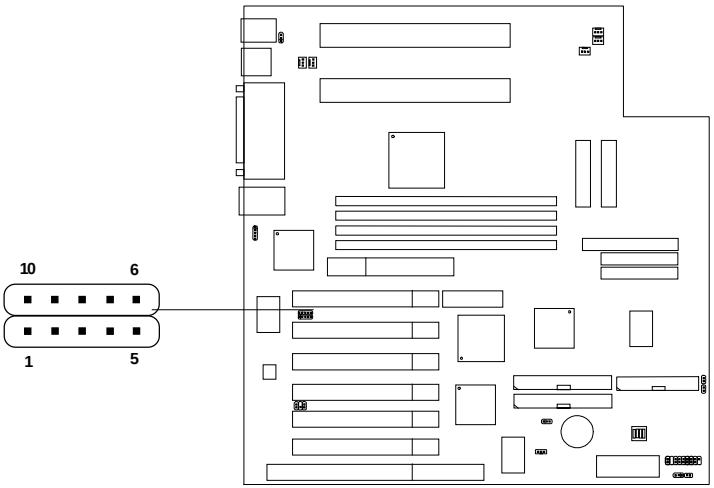
2.7-2 Remote Power On/Off Switches: JRMS1

Connect to a 2-pin push button switch. If Instant-on is Enabled, every time the switch is shorted by pushing it once, the power supply will change its status from OFF to ON. **If Instant-on is Disabled: During ON stage, push once and the system goes to sleep mode: pushing it more than 4 seconds will change its status from ON to OFF**. If you want to change the setup, you could go to the BIOS Power Management Setup.



2.8 IrDA Infrared Module Connector: IR1

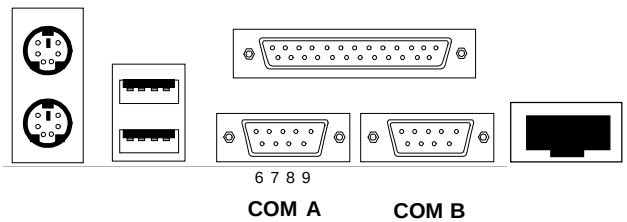
The mainboard provides two 5-pin infrared (IR) connectors for IR modules. These connectors are for optional wireless transmitting and receiving infrared module. You must configure the setting through the BIOS setup to use the IR function. FIR and Consumer IR are reserved functions for future Super I/O chipset.



Pin	Definition	Pin	Definition
1	VCC	6	NC
2	NC	7	NC
3	IRRX	8	NC
4	GND	9	CIRRX
5	IRTX	10	NC

2.9 Serial Port Connectors: COM A & COM B

The mainboard has two 9-pin male DIN connectors for serial ports COM A and COM B. These two ports are 16550A high speed communication ports that send/receive 16 bytes FIFOs. You can attach a mouse or a modem cable directly into these connectors.

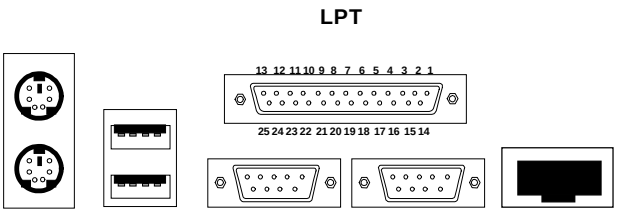


PIN DEFINITION

PIN	SIGNAL
1	**DCD**(Data Carry Detect)
2	**SIN**(Serial In or Receive Data)
3	**SOUT**(Serial Out or Transmit Data)
4	**DTR**(Data Terminal Ready)
5	**GND**
6	**DSR**(Data Set Ready)
7	**RTS**(Request To Send)
8	**CTS**(Clear To Send)
9	**RI**(Ring Indicate)

2.10 Parallel Port Connector: LPT

The mainboard provides a 25 pin female centronic connector for LPT. A parallel port is a standard printer port that also supports Enhanced Parallel Port(EPP) and Extended capabilities Parallel Port(ECP). See connector and pin definition below:

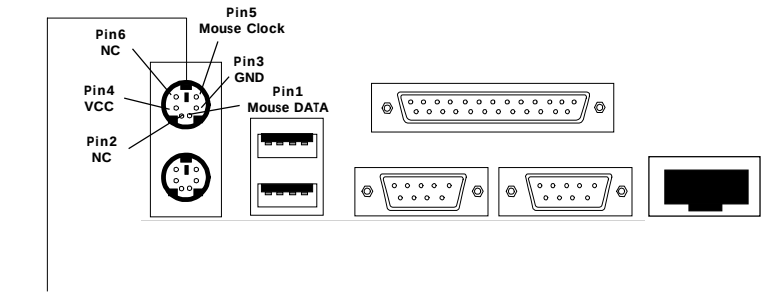


PIN DEFINITION

PIN	SIGNAL	PIN	SIGNAL
1	STROBE	14	AUTO FEED#
2	DATA0	15	ERR#
3	DATA1	16	INIT#
4	DATA2	17	SLIN#
5	DATA3	18	GND
6	DATA4	19	GND
7	DATA5	20	GND
8	DATA6	21	GND
9	DATA7	22	GND
10	ACK#	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SELECT		

2.11 Mouse Connector: JKBMS1

The mainboard provides a standard PS/2® mouse mini DIN connector for attaching a PS/2® mouse. You can plug a PS/2® mouse directly into this connector. The connector location and pin definition are shown below:

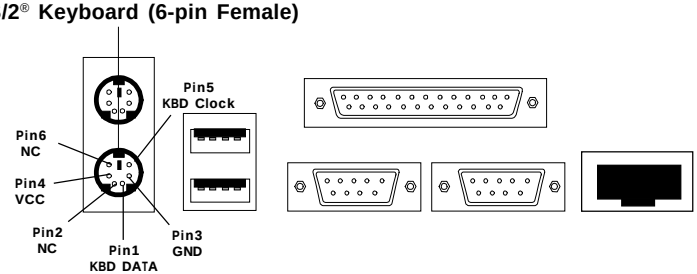


PS/2® Mouse (6-pin Female)

2.12 Keyboard Connector: JKBMS1

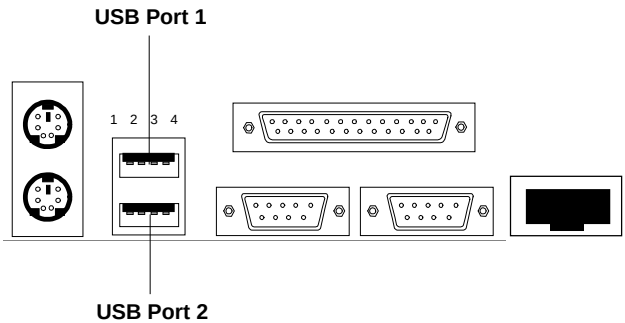
The mainboard provides a standard PS/2® keyboard mini DIN connector for attaching a keyboard. You can plug a keyboard cable directly to this connector.

PS/2® Keyboard (6-pin Female)



2.13 USB Connector: USB

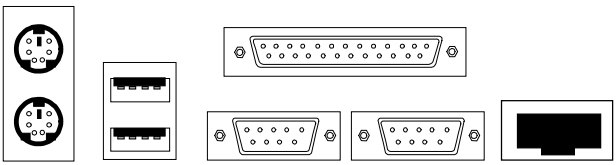
The mainboard provides a **UHCI(Universal Host Controller Interface) Universal Serial Bus root** for attaching USB devices like: keyboard, mouse and other USB devices. You can plug the USB device directly to this connector.



PIN	SIGNAL
1	VCC
2	-Data0
3	GND
4	+Data0

2.14 LAN Connector

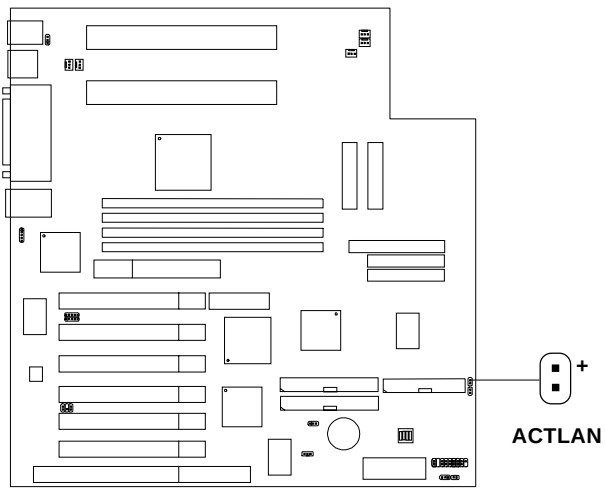
The mainboard provides a RJ-45 connector for your network need.



RJ-45 Connector

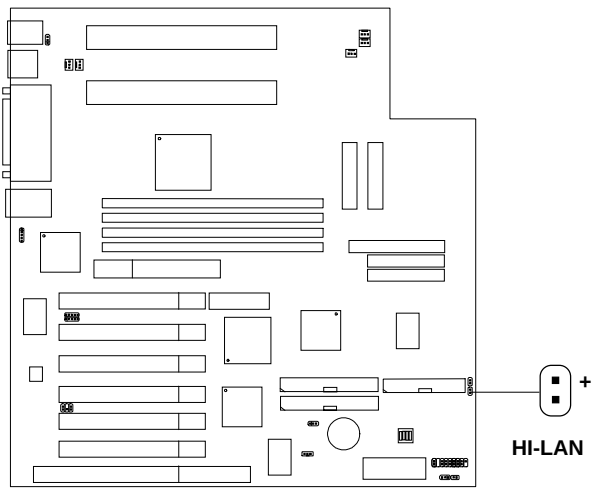
2.15 Onboard LAN Active LED Connector: ACTLAN

Attach LED to this connector. When the onboard LAN chipset is active, this LED will lit.



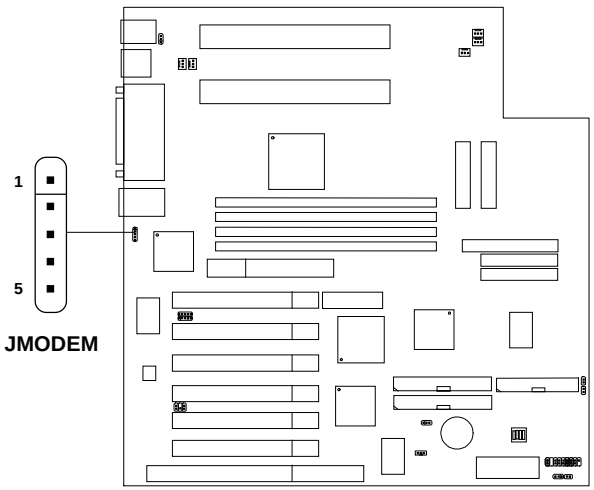
2.16 Onboard LAN Active-High LED Connector: HI-LAN

Attach LED to this connector. When the onboard LAN chipset is on active high speed (100MB/s), this LED will lit.



2.17 Modem Wake Up Connector: JMODEM

The JMODEM connector is for use with Modem add-on card that supports the Modem Wake Up function.



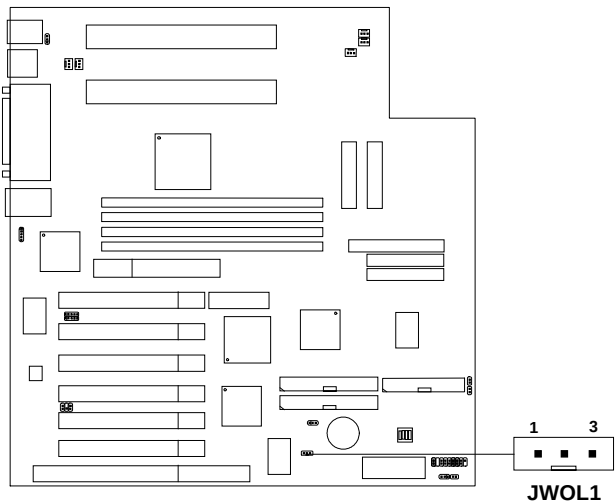
PIN	SIGNAL
1	NC
2	GND
3	MDM_WAKEUP
4	NC
5	5VSB

Note: Modem wake-up signal is active "low".

Note: To be able to use this function, you need a power supply that provide enough power for this feature.
(power supply with 750mA 5V Stand-by)

2.18 Wake-Up on LAN Connector: JWOL1

The JWOL1 connector is for use with LAN add-on cards that supports Wake Up on LAN function.



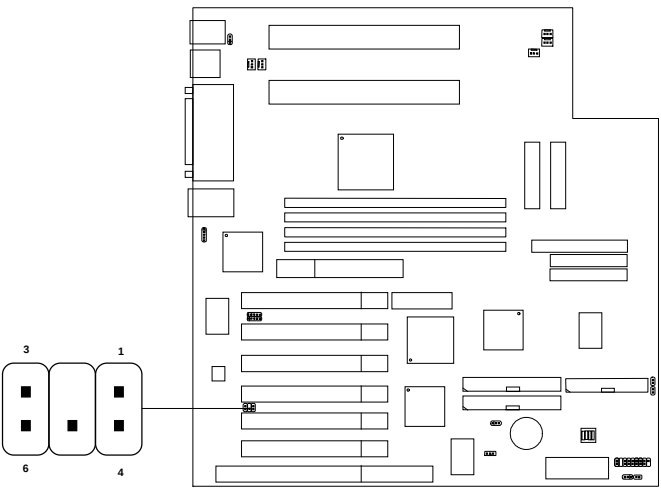
PIN	SIGNAL
1	5VSB
2	GND
3	MP_WAKEUP

Note: LAN wake-up signal is active “high”.

Note: To be able to use this function, you need a power supply that provide enough power for this feature.
(power supply with 750mA 5V Stand-by)

2.19 SB_Link™ Card Sound Connector: JSOUND1

The mainboard provides a distributed DMA connector for PCI sound card with this feature, such as Creative® PCI 3D sound card.

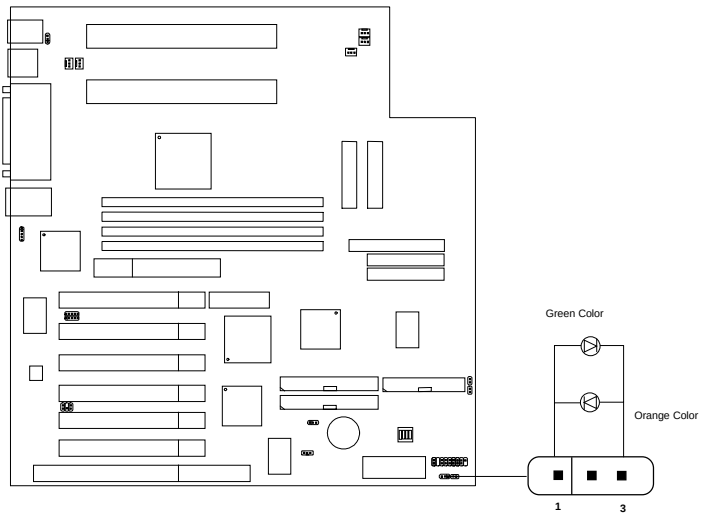


JSOUND1

Pin	Definition
1	DMA Grand Signal
2	NC
3	GND
4	GND
5	DMA Request Signal
6	Serial Interrupt Signal

2.20 Power LED Dual Color Connector: J1

J1 can be connected with dual-color LED. LED will lit while the system is in suspend mode.

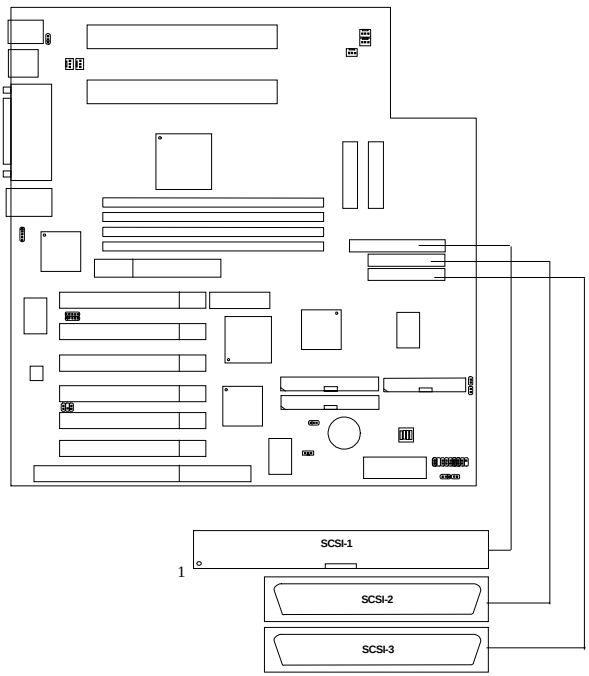


J1

Note: Green Color: Indicate the system is in full on mode.
Orange Color: Indicate the system is in suspend mode.

2.21 SCSI Connectors

The mainboard provides three SCSI connector. The first SCSI is for Ultra SCSI which supports 20MB/s. The second SCSI is for Ultra Wide SCSI supports 40MB/s. The third SCSI is for Ultra 2 SCSI which supports 80MB/s.



Chapter 3

AMI® BIOS USER'S GUIDE

The system configuration information and chipset register information is stored in the CMOS RAM. This information is retained by a battery when the power is off. Enter the BIOS setup (if needed) to modify this information.

The following pages will describe how to enter BIOS setup, and all about options.

3.1 Enter BIOS Setup

Enter the AMI® setup Program's Main Menu as follows:

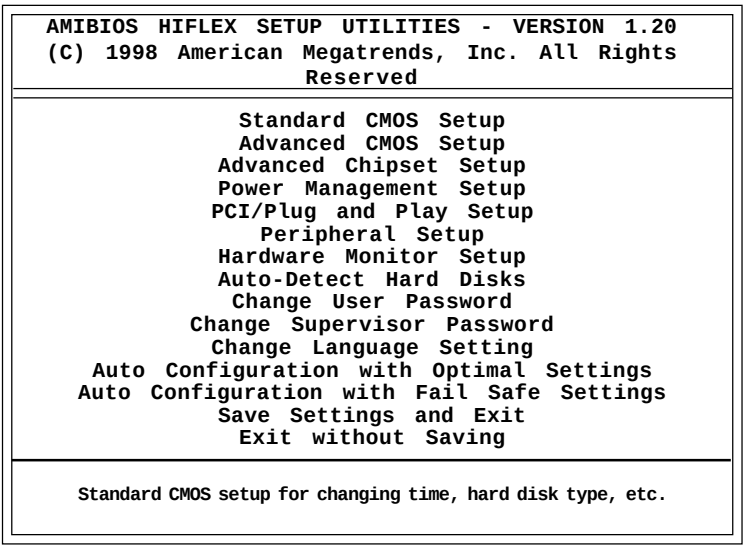
1. Turn on or reboot the system. The following screen appears with a series of diagnostic check.

```
AMIBIOS (C) 1998 American Megatrends Inc.
AGIOMS VXXX XXXXXX

Hit <DEL> if you want to run setup




(C) American Megatrends Inc.
61-XXXX-001169-00111111-071592-i82440FX-H
```

2. When the "Hit <DEL>" message appears, press <DEL> key to enter the BIOS setup screen.

3. After pressing <DEL> key, the BIOS setup screen will appear.

Note: *If you don't want to modify CMOS original setting, then don't press any key during the system boot.*



4. Use the <Up> and <Down> key to move the highlight scroll up or down.

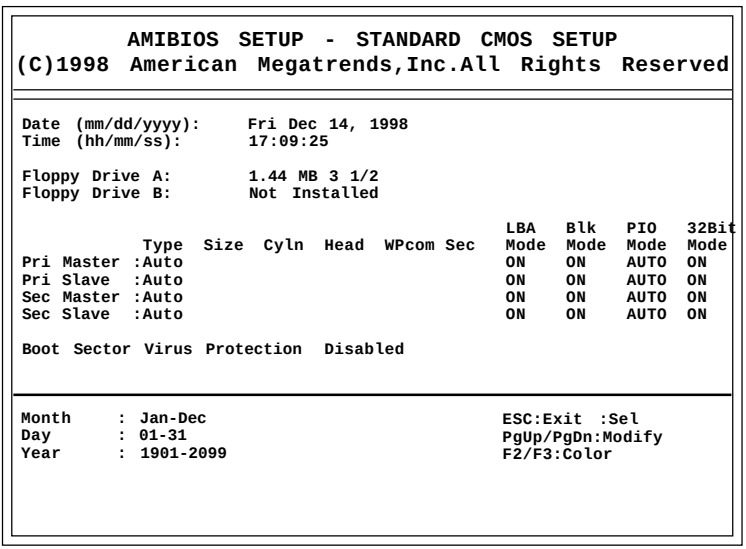
5. Use the <ENTER> key to select the option.

6. To exit, press <ESC>. To save and exit, press <F10>.

7. Section 3.2 to 3.8 will explain the option in more details.

3.2 Standard CMOS Setup

1. Press <ENTER> on "Standard CMOS Setup" of the main menu screen .



2. Use <Up> and <Down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.

3. After you have finished with the Standard CMOS Setup, press <ESC> to go back to the main menu.

3.3 Advanced CMOS Setup

1. Press <ENTER> on "Advanced CMOS Setup" of the main menu

```
          AMIBIOS SETUP - ADVANCED CMOS SETUP
      (C)1998 American Megatrends, Inc. All Rights Reserved

Quick Boot                      Enabled     Available Options:
1st Boot Device                 Floppy      Disabled
2nd Boot Device                 IDE 0       Enabled
3rd Boot Device                 CD-ROM
Try Other Boot Devices          Yes
Floppy Access Control           Read-Write
Hard Disk Access Control        Read-Write
S.M.A.R.T. For Hard Disk        Disabled
BootUp Num-Lock                 On
Floppy Drive Swap               Disabled
Floppy Drive Seek               Disabled
PS/2 Mouse Support              Enabled
Primary Display                 VGA/EGA
Password Check                  Setup
Boot to OS/2 > 64M              No
Internal Cache                  Disabled
Cache Bus ECC                   Disabled
System BIOS Cacheable           Enabled
C000, 16K Shadow                Cached
C400, 16K Shadow                Cached
C800, 16K Shadow                Disabled
CC00, 16K Shadow                Disabled
D000, 16K Shadow                Disabled    ESC:Exit  :Sel
D400, 16K Shadow                Disabled    PgUp/PgDn:Modify
D800, 16K Shadow                Disabled    F2/F3:Color
DC00, 16K Shadow                Disabled
```

2. Use <Up> and <Down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.

3. After you have finished with the Advanced CMOS Setup, press <ESC> to go back to the main menu.

Description of the item on screen follows:

Quick Boot

Set this option to Enabled to permit AMI® BIOS to boot within 5 seconds. This option replaces the old ABOVE 1 MB Memory Test option. The Optimal default setting is Enabled. The Fail-Safe default setting is Disabled.

1st Boot Device/2nd Boot Device/3rd Boot Device

This option sets the sequence of boot drives.

The settings are:

IDE0	The system will boot from the first HDD.
IDE1	The system will boot from the Second HDD.
IDE2	The system will boot from the Third HDD.
IDE3	The system will boot from the Fourth HDD.
F(optical)	The system will boot from LS-120(120M Floppy).
SCSI	The system will boot from the SCSI.
Network	The system will boot from the Network drive.
CD-ROM	The system will boot from the CD-ROM.
Disable	Disable this sequence.

Try other Boot Devices

This option sets the device boot, if all the Four Boot Devices failed.

Floppy Access Control

This option sets the Floppy to Read-only or Read-Write.

Hard Disk Access Control

This option sets the HDD to Read-only or Read-Write. During Read-only, if you try to write on the HDD, the system will halt.

S.M.A.R.T. for Hard Disks

This option sets the SMART Function for the hard disk. The hard disk need to have SMART function for this feature to work.

Boot up Num Lock

When this option is set to Off, AMI® BIOS turns off the Num Lock key when the system is powered on. The end user can then use the arrow keys on both the numeric keypad and the keyboard. The settings are On or Off. The optimal default and Fail-Safe default settings are On.

Floppy Drive Swap

Set this option to Enabled to specify that floppy drives A: and B: are swapped. The setting are Enabled and Disabled. The Optimal and Fail-Safe default settings are Disabled.

Floppy Drive Seek

When this option is set to Enabled, AMI® BIOS performs a Seek command on floppy drive A: before booting the system. The settings are Enabled and Disabled. The Optimal and Fail-Safe default settings are Disabled.

PS/2® Mouse Support

When this option is set to Enabled, AMI® BIOS supports a PS/2® mouse. The settings are Enabled and Disabled. The Optimal and Fail-Safe default settings are Enabled.

Primary Display

This option configures the primary display subsytem in the computer. The settings are Mono(monochrome), 40CGA, 80CGA or VGA/EGA. The optimal and Fail-Safe default settings are VGA/EGA.

Password Check

This option specifies the type of AMI® BIOS password protection that is implemented. The Optimal and Fail-Safe default settings are Setup.

Boot To OS/2® > 64MB

Set this option to Enabled to permit the BIOS to run properly, if OS/2® is to be used with > 64MB of DRAM. The settings are Enabled or Disabled. The Optimal and Fail-safe default settings are Disabled.

Internal Cache

This option can enable or disable the internal cache memory of the CPU (L1 cache memory). Enabling this function on a CPU without L1 cache will likely freeze the system.

Cache Bus ECC

This option is for Pentium® II processor. During Enabled, this will affect the system performance. Disabled this option if you don't want to affect the system performance.

System BIOS Cacheable

AMI® BIOS always copies the system BIOS from ROM to RAM for faster execution. Set this option to Enabled to permit the contents of the F0000h RAM memory segment to be written to and read from cache memory. The settings are Enabled or Disabled. The Optimal default setting is Enabled. The Fail-Safe default setting is Disabled.

C000, 16K Shadow/C400, 16k Shadow

These options specify how the contents of the video ROM are handled. The settings are:

Disabled - the Video ROM is not copied to RAM.

Cached - the contents of the video ROM from C0000h - C7FFFh are not only copied from ROM to RAM; it can also be written to or read from cache memory.

Shadow - the Contents of the video ROM from C0000h - C7FFFh are copied(shadowed) from ROM to RAM for faster execution.

The Optimal and Fail-Safe default setting is Cached.

C800, 16k Shadow/CC00, 16k Shadow/D000, 16K Shadow/ D400, 16k Shadow/D800, 16k Shadow/DC00, 16K Shadow

These options specify how the contents of the adaptor ROM named in the option title are handled. The ROM area that is not used by ISA adapter cards will be allocated to PCI adapter cards. The settings are:

Disabled - The specified ROM is not copied to RAM.

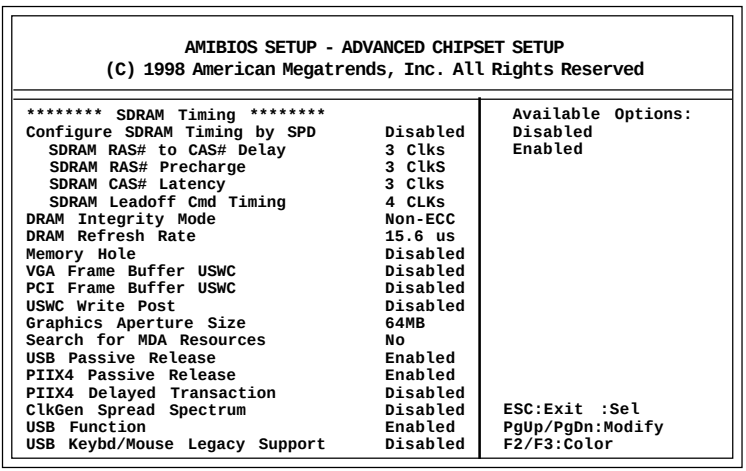
Cache - The contents of the ROM area are not only copied from ROM to RAM for faster execution, it can also be written to or read from cache memory.

Shadow - The contents of the ROM area are copied from ROM to RAM for faster execution.

The Optimal and Fail-Safe default settings are Disabled.

3.4 Advanced Chipset Setup

1. Press <ENTER> on "Advanced Chipset Setup" of the main menu screen.



```
          AMIBIOS SETUP - ADVANCED CHIPSET SETUP
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******** SDRAM Timing ********                  Available Options:
Configure SDRAM Timing by SPD      Disabled      Disabled
  SDRAM RAS# to CAS# Delay         3 Clks        Enabled
  SDRAM RAS# Precharge             3 ClkS
  SDRAM CAS# Latency               3 Clks
  SDRAM Leadoff Cmd Timing         4 CLKs
DRAM Integrity Mode                Non-ECC
DRAM Refresh Rate                  15.6 us
Memory Hole                        Disabled
VGA Frame Buffer USWC              Disabled
PCI Frame Buffer USWC              Disabled
USWC Write Post                    Disabled
Graphics Aperture Size             64MB
Search for MDA Resources           No
USB Passive Release                Enabled
PIIX4 Passive Release              Enabled
PIIX4 Delayed Transaction          Disabled
ClkGen Spread Spectrum             Disabled      ESC:Exit  :Sel
USB Function                       Enabled       PgUp/PgDn:Modify
USB Keybd/Mouse Legacy Support     Disabled      F2/F3:Color
```

2. Use <Up> and <Down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.

3. After you have finished with the Advanced Chipset Setup, press <ESC> to go back to the main menu.

Description of the item on screen follows:

Configure SDRAM Timing by SPD

Enabling this option will set the SDRAM timing value to the value provided by the DIMM SPD, otherwise, value will be set to the values you set.

Note: It is recommended that under 100MHz, you use DIMM with SPD.

SDRAM RAS# to CAS# Delay

This operation decide the delay in assertion of CAS#(SCAS#) from assertion of RAS#(SRAS#) in 66MHz. Under 66MHz CPU bus, set this option to either 2 or 3 but for 100MHz CPU, it is recommended that this be set to 3.

SDRAM RAS Precharge

This option defines the RAS# precharge requirements for the SDRAM memory type in 66MHz clocks. Under 66MHz CPU bus, set this option to either 2 or 3 but for 100MHz CPU, it is recommended that this be set to 3.

SDRAM CAS# Latency

This option determines the CAS latency time parameter of SDRAM. The settings are 2 clks or 3 clks. Under 66MHz CPU bus, set this option to either 2 or 3 but for 100MHz CPU, it is recommended that this be set to 3.

SDRAM Leadoff Cmd Timing

This control the SDRAM command for CPU cycles. When this is set to Auto, timing value is set on the value provided by SPD; 4 to 100MHz; and 3 to 66MHz.

DRAM Integrity Mode

During ECC, this will enable the DRAM ECC mechanism that allows single bit error detection and recovery. During EC mode, it will detect multi-bit errors but cannot perform correction.

DRAM Refresh Rate

This option is for setting the frequency of refreshing the DRAM. Available settings are 15.6, 31.2, 62.4, 124.8, and 249.6 us.

Memory Hole

This option allows the end user to specify the location of a memory hole. The cycle matching the selected memory hole will be passed to the ISA bus. If Enabled, the selected hole is not remapped.

VGA Frame Buffer USWC

The Pentium® II processor supports the Uncacheable Speculatable Write-Combining (USWC) memory type. The processor provides a write-combining with buffering strategy for write operation. This is useful for frame buffering. Writing to USWC memory can be buffered and combined in the processors write-combining buffer (WCB). The WCBs are viewed as a special purpose outgoing write buffers, rather than a cache. The WCBs are written into memory to allocate a different address, or after executing a serializing, locked, or I/O instructions.

During Enabled, this will enable the processor memory location B000 and BFFF segment as USWC memory type.

PCI Frame Buffer USWC

The Pentium® II processor supports the Uncacheable Speculatable Write-Combining (USWC) memory type. The processor provides a write-combining with buffering strategy for write operation. This is useful for frame buffering. Writing to USWC memory can be buffered and combined in the processors write-combining buffer (WCB). The WCBs are viewed as a special purpose outgoing write buffers, rather than a cache. The WCBs are written into memory to allocate a different address, or after executing a serializing, locked, or I/O instructions.

During Enabled, this will enable the processor memory location from main memory to 4GB segment as USWC memory type.

USWC Write Post

Set this option to Enabled to use USWC(Uncacheable, Speculatable, Write-Combined) memory. The settings are Enabled or Disabled. The Optimal and Fail-Safe default settings are Disabled.

Graphics Aperture Size

This option determines the effective size of the graphics aperture used in the particular PAC configuration. The AGP aperture is memory-mapped, while graphics data structure can reside in a graphics aperture. The aperture range should be programmed as not cacheable in the processor cache. Accesses with the aperture range are forwarded to the main memory, then PAC will translate the original issued address via a translation table that is maintained on the main memory. The option allows the selection of an aperture size of 4MB, 8MB, 16MB, 32MB, 64MB, 128MB, and 256MB.

Search for MDA Resources

This option is only used for MDA resources. The default setting is no.

8 Bit I/O Recovery Time

The recovery time is the length of time, measured in CPU clocks, which the system will delay after the completion of an input/output request. This delay takes place because the CPU is operating so much faster than the input/output bus that the CPU must be delayed to allow for the completion of the I/O.

This item allows you to determine the recovery time allowed for 8 bit I/O. Choices are from NA, 1 to 8 CPU clocks.

16 Bit I/O Recovery Time

This item allows you to determine the recovery time allowed for 16 bit I/O. Choices are from NA, 1 to 4 CPU clocks.

USB Passive Release

During Enabled, this will allow the PIIX4E® to use passive release(look at PIIX4E® Passive Release) while transferring control information or data for USB transaction. During Disabled, PIIX4E® will perform PCI accesses for USB without using passive release.

PIIX4E® Passive Release

The PIIX4E® ISA bridge support GAT (Guaranteed Access Time) mode, which will now violate the spirit of the PCI specification. The system provides a programmable passive release mechanism to meet the required master latencies. During Enabled, ISA masters may see long delays in accessing PCI memory, including the main DRAM array. The ISA GAT mode is also not supported during enable. ISA masters must honor IOCHRDY.

PIIX4E® Delayed Transaction

During Enabled, the PIIX4E® delay transaction mechanism is enabled when the PIIX4E® is the target of a PCI transaction. A read cycle from Host to PCI is immediately retrived due to any pending PCI to DRAM cycle. During Disabled, a read cycle from Host to PCI is waited until time-out due to any pending PCI to DRAM cycle.

CLKGen Spread Spectrum

This item allows you to select the clock generator Spread Spectrum function. The default setting is enabled. This item should always be set to disabled, if you overclock the processor.

USB Function

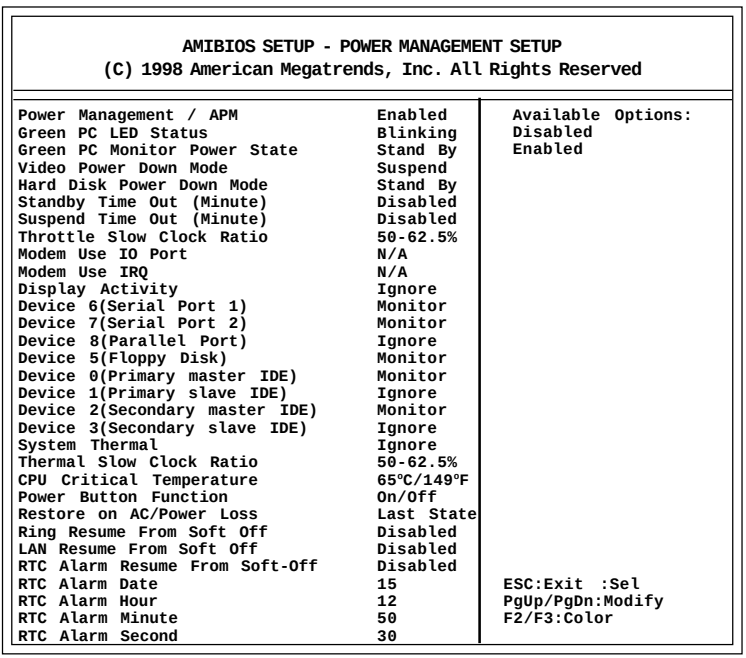
Set this option to Enabled or Disabled the on-chip USB controller. The Optional and Fail-Safe default settings are Disabled.

USB Keybd/Mouse Legacy Support

Set this option to Enabled or Disabled USB keyboard/mouse. The Optional and Fail-Safe default settings are Disabled.

3.5 Power Management Setup

1. Press <ENTER> on "Power Management Setup" of the main menu screen.



AMIBIOS SETUP - POWER MANAGEMENT SETUP
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Power Management / APM	Enabled	Available Options:
Green PC LED Status	Blinking	Disabled
Green PC Monitor Power State	Stand By	Enabled
Video Power Down Mode	Suspend	
Hard Disk Power Down Mode	Stand By	
Standby Time Out (Minute)	Disabled	
Suspend Time Out (Minute)	Disabled	
Throttle Slow Clock Ratio	50-62.5%	
Modem Use IO Port	N/A	
Modem Use IRQ	N/A	
Display Activity	Ignore	
Device 6(Serial Port 1)	Monitor	
Device 7(Serial Port 2)	Monitor	
Device 8(Parallel Port)	Ignore	
Device 5(Floppy Disk)	Monitor	
Device 0(Primary master IDE)	Monitor	
Device 1(Primary slave IDE)	Ignore	
Device 2(Secondary master IDE)	Monitor	
Device 3(Secondary slave IDE)	Ignore	
System Thermal	Ignore	
Thermal Slow Clock Ratio	50-62.5%	
CPU Critical Temperature	65°C/149°F	
Power Button Function	On/Off	
Restore on AC/Power Loss	Last State	
Ring Resume From Soft Off	Disabled	
LAN Resume From Soft Off	Disabled	
RTC Alarm Resume From Soft-Off	Disabled	
RTC Alarm Date	15	ESC:Exit :Sel
RTC Alarm Hour	12	PgUp/PgDn:Modify
RTC Alarm Minute	50	F2/F3:Color
RTC Alarm Second	30	

2. Use <Up> and <Down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.

3. After you have finished with the Power Management Setup, press <ESC> to go back to the main menu.

Description of the item on screen follows:

Power Management/APM

Set this option to Enabled to enable the chipset's power management features and APM(Advanced Power Management). The settings are Enabled, Inst-On(instant-on) or Disabled. The Optimal and Fail-Safe default settings are Disabled.

Green PC LED Status

This option determines which state the Green PC LED will use. The settings are Blinking, Single color, or Dual color.

Green PC Monitor Power State

This option specifies the power state that the green PC-compliant video monitor enters when AMI® BIOS places it in a power savings state after the specified period of display inactivity has expired. The settings are Off, Standby, Suspend or Disabled. The Optimal and Fail-Safe default settings are Standby.

Video Power Down Mode

This option specifies the power conserving state that the VESA VGA video subsystem enters after the specified period of display inactivity has expired. The settings are Disabled, Standby or Suspend. The Optimal and Fail-Safe default settings are Standby.

Hard Disk Power Down Mode

This option specifies the power conserving state that the hard disk drive enters after the specified period of hard drive inactivity has expired. The settings are Disabled, Standby or Suspend. The Optimal and Fail-Safe default settings are Disabled.

Standby Time Out (Minute)

This option specifies the length of a period of system inactivity while in Full power on state. When this length of time expires, the computer enters Standby power state. The settings are Disabled, 1 min, 2 min, 3 min, 4 min, 5 min, 6 min, 7 min, 8 min, 9 min, 10 min, 11 min, 12 min, 13 min, 14 min or 15 min. The Optimal and Fail-Safe default settings are Disabled.

Suspend Time Out (Minute)

This option specifies the length of a period of system inactivity while in Standby state. When this length of time expires, the computer enters Suspend power state. The settings are Disabled, 1 min, 2 min, 3 min, 4 min, 5 min, 6 min, 7 min, 8 min, 9 min, 10 min, 11 min, 12 min, 13 min, 14 min or 15 min. The Optimal and Fail-Safe default settings are Disabled.

Throttle Slow Clock Ratio

This option specifies the speed at which the system clock runs in power saving states. The settings are expressed as a ratio between the normal CPU clock speed and the CPU clock speed when the computer is in the power-conserving state.

Modem Use IO Port

This indicates which I/O port will be used by the Modem(if there is a Modem).

Modem Use IRQ

This indicates which IRQ no. will be used by the Modem(if there is a Modem).

Display Activity/Device 6/Device 7/Device 8/Device 5/Device 0/Device 1/Device 2/Device 3/System Thermal

When set to Monitor, these options enable event monitoring on the specified hardware interrupt request line. If set to Monitor and the computer is in a power saving state, AMI® BIOS watches for activity on the specified IRQ line. The computer enters the full on power state if any activity occurs.

AMI® BIOS reloads the Standby and Suspend timeout timers if activity occurs on the specified IRQ line.

Thermal Slow Clock Ratio

When set to Monitor, then you can choose the throttle ratio. This option is connected with the **CPU Critical Temperature** Option.

CPU Critical Temperature

This option is for setting the CPU temperature that would be critical enough, so that it would use the Thermal Slow Clock Ratio to cool down the CPU.

Power Button Function

During Suspend, if you push the switch once, the system goes into suspend mode and if you push it more than 4 seconds, the system will be turned off. During On/Off, the system will turn off once you push the switch.

Restore on AC/Power Loss

The settings are power on or last status. During power on, after every AC power loss, the system will be turned on. During last status, after every AC power loss, whatever the system status, it will be the same when the AC power returns.

Note: a. If you set this option to last status, the Power Button Function must be set to On/Off, or this function will not work.
b. Jumper J1 must always be open, for this function to work properly.

Ring Resume from Soft-Off

During Disabled, the system will ignore any incoming call from the modem. During Enabled, the system will boot up if there's an incoming call from the modem.

Note: If you have change the setting, you must let the system boot up until it goes to the operating system. Then, power off the system. This function will work the next time you power on.

LAN Resume from Soft-Off

During Disabled, the system will ignore any incoming signal from the LAN network card. During Enabled, the system will boot up if there's an incoming signal from the LAN network card.

Note: If you have change the setting, you must let the system boot up until it goes to the operating system. Then, power off the system. This function will work the next time you power on.

RTC Alarm Resume From Soft-Off

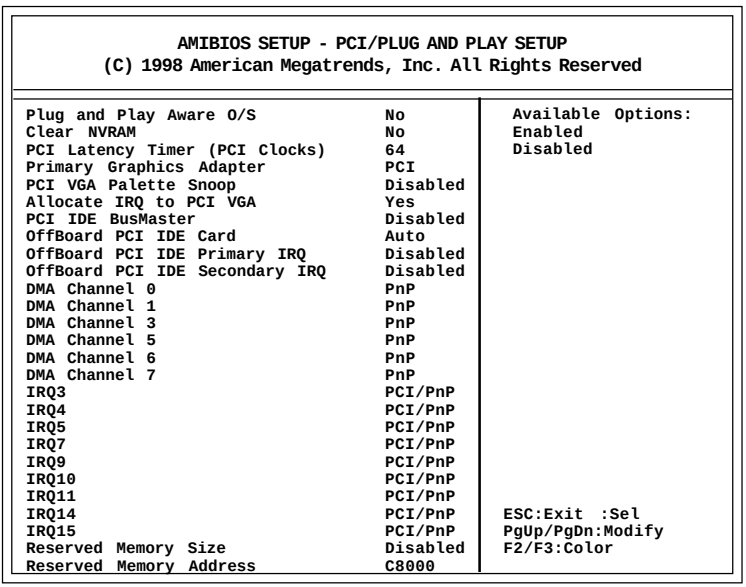
This function is for setting the Date, Hour, Minute, and Second for your computer to boot up. During Disabled, you cannot use this function. During Enabled, Choose the Date, Hour, Minute, and Second:

RTC Alarm Date	Choose which day the system will boot up.
RTC Alarm Hour	Choose which hour the system will boot up.
RTC Alarm Minute	Choose which minute the system will boot up.
RTC Alarm Second	Choose which second the system will boot up.

Note: If you have change the setting, you must let the system boot up until it goes to the operating system. Then, power off the system. This function will work the next time you power on.

3.6 PCI/Plug and Play Setup

1. Press <ENTER> on "PCI/Plug and Play Setup" of the main menu screen.



```
        AMIBIOS SETUP - PCI/PLUG AND PLAY SETUP
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Plug and Play Aware O/S              No        Available Options:
Clear NVRAM                          No        Enabled
PCI Latency Timer (PCI Clocks)       64        Disabled
Primary Graphics Adapter             PCI
PCI VGA Palette Snoop                Disabled
Allocate IRQ to PCI VGA              Yes
PCI IDE BusMaster                    Disabled
OffBoard PCI IDE Card                Auto
OffBoard PCI IDE Primary IRQ         Disabled
OffBoard PCI IDE Secondary IRQ       Disabled
DMA Channel 0                        PnP
DMA Channel 1                        PnP
DMA Channel 3                        PnP
DMA Channel 5                        PnP
DMA Channel 6                        PnP
DMA Channel 7                        PnP
IRQ3                                 PCI/PnP
IRQ4                                 PCI/PnP
IRQ5                                 PCI/PnP
IRQ7                                 PCI/PnP
IRQ9                                 PCI/PnP
IRQ10                                PCI/PnP
IRQ11                                PCI/PnP
IRQ14                                PCI/PnP   ESC:Exit  :Sel
IRQ15                                PCI/PnP   PgUp/PgDn:Modify
Reserved Memory Size                 Disabled  F2/F3:Color
Reserved Memory Address              C8000
```

2. Use <Up> and <Down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.

3. After you have finished with the PCI/Plug and Play Setup, press <ESC> to go back to the main menu.

Description of the item on screen follows:

Plug and Play Aware O/S

Set this option to Yes if the operating system in this computer is aware of and follows the Plug and Play specification. Currently, only Windows® 95/98 is PnP-aware. The settings are Yes or No. The Optimal and Fail-Safe default settings No.

Clear NVRAM on Every Boot

During Yes, this will clear NVRAM data on every boot.

PCI Latency Timer (PCI Clocks)

This option specifies the latency timings (in PCI clocks) for all PCI devices on the PCI bus. The settings are 32, 64, 96, 128, 160, 192, 224 or 248. The Optimal and Fail-Safe default settings are 64.

Primary Graphics Adapter

This option is for selecting which VGA card is to be your primary display graphics adapter.

PCI VGA Palette Snoop

When this option is set to Enabled, multiple VGA devices operating on different buses can handle data from the CPU on each set of palette registers on every video device. Bit 5 of the command register in the PCI device configuration space is the VGA Palette Snoop bit (0 is disabled). For example, if there are two VGA devices in the computer (one PCI and ISA) and the Bit settings are:

Disabled - Data read and written by the CPU is only directed to the PCI VGA device's palette registers.

Enabled - Data read and written by the CPU is directed to both the PCI VGA device's palette registers and the ISA VGA device palette registers, permitting the palette registers of both devices to be identical.

This option must be set to Enabled if an ISA adapter card requires VGA palette snooping. The settings are Enabled or Disabled. The Optimal and Fail-Safe default settings are Disabled.

Allocate IRQ to PCI VGA

Set this option to allow user to choose which IRQ to be assign for the PCI VGA card.

PCI IDE BusMaster

Set this option to Enabled to specify that the IDE controller on the PCI local bus includes a bus mastering capability. The settings are Enabled or Disabled. The Optimal and Fail-Safe default settings are Disabled.

Offboard PCI IDE Card

This option specifies if an offboard PCI IDE controller adapter card is installed in the computer. You must specify the PCI expansion slot on the mainboard where the offboard PCI IDE controller is installed. If an offboard PCI IDE controller is used, the onboard IDE controller is automatically disabled. The settings are Auto(AMI® BIOS automatically determines where the offboard PCI IDE controller adaper card is installed), Slot1, Slot2, Slot3 or Slot4. The Optimal and Fail-Safe settings are Auto.

If an offboard PCI IDE controller adapter card is installed in the computer, you must also set the Offboard PCI IDE Primary IRQ and Offboard PCI IDE Secondary IRQ options.

Offboard PCI IDE Primary IRQ/ Offboard PCI IDE Secondary IRQ

These options specify the PCI interrupt used by the Primary (or Secondary) IDE channel on the offboard PCI IDE controller. The settings are Disabled, Hardwired, INTA, INTB, INTC or INTD. The Optimal and Fail-Safe default settings are Disabled.

DMA Channel 0/1/3/5/6/7

These options specify the bus that the specified DMA channel is used. These options allow you to reserve DMAs for legacy ISA adapter cards.

These options determine if AMI® BIOS should remove a DMA from the available DMAs passed to devices that are configurable by the system BIOS. The available DMA pool is determined by reading the ESCD NVRAM. If more DMAs must be removed from the pool, the end user can use these options to reserve the DMA by assigning an ISA/EISA setting to it.

IRQ3/IRQ4/IRQ5/RQ7/IRQ9/IRQ10/IRQ11/IRQ14/IRQ15

These options specify the bus that the specified IRQ line is used on. These options allow you to reserve IRQs for legacy ISA adapter cards.

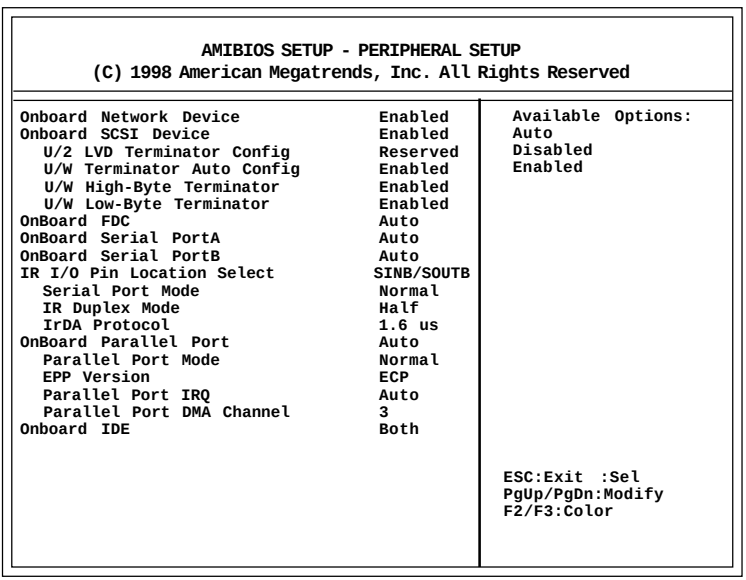
These options determine if AMI® BIOS should remove an IRQ from the pool of available IRQs passed to devices that are configurable by the system BIOS. The available IRQ pool is determined by reading the ESCD NVRAM. If more IRQs must be removed from the pool, the end user can use these options to reserve the IRQ by assigning an ISA/EISA setting to it. Onboard I/O is configured by AMI® BIOS. All IRQs used by onboard I/O are configured as PCI/PnP. If all IRQs are set to ISA/EISA and IRQ14 and 15 are allocated to the onboard PCI IDE, IRQ9 will still be available for PCI and PnP devices, because at least one IRQ must be available for PCI and PnP devices. The settings are ISA/EISA or PCI/PnP. The Optimal and Fail-Safe default settings are IRQ3 through 7 are ISA/EISA. The Optimal and Fail-Safe default settings PCI/PnP.

Reserved Memory Size/Reserved Memory Address

Some ISA cards have ROM at 0C000h~0D000h segments, but in a non-standard format. So Plug & Play BIOS can't detect it. The end user needs to set it up manually. Setting these options under this condition, will inform the BIOS which location and how many location is occupied.

3.7 Peripheral Setup

1. Press <ENTER> on "Peripheral Setup" of the main menu screen.



```
                AMIBIOS SETUP - PERIPHERAL SETUP
        (C) 1998 American Megatrends, Inc. All Rights Reserved

Onboard Network Device                Enabled     Available Options:
Onboard SCSI Device                   Enabled     Auto
  U/2 LVD Terminator Config           Reserved    Disabled
  U/W Terminator Auto Config          Enabled     Enabled
  U/W High-Byte Terminator            Enabled
  U/W Low-Byte Terminator             Enabled
OnBoard FDC                           Auto
OnBoard Serial PortA                  Auto
OnBoard Serial PortB                  Auto
IR I/O Pin Location Select            SINB/SOUTB
  Serial Port Mode                    Normal
  IR Duplex Mode                      Half
  IrDA Protocol                       1.6 us
OnBoard Parallel Port                 Auto
  Parallel Port Mode                  Normal
  EPP Version                         ECP
  Parallel Port IRQ                   Auto
  Parallel Port DMA Channel           3
Onboard IDE                           Both

                                                  ESC:Exit  :Sel
                                                  PgUp/PgDn:Modify
                                                  F2/F3:Color
```

2. Use <Up> and <Down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.

3. After you have finished with the Peripheral Setup, press <ESC> to go back to the main menu.

Description of the item on screen follows:

OnBoard Network Device

The system had an onboard Intel 82558 10/100M Ethernet LAN controller. During enabled, the system will use the onboard LAN controller for accessing the RJ-45 LAN connector.

OnBoard SCSI Device

The system had an onboard SCSI controller. During enabled, the system will use the onboard SCSI controller.

U/2 LVD Terminator Config

Enabled/Disabled the SCSI Terminator Configuration.

U/W Terminator Auto Config

Enabled/Disabled the SCSI Terminator Auto Configuration.

U/W High-Byte Terminator

Enabled/Disabled the SCSI High-Byte Terminator.

U/W Low-Byte Terminator

Enabled/Disabled the SCSI Low-Byte Terminator .

Onboard FDC

Choose Auto, for the BIOS to automatically detect the device

If the ISA add-on card has	Onboard FDC to be set at
FDC exist	Disabled
none FDC exist	Enabled

Choose Enabled, Enabling onboard FDC.
Choose Disabled, Disabling onboard FDC.
The Optimal and Fail-Safe default settings are Auto.

Onboard Serial Port A/Onboard Serial Port B

Choose 3F8, for the BIOS to automatically detect the device.

If the ISA add-on card has				Onboard Serial port to be set at			
COM1 (I/O:3F8H)	COM2 (I/O:3F8H)	COM3 (I/O:3E8H)	COM4 (I/O:2E8H)	PORT1	IRQ ASSIGNED	PORT2	IRQ ASSIGNED
✓	✓	✓	✓	DISABLED	X	DISABLED	X
✓	✓	X	X	COM3	4	COM4	3
X	X	✓	✓	COM1	4	COM2	3
✓	X	X	✓	COM2	3	COM3	4
X	✓	✓	X	COM1	4	COM4	3
✓	✓	✓	X	COM4	3	DISABLED	X
✓	✓	X	✓	COM3	4	DISABLED	X
✓	X	✓	✓	COM2	3	DISABLED	X
X	✓	✓	✓	COM1	4	DISABLED	X
X	X	X	X	COM1	4	COM2	3
✓	X	X	X	COM2	3	COM3	4
X	✓	X	X	COM1	4	COM3	4
X	X	✓	X	COM1	4	COM2	3
X	X	X	✓	COM1	4	COM2	3

Note: *If the onboard serial port interrupt and ISA add-on card interrupt are in conflict, the serial port will not work properly. Please disable one of the devices.*

IR I/O pin Location Select

Choosing SINB/SOUTB allows you to connect an external IR device to COMB. Set this option to IRRX/IRTX when using an internal IR device which is connected to IR1 connector.

Serial PortB Mode

Choosing Normal will set the Serial Port B for normal use, not for IR device. Choosing IrDA or Ask IR will set it for use with IR device using these protocols.

IR Duplex Mode

Can be set as either Half or Full duplex.

IrDA Protocol

This option sets the IrDA protocol to either 1.6 us or 3/16 us.

Onboard Parallel Port

Choose Auto, the BIOS automatically assigned onboard parallel port to the available parallel port or choose disabled if no port is assigned.

If the ISA add-on card has			Onboard parallel port to be set as	
LPT1 I/O:378H	LPT2 I/O:278H	LPT3 I/O:3BCH	PORT ASSIGNED	IRQ ASSIGNED
✓	✓	✓	Disabled	X
✓	✓	X	LPT3	5
✓	X	✓	LPT2	5
X	✓	✓	LPT1	7
✓	X	X	LPT2	5
X	✓	X	LPT1	7
X	X	✓	LPT1	7
X	X	X	LPT1	7

Note: *If the onboard parallel port interrupt and ISA add-on card interrupt are in conflict, the parallel port will not work properly. Please disable one of the devices.*

Parallel Port Mode

This option allows user to choose the operating mode of the onboard parallel port. The settings are Normal, SPP/EPP or ECP mode.

EPP Version

This option is for setting which EPP version will be used. The settings are 1.7 and 1.9.

Parallel Port IRQ

If the onboard parallel mode is not on auto mode, the user can select the interrupt line for onboard parallel port. We suggest that the user select the interrupt for the onboard parallel port as shown below:

Onboard parallel port set at	Parallel Port IRQ
LPT1(378H)	7
LPT2(278H)	5
LPT3(3BCH)	5

Parallel Port DMA Channel

This option allows user to choose DMA channel 1 to 3 for the onboard parallel port on ECP mode.

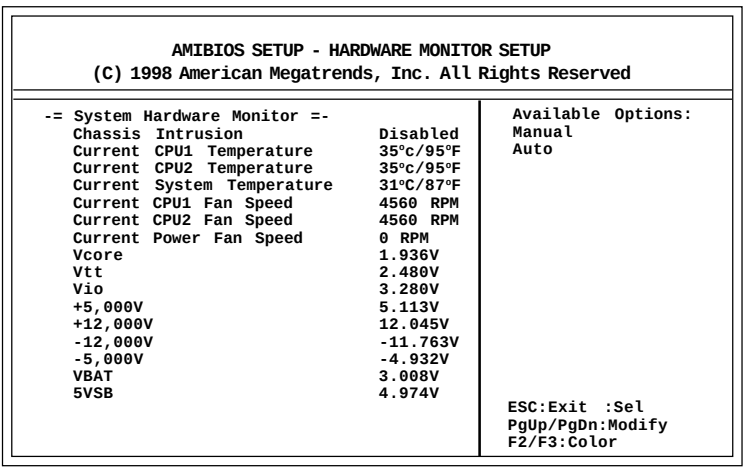
Onboard IDE

Set this option to enable or disable on board IDE controller.

3.8 Hardware Monitor Setup

The Hardware Monitor Setup is used to set the CPU speed and monitor the current CPU Temperature, CPU Fan speed, Chassis Fan Speed, Power fan speed, Vcore, etc.

1. Press <ENTER> on "Hardware Monitor Setup" of the main menu screen.



2. Use <Up> and <Down> to choose the item and <PgUp> and <PgDn> keys to modify the highlighted item.

3. After you have finished with the PCI/Plug and Play Setup, press <ESC> to go back to the main menu.

Chapter 4

INTEL® 82558 FAST ETHERNET LAN DRIVER

1. Overview

The 82558 is a sophisticated 32-bit PCI component, with enhanced scatter-gather bus mastering capabilities. Its true 32-bit architecture enables it to perform high speed data transfers on the PCI bus using four DMA channels.

1.1 Features

- IEEE 802.3/802.3u 10BASE-T and 100BASE-TX compatible
- Glueless 32-bit PCI bus master interface
- Backward software compatible to the 82557
- Internal transmit and receive FIFOs (3 kbytes each)
- Back-to-back transmit at 100 Mbps within minimum IFS
- EEPROM support for configuration and customized feature selection
- Advanced configuration and Power Interface Specification, Revision 1.0, and PCI Power Management Specification, Revision 1.0 compliant
- Remote Wake Up (Magic Packet*) support in APM and ACPI modes
- ACPI “interesting” packet wake support in D0 to D3 low power states
- IEEE 802.3u Auto-Negotiation support for 10BASE-T and 100BASE-TX
- Full or half duplex capable at 10 or 100 Mbps
- IEEE 802.3x flow control support

2. LAN Driver Setup

2.1 Windows® 95/98

To install the driver, just insert the provided CD-ROM into the CD-ROM drive. The CD-ROM will autorun. Press the button for installing the LAN driver.

2.2 Other OS driver

To install the driver for other operating system, just insert the provided CD-ROM into the CD-ROM drive.
Type:

CD-ROM Path:\E100B\Setup/readme

This will show different procedure for the installation of LAN driver for different kind of operating system. Just follow the procedures given.

Chapter 5

WINDOWS 98/NT

Overview

This chapter provides information about Windows 98/NT installation procedure.

To install the SCSI controller driver during Windows NT 4.x installation:

1. Boot the system with the Windows NT 4.x setup diskette #1.
2. Insert setup diskette#2 when prompted and press <**Enter**>.
3. Press<**Enter**> again when prompted.
4. Insert setup diskette#3 when prompted and press <**Enter**>.
5. Select Custom Setup in the Windows NT Setup screen.
6. Choose S to specify an additional device.
7. Choose Other in the list of supported adapters displayed and press <**Enter**>
8. When prompted for the manufacturer's supplied hardware support disk, insert your DOS-Formatted NT/95 Drivers diskette into the floppy disk drive and press <**Enter**>.
9. Select the **Adaptec AHA-294xV2/295xV2/AIC-789x PCI Ultra 2 SCSI controller** (NT 4.0).

To install the update utility for Windows 98:

1. Insert the CD-Title provided.
2. The CD-Title will autorun.
3. Click on **INF Update Utility**.
4. This will allow your Windows 98 to recognize the Intel 440GX chipset.