

# **6010Eu/va**

## **Motherboard Reference**

Part Number : 5615 6957 0001 R00  
Copyright © 1998 by MITAC International Corp.  
(May 1998)

**Trademarks**

All brand and product names are trademarks or registered trademarks of their respective companies.

**Note**

The information in this guide is subject to change without notice.

## **Class B Regulations**

---

### **U. S. A.**

#### **Federal Communications Commission Radio Frequency Interference Statement**

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

#### **Warning:**

Use only shielded cables to connect I/O devices to this equipment. You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

### **Canada**

#### **Canadian Department Of Communications Radio Interference Regulations Class B Compliance Notice**

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe B prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

## **Caution Texts Concerning Lithium Batteries**

---

### **DANISH**

#### **ADVARSEL!**

Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandøren.

### **NORWEGIAN**

#### **ADVARSEL:**

Eksplosjonsfare ved feilaktig skifte av batteri. Benytt samme batteritype eller en tilsvarende type anbefalt av apparatfabrikanten. Brukte batterier kasseres i henhold til fabrikantens instruksjoner.

### **SWEDISH**

#### **VARNING:**

Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera använt batteri enligt fabrikantens instruktion.

### **FINNISH**

#### **VAROITUS:**

Paristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan valmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

### **ENGLISH**

#### **CAUTION:**

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the equipment manufacturer. Discard used batteries according to manufacturer's instructions.

### **DEUTSCH**

#### **VORSICHT:**

Explosionsgefahr bei unsachgemäßem Austausch der Batterie. Ersatz nur durch denselben oder einen vom Hersteller empfohlenen gleichwertigen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

### **FRENCH**

#### **ATTENTION:**

Il y a danger d'explosion s'il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

***MITAC INTERNATIONAL CORP.***

40 Wen Hwa 2nd Rd., Kwei Shan Hsiang, Taoyuan, Taiwan, R.O.C.  
TEL: 886-3-3289000 FAX: 886-3-3280927

Part Number : 5615 6957 0001

# Preface

This manual contains basic information necessary for both the end user and service personnel. Although most of the information you need are contained in this manual, we recommend you to contact an authorized dealer for service purposes. Making personal alterations to the system can violate the effectivity of your warranty.

This manual is divided into five chapters and one appendix.

- Chapter 1, **Introduction**, lists the specifications and features of the motherboard.
- Chapter 2, **System Components**, describes the functions of the major system components.
- Chapter 3, **Connector and Jumper Defintition**, provides the jumper and connector definitions.
- Chapter 4, **CPU and Memory Installation**, contains the CPU and memory installation information.
- Chapter 5, **The SETUP Program**, explains how you can configure your system by running the SETUP program.

Appendix A, **Software Drivers and Utilities**, describes how to install the drivers and utilities supplies with your system.

# Table of Contents

<b>Preface</b> .....	<b>v</b>
<b>Chapter 1 Introduction</b> .....	<b>1-1</b>
Features.....	1-1
Specifications.....	1-1
CPU, Memory, and Main Components.....	1-1
Interfaces and Controllers.....	1-2
<b>Chapter 2 System Components</b> .....	<b>2-1</b>
Major Components.....	2-1
System Operations.....	2-5
<b>Chapter 3 Connector and Jumper Definition</b> .....	<b>3-1</b>
Connector Definitions.....	3-1
Jumper Settings.....	3-3
<b>Chapter 4 CPU and Memory Installation</b> .....	<b>4-1</b>
CPU Installation.....	4-1
Pentium II.....	4-1
Celeron.....	4-4
System Memory Installation.....	4-5
<b>Chapter 5 The SETUP Program</b> .....	<b>5-1</b>
Introduction.....	5-1
Starting SETUP.....	5-1
Moving Around and Making Selections.....	5-2
Standard CMOS Setup.....	5-3
BIOS Features Setup.....	5-6
Chipset Features Setup.....	5-11
Power Management Setup.....	5-12
PnP/PCI Configuration.....	5-17
Load BIOS Defaults.....	5-17
Load Setup Defaults.....	5-18
Integrated Peripherals.....	5-18
Supervisor Password/User Password.....	5-21
IDE HDD Auto Detect.....	5-21

Exiting Setup.....5-22

**Appendix A Software Drivers and Utilities.....A-1**

Installation Instructions for Windows 95.....A-1

IDE/USB Bus Driver.....A-1

Audio Driver.....A-2

Video Driver.....A-2

Utilities.....A-3

Installation Instructions for Windows NT.....A-4

Audio Driver.....A-4

Video Driver.....A-4



## List of Figures

---

Figure 2-1. Major Components of System Board.....	2-1
Figure 2-2. Block Diagram of the Motherboard System.....	2-5
Figure 3-1. Connector Locations.....	3-1
Figure 3-2. Jumper Locations.....	3-3
Figure 4-1. Detaching the Mounts from the Retention Module...	4-1
Figure 4-2. Fastening the Retention Module.....	4-2
Figure 4-3. Installing Pentium II.....	4-3
Figure 4-4. Inserting the Retention Modules.....	4-4
Figure 4-5. Installing Celeron.....	4-4
Figure 4-6. Installing DIMM Module.....	4-5
Figure 5-1. SETUP Main Menu.....	5-2
Figure 5-2. Standard CMOS Setup Menu.....	5-3
Figure 5-3. BIOS Features Setup Menu.....	5-6
Figure 5-4. Chipset Features Setup Menu.....	5-11
Figure 5-5. Power Management Setup Menu.....	5-12
Figure 5-6. PnP/PCI Configuration Setup Menu.....	5-17
Figure 5-7. Integrated Peripherals Setup Menu.....	5-18

## List of Tables

---

Table 2-1. Major Components Description.....	2-4
Table 3-1. Connector Definition.....	3-2
Table 3-2. CPU Jumper Settings.....	3-4
Table 3-3. Other Jumper Settings.....	3-4
Table 5-1. Keyboard Usage in the SETUP Program	5-3

## Chapter 1

# Introduction

This chapter introduces the specifications and the features of the motherboard.

## Features

---

- **Intel Pentium II (or compatible) microprocessor**
- **AGP Interface**  
The host CPU interface, AGP interface, 64-bit DRAM bus, and PCI interface are integrated into the system.
- **Plug and Play support**  
For automatic resource assignment, your system is PnP version 1.01a compliant.
- **Audio subsystem**  
The audio subsystem allows you to easily record, play, and edit music and voice.
- **Video subsystem**  
The video subsystem allows you to easily play video CD, clip files and 3D games.
- **USB port support**  
The Universal Serial Bus standard gives you the benefits of having one single interface for multiple interfaces when low-to-medium speed peripherals are concerned.
- **Power Management**  
Your system can reduce power consumption automatically while it is idle. It also supports the Windows 98/Windows NT 5.0 power management standard - ACPI (Advanced Configuration Power Configuration).

## Specifications

---

### CPU, Memory, and Main Components

---

- **Slot 1**  
For Intel Pentium II (or compatible) CPU

- **System Memory**  
Two 168-pin DIMM sockets to support 8/16/32/64/128MB SDRAM memory modules, configurable up to 256MB
- **Video Memory**  
On-board 2MB video memory
- **ROM BIOS**  
2MB flash EEPROM, supporting audio, video, security, setup, and power management

---

## **Interfaces and Controllers**

---

- **Intel 440EX chipset**  
The chipset consists of the Intel 82443EX PCI AGP Controller (PAC) and the Intel 82371EB PCI-ISA/IDE Xcelerator (PIIX4E).
- **Audio Controller**  
YAMAHA YM715E, integrated enhanced 3D sound technology, compatible with Sound Blaster Pro and Windows Sound System
- **Video Controller**  
ATI Rage Pro / Rage IIC AGP controller
- **I/O Interfaces**  
The SMC FDC37C602 supports:
  - One standard/ECP/EPP parallel port (DB25-F)
  - One RS-232C serial port (DB9-M)
  - One PS/2 keyboard connector (6-pin mini-DIN)
  - One PS/2 mouse connector (6-pin mini-DIN)
  - One VGA port (DB15-F, 3-rows)
  - One game/MIDI port (DB15-F, 2-rows)
  - Two USB ports
  - Three audio ports for Line-in/Mic-in/Earphone-out (jack)
  - Two PCI-IDE connectors for four IDE devices (jack)
  - One floppy disk drive connector (jack)
- **Expansion Slots**  
Two PCI slots and one PCI/ISA-shared slot

## Chapter 2

# System Components

This chapter introduces the components of the motherboard.

## Major Components

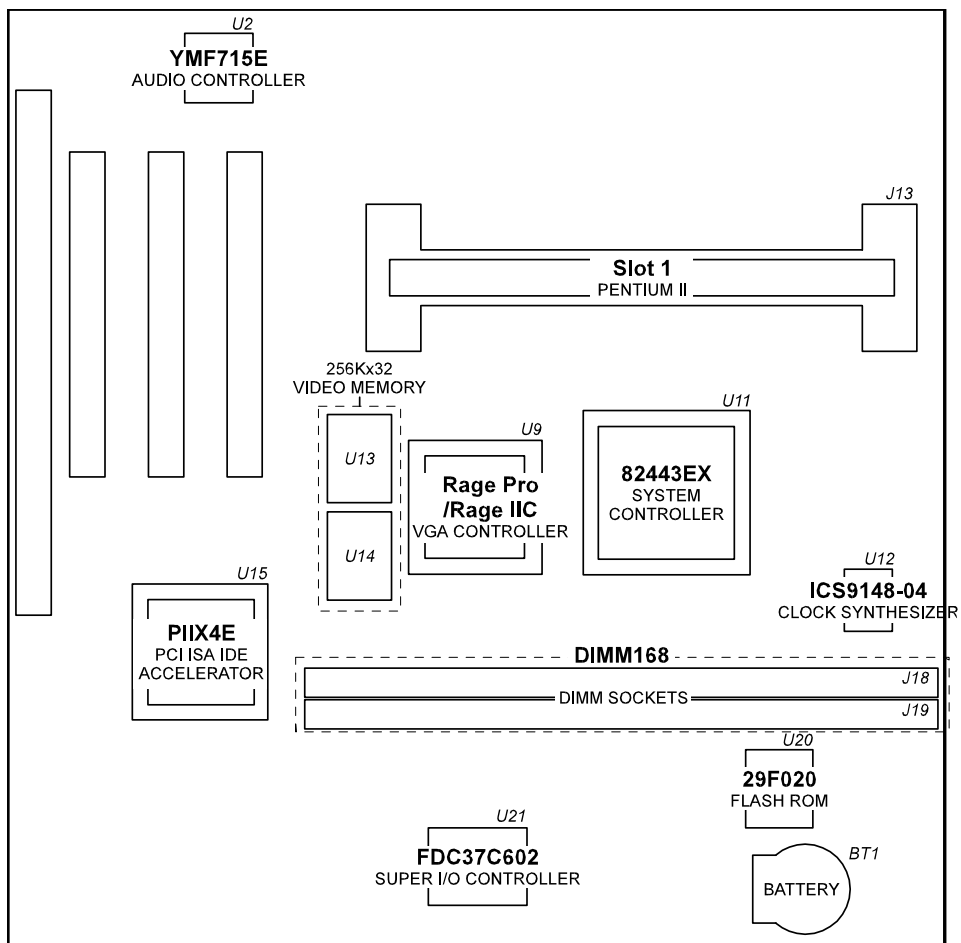


Figure 2-1. Major Components of System Board

Reference	Description	Name
U2	<p>The YAMAHA YMF715E audio controller incorporates the following functions:</p> <ul style="list-style-type: none"> <li>• 16-bit stereo CODEC</li> <li>• Integrated 3D sound technology</li> <li>• Compatible with Sound Blaster Pro and Windows sound system</li> <li>• MPU-401 MIDI interface</li> <li>• Plug-and-Play ISA fully compatible</li> <li>• Plug and Play v1.01a Compliant</li> </ul>	YAMAHA YMF715E
U9	<p>VGA Controller:</p> <ul style="list-style-type: none"> <li>• 256-pin BGA</li> <li>• 2D, 3D and video acceleration</li> <li>• Comprehensive AGP support</li> <li>• Triple 8-bit palette DAC with gamma correction for true WYSIWYG color. Pixel rates up to 230MHz</li> <li>• DDC1 and DDC2B+ for Plug 'n' Play monitors</li> <li>• Power Management for full VESA DPMS and EPA Energy Star Compliant</li> </ul>	ATI Rage Pro/ Rage IIC
U11	<p>440EX System Controller:</p> <ul style="list-style-type: none"> <li>• 492-pin BGA</li> <li>• Host CPU interface, AGP interface, 64-bit DRAM bus, and PCI interface integrated</li> <li>• Data flow between CPU bus, DRAM bus, AGP bus and PCI bus</li> <li>• System Management Mode (SMM) Compliant</li> </ul>	82443EX
U12	<p>Clock Synthesizer:</p> <ul style="list-style-type: none"> <li>• Supports 2.5V/3.3V CPU clock swing</li> <li>• Power-on default CPU/SDRAM clock frequencies</li> <li>• Serial data interface</li> </ul>	ICS 9148-04
U13, U14	2MB video memory implemented by two 256Kx32 bit 10ns SGRAM	

(To be continued)

(Continued)

Reference	Description	Name
U15	82371EB PCI to ISA/IDE Accelerator: <ul style="list-style-type: none"><li>• 324-pin MBGA</li><li>• PCI to ISA bridge</li><li>• Desktop deep green support</li><li>• Power management logic</li><li>• IDE/DMA control</li><li>• 82C04 timer and Real-time clock</li><li>• USB interface</li></ul>	PIIX4E
U20	256Kx8 Flash ROM: <ul style="list-style-type: none"><li>• PLCC 256KB EEPROM for system BIOS, VGA BIOS, Plug &amp; Play configuration tables, and power management</li><li>• Dynamic detect flash type</li><li>• Applies different code before flashing</li></ul>	29F020
U21	The Super I/O Controller incorporates the following functions: <ul style="list-style-type: none"><li>• 100-pin QFP</li><li>• An FDD controller for 360KB, 720KB, 1.2MB, 1.44MB and 2.88MB FDD</li><li>• 3-mode FDD support</li><li>• Keyboard controller</li><li>• ECP/EPP mode support</li><li>• PC97 Compliant</li><li>• High speed NS16C550 compatible serial port</li></ul>	SMC FDC37C602
J13	Slot 1: <ul style="list-style-type: none"><li>• 32K (16K/16K) non-blocking L1 cache</li><li>• Integrated 512K L2 cache (for Pentium II)</li><li>• Single Edge Contact (S.E.C.) cartridge packaging technology</li></ul>	Pentium II or Celeron

(To be continued)

(Continued)

Reference	Description	Name
J18, J19	Unbuffered DIMM Sockets: <ul style="list-style-type: none"><li>• 64-bit data bus</li><li>• Two 168-pin 3.3V unbuffered DIMM sockets</li><li>• Supports 3.3V DRAM modules (new JEDEC spec.)</li><li>• Supports 8/16/32/64/128MB 60ns EDO DRAM and 12ns SDRAM</li></ul>	DIMM

*Table 2-1. Major Components Description*



## System Operations

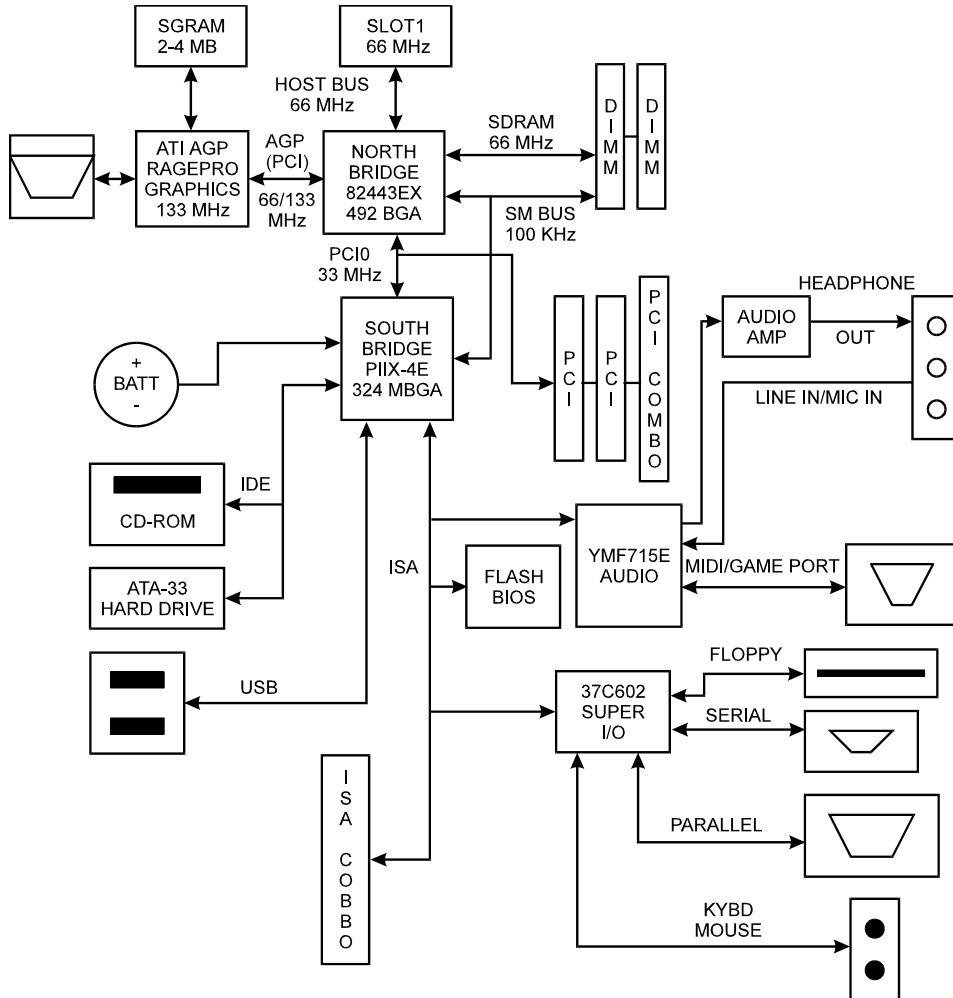


Figure 2-2. Block Diagram of the Motherboard System

## Chapter 3

# Connector and Jumper Definition

This chapter defines the connectors and jumpers on the motherboard.

## Connector Definitions

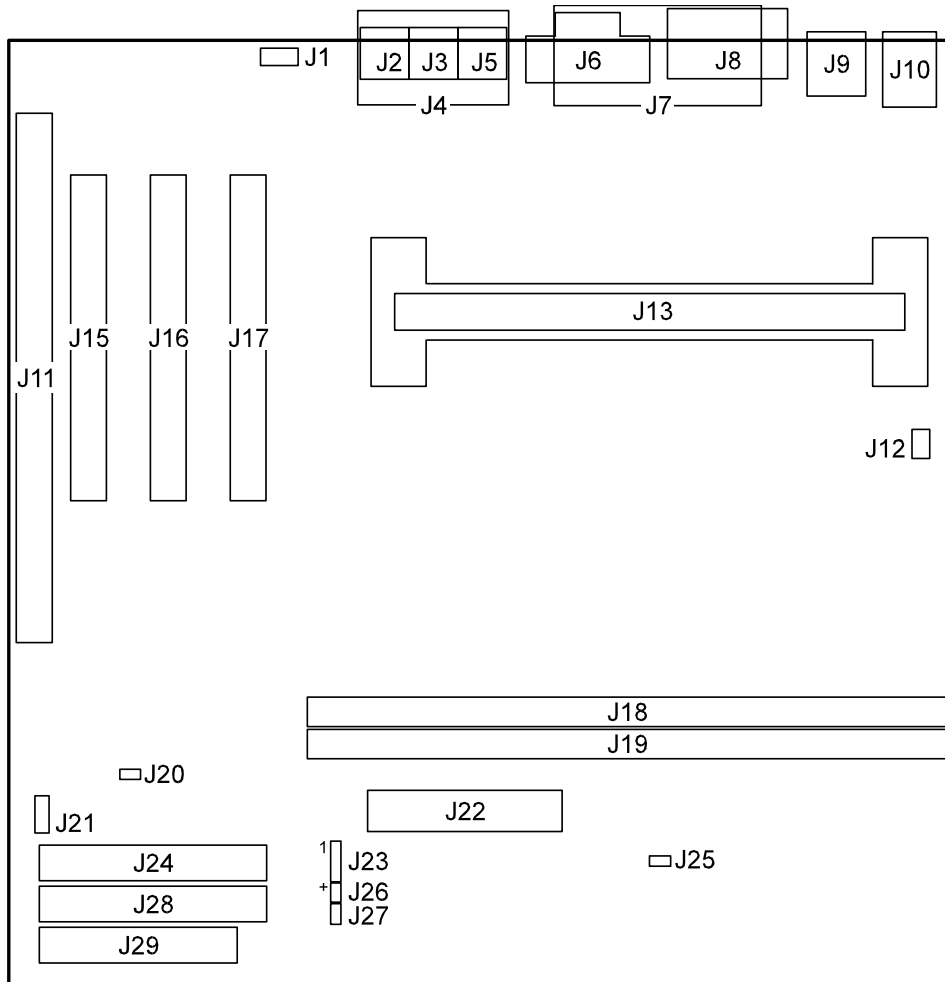


Figure 3-1. Connector Locations

Connector	Definition	Connector	Definition
J1	CD-in	J15, J16, J17	PCI slots
J2	Headphone-out	J18, J19	DIMM sockets
J3	Line-in	J20	Modem_ring_on
J4	Game/MIDI port	J21	Wake_on_LAN
J5	Mic-in	J22	Power
J6	VGA	J23	Power LED
J7	PIO port	J24	1st IDE
J8	COM1	J25	Reset
J9	USB	J26	HD LED
J10	PS/2 keyboard/mouse	J27	Power/Suspend button
J11	ISA	J28	2nd IDE
J12	CPU fan	J29	FDD
J13	Slot 1		

*Table 3-1. Connector Definition*

## Jumper Settings

---

**NOTE:** Jumpers not described in this chapter are reserved for factory use only. Do not change the default settings.

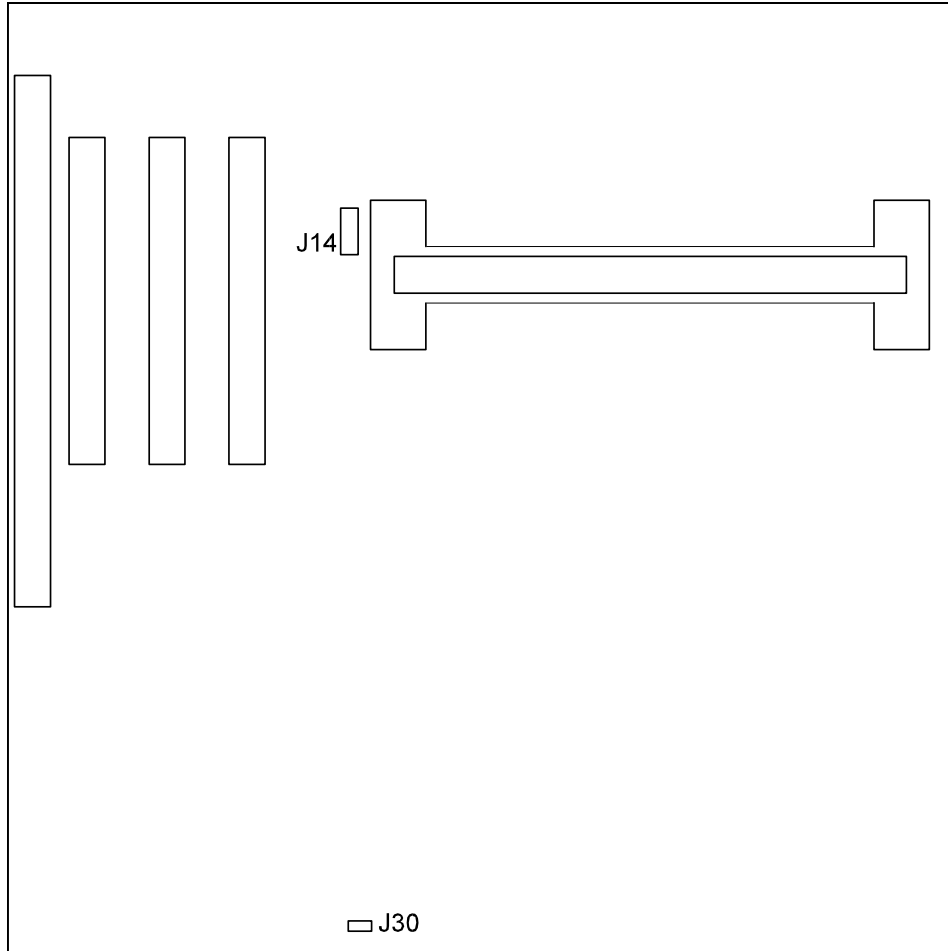


Figure 3-2. Jumper Locations

## For CPU

CPU Type				J14
CPU Frequency	Bus Frequency	Core Voltage	Clock Multiplier	
Pentium II 233	66MHz	2.8V	2/7	1-2, 9-10
Pentium II 266	66MHz	2.8V	1/4	5-6, 7-8, 9-10
Pentium II 300	66MHz	2.8V	2/9	5-6, 9-10
Pentium II 333	66MHz	2.0V	1/5	7-8, 9-10
Celeron 266	66MHz	2.0V	1/4	5-6, 7-8, 9-10

Table 3-2. CPU Jumper Settings

## Others

RTC Setting	J30
Normal	1-2
Clear RTC	2-3

**Note:** To clear the RTC and CMOS RAM, set J30 to 2-3 for one second, and set it back to 1-2 again.

Table 3-3. Other Jumper Settings

## Chapter 4

# CPU and Memory Installation

**NOTE:** To avoid damage during installation, you are advised to ask your dealer for help.

**NOTE:** Static electricity can destroy electronic devices. Whenever you handle any option outside of its protective packaging, first discharge any static electricity from your body by touching a protective grounding device or unpainted metal on the rear panel of the system unit.

## CPU Installation

---

The motherboard supports both Intel Pentium II and Celeron CPUs.

### Pentium II

---

1. Unfasten the four screws to detach the mounts from the CPU retention module.

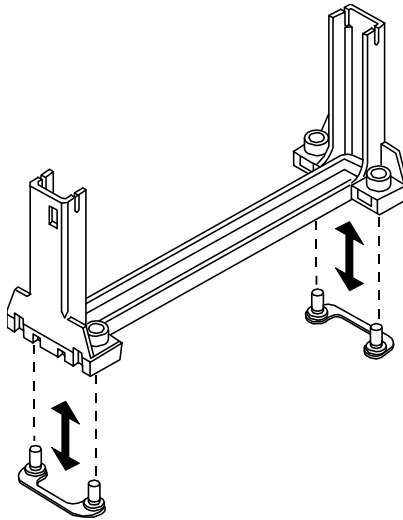


Figure 4-1. Detaching the Mounts from the Retention Module

2. Locate Slot 1 (J13) on the motherboard.

Align the retention module's notched end with the slot's corresponding end and fit the module on the slot.

Attach the mounts to the bottom of the board by aligning the mounting screws with the screw holes and fasten the four screws.

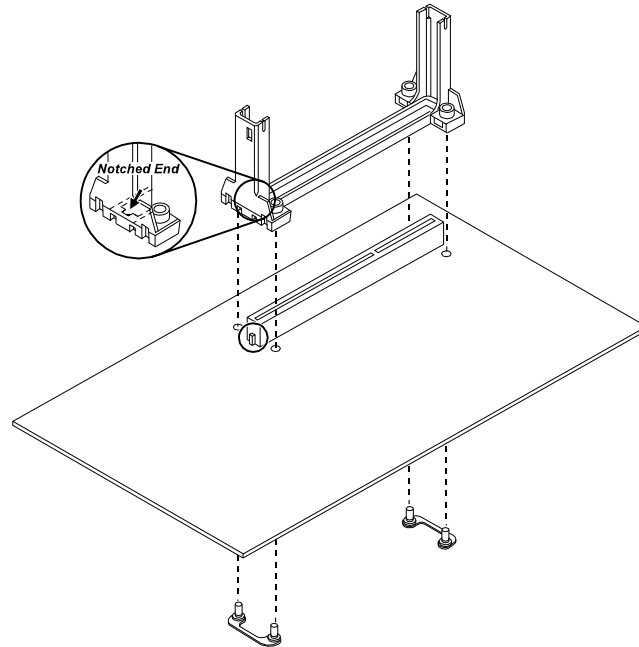


Figure 4-2. Fastening the Retention Module

3. Align the CPU cartridge's knobs with the retention module's holes and firmly insert the cartridge into the module until it snaps into place.

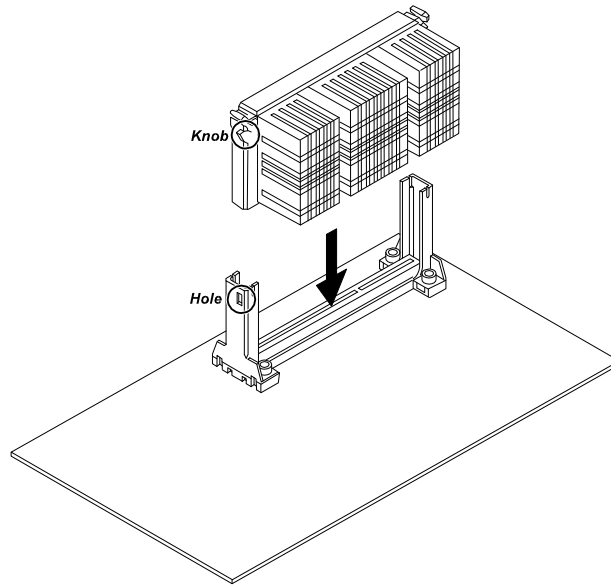


Figure 4-3. Installing Pentium II

4. If you install an Active heatsink module, connect the fan cable to J12.
5. Clear the CMOS by setting J30 to 2-3 for one second, and then set it back to 1-2 again.



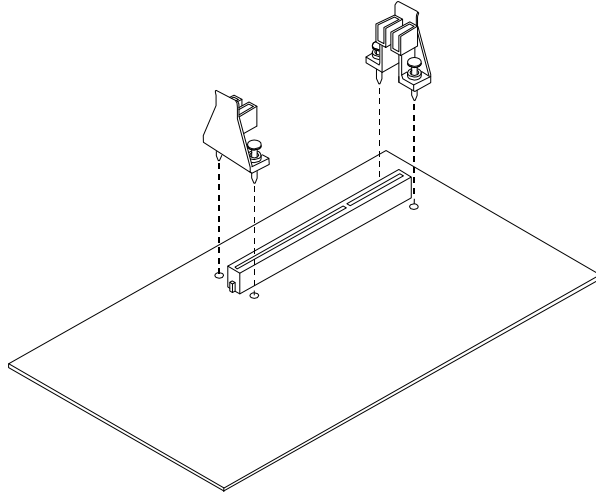
---

## Celeron

---

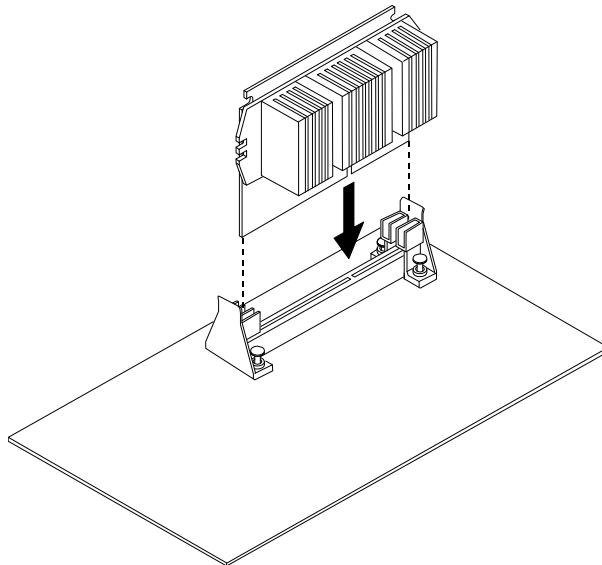
1. Locate Slot 1 (J13) on the motherboard.

Insert the retention modules into the corresponding holes on the motherboard.



*Figure 4-4. Inserting the Retention Modules*

2. Align the CPU with the slot and retention modules, then firmly insert the CPU into place.



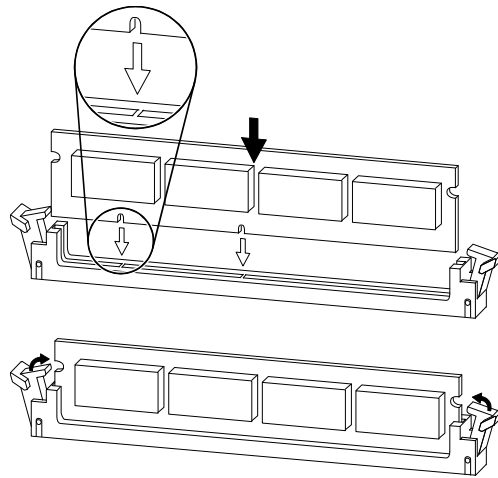
*Figure 4-5. Installing Celeron*

3. If you install an Active heatsink module, connect the fan cable to J12.
4. Clear the CMOS by setting J30 to 2-3 for one second, and then set it back to 1-2 again.

## **System Memory Installation**

---

1. Locate the DIMM sockets (J18, J19) on the motherboard.
2. Align the DIMM module with the socket and firmly insert the DIMM into the socket. Then, push the plastic clips to snap it into place.



*Figure 4-6. Installing DIMM Module*

## Chapter 5

# The SETUP Program

This chapter tells you how to configure your system using the SETUP program.

## Introduction

---

The SETUP program allows you to enter the system configuration information. This information is needed by the system to identify the type of devices installed and to set up special features.

The configuration information is stored in a special kind of memory called CMOS (Complementary Metal Oxide Semiconductor) RAM. CMOS RAM data are backed up by a RTC backup battery, so the data will not be lost when system power is turned off.

You need to run SETUP when:

- You see an error message on the screen requesting you to run SETUP.
- You want to update the configuration information for new hardware installed.
- You want to change factory default settings for some special features.

## Starting SETUP

---

**NOTE:**

1. All the SETUP screens shown in this chapter are examples. Your actual settings may vary from those shown here.
2. The SETUP program may have been updated after this manual was published.

SETUP is built into the system board. To access the SETUP program, turn on the system and press [Del] immediately when you see the message that briefly appears at the bottom of the screen telling you how to enter SETUP.

The first SETUP menu (main menu) appears as shown in Figure 5-1.

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 BIOS DEFAULTS	EXIT WITHOUT SAVING
LOAD SETUP DEFAULTS	
Esc : Quit	↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift)F2 : Change Color
Time, Date, Hard Disk Type...	

Figure 5-1. SETUP Main Menu

The main menu allows you to select from eleven setup categories and two exit choices. Use the arrow keys to select among the items and press [Enter] to accept and enter the sub-menu.

All the categories will be described below in sequence.

## Moving Around and Making Selections

In general, you use the arrow keys to highlight items and the [PageUp]/[+] and [PageDown]/[-] keys to change entries.

Description of keyboard usage is listed below. You can also find keyboard instructions on the menu screen.

Key	Description
[↑], [↓]	Move the highlight to the previous or next item.
[←], [→]	Move the highlight to the item in the left or right.
[PageUp]/[+] [PageDown]/[-]	Cycle through the pre-defined values for the selected item. Pressing [PageUp] or [+] brings up the next value; pressing [PageDown] or [-] brings up the previous one.
[Esc]	1) From the Main Menu, exit SETUP without saving. 2) From a sub-menu, return to the Main Menu.
[F1]	General help information

(To be continued)

(Continued)

Key	Description
[F2] [Shift]+[F2]	Change color from total 16 colors. [F2] to select the next color; [Shift]+[F2] the previous color
[F5]	Restore the previous CMOS value from CMOS (available only in option setup menus)
[F6]	Load the BIOS default values (available only in option setup menus).
[F7]	Load the SETUP default values (available only in option setup menus).
[F10]	Save all the CMOS changes (available only in the main menu).

Table 5-1. Keyboard Usage in the SETUP Program

## Standard CMOS Setup

When the "Standard CMOS Setup" category is selected from the main menu, the sub-menu appears as shown below. This category includes all the items in a standard, AT-compatible BIOS (Basic Input/Output System).

Date (mm:dd:yy) : Wed, May 6 1998								
Time (hh:mm:ss) : 17 : 43 : 25								
<b>HARD DISKS</b>	<b>TYPE</b>	<b>SIZE</b>	<b>CYLS</b>	<b>HEAD</b>	<b>PRECOMP</b>	<b>LANDZ</b>	<b>SECTOR</b>	<b>MODE</b>
Primary Master	: AUTO	0	0	0	0	0	0	AUTO
Primary Slave	: AUTO	0	0	0	0	0	0	AUTO
Secondary Master	: AUTO	0	0	0	0	0	0	AUTO
Secondary Slave	: AUTO	0	0	0	0	0	0	AUTO
Drive A : 1.44M, 3.5 In.								
Drive B : None								
Video : EGA/VGA								
Halt On : All Errors								
Base Memory: 640K								
Extended Memory: 15360K								
Other Memory: 384K								
Total Memory: 16384K								
ESC : Quit		↓← : Select Item			PU/PD/+/- : Modify			
F1 : Help		(Shift)F2 : Change Color						

Figure 5-2. Standard CMOS Setup Menu

The followings describe in sequence all the items of this category.

### Date/Time

The date and time might be incorrect when you start up your computer for the first time. Enter the correct value for each field. Note that the time is based on a 24-hour format.

## Primary/Secondary Master/Slave

This item sets the type of the hard disk drive in your computer.

The available options for "TYPE" are:

<b>Options</b>	<b>Descriptions</b>
<i>None</i>	Select this option if no hard disk is installed.
<i>1 to 45</i>	Select one of the 45 pre-defined types which matches your hard disk.
<i>Auto</i>	Select this option if your hard disk supports the "auto-detect" function.
<i>User</i>	Select this option to manually enter the parameters such as number of cylinders, number of heads, landing zone, write precompensation, number of sectors/track, and access mode.

**NOTE:** Instead of selecting *Auto*, you can use the "IDE HDD Auto Detect" function of the SETUP program, which can detect the hard disk type and load the parameters for you. (See "IDE HDD Auto Detection" in this chapter.)

The "MODE" entry is for IDE hard disks only. The available options are:

<b>Options</b>	<b>Descriptions</b>
<i>Normal</i>	For IDE hard disk drives smaller than 528MB
<i>Large</i>	For drives over 528MB that do not support Logical Block Addressing. (Large type of drive can only be used with MS-DOS and is very uncommon.)
<i>LBA</i>	For drives over 528MB that support Logical Block Addressing (Most IDE drives over 528MB support the LBA mode.)
<i>Auto</i>	For IDE drives that support the "auto-detect" function

## Drive A/B

These items set the type of floppy disk drive in your computer.

The available options are *None*, *360K 5.25in.*, *1.2M 5.25in.*, *720K 3.5in.*, *1.44M 3.5in.*, and *2.88M 3.5in.*

## Video

This item sets the type of display to be used in your computer.

The available options are *EGA/VGA*, *CGA40*, *CGA80* and *MONO*.

## Halt On

This item sets whether the system will stop if an error is detected during start up.

The available options are:

<b><u>Options</u></b>	<b><u>Descriptions</u></b>
<i>All Errors</i>	The system boot will not be stopped for any error that may be detected.
<i>No Errors</i>	Whenever the BIOS detects a non-fatal error, the system will be stopped and you will be prompted.
<i>All, But Keyboard</i>	The system boot will not stop for a keyboard error; it will stop for all other errors.
<i>All, But Diskette</i>	The system boot will not stop for a disk error; it will stop for all other errors.
<i>All, But Disk/Key</i>	The system boot will not stop for a keyboard or disk error; it will stop for all other errors.

## BIOS Features Setup

When the "BIOS Features Setup" category is selected from the main menu, the sub-menu appears as shown below. This category includes all the items of your system's special enhanced features.

Virus Warning	: Disabled	Video BIOS Shadow	: Enabled
CPU Internal Cache	: Enabled	C8000-DBFFF Shadow	: Disabled
External Cache	: Enabled	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	: Enabled	DC000-DFFFF Shadow	: Disabled
Boot Up NumLock Status	: On		
Boot Up System Speed	: High		
Gate A20 Option	: Fast		
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec)	: 6		
Typematic Delay (Msec)	: 250		
Security Option	: Setup		
PS/2 Mouse Function Control	: Enabled		
PCI/VGA Palette Snoop	: Disabled	ESC : Quit	↓← : Select Item
OS Select For DRAM > 64 MB	: Non-OS2	F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values (Shift)	F2 : Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

Figure 5-3. BIOS Features Setup Menu

The followings describe in sequence all the items of this category.

### Virus Warning

This item helps prevent computer viruses by monitoring the boot sector and partition table of the hard disk drive. If an attempt is made to modify the boot sector and partition table, the system will halt and the following error message will appear. Afterwards, if necessary, you can run an anti-virus program to locate and remove the problem before any damage is done.

```
! WARNING !

Disk boot sector is to be modified

Type "Y" to accept write or "N" to abort write
```

The available options are *Enabled* and *Disabled*.



**NOTE:**

1. Disable this item before installing an operating system.
2. Many disk diagnostic programs can cause the above warning message because they attempt to access the boot sector table. If you will be running such a program, you may want to disable this item beforehand.

## **CPU Internal Cache/External Cache**

This item enables or disables the cache of your system. The cache feature enhances system performance because the most frequently-used data is accessed from and written to the high-speed cache memory.

The available options are *Enabled* and *Disabled*.

## **Quick Power On Self Test**

This item, when enabled, speeds up the booting procedure by shortening or skipping some check items during POST.

The available options are *Enabled* and *Disabled*.

## **Boot Sequence**

This item sets the sequence of booting, i.e., which drive to search first for the operating system.

The available options 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  
LS/ZIP,C

## Swap Floppy Drive

This feature allows you to exchange the drive names of the two floppy disk drives, if installed. Make sure that *Drive A* and *Drive B* item in the Standard CMOS Setup menu are updated accordingly.

The available options are *Enabled* and *Disabled*.

## Boot Up Floppy Seek

This item sets if the system will verify the floppy disk drive type during POST.

The available options are *Enabled* and *Disabled*. Select *Disabled* to bypass the floppy disk drive check and thus speed up POST.

## Boot Up Numlock Status

This item sets if the Num Lock key will be automatically activated after system startup.

The available options are *On* and *Off*.

## Boot Up System Speed

This item sets the default system speed – the normal operating speed at power up.

The available options are:

<b>Options</b>	<b>Descriptions</b>
<i>High</i>	The CPU operates at full speed.
<i>Low</i>	The CPU operates at the speed of the AT bus. You may need to select this option for using some low-speed expansion card or old software.

## Gate A20 Option

This item uses the fast gate A20 line to access any memory above 1MB. Setting this item to make the access faster than the normal method.

The available options are *Fast* and *Normal*.

## Typematic Rate Setting

This item sets if the typematic rate is to be used. When disabled, continually holding down a key on your keyboard will generate only one instance. In other words, the BIOS will only report that the key is down. When the typematic rate is enabled, the BIOS will report as before, but it will then wait a moment, and, if the key is still down, it will begin the report that the key has been depressed

repeatedly. For example, you would use such a feature to accelerate cursor movements with the arrow keys.

The available options are *Enabled* and *Disabled*.

### **Typematic Rate (Chars/Sec)**

This item sets the rate (in characters/second) at which the keys are accelerated.

The available options are 6, 8, 10, 12, 15, 20, 24, and 30.

### **Typematic Delay (Msec)**

This item sets the delay (in msecond) between when the key was first depressed and when the acceleration begins.

The available options are 250, 500, 750, and 1000.

### **Security Option**

This item allows you to limit the access to the system and SETUP, or just to SETUP.

The available options are:

<b>Options</b>	<b>Descriptions</b>
<i>System</i>	The system will not boot and access to SETUP will be denied if the correct password is not entered at the prompt.
<i>Setup</i>	The system will boot, but access to SETUP will be denied if the correct password is not entered at the prompt.

**NOTE:** Security takes effect only if a password is set. (See "Supervisor/User Password" in this chapter.)

### **PS/2 Mouse Function Control**

This item allows you to enable or disable the PS/2 mouse in your system.

The available options are *Enabled* and *Disabled*.

### **PCI / VGA Palette Snoop**

Some video cards that are nonstandard VGA such as MPEG ISA and VESA VGA cards cannot work properly with the PCI/VGA of your computer. The setting *Enabled* should correct this problem.

The available options are *Enabled* and *Disabled*.

### **OS Select for DRAM > 64MB**

This item allows you to access the memory that is over 64MB in OS/2.

The available options are *Non-OS2* and *OS2*.

### **Video BIOS Shadow**

This item sets if the video BIOS will be copied to RAM to increase the video speed.

The available options are *Enabled* and *Disabled*.

### **C8000-CBFFF Shadow~DC000-DFFFF Shadow**

These items set if ROMs on an expansion card will be copied to RAM for faster speed. If you install an expansion card with ROMs, you need to know which addresses the ROMs use to shadow them specifically.

The available options are *Enabled* and *Disabled*.

## Chipset Features Setup

When the “Chipset Features Setup” category is selected from the main menu, the sub-menu appears as shown below. This category includes all the items of chipset special features.

Auto Configuration	: Enabled	Auto Detect DIMM/PCI Clk	: Enabled
DRAM Speed Selection	: 60ns	Spread Spectrum Modulated	: Disabled
MA Wait State	: Slow		
EDO RAS# To CAS# Delay	: 3		
EDO RAS# Precharge Time	: 4		
EDO DRAM Read Burst	: x333		
EDO DRAM Write Burst	: x333		
CPU-To-PCI IDE Posting	: Enabled		
System BIOS Cacheable	: Disabled		
Video BIOS Cacheable	: Disabled		
Video RAM Cacheable	: Disabled		
8 Bit I/O Recovery Time	: 1		
16 Bit I/o Recovery Time	: 1		
Memory Hole At 15M-16M	: Disabled		
Passive Release	: Enabled		
Delayed Transaction	: Disabled		
AGP Aperture Size (MB)	: 64	ESC : Quit	↓→← : Select Item
SDRAM RAS-to-CAS Delay	: Slow	F1 : Help	PU/PD/+/- : Modify
SDRAM RAS Precharge Time	: Slow	F5 : Old Values	(Shift)F2 : Color
SDRAM CAS Latency Time	: 3	F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

Figure 5-4. Chipset Features Setup Menu

This category allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache. It also coordinates communications between the conventional ISA bus and the PCI bus. **Note that these items should never need to be altered.** The default settings have been carefully chosen by your system manufacturer to provide the absolute maximum performance and reliability.

## Power Management Setup

When the "Power Management Setup" category is selected from the main menu, the sub-menu appears as shown below. This category allows you to configure you system to save energy.

ACPI Function	: Enabled	** Reload Global Timer Events **
Power Management	: Disabled	IRQ[3-7,9-15],NMI : Disabled
PM Control by APM	: Yes	Primary IDE 0 : Disabled
Video Off Method	: V/H SYNC+Blank	Primary IDE 1 : Disabled
Video Off After	: Standby	Secondary IDE 0 : Disabled
MODEM Use IRQ	: 3	Secondary IDE 1 : Disabled
Doze Mode	: 1 Min	Floppy Disk : Disabled
Standby Mode	: 1 Min	Serial Port : Enabled
Suspend Mode	: 1 Min	Parallel Port : Disabled
HDD Power Down	: 1 Min	
Throttle Duty Cycle	: 62.5%	
VGA Active Monitor	: Disabled	
Soft-Off by PWR-BTTN	: Delay 4 sec.	ESC : Quit ↓↵ : Select Item
Resume by Ring	: Disabled	F1 : Help PU/PD/+/- : Modify
Resume by Alarm	: Disabled	F5 : Old Values (Shift) F2 : Color
IRQ 8 Break Suspend	: Disabled	F6 : Load BIOS Defaults
		F7 : Load Setup Defaults

Figure 5-5. Power Management Setup Menu

The followings describe in sequence all the items of this category.

### ACPI Function

This item enables or disables ACPI (Advanced Configuration Power Interface) - a power management standard used by Windows 98 and Windows NT 5.0.

The available options are *enabled* and *disabled*. Select *Enabled* before installing Windows 98 or Windows NT 5.0.

### Power Management

This item allows you to select the type (or degree) of power saving.

The available options are:

<b><u>Options</u></b>	<b><u>Descriptions</u></b>
<i>Disabled</i>	Disables all three modes.
<i>Min Saving</i>	Minimum power saving with the timer settings as: Doze Mode = 1 hr., Standby Mode = 1 hr., Suspend Mode = 1 hr., HDD Power Down = 1 hr.
<i>Max Saving</i>	Maximum power saving with the timer settings as: Doze Mode = 1 min., Standby Mode = 1 min., Suspend Mode = 1 min., HDD Power Down = 1 min.
<i>User Define</i>	Allows you to set each mode individually.

### **PM Control by APM**

If the APM (Advanced Power Management) driver is installed, this item allows you to enable or disable control from APM.

The available options are:

<b><u>Options</u></b>	<b><u>Descriptions</u></b>
<i>No</i>	The system BIOS will ignore APM.
<i>Yes</i>	The system BIOS will wait for APM's prompt before it enters any power saving mode.

### **Video Off Method**

This item defines the screen-off status.

The available options are:

<b><u>Options</u></b>	<b><u>Descriptions</u></b>
<i>V/H SYNC+Blank</i>	The screen will be blank and the V-SYNC and H-SYNC signals will be turned off.
<i>DPMS</i>	This function is enabled for video systems supporting DPMS (display power management signaling).
<i>Blank Screen</i>	The screen will be blank.

### **Video Off After**

This item defines when the screen will be off. (The "off" status is defined by the previous item, *Video Off Method*.)

The available options are:

<b>Options</b>	<b>Descriptions</b>
<i>Standby</i>	The screen will be off under Standby and Suspend modes.
<i>Doze</i>	The screen will be off under Doze, Standby, and Suspend modes.
<i>N/A</i>	The system BIOS will never turn off the screen.
<i>Suspend</i>	The screen will be off under Suspend mode.

## **MODEM Use IRQ**

This item defines the modem IRQ channel.

The available options are 3, 4, 5, 7, 9, 10, 11, and NA.

## **Doze Mode**

This item sets the time-out period for the system to enter Doze mode if the system has been idle for the set period.

In Doze mode, the CPU clock runs at slower speed (specified by the "Throttle Duty Cycle" item) while all other devices still operate at full speed. The video may be off depending on the "Video Off After" item setting. System power will be restored when system activity is detected.

The available options are *Disabled*, *1 Min*, *2 Min*, *4 Min*, *8 Min*, *12 Min*, *20 Min*, *30 Min*, *40 Min*, and *1 Hour*.

## **Standby Mode**

This item sets the time-out period for the system to enter Standby mode if the system has been idle for the set period after Doze mode has been initiated.

In Standby mode, Doze mode status remains and furthermore the hard disk drive will spin down if it has been idle for the period set by its own internal timer. System power will be restored when system activity is detected.

The available options are *Disabled*, *1 Min*, *2 Min*, *4 Min*, *8 Min*, *12 Min*, *20 Min*, *30 Min*, *40 Min*, and *1 Hour*.

## **Suspend Mode**

This item sets the time-out period for the system to enter Suspend mode if the system has been idle for the set period after Standby mode has been initiated.

The Suspend mode is defined by the next item.

The available options are *Disabled*, *1 Min*, *2 Min*, *4 Min*, *8 Min*, *12 Min*, *20 Min*, *30 Min*, *40 Min*, and *1 Hour*.



## HDD Power Down

Setting this item causes the hard disk to enter power saving mode (motor off) if it is not in use during the set time-out period.

The available options are *1 Min* to *15 Min.* and *disabled.*

## Throttle Duty Cycle

This item sets the CPU clock rate in Doze mode.

The available options are *12.5%*, *25.0%*, *37.5%*, *50.0%*, *62.5%*, and *75.0%*.

## VGA Active Monitor

This item allows you to enable the event monitoring on the video display. The system will not enter Suspend mode if it detects a video activity.

The available options are *Enabled* and *Disabled.*

## Soft-Off by PWR-BTTN

This item defines the Power/Suspend button of the system.

The available options are:

<b><u>Options</u></b>	<b><u>Descriptions</u></b>
-----------------------	----------------------------

<i>Delay 4 sec.</i>	The Power/Suspend button will turn off (soft-off) the system when it is pressed for more than 4 seconds.
---------------------	--

<i>Instant-Off</i>	The Power/Suspend button will turn off (soft-off) the system. There will be no Suspend function of the Power/Suspend button.
--------------------	--

## Resume by Ring

If a modem is connected to the system, this feature allows an incoming call to power up the system in soft-off mode.

The available options are *Enabled* and *Disabled.*

<p><b>NOTE:</b> This feature is meaningful only if your computer is set up to automatically load the communications application after the computer boots. Thus, when a call powers up the computer, a second call will be received by the communications application.</p>
---

## **Resume by Alarm**

Setting this item to *Enabled* allows the alarm (as specified by the next two items) to power up the system in soft-off mode.

The available options are *Enabled* and *Disabled*. If you select *Enabled*, set the time with the next two items.

## **Date Alarm/Time Alarm**

These two items work in conjunction with the previous item "Resume by Alarm". They set the alarm date and time for powering up the system in soft-off mode.

Enter the value in each field by typing the number. Setting the Date Alarm item to *0* means setting the alarm everyday.

## **IRQ 8 Break Suspend**

This item enables the event monitoring on IRQ8. The system will wake up from Suspend mode if an IRQ8 activity is detected.

The available options are *Enabled* and *Disabled*.

## **\*\* Reload Global Timer Events \*\***

This group of items specify the I/O event that will reset the timer for entering a low power mode. The system will remain alert for the activity of the device which is configured as *Enabled*. If you do not want a certain device activity to affect the timer, select *Disabled* for the device.

## PnP/PCI Configuration

When the “PnP/PCI Configuration” category is selected from the main menu, the sub-menu appears as shown below. This category allows you to configure the PnP/PCI bus system. PnP (Plug and Play) allows automatic allocation of the IRQ channel, memory address and I/O address for your system so that manual selection is not necessary. PCI (Personal Computer Interconnect) is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components.

PnP OS Installed	: No	PCI IDE IRQ Map to	: ISA
Resources Controlled By	: Manual	Used MEM base addr	: N/A
Reset Configuration Data	: Disabled		
IRQ-3 assigned to	: PCI/ISA PnP		
IRQ-4 assigned to	: PCI/ISA PnP		
IRQ-5 assigned to	: PCI/ISA PnP		
IRQ-7 assigned to	: PCI/ISA PnP		
IRQ-9 assigned to	: PCI/ISA PnP		
IRQ-10 assigned to	: PCI/ISA PnP		
IRQ-11 assigned to	: PCI/ISA PnP		
IRQ-12 assigned to	: PCI/ISA PnP		
IRQ-14 assigned to	: PCI/ISA PnP		
IRQ-15 assigned to	: PCI/ISA PnP		
DMA-0 assigned to	: PCI/ISA PnP		
DMA-1 assigned to	: PCI/ISA PnP	ESC : Quit	↓↔ : Select Item
DMA-3 assigned to	: PCI/ISA PnP	F1 : Help	PU/PD/+/- : Modify
DMA-5 assigned to	: PCI/ISA PnP	F5 : Old Values (Shift)	F2 : Color
DMA-6 assigned to	: PCI/ISA PnP	F6 : Load BIOS Defaults	
DMA-7 assigned to	: PCI/ISA PnP	F7 : Load Setup Defaults	

Figure 5-6. PnP/PCI Configuration Setup Menu

**NOTE:** This setup menu is for technicians or advanced users only. You are not advised to change the default settings.

## Load BIOS Defaults

The BIOS default values have been set to assumedly provide minimum performance for the system. The settings are non-optimal and disable all high performance features.

If you select “Load BIOS Defaults” from the main menu, BIOS default values will be loaded to the option setup menus such as *BIOS Features Setup*, *Chipset Features Setup*, *Power Management Setup*, *PnP/PCI Configuration*, and *Integrated Peripherals* menus.

## Load Setup Defaults

---

The Setup default values have been set to assumedly provide maximum performance for the system.

If you select "Load Setup Defaults" from the main menu, Setup default values will be loaded to the option setup menus such as *BIOS Features Setup*, *Chipset Features Setup*, *Power Management Setup*, *PnP/PCI Configuration*, and *Integrated Peripherals* menus. Your system has been set to Setup default values at the factory.

## Integrated Peripherals

---

When the "Integrated Peripherals" category is selected from the main menu, the sub-menu appears as shown below. This category allows you to configure the on-board device controllers.

IDE HDD Block Mode	: Enabled	
IDE Primary Master PIO	: Auto	
IDE Primary Slave PIO	: Auto	
IDE Secondary Master PIO	: Auto	
IDE Secondary Slave PIO	: Auto	
IDE Primary Master UDMA	: Auto	
IDE Primary Slave UDMA	: Auto	
IDE Secondary Master UDMA	: Auto	
IDE Secondary Slave UDMA	: Auto	
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	<del>ESC : Quit</del>
Onboard Serial Port 1	: 3F8/IRQ4	<del>↓ ← : Select Item</del>
Onboard Parallel Port	: 378/IRQ7	F1 : Help PU/PD/+/- : Modify
Parallel Port Mode	: ECP+EPP1.9	F5 : Old Values (Shift) F2 : Color
ECP Mode Use DMA	: 3	F6 : Load BIOS Defaults
		F7 : Load Setup Defaults

Figure 5-7. Integrated Peripherals Setup Menu

The followings describe in sequence all the items of this category.

### IDE HDD Block Mode

This allows your hard disk controller to use the fast block mode to transfer data to and from your hard disk drive.

The available options are *Enabled* and *Disabled*.

## **IDE Primary/Secondary Master/Slave PIO**

Each of these four items sets the mode timing according to the IDE hard disk drives in your system. PIO means Programmed Input/Output. Rather than have the BIOS issue a series of commands to effect a transfer to or from the disk drive, PIO allows the BIOS to tell the controller what it wants and then let the controller and the CPU perform the complete task by themselves. This is simpler and more efficient (and faster). PIO mode concerns data transfer rate. It can be mode 0 to 4. Higher number indicates faster rate.

The available options are *0*, *1*, *2*, *3*, *4*, and *Auto*. Check with your dealer to know the PIO mode supported by your hard disk drive. Selecting *Auto* will allow auto-detection to ensure optimal performance.

## **IDE Primary/Secondary Master/Slave UDMA**

These items set if the IDE hard disk drive supports UDMA (Ultra 33 synchronous DMA mode transfer).

The available options are *Auto* and *Disabled*. Check with your dealer to know if your hard disk drive supports UDMA.

## **On-Chip Primary/Secondary PCI IDE**

As stated above, your system includes two built-in IDE controllers, both of which operate on the PCI bus. The item allows you either to enable or disable the controller.

The available options are *Enabled* and *Disabled*. Select *Disabled* only if you are using higher performance or specialized controller card instead of the onboard IDE controller.

## **USB Keyboard Support**

This item allows you to use the USB keyboard in DOS environment.

The available options are *Enabled* and *Disabled*.

## **Init AGP Display First**

This item allows the system to initialize the onboard AGP VGA first before initializing add-on PCI/ISA VGA cards.

The available options are *Enabled* and *Disabled*.

## **Onboard FDC Controller**

This item allows you to enable or disable the on-board floppy disk drive controller.

The available options are *Enabled* and *Disabled*. Select *Disabled* only if you want to use a separate floppy disk drive controller card.

## **Onboard Serial Port 1**

This item sets the I/O address and interrupt request line (IRQ) for the on-board serial port (COM1).

The available options are *3F8/IRQ4*, *2F8/IRQ3*, *3E8/IRQ4*, *2E8/IRQ3*, and *Disabled*.

## **Onboard Parallel Port**

This item sets the I/O address and interrupt request line (IRQ) for the on-board parallel port (LPT1).

The available options are *378H/IRQ7*, *278H/IRQ5*, *3BC/IRQ7*, and *Disabled*.

## **Parallel Port Mode**

This item sets the operating mode for the onboard parallel (printer) port. Your system supports EPP (Enhanced Parallel Port) and ECP (Extended Capabilities Port) standards which turn the standard parallel port into a high speed bi-directional peripheral port.

The available options are *ECP+EPP1.9*, *Normal*, *EPP1.7+SPP*, *ECP+EPP1.7*, *ECP*, *SPP*, *EPP1.9+SPP* and *ECP*. Select *Normal* unless you are certain your hardware and software both support EPP or ECP mode.

## **ECP Mode Use DMA**

This item appears only if the "Parallel Port Mode" item setting is *ECP*, *ECP+EPP1.7*, or *ECP+EPP1.9*.

The item selects a DMA channel for the parallel port for use during ECP mode.

The available options are *1* and *3*.

## Supervisor Password/User Password

---

You can set either supervisor or user password, or both of them. The differences between them are:

- Supervisor password can enter and change the options of the setup menus.
- User password can only enter but do not have the right to change the options of the setup menus.

When you select this function, message will appear at the center of the screen to assist you in entering a password. Type the password and press [Enter]. Note the password is case-sensitive and can be up to eight characters in length. The password typed now will clear any previously entered password. You will be asked to confirm the password by typing it again and pressing [Enter].

To disable a password, just press [Enter] when you are prompted to enter the password. A message will confirm the password will be disabled. Once the password is disabled, the system will boot and you can enter SETUP freely.

When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You determine when the password is required within the “BIOS Features Setup” menu and its Security option (see “BIOS Features Setup” in this chapter). If the Security option is set to *System*, the password will be required both at boot and at entry to Setup. If set to *Setup*, prompting only occurs when trying to enter Setup.

<p><b>NOTE:</b> If you forget your password and wish to cancel it, ask your dealer to reset the CMOS RAM for you.</p>
---

## IDE HDD Auto Detect

---

If your IDE hard disk supports the **auto-detect** function, the “IDE HDD Auto Detect” feature can automatically detect the parameters of the hard disk (such as size, cylinders, number of heads, sectors per track, write precompensation, and the access mode) and load them into the “Standard CMOS Setup” menu.

When the “IDE HDD Auto Detect” function is selected from the main menu, the sub-menu appears that lists the parameters detected. To accept the optimal entries, press [Y] or else select from the numbers displayed under the OPTIONS

field. To skip to the next drive letter, press [N]. If you accept the values, the parameters will appear listed beside the drive letter on the screen. The process then proceeds to the next drive letter. Pressing [N] to skip rather than accept a set of parameters causes the program to enter zeros after that drive letter.

When auto-detection is completed, the program automatically enters all entries you accepted on the field for that drive in the “Standard CMOS Setup” menu.

**NOTE:** If you are auto-detecting a hard disk that supports the LBA mode, the program will display all possible modes supported by the hard disk including *Normal*, *LBA* (Logical Block Addressing), and *Large* modes. Choose the line that lists *LBA* for an LBA drive. Do not select *Large* or *Normal*.

**NOTE:** To support LBA or Large mode of hard disks, the hard disk service routine uses INT 13h . If you are running under an operating system which replaces INT 13h, the system may fail to access a hard disk with LBA/Large mode selected.

## Exiting Setup

---

To exit the SETUP program, you can choose “Save & Exit Setup” or “Exit Without Saving” from the main menu.

After finished with your settings, you must save and exit SETUP so that the settings can take effect.



## Appendix A

# Software Drivers and Utilities

This appendix describes the drivers and utilities used in your system. The drivers and utilities allow you to take advantage of special features of your system.

**NOTE:** The driver and utility CD may have been updated after this manual was published. If your CD is different from that described in this appendix, refer to the README files on the CD. These files contain the latest information from the software supplier.

## Installation Instructions for Windows 95

---

### IDE/USB Bus Driver

---

The IDE/USB bus driver is provided for Windows 95 (OSR2 and later versions) to recognize the PIIX4E controller chip used by your system. This chip controls the functions such as USB, IDE, and Power Management of your system. You must install the driver to use the capabilities of PIIX4E.

To install IDE/USB bus driver for Windows 95:

1. Run the **USBSUPP.EXE** program from Windows 95 950B (OSR2.1) or 950C (OSR2.5) CD. Contact the Microsoft dealer if you can not find this program.
2. Insert the driver and utility CD into the CD-ROM drive.
3. Run the **SETUP.EXE** program in the \CHIPSET directory on the CD to set up the new hardware.
4. Use the default settings to complete the setup when Windows 95 is re-started.

To verify if the installation is completed successfully, follow these steps:

1. Select "Control Panel", "System", and then "Device Manager".
2. Click on "View devices by type" button.

3. Click on "System Devices" and check if the following entries exist:

Intel 82371AB/EB PCI to ISA Bridge  
Intel 82371AB/EB Power Management Controller  
Intel 82443 LX Pentium(r)II Processor to AGP Controller  
Intel 82443 LX Pentium(r)II Processor to PCI Bridge

If you see PCI standard ISA bridge, you have to restart your system and install again.

---

## **Audio Driver**

---

The audio driver is required for using your system's audio capabilities. To install the audio driver for Windows 95, follow these steps:

1. In Windows 95, select "Control Panel", "System" and then "Device Manager".
2. Select "Other Device" and remove "OPL-SA3 Sound Board" item.
3. Select "Refresh", "Next" and then "Other Locations".
4. Insert the driver and utility CD and specify the path **\\YAMAHA\DRIVER\WIN95\95V2336\MULTI**.
5. Follow the on-screen instructions.

---

## **Video Driver**

---

The video driver is required for using your system's video capabilities. To install the video driver for Windows 95, follow these steps:

1. In Windows 95, select "Control Panel", "Display" and then "Settings".
2. Select "Advanced Properties" and then "Change".
3. Select "Hard Disk".
4. Insert the driver and utility CD into the CD-ROM drive.
5. Specify the path **\\ATI\DRIVER\WIN95** on the CD, and click on "OK".
6. Follow the on-screen instructions. Select "ATI 3D Rage IIC" or "ATI 3D Rage Pro" according to your system specifications.

---

## Utilities

---

### Ystation

The Ystation utility is required for playing .WAV file, .MID file, and audio CD.

1. Run the **SETUP.EXE** program in the \YAMAHA\YSTATION directory on the driver and utility CD.
2. Follow the on-screen instructions to complete the installation.

### ATIPLAYER

The ATIPLAYER MPEG utility is required for playing video or audio CD.

1. Run the **SETUP.EXE** program in the \ATI\ATIPLAYER\WIN95 directory on the driver and utility CD.
2. Follow the on-screen instructions to complete the installation.

### Clips

The Clips utility is for playing the enclosed MPEG demo files.

1. Run the **CLIPS.EXE** program in the \ATI\CLIP directory on the driver and utility CD.
2. Follow the on-screen instructions to complete the installation.

## **Installation Instructions for Windows NT**

---

### **Audio Driver**

---

The audio driver is required for using your system's audio capabilities. To install the audio driver for Windows NT 4.0, follow these steps:

1. In Windows NT, select "Control Panel", "Multimedia", and "Devices" tab.
2. Click on "Add" button.
3. Select "Unlisted or Updated Driver" and click on "OK".
4. Insert the CD into the CD-ROM drive.
5. Specify the path `\\YAMAHA\DRIVER\NT40\INTV3318\MULTI` on the CD, choose the driver from the list, and click on "OK".
6. Follow the on-screen instructions. Select "Use Dual DMA" or "Enable MPU401" if you need these two features.
7. Restart the system.

### **Video Driver**

---

The video driver is required for using your system's video capabilities. To install the video driver for Windows NT 4.0, follow these steps:

1. In Windows NT, select "Control Panel", "Display", and then "Settings".
2. Select "Display Type" and then "Change".
3. Select "Hard Disk".
4. Insert the CD into the CD-ROM drive.
5. Specify the path `\\ATI\DRIVER\NT40` on the CD, and click on "OK".
6. Follow the on-screen instructions. Select "ATI 3D Rage IIC" or "ATI 3D Rage Pro" according to your system specifications.