6120BX
Motherboard Reference

Part Number : 5615 6943 0001 R00
(Jul. 1998)

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

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 gleich-wertigen 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.

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 six chapters.

- 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.

Chapter 6, **Software Drivers and Utilities**, describes how to install the drivers and utilities supplies with your system.

Table of Contents

List of Figures

List of Tables

Chapter 1

Introduction

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

Features

- **Intel Pentium II dual-microprocessor design**
  The system can use one or two microprocessors with the supporting of IO APIC controller.
- **AGP Interface**
  The host CPU interface, AGP interface, 64-bit DRAM bus, and PCI interface are integrated into the system.
- **SCSI and RAID support**
  RAID port allows you to add RAID (Redundant Array Independent Disks) to the system. It works with the onboard SCSI chip to create a RAID controller for better performance of the disk drives.
- **Power Management**
  Your system can reduce power consumption automatically while it is idle. It also supports new power management standard - ACPI (Advanced Configuration and Power Interface).
- **Plug and Play support**
  For automatic resource assignment, your system is PnP version 1.01a Compliant.
- **Operating Environment Monitoring**
  The built-in sensors will monitor the voltage, fan speed, and the temperature of your system for protection against damages.

Specifications

CPU, Memory, and Main Components

- **Slot 1**
  For Intel Pentium II CPU
- **System Memory**
  Four 168-pin DIMM sockets to support PC100 8/16/32/64/128/256MB SDRAM memory modules, configurable up to 1GB
- **ROM BIOS**
  2MB flash EEPROM, supporting security, setup, and power management

Interfaces and Controllers

- **Intel 440BX chipset**
  The chipset consists of the Intel 82443BX PCI AGP Controller (PAC) and the Intel 82371EB PCI-ISA/IDE Xcelerator (PIIX4E).
- **I/O Interfaces**
  - One standard/ECP/EPP parallel port
  - Two RS-232C serial ports
  - Two USB ports
  - One IrDA port
  - Two Ultra2 SCSI connectors for 15 SCSI devices
  - One PS/2 keyboard connector
  - One PS/2 mouse connector
  - One speaker connector
  - Two PCI-IDE connectors for four IDE devices
  - One floppy disk drive connector
- **Expansion Slots**
  - Three PCI slots
  - One PCI/RAID port/ISA-shared slot
  - One ISA slot
  - One AGP slot

Chapter 2

System Components

This chapter introduces the components of the motherboard.

Major Components

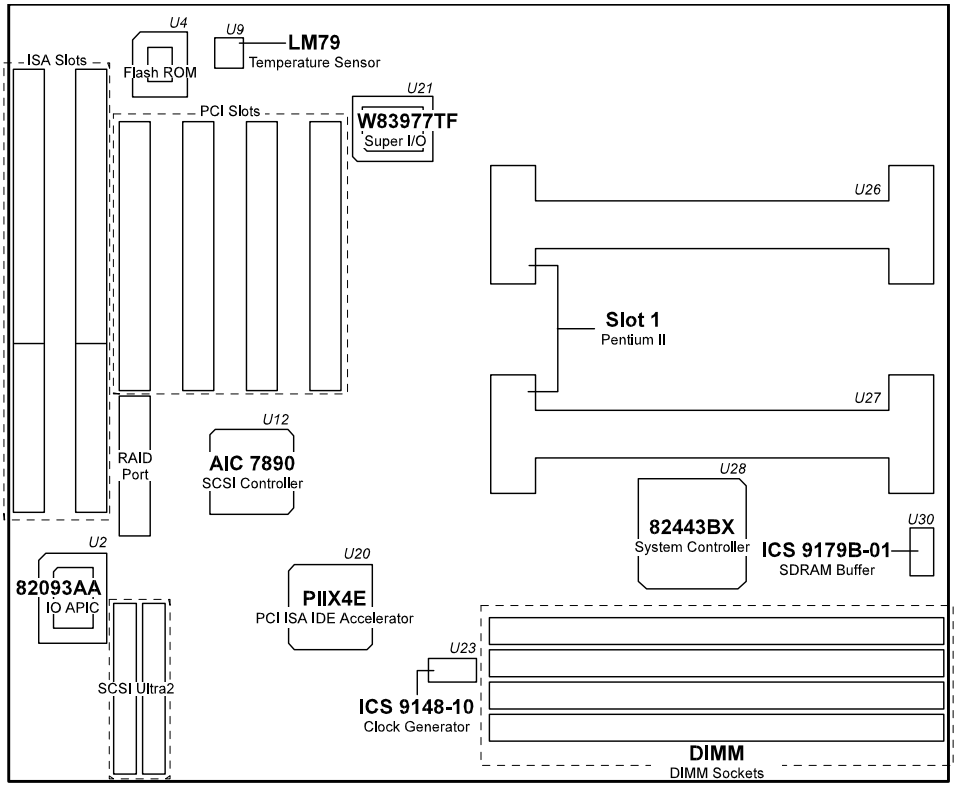


Figure 2-1. Major Components of System Board

Reference	Description	Name
U2	IO APIC (Advanced Programmable Interrupt Controller): • Porvides multi-processor interrupt management • 24 programmable interrupts	Intel 82093AA
U4	256Kx8 Flash ROM: • PLCC 2MB EEPROM for system BIOS, VGA BIOS, Plug & Play configuration tables, and power management • Dynamic detect flash type • Applies different code before flashing	
U9	System Sensor: • Temperature sensor • 5 possitive and 2 negative voltage input monitoring • 3 fan speed monitoring input	NS LM79
U12	*Ultra2*SCSI Controller: • 272-pin BGA • PCI-to-Ultra2 Protocol • SCSI SPI-2 R.13 / PCI 2.1 Compliant • Built-in dual mode (LVD/SE) transceivers • Supports fast-40 data transfer rates	Adaptec AIC-7890
U20	82371EB PCI to ISA/IDE Accelerator: • 324-pin BGA • PCI to ISA bridge • Desktop deep green support • Power management logic • IDE/DMA control • 82C04 timer and Real-time clock • USB interface	Intel PIIX4E

(To be continued)

(Continued)

Reference	Description	Name
U21	The Super I/O Controller incorporates the following functions: • 8042 keyboard controller • FDD controller • PS/2 mouse support • EPP/ECP parallel port • High speed 16550 serial ports • IrDA support	Winbond W83977TF
U23	Clock Generator: • Generates system clock for CPU, IO APIC, system controller, PCI, super I/O, and ISA	ICS 9148-10
J26, J27	Intel Pentium II with MMX: • 32K (16K/16K) non-blocking L1 cache • Integrated 512K L2 cache • Single Edge Contact (S.E.C.) cartridge packaging technology	Slot 1
U28	440BX PCI AGP Controller (PAC): • 492-pin BGA • Host CPU interface, AGP interface, 64-bit DRAM bus, and PCI interface integrated • Data flow between CPU bus, DRAM bus, AGP bus and PCI bus • System Management Mode (SMM) Compliant	Intel 82443BX
U30	SDRAM Buffer: • Generates SDRAM clock buffers • Supports up to four SDRAM DIMMs • I^2C interface	ICS 9179B-01
J28~J31	168-pin DIMM Sockets: • 64-bit data bus • Supports 3.3V unbuffered/registered 8/16/32/64/128/256MB SDRAM modules (SPD revision 1.2A) ***Note***: Use Intel PC66/100 modules for 66MHz CPU system, and PC100 modules for 100MHz CPU system	DIMM

Table 2-1. Major Components Description

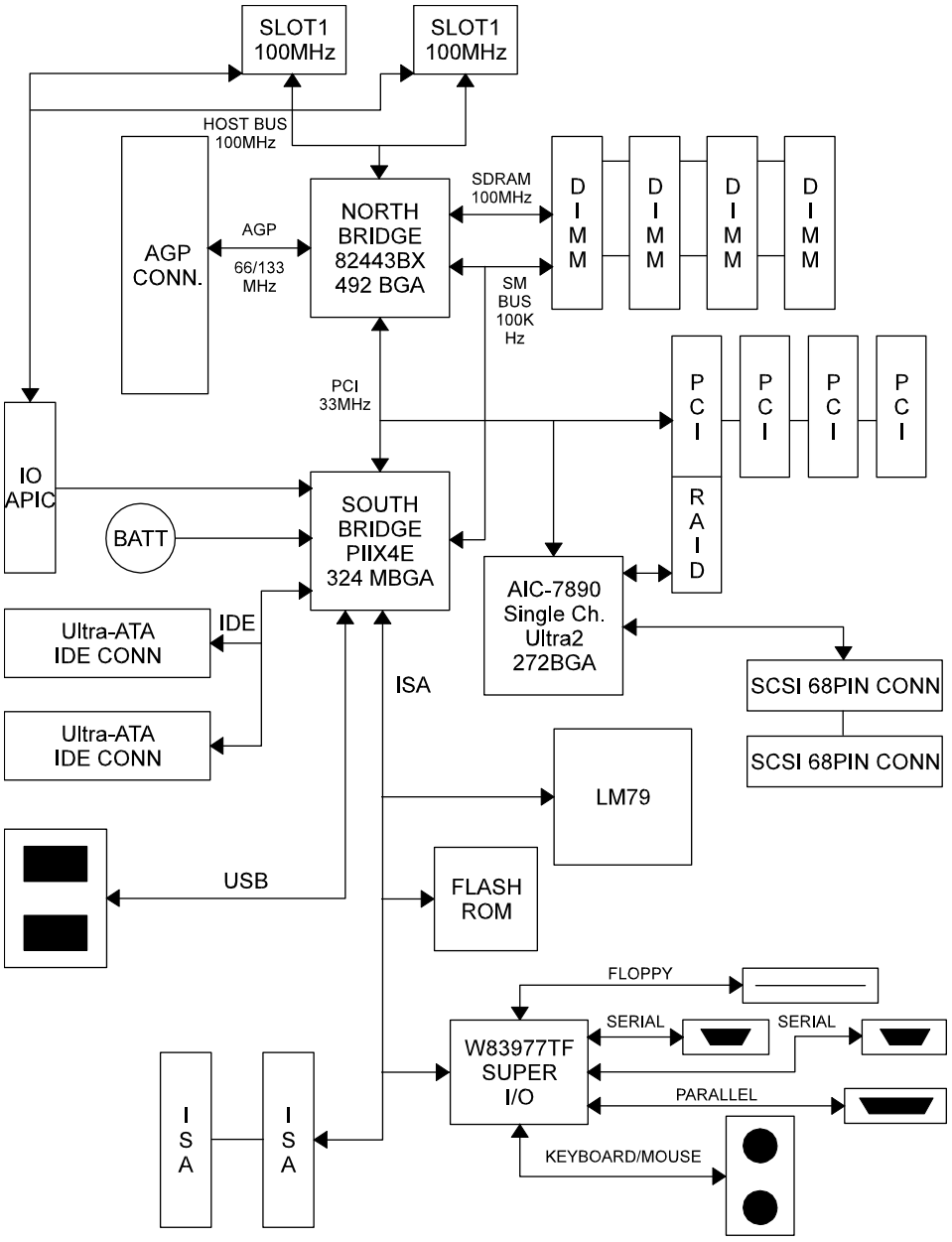


Figure 2-2. Block Diagram of the Motherboard System

Chapter 3

Connector and Jumper Definition

This chapter defines the connectors and jumpers on the motherboard.

Connector Definitions

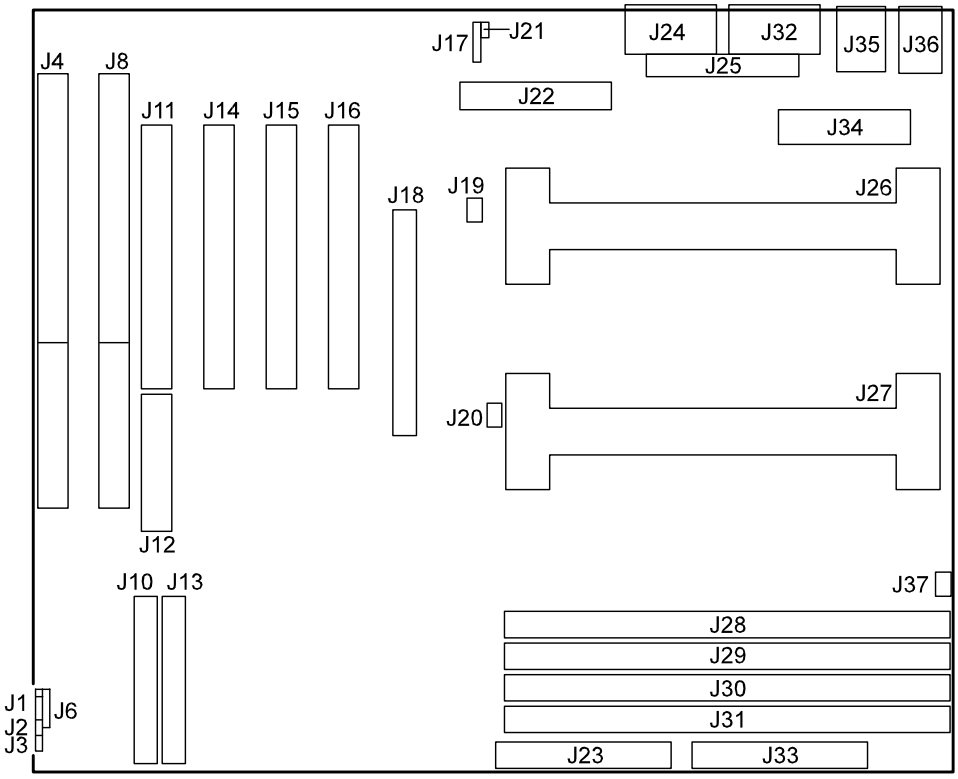


Figure 3-1. Connector Locations

Connector	Definition	Connector	Definition
J1	Speaker	J22	FDD
J2	Power/Suspend button	J23	2nd IDE
J3	IDE LED	J24, J32	SIO ports
J4, J8	ISA slots	J25	PIO port
J6	Power LED	J26, J27	Slot 1
J10, J13	SCSI	J28~J31	DIMM sockets
J11, J14~J16	PCI slots	J33	1st IDE
J12	RAID port	J34	Power
J17	IrDA port	J35	USB ports
J18	AGP	J36	PS/2 keyboard/mouse
J19, J20	CPU fans	J37	System fan
J21	Reset		

Table 3-1. Connection Definition

Jumper Settings

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

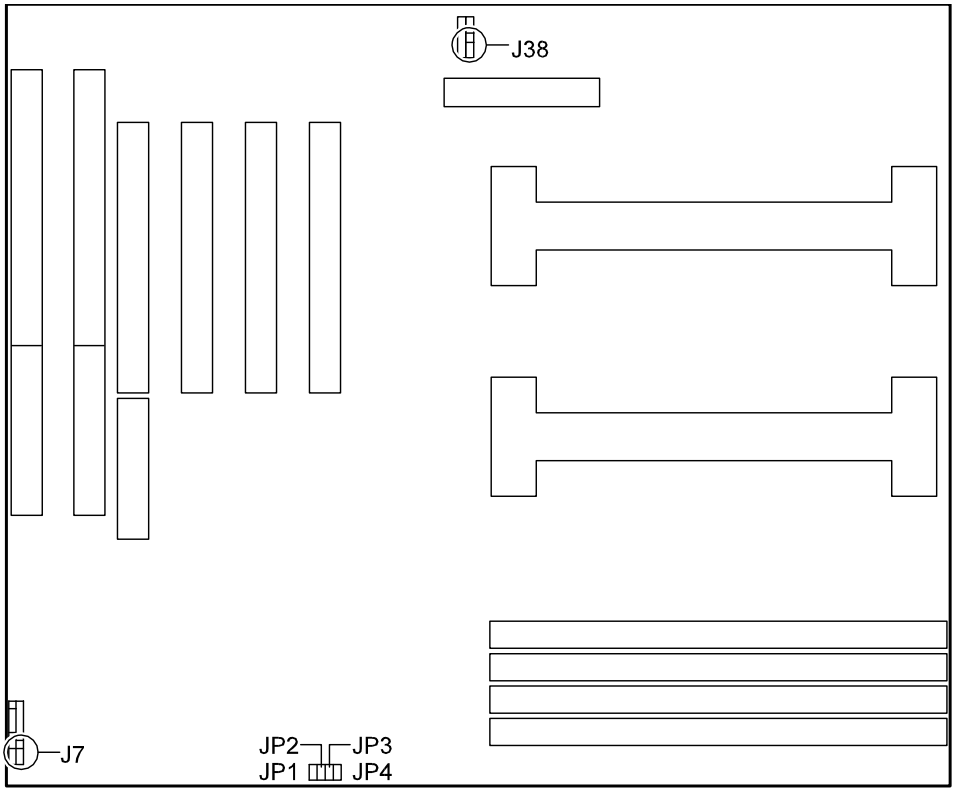


Figure 3-2. Jumper Locations

For CPU

Frequency 66MHz	Frequency 100MHz	Clock Multiplier	JP1	JP2	JP3	JP4
133	200	2	open	open	open	open
166	250	2.5	close	open	open	open
200	300	3	open	close	open	open
233	350	3.5	close	close	open	open
266	400	4	open	open	close	open
300	450	4.5	close	open	close	open
333	500	5	open	close	close	open

PCI clock : 33MHz ISA clock : 8.33MHz

Table 3-2. CPU Jumper Settings

Others

Jumper	Settings
J7 1-2 2-3	RTC Setting Normal Clear RTC
J38 1-2 2-3	Voltage VTT voltage (1.5V) 2nd CPU voltage

Note: To clear the RTC and CMOS RAM, set J7 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

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

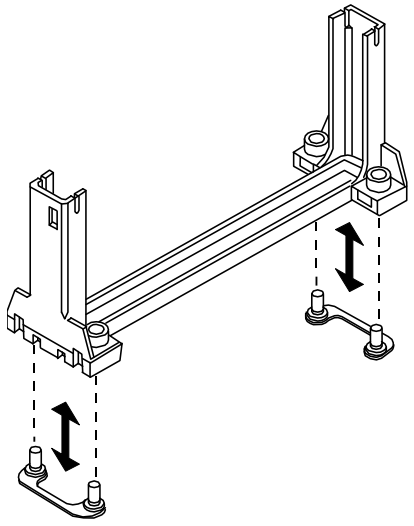


Figure 4-1. Detaching the Mounts from the Retention Module

2. Locate Slot 1 (J26, J27) 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.

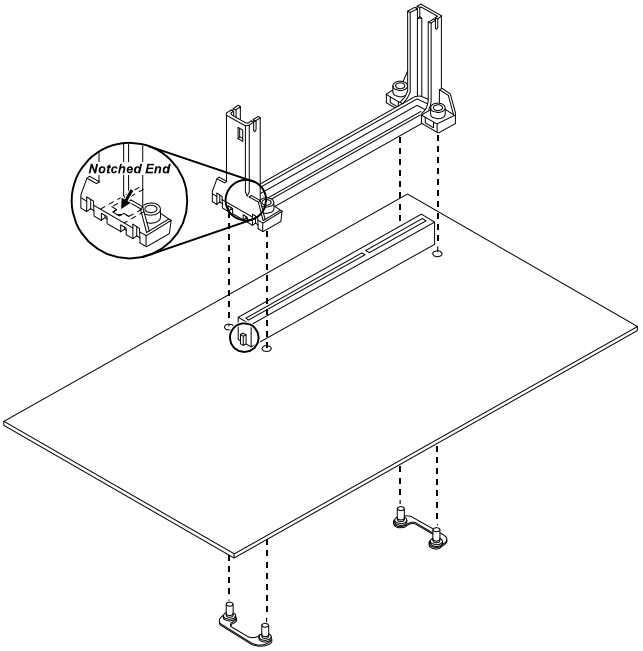


Figure 4-2. Fastening the Retention Module

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.

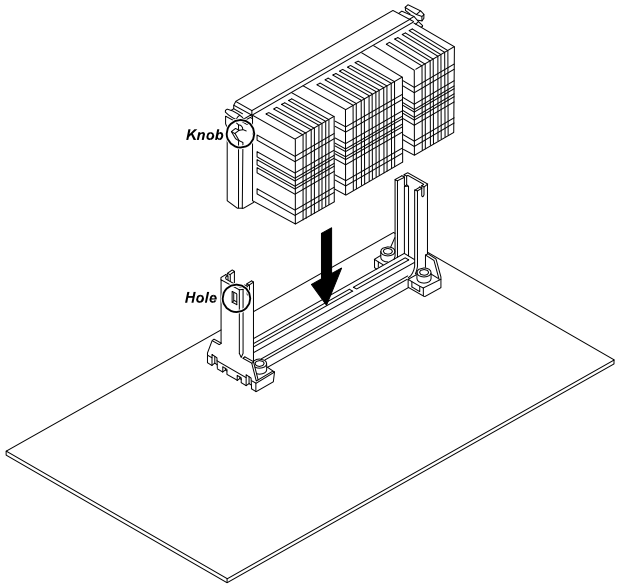


Figure 4-3. Installing Pentium II

4. If you install an Active heatsink module, connect the fan cable to J19 (2nd fan) or J20 (1st fan).

System Memory Installation

1. Locate the DIMM sockets (J28~J31) 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.

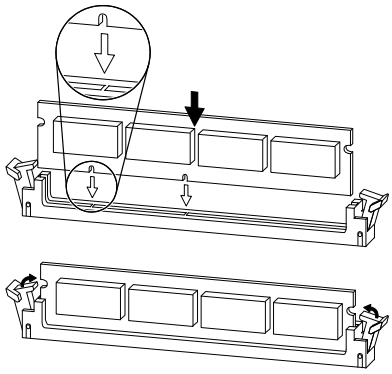


Figure 4-4. Installing DIMM Module

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.

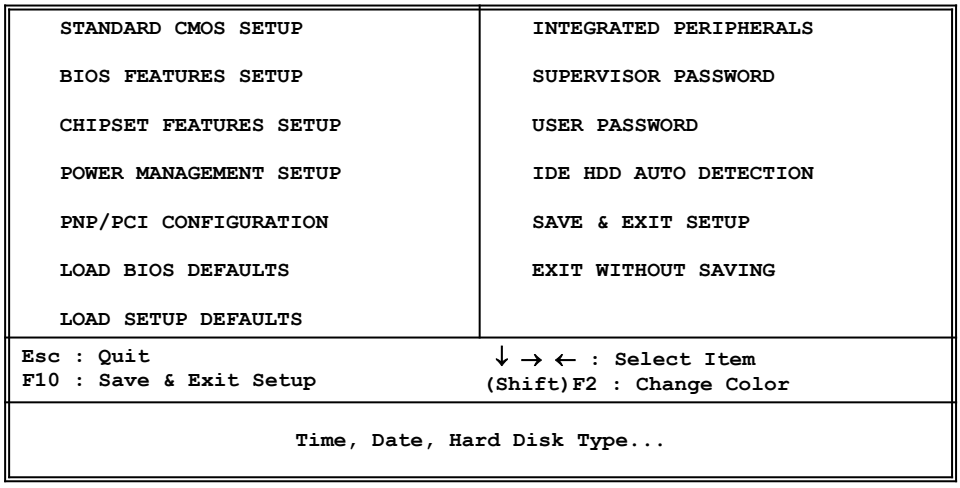


Figure 5-1. SETUP Main Menu

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).

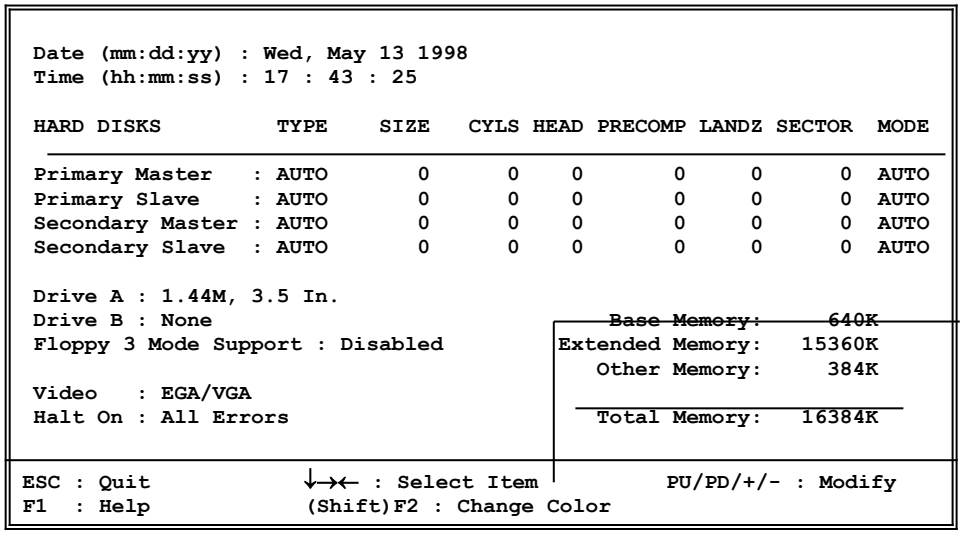


Figure 5-2. Standard CMOS Setup Menu

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:

Options	Descriptions
None	Select this option if no hard disk is installed.
1 to *45*	Select one of the 45 pre-defined types which matches your hard disk.
Auto	Select this option if your hard disk supports the "auto-detect" function.
User	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:

Options	Descriptions
Normal	For IDE hard disk drives smaller than 528MB
Large	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.)
LBA	For drives over 528MB that support Logical Block Addressing (Most IDE drives over 528MB support the LBA mode.)
Auto	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*.

Floppy 3 Mode Support

This item sets if your system has the 3 Mode (NEC/Fujitsu/Toshiba) floppy disk drive for 1.2MB diskettes used in Japan.

The available options are *Drive A, Drive B, Both,* and *Disabled.*

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:

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

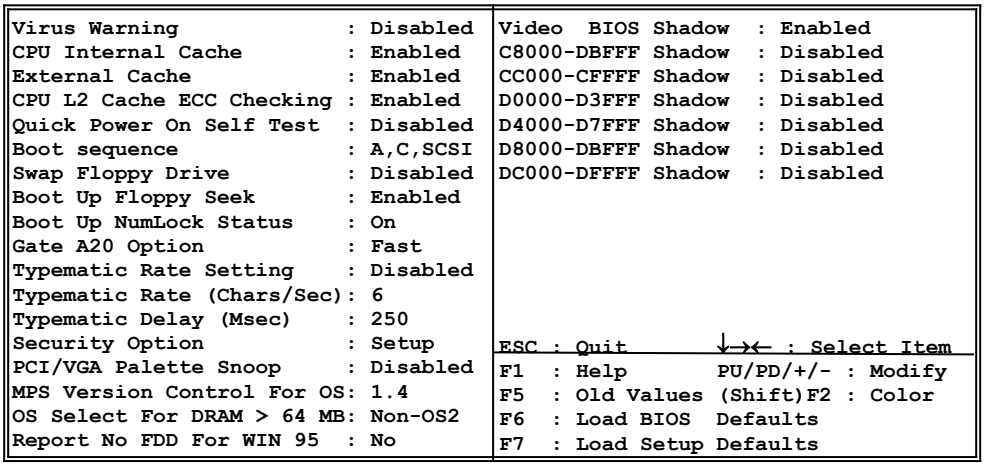
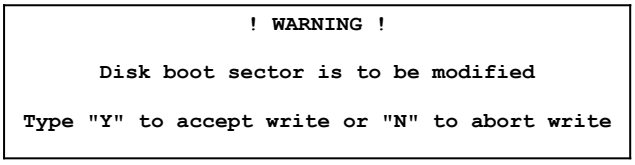


Figure 5-3. BIOS Features Setup Menu

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.



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*.

CPU L2 Cache ECC Checking

This item enables or disables the ECC (Error Correction Code) checking of the system data transfer.

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
A,C,CDROM
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*.

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:

Options	Descriptions
System	The system will not boot and access to SETUP will be denied if the correct password is not entered at the prompt.
Setup	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.)

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*.

MPS Version control For OS

This item sets the MPS (MultiProcessor Specification) version for the operation system.

The available options are:

Options	Descriptions
1.1	Select this option for UNIX, Netware, etc.
1.4	Select this option for Windows NT 5.0, Windows 98, etc.

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*.

Report No FDD For WIN 95

This is an item for NSTL test - set it to *Yes* if you want to test IRQ6.

The available options are *Yes* and *No*.

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.

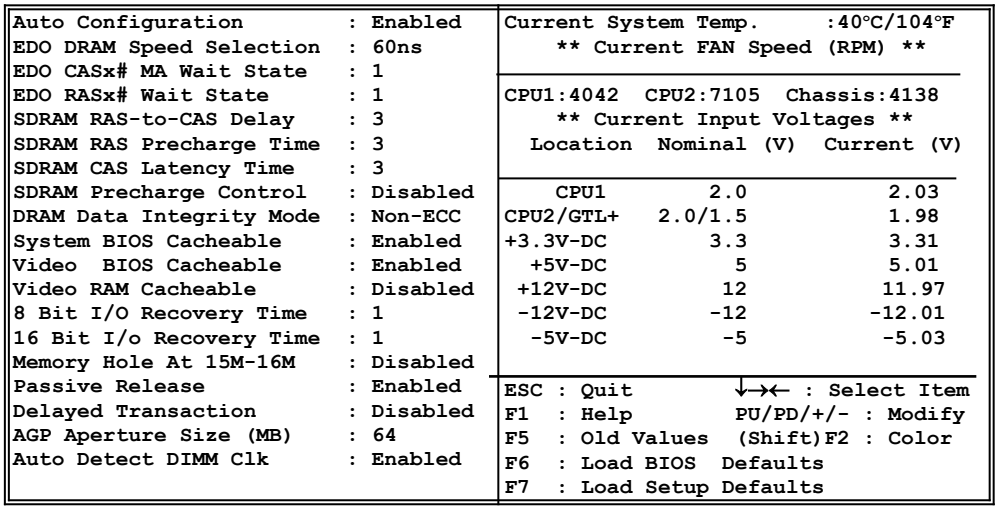


Figure 5-4. Chipset Features Setup Menu

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.

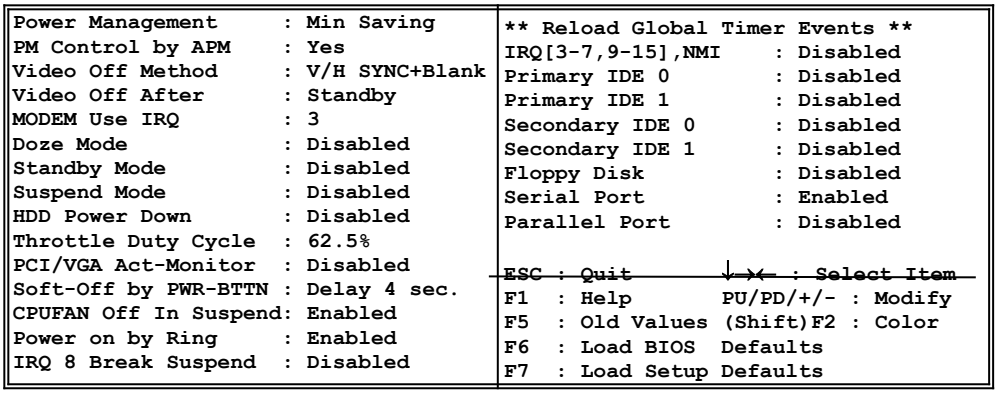


Figure 5-5. Power Management Setup Menu

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

Power Management

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

The available options are:

Options	**Descriptions**
Min Saving	Minimum power saving with the timer settings as: Doze Mode = 1 hr., Standby Mode = 1 hr., Suspend Mode = 1 hr., HDD Power Down = 15 min.
Max Saving	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.
User Defined	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:

Options	Descriptions
No	The system BIOS will ignore APM.
Yes	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:

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

Options	Descriptions
Standby	The screen will be off under Standby and Suspend modes.
Doze	The screen will be off under Doze, Standby, and Suspend modes.
N/A	The system BIOS will never turn off the screen.
Suspend	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 it 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%*.

PCI/VGA Act-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:

Options	Descriptions
Delay 4 sec.	The Power/Suspend button will turn off (soft-off) the system when it is pressed for more than 4 seconds.
Instant-Off	The Power/Suspend button will turn off (soft-off) the system. There will be no Suspend function of the Power/Suspend button.

CPUFAN Off In Suspend

This item sets if the CPU fan will be shut off while the system is in Suspend mode.

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

Power on 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*.

> ***NOTE:*** 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.

IRQ 8 Break Suspend

This item enables the event monitoring on IRQ8. The system will wake up from Supsend 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	Used MEM Base Addr : N/A
Resources Controlled By : Manual	
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.

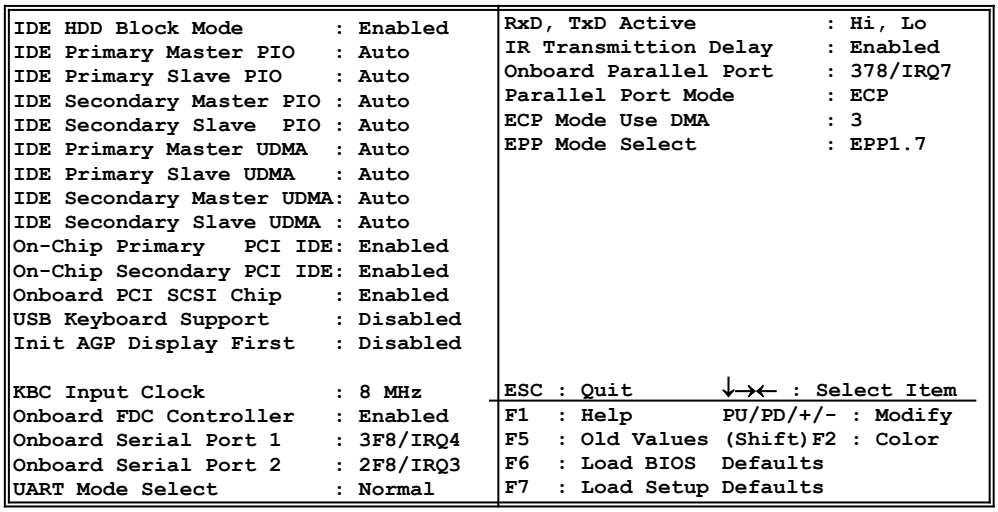


Figure 5-7. Integrated Peripherals Setup Menu

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.

Onboard PCI SCSI Chip

This item allows you to enable/disable the SCSI interface.

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

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 add-on AGP VGA first before initializing add-on PCI/ISA VGA cards.

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

KBC Input Clock

This item allows you to set the correct frequency for the keyboard controller input clock.

The available options are 6MHz, 8MHz, 12MHz, and 16MHz. You are recommended to use the default value.

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 1/2

These item set the I/O address and interrupt request line (IRQ) for the on-board serial port (COM1/2).

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

UART Mode Select

This item appears only if the “Onboard Serial Port 2” item setting is A*uto*, *3F8/IRQ4*, *2F8/IRQ3*, *3E8/IRQ4*, or *2E8/IRQ3.*

This item sets the serial port standard depending on the device connected. The available options are *Normal, IrDA*, and *ASK-IR*. If you select *IrDA* or *ASK-IR*, the “RxD, TxD Active” and “IR Transmittion Delay” sub-items will appear.

The available options of “RxD, TxD Active” are *Hi,Lo*, *Lo,Hi*, *Lo,Lo*, and *Hi,H,* while options of “IR Transmittion Delay” are *Enabled* (receiving or sending only) and *Disabled* (simultaneous receiving and sending).

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*.

EPP Mode Select

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

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

The available options are *EPP1.7* and *EPP1.9*.

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.

> ***NOTE:*** If you forget your password and wish to cancel it, ask your dealer to reset the CMOS RAM for you.

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.

Chapter 6

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 Bus Driver

The IDE bus driver is provided for Windows 95 (OSR2 and later versions) to recognize the PIIX4E controller chip used by your system. You must install the driver to use the capabilities of PIIX4E.

To install IDE bus driver for Windows 95:

1. Insert the driver and utility CD into the CD-ROM drive.
2. Run the **setup.exe** program in the \PIIX4 directory on the CD to set up the new hardware.
3. Use the default settings to complete the setup when Windows 95 is re-started.

USB Bus Driver

If using USB devices, you must install the USB driver.

To install USB bus driver for Windows 95, 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.

SCSI Driver

The SCSI driver on the driver and utility CD allows you to use the onboard Adaptec AIC-7890 *Ultra2*SCSI Controller.

To install the SCSI driver for Windows 95:

1. Select “Control Panel”, “Add New Hardware”., and then click on “Next>”.
2. Click on “No” and then “Next>”.
3. Select “SCSI Controllers” and click on “Next>”.
4. Click on “Have Disk”, “Browse...”, and then select **aic78xx.inf** program in the \SCSI\Win95 directory on the CD.
5. Click on “OK”.
6. Select “Adaptec AIC-789x based PCI *Ultra2*SCSI Controller” from Add New Hardware Wizard window. Click on “Next>”.
7. Restart the system.

> ***NOTE:*** For detailed instructions on installing and using the driver, please see the readme file in the \SCSI\Win95 directory on the CD.

Installation Instructions for Windows NT

SCSI Driver

The SCSI driver on the driver and utility CD allows you to use the onboard Adaptec AIC-7890 *Ultra2*SCSI Controller.

To install the SCSI driver for Windows NT, you have to select **oemsetup.inf** program in the \SCSI\WinNT directory on the CD.

> ***NOTE:*** For detailed instructions on installing and using the driver, please see the **readme.txt** readme file in the \SCSI\WinNT directory on the CD.

Installing the Driver for Windows NT v3.5/4.0

To install the SCSI driver while installing Windows NT v3.5/4.0:

1. Start your system with the Windows NT Boot Diskette in the CDROM drive.
2. After a few moments you will see a blue screen. To setup Windows NT now, press **F6**.

3. Press **S** to skip Windows NT Setup's auto detection of your SCSI adapter.
4. Press **S** again to specify an additional device.
5. Press **Enter** to select "Others", and insert the driver and utility CD.
6. Select "Adaptec AIC-7890/91 PCI *Ultra2*SCSI Controller (NT 3.5/4.0)" and press **Enter**.
7. Press **Enter** to continue with the Windows NT operating system setup. Follow the instructions given on screen and in the Windows NT installation documentation.

Server Spotter

The Server Spotter can monitor a server or multiple servers to help diagnose and correct problems.

To install Server Spotter for Windows NT:

1. Insert the driver and utility CD into the CD-ROM drive.
2. Run the **setup.exe** program in the \Spotter\setup directory on the CD.
3. Follow the on-screen instructions to complete the installation.

> ***NOTE:*** For detailed information, please see the **usermanual.htm** readme file in the \Spotter directory on the CD. To read the readme file, you need an HTML browser such as Netscape Navigator and Microsoft Internet Explorer.

Installation Instructions for OS/2

SCSI Driver

The SCSI driver on the driver and utility CD allows you to use the onboard Adaptec AIC-7890 *Ultra2*SCSI Controller.

To install the SCSI driver for OS/2, you have to copy **aic78u2.add** program in the \SCSI\OS2 directory on the CD.

> ***NOTE:*** For detailed instructions on installing and using the driver, please see the **readme.txt** readme file in the \SCSI\OS2 directory on the CD.

Installation Instructions for Novell Netware

SCSI Driver

The SCSI driver on the driver and utility CD allows you to use the onboard Adaptec AIC-7890 *Ultra2*SCSI Controller.

To install the SCSI driver for Novell Netware, you have to copy all files in the \ SCSI\Netware directory on the CD.

> ***NOTE:*** For detailed instructions on installing and using the driver, please see the **readme.txt** readme file in the \SCSI\Netware directory on the CD.