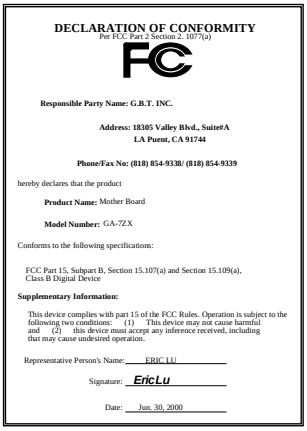
7ZX-1

AMD Athlon™/Duron™ Socket A Motherboard

USER'S MANUAL

AMD Athlon™/Duron™ Socket A Processor Motherboard
REV. 1.01 First Edition
R-101-01-001211

FCC Compliance Statement:



DECLARATION OF CONFORMITY
Per FCC Part 2 Section 2. 1077(a)

Responsible Party Name: G.B.T. INC.

Address: 18305 Valley Blvd., Suite#A
LA Puent, CA 91744

Phone/Fax No: (818) 854-9338/ (818) 854-9339

hereby declares that the product

Product Name: Mother Board

Model Number: GA-7ZX

Conforms to the following specifications:

FCC Part 15, Subpart B, Section 15.107(a) and Section 15.109(a), Class B Digital Device

Supplementary Information:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful and (2) this device must accept any inference received, including that may cause undesired operation.

Representative Person's Name: ERIC LU

Signature: *EricLu*

Date: Jun. 30, 2000

This equipment has been tested and found to comply with 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 residential installations. 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 interference to radio or television equipment 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

-Move the equipment away from the receiver

-Plug the equipment into an outlet on a circuit different from that to which the receiver is connected

-Consult the dealer or an experienced radio/television technician for additional suggestions

You are cautioned that any change or modifications to the equipment not expressly approve by the party responsible for compliance could void Your authority to operate such equipment.

This device complies with Part 15 of the FCC Rules. Operation is subjected to the following two conditions 1) this device may not cause harmful interference and 2) this device must accept any interference received, including interference that may cause undesired operation.

Declaration of Conformity

We, Manufacturer/Importer
(full address)

G.B.T. Technology Träding GMbH
Ausschlager Weg 41, 1F, 20537 Hamburg, Germany

declare that the product
(description of the apparatus, system, installation to which it refers)

Mother Board
GA-7ZX

is in conformity with
(reference to the specification under which conformity is declared)
in accordance with 89/336 EEC-EMC Directive

☐ **EN 55011**	Limits and methods of measurement of radio disturbance characteristics of industrial, scientific and medical (ISM high frequency equipment	☐ **EN 61000-3-2*** ☒ **EN60555-2**	Disturbances in supply systems caused by household appliances and similar electrical equipment "Harmonics"
☐ **EN55013**	Limits and methods of measurement of radio disturbance characteristics of broadcast receivers and associated equipment	☐ **EN61000-3-3*** ☒ **EN60555-3**	Disturbances in supply systems caused by household appliances and similar electrical equipment "Voltage fluctuations"
☐ **EN 55014**	Limits and methods of measurement of radio disturbance characteristics of household electrical appliances, portable tools and similar electrical apparatus	☒ **EN 50081-1** ☒ **EN 50082-1**	Generic emission standard Part 1: Residual, commercial and light industry Generic immunity standard Part 1: Residual, commercial and light industry
☐ **EN 55015**	Limits and methods of measurement of radio disturbance characteristics of fluorescent lamps and luminaries	☐ **EN 55081-2**	Generic emission standard Part 2: Industrial environment
☐ **EN 55020**	Immunity from radio interference of broadcast receivers and associated equipment	☐ **EN 55082-2**	Generic immunity standard Part 2: Industrial environment
☒ **EN 55022**	Limits and methods of measurement of radio disturbance characteristics of information technology equipment	☐ **ENV 55104**	Immunity requirements for household appliances tools and similar apparatus
☐ **DIN VDE 0855** ☐ **part 10** ☐ **part 12**	Cabled distribution systems; Equipment for receiving and/or **distribution** from sound and television signals	☐ **EN 50091- 2**	EMC requirements for uninterruptible power systems (UPS)
☒ **CE marking**		CE (EC conformity marking)	

The manufacturer also declares the conformity of above mentioned product with the actual required safety standards in accordance with LVD 73/23 EEC

☐ **EN 60065**	Safety requirements for mains operated electronic and related apparatus for household and similar general use	☐ **EN 60950**	Safety for information technology equipment including electrical business equipment
☐ **EN 60335**	Safety of household and similar electrical appliances	☐ **EN 50091-1**	General and Safety requirements for uninterruptible power systems (UPS)

Manufacturer/Importer

Signature : Rex Lin

(Stamp) Date : Jun. 30, 2000 Name : Rex Lin

Table Of Content

Revision History

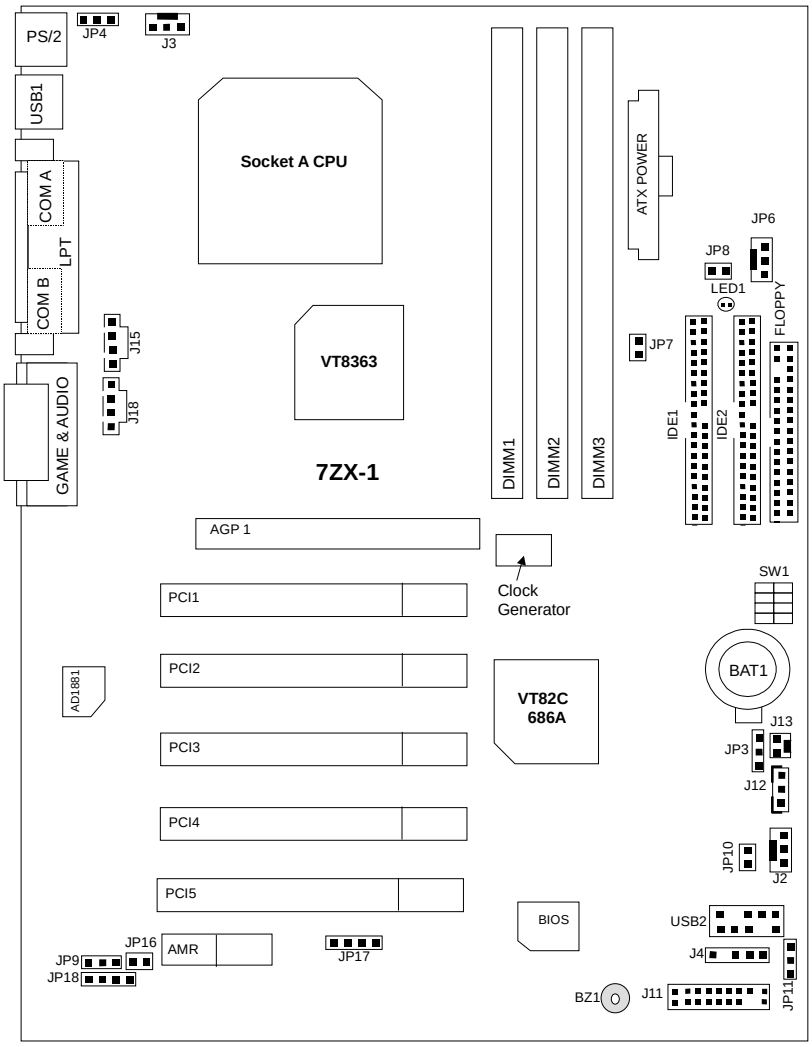
Revision	Revision Note	Date
1.01	Initial release of the 7ZX-1 motherboard user's manual.	Dec.2000

DEC. 11, 2000 TAIPEI, TAIWAN, R.O.C

Summary Of Features

Form Factor	• 30.5 cm x 22.8 cm ATX size form factor, 4 layers PCB.
CPU	• AMD Athlon™/Duron™ (K7) Socket A Processor • 256K/64K L2 cache on die • Supports 500MHz ~ 1GHz and faster
Chipset	Apollo KT133 ,consisting of: • VT8363 Memory/AGP/PCI Controller(PAC) • VT82C686A PCI Super-I/O Integrated Peripheral Controller (PSIPC)
Clock Generator	• ICS 9248-141 or ICW W230H
Memory	• 3 168-pin DIMM sockets • Supports PC-100 / PC-133 SDRAM • Supports up to 1.5GB DRAM • Supports only 3.3V SDRAM DIMM
I/O Control	• VT82C686A
Slots	• 1 AGP slot supports 4X mode & AGP 2.0 compliant • 5 PCI slots supports 33MHz & PCI 2.2 compliant • 1 AMR (Audio Modem Riser) slot
On-Board IDE	• Supports PIO mode 3, 4, UDMA33/ATA66 IDE & ATAPI CD-ROM • 2 IDE bus master (UDMA 33/ ATA 66) IDE ports for up to 4 ATAPI devices
On-Board Peripherals	• 1 floppy port supports 2 FDD with 1.4M bytes • 1 parallel ports supports Normal/EPP/ECP mode • 2 serial ports (COM A & COM B) • 4 USB ports • 1 IrDA connector for IR
Hardware Monitor	• CPU/System fan revolution detect • CPU/System temperature detect • System voltage detect • CPU overheat shutdown detect
PS/2 Connector	• PS/2 Keyboard interface and PS/2 Mouse interface
On-Board Sound	• AC'97 CODEC • Line In / Line Out / Mic In / AUX In / CD In / TEL / Game Port
BIOS	• Licensed AMI BIOS, 2M bit flash ROM
Additional Features	• Support Wake-On-LAN (WOL) • Support Internal / External Modem Ring On • Support USB KB/MS Wake up from S3-S5 • Includes 3 fan power connectors • Poly fuse for keyboard over-current protection • Support STR (Suspend-To-RAM) function

7ZX-1 Motherboard Layout

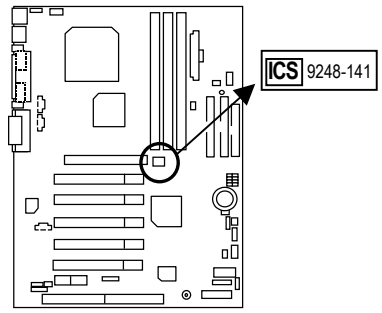


CPU Speed Setup

The system bus speed is selectable at 100~133MHz. The user can select the system bus speed by DIP switch **SW1**.

Set System Bus Speed

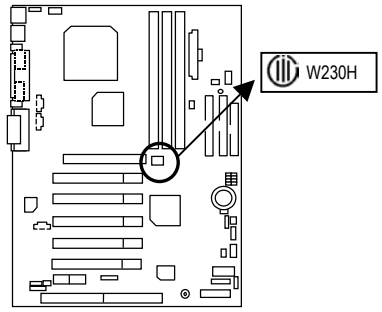
●If your clock generator (in Motherboard) is **ICS 9248-141**. You can follow the below reference.



SW1: (ICS 9248-141) **O : ON, X : OFF**

FSB	1	2	3	4
95	O	O	X	O
⋆100	X	O	X	X
105	X	O	O	X
110	O	X	O	X
113	X	X	O	O
115	X	X	X	O
117	X	X	O	X
133	X	X	X	X

●If your clock generator (in Motherboard) is **ICW W230H**. You can follow the below reference.



SW1: (ICW W230H) **O : ON, X : OFF**

FSB	1	2	3	4
95	O	O	X	X
⋆100	0	X	X	X
102	0	0	0	X
104	X	X	X	0
106	0	X	X	0
108	0	0	X	0
110	0	X	0	0
112	0	0	0	0
133	0	X	0	X

⋆ The FSB Speed of the VIA KT133 is 100MHz.

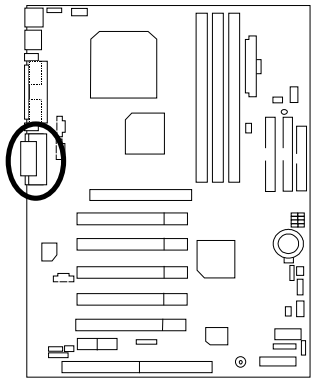
AMD CPU Heat Sink Installation:

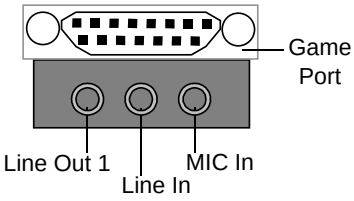
Beware: Please check that the heat sink is in good contact with the CPU before you turn on your system.

The poor contact will cause over heat, and might cause damage to your processor.

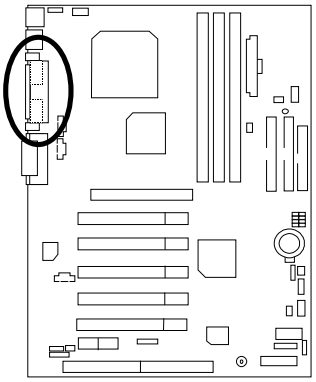
Connectors

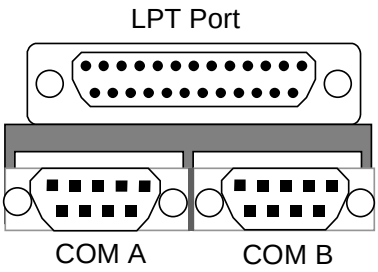
Game & Audio Port



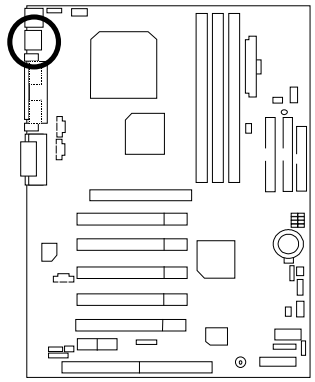


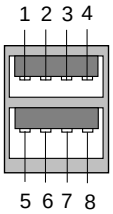
COM A / COM B / LPT Port





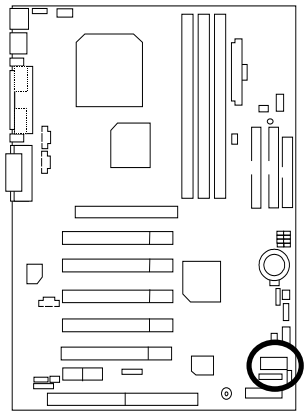
USB 1 Connector

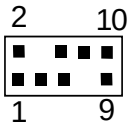




Pin No.	Definition
1	USB V0
2	USB D0-
3	USB D0+
4	GND
5	USB V1
6	USB D1-
7	USB D1+
8	GND

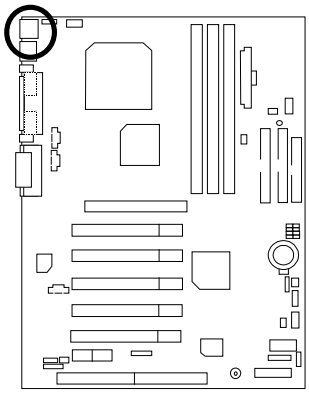
USB 2 Connector

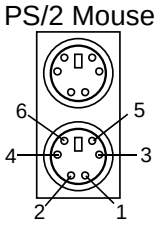




Pin No.	Definition
1	+5V
2	GND
3	USB D2-
4	NC
5	USB D2+
6	USB D3+
7	NC
8	USB D3-
9	GND
10	+5V

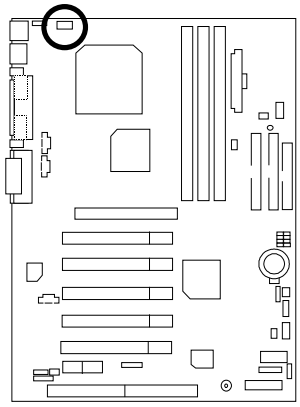
PS/2 Keyboard & PS/2 Mouse Connector





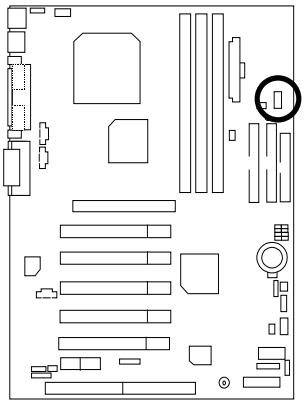
PS/2 Mouse/Keyboard	
Pin No.	Definition
1	Data
2	NC
3	GND
4	VCC(+5V)
5	Clock
6	NC

J3: CPU Fan



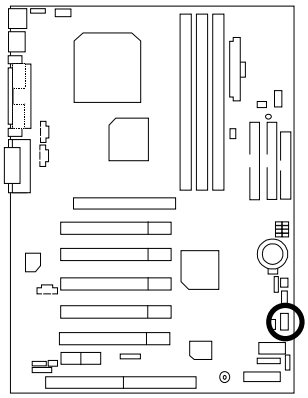
Pin No.	Definition
1	Control
2	+12V
3	SENSE

JP6: Power Fan



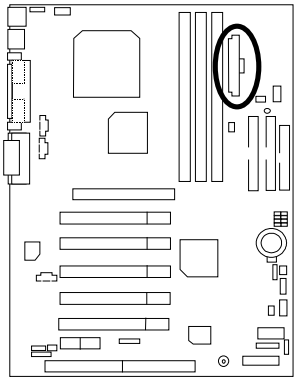
Pin No.	Definition
1	Control
2	+12V
3	NC

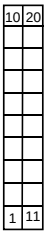
J2: Sysem Fan



Pin No.	Definition
1	Control
2	+12V
3	SENSE

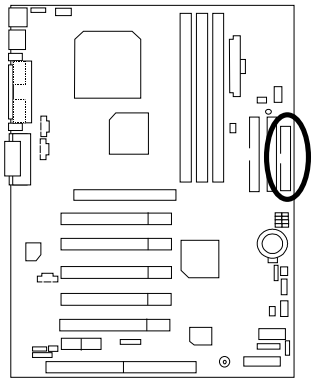
ATX Power

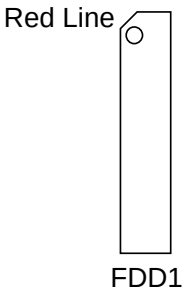




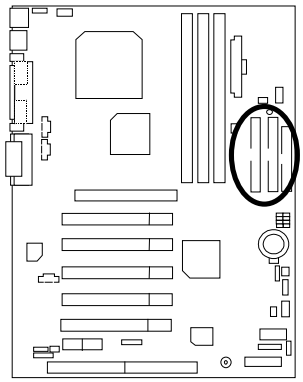
Pin No.	Definition
3,5,7,13, 15-17	GND
1,2,11	3.3V
4,6,19,20	VCC
10	+12V
12	-12V
18	-5V
8	Power Good
9	5V SB stand by+5V
14	PS-ON(Soft On/Off)

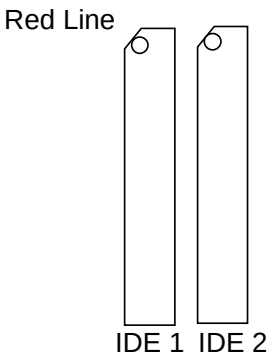
Floppy Port



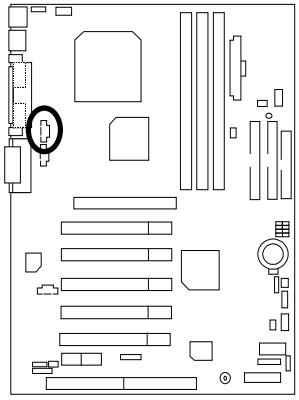


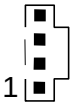
IDE1(Primary), IDE2(Secondary) Port





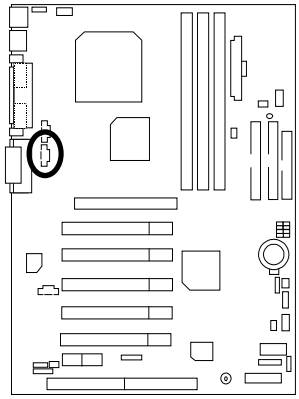
J15: AUX_IN

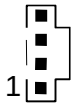




Pin No.	Definition
1	AUX-L
2	GND
3	GND
4	AUX-R

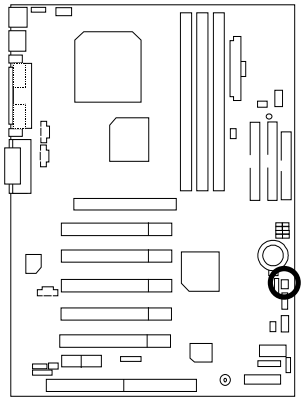
J18: CD Audio Line In





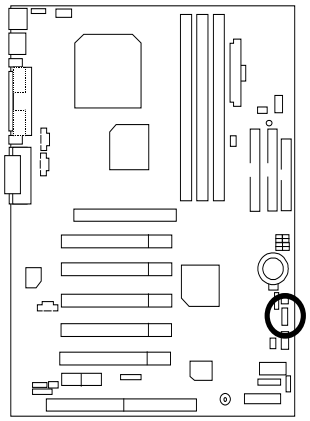
Pin No.	Definition
1	CD-L
2	GND
3	GND
4	CD-R

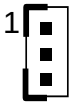
J13: Ring Power On (Internal Modem Card Wake Up)



Pin No.	Definition
1	Signal
2	GND

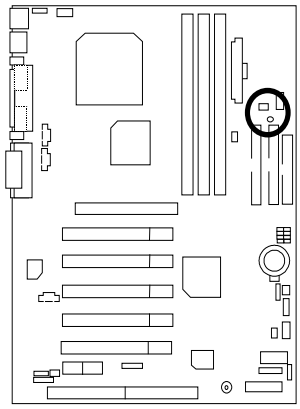
J12: Wake On LAN





Pin No.	Definition
1	+5V SB
2	GND
3	Signal

JP8 / LED1: STR LED Connector & DIMM LED

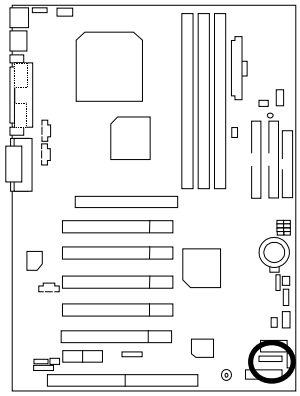


STR LED Connector External.

1 ■ ■

\+ ●● DIMM LED

J4: IR

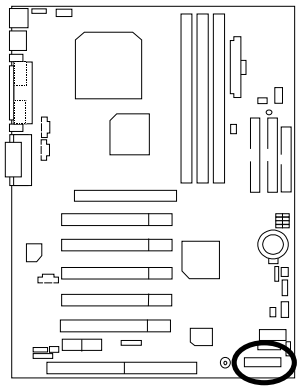


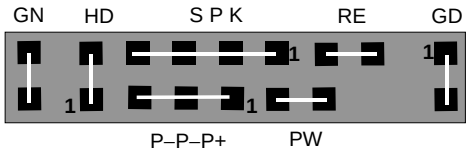
1 ■ ■ ■ ■

Pin No.	Definition
1	VCC (+5V)
2	NC
3	IR Data Input
4	GND
5	IR Data Output

Panel And Jumper Definition

J11: 2x11 Pins Jumper

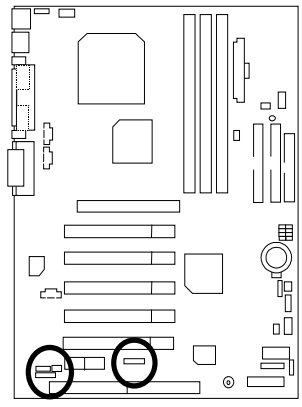


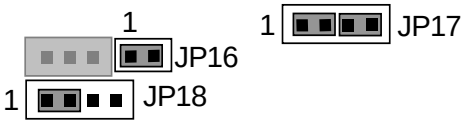


GN (Green Switch)	Open: Normal Operation Close: Entering Green Mode	Not available at the case
GD (Green LED)	Pin 1: LED anode(+) Pin 2: LED cathode(–)	
HD (IDE Hard Disk Active LED)	Pin 1: LED anode(+) Pin 2: LED cathode(–)	
SPK (Speaker Connector)	Pin 1: VCC(+) Pin 2- Pin 3: NC Pin 4: Data(–)	For external speaker in the case
RE (Reset Switch)	Open: Normal Operation Close: Reset Hardware System	
P+P–P–(Power LED)	Pin 1: LED anode(+) Pin 2: LED cathode(–) Pin 3: LED cathode(–)	
PW (Soft Power Connector)	Open: Normal Operation Close: Power On/Off	

JP16 /JP17/JP18: AMR (Primary or Secondary) Select (Optional)

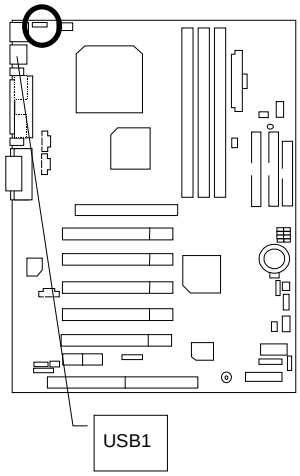
(AMR→ Audio Modem Riser)





	JP16	JP17	JP18
Onboard AC97	ON	1-2	1-2
AMR (Primary)	OFF	3-4	3-4
Onboard AC97+MR (Secondary) (Default)	ON	1-2 3-4	1-2

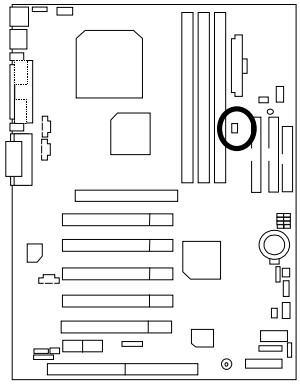
JP4: Rear USB Device Wake up Selection (USB Connector → USB1)



Pin No.	Definition
1-2 Close	Normal (Default)
2-3 Close	USB Device Wake up

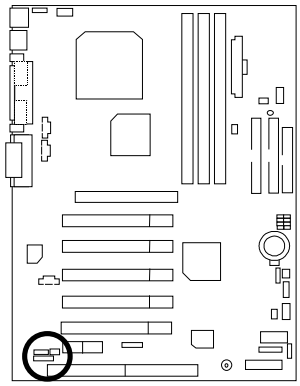
(If you want to use "USB Dev Wakeup From S3-S5" function, you have to set the BIOS setting "USB Dev Wakeup From S3-S5" enabled, and the jumper "JP4" enabled).
*(Power on the computer and as soon as memory counting starts, press <Del>. You will enter BIOS Setup. Select the item "POWER MANAGEMENT SETUP", then select "USB Dev Wakeup From S3-S5: Enabled". Remember to save the setting by pressing "ESC" and choose the "SAVE & EXIT SETUP" option.)

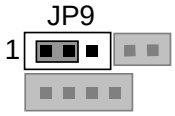
JP7: STR Function Enabled (Suspend To RAM)



Pin No.	Definition
Open	Normal (Default)
Close	STR Enabled

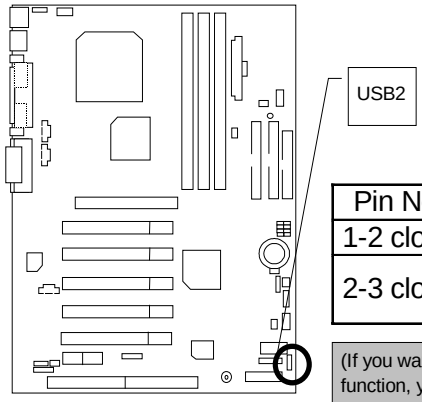
JP9: Onboard Sound Function Selection (Optional)





Pin No.	Definition
1-2 close	Onboard Sound Enable (Default)
2-3 close	Onboard Sound Disable

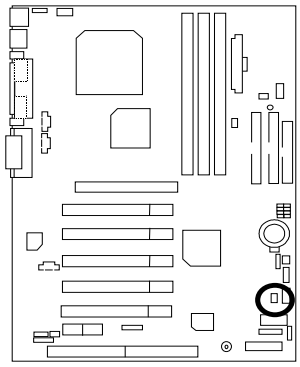
JP11: Front USB Device Wake up Selection (USB Port → USB2)



Pin No.	Definition
1-2 close	Normal (Default)
2-3 close	Enabled Front USB Device Wake up

(If you want to use "USB Dev Wakeup From S3-S5" function, you have to set the BIOS setting "USB Dev Wakeup From S3-S5" enabled, and the jumper "JP11" enabled).
*(Power on the computer and as soon as memory counting starts, press <Del>. You will enter BIOS Setup. Select the item "POWER MANAGEMENT SETUP", then select "USB Dev Wakeup From S3-S5: Enabled". Remember to save the setting by pressing "ESC" and choose the "SAVE & EXIT SETUP" option.)

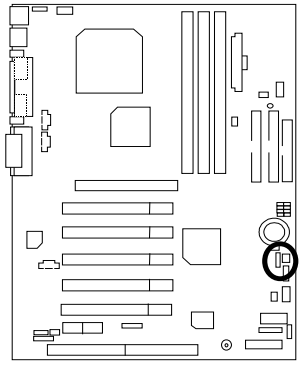
JP10: BIOS Write Protection (Optional)



Pin No.	Definition
ON	Write Protect Enable
OFF	Write Protect Disable (Default)

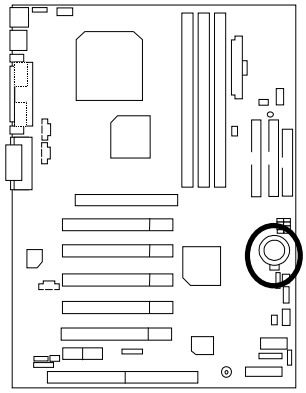
☛ Please Set Jumper JP10 to "OFF" to enabled BIOS Write Function when you update new BIOS or new device

JP3: Clear CMOS Function (Optional)



Pin No.	Definition
1-2 close	Normal (Default)
2-3 close	Clear CMOS

BAT1: Battery



CAUTION

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

Performance List

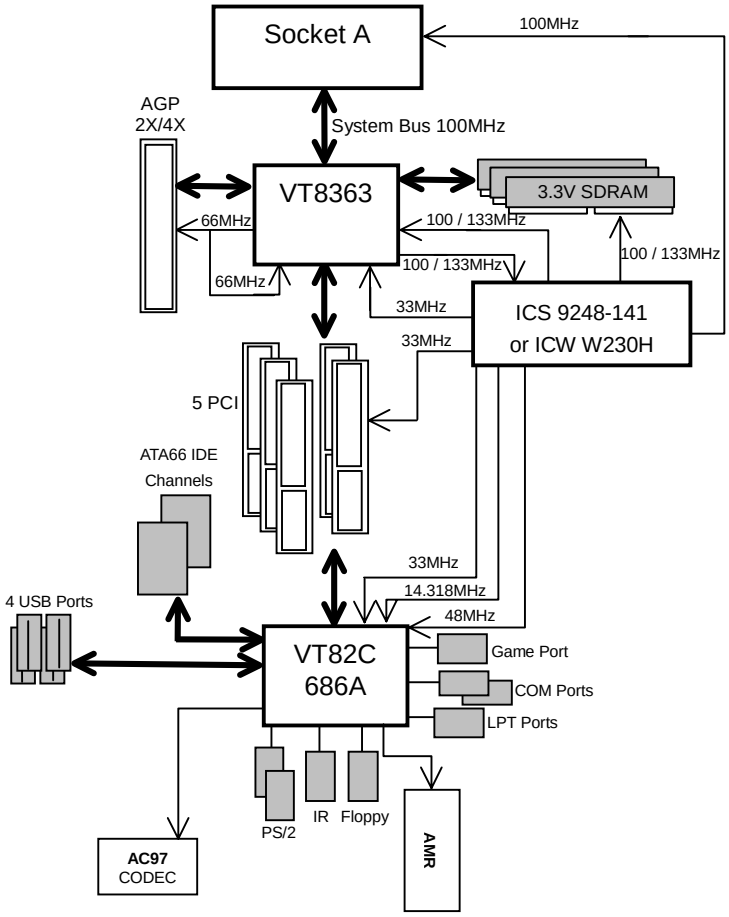
The following performance data list is the testing results of some popular benchmark testing programs.
These data are just referred by users, and there is no responsibility for different testing data values gotten by users. (The different Hardware & Software configuration will result in different benchmark testing results.)

- CPU AMD Thunderbird™ 950MHz, AMD Duron™ 700MHz
- DRAM (256x1) MB SDRAM (HYUNDAI HYM71V733201)
- CACHE SIZE 256 KB included in Thunderbird
  64 KB included in Duron
- DISPLAY GA-GF2560
- STORAGE Onboard IDE (Quantum KA13600AT)
- O.S. Windows NT™ 4.0 SPK6a
- DRIVER Display Driver at 1024 x 768 65536 colors 75Hz.
  TUCD 1.5 Beta3

Processor	AMD Thunderbird™ 950MHz (100x9.5)	AMD Duron™ 700MHz (100x7)
Winbench99		
CPU mark 99	86.5	61.5
FPU Winmark 99	5210	3840
Business Disk Winmark 99	5410	5440
Hi-End Disk Winmark 99	13600	13200
Business Graphics Winmark 99	481	352
Hi-End Graphics Winmark 99	985	676
Winstone99		
Business Winstone 99	47.3	40.3
Hi-End Winstone 99	50.8	41.6

If you wish to maximize the performance of your system, please refer to the detail on P.43

Block Diagram



Suspend To RAM Installation

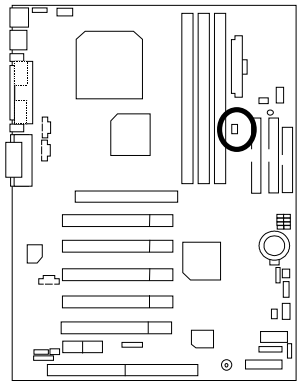
A.1 Introduce STR function:

Suspend-to-RAM (STR) is a Windows 98 ACPI sleep mode function. When recovering from STR (S3) sleep mode, the system is able, in just a few seconds, to retrieve the last “state” of the system before it went to sleep and recover to that state. The “state” is stored in memory (RAM) before the system goes to sleep. During STR sleep mode, your system uses only enough energy to maintain critical information and system functions, primarily the system state and the ability to recognize various “wake up” triggers or signals, respectively.

A.2 STR function Installation

Step 1:

(If you want to use STR Function, please set jumper JP7 Closed.)



Pin No.	Definition
Open	Normal (Default)
Close	STR Enabled

Step 2:

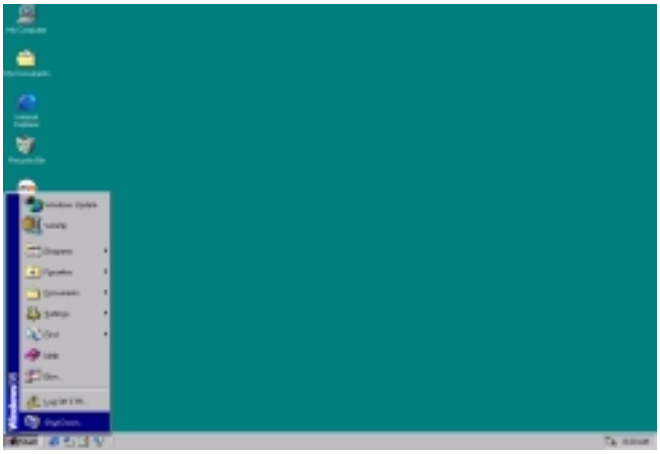
Power on the computer and as soon as memory counting starts, press <Del>. You will enter BIOS Setup. Select the item **“POWER MANAGEMENT SETUP”,** then select **“ACPI Sleep Type : S3 / STR”**. Remember to save the settings by pressing "ESC" and choose the **“SAVE & EXIT SETUP”** option.

Congratulation! You have completed the installation and now can use the STR function.

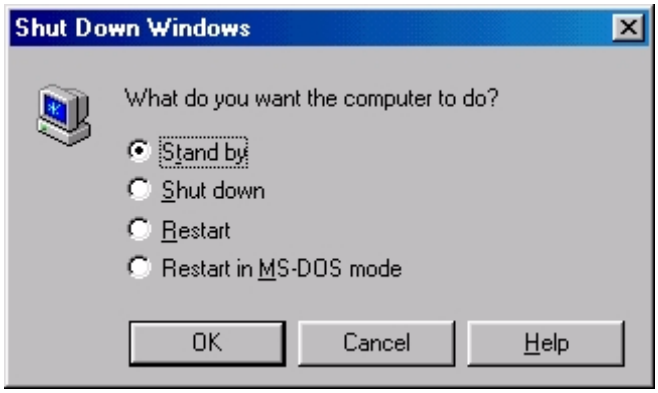
A.3 How to put your system into STR mode?

There are two ways to accomplish this:

1. Choose the “Stand by” item in the “Shut Down Windows” area.
   A. Press the “Start” button and then select “Shut Down”

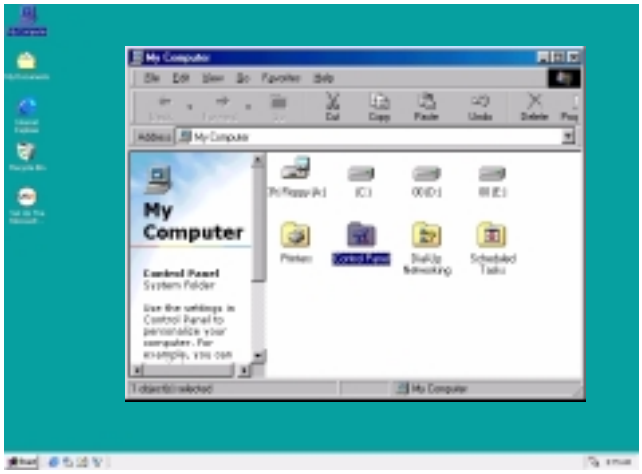


B. Choose the “Stand by” item and press “OK”

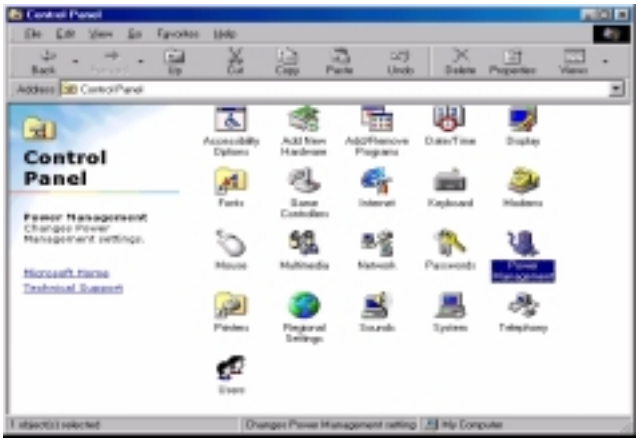


2. Define the system ”power on” button to initiate STR sleep mode:

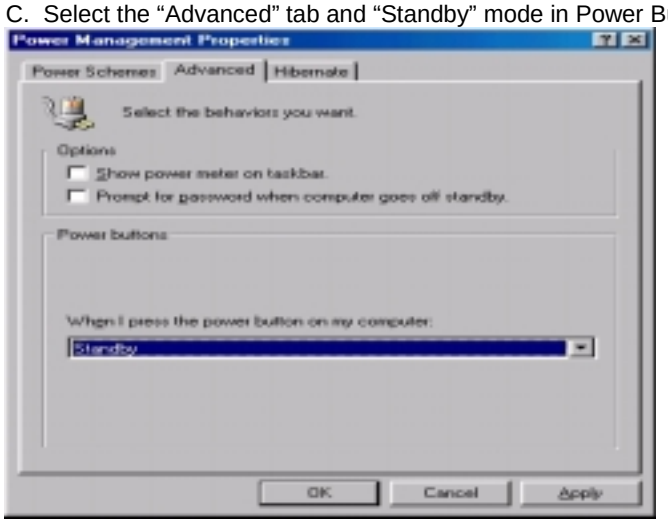
A. Double click “My Computer” and then “Control Panel”



B. Double click the “ Power Management” item.



C. Select the “Advanced” tab and “Standby” mode in Power Buttons.



D. Restart your computer to complete setup.

Now when you want to enter STR sleep mode, just momentarily press the “Power on” button.

A.4 How to recover from the STR sleep mode?

There are five ways to “wake up” the system:

1. Press the “Power On” button.
2. Use the “Resume by Alarm” function.
3. Use the “Modem Ring On” function.
4. Use the “Wake On LAN” function.
5. Use the “USB Device Wake Up” function.

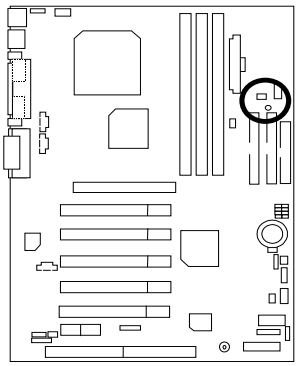
A.5 Notices:

1. In order for STR to function properly, several hardware and software requirements must be satisfied:

   A. Your ATX power supply must comply with the ATX 2.01 specification (provide more than 720 mA 5V Stand-By current).

   B. Your SDRAM must be PC-100 / PC-133 compliant.

2. Jumper JP8 is provided to connect to the STR LED in your system chassis. [Your chassis may not provide this feature.] The STR LED will be illuminated when your system is in STR sleep mode.



STR LED Connector External.

1 ■ ■

\+ ●● DIMM LED

Memory Installation

The motherboard has 3 dual inline memory module (DIMM) sockets. The BIOS will automatically detects memory type and size. To install the memory module, just push it vertically into the DIMM Slot .The DIMM module can only fit in one direction due to the two notch. Memory size can vary between sockets.

Install memory in any combination table:

DIMM	168-pin SDRAM DIMM Modules	
DIMM 1	Supports 16 / 32 / 64 / 128 / 256 / 512 MB	X 1 pcs
DIMM 2	Supports 16 / 32 / 64 / 128 / 256 / 512 MB	X 1 pcs
DIMM 3	Supports 16 / 32 / 64 /128 / 256 / 512 MB	X 1 pcs

Total System Memory (Max 1.5GB)

BIOS Setup

BIOS Setup is an overview of the BIOS Setup Program. The program that allows users to modify the basic system configuration. This type of information is stored in battery-backed CMOS RAM so that it retains the Setup information when the power is turned off.

ENTERING SETUP

Power ON the computer and press <Del> immediately will allow you to enter Setup. If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" bottom on the system case. You may also restart by simultaneously press <Ctrl> – <Alt>– <Del> keys.

CONTROL KEYS

<↑>	Move to previous item
<↓>	Move to next item
<←>	Move to the item in the left hand
<→>	Move to the item in the right hand
<Esc>	Main Menu - Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu - Exit current page and return to Main Menu
<+/PgUp>	Increase the numeric value or make changes
<-/PgDn>	Decrease the numeric value or make changes
<F1>	General help, only for Status Page Setup Menu and Option Page Setup Menu
<F2>	Reserved
<F3>	Reserved
<F4>	Reserved
<F5>	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
<F6>	Load the default CMOS value from BIOS default table, only for Option Page Setup Menu
<F7>	Load the Setup Defaults
<F8>	Reserved
<F9>	Reserved
<F10>	Save all the CMOS changes, only for Main Menu

GETTING HELP

Main Menu

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Status Page Setup Menu / Option Page Setup Menu

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc>.

The Main Menu

Once you enter AMI BIOS CMOS Setup Utility, the Main Menu (Figure 1) will appear on the screen. The Main Menu allows you to select from nine setup functions and two exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

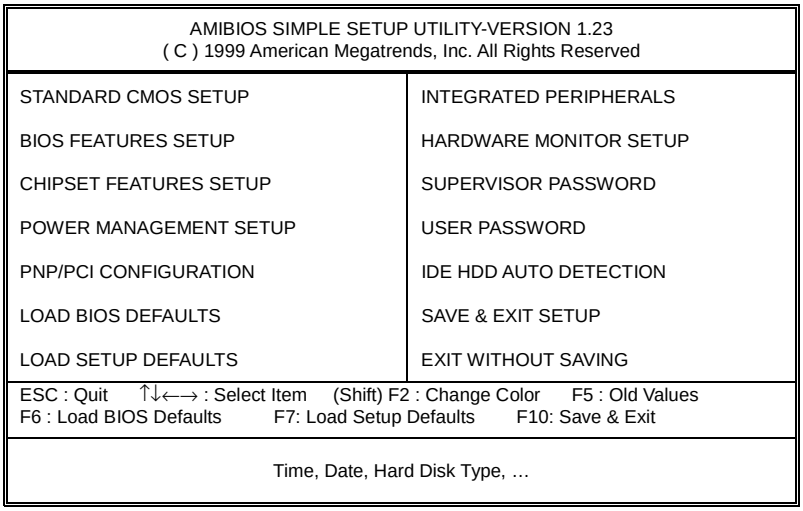


Figure 1: Main Menu

- **Standard CMOS Setup**

  This setup page includes all the items in standard compatible BIOS.

- **BIOS Features Setup**

  This setup page includes all the items of AMI special enhanced features.

- **Chipset Features Setup**

  This setup page includes all the items of chipset special features.

- **Power Management Setup**

  This setup page includes all the items of Green function features.

- **PnP/PCI Configurations**

  This setup page includes all the configurations of PCI & PnP ISA resources.

- **Load BIOS Defaults**

  Bios Defaults indicates the value of the system parameter which the system would be in the safe configuration.

- **Load Setup Defaults**

  Setup Defaults indicates the value of the system parameter which the system would be in the most appropriate configuration.

- **Integrated Peripherals**

  This setup page includes all onboard peripherals.

- **Hardware Monitor Setup**

  This setup page is auto detect fan and temperature status.

- **Supervisor password**

  Change, set, or disable password. It allows you to limit access to the system and Setup, or just to Setup.

- **User password**

  Change, set, or disable password. It allows you to limit access to the system.

- **IDE HDD auto detection**

  Automatically configure hard disk parameters.

- **Save & Exit Setup**

  Save CMOS value settings to CMOS and exit setup.

- **Exit Without Saving**

  Abandon all CMOS value changes and exit setup.

Standard CMOS Setup

The items in Standard CMOS Features Menu (Figure 2) are divided into 9 categories. Each category includes no, one or more than one setup items. Use the arrows to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

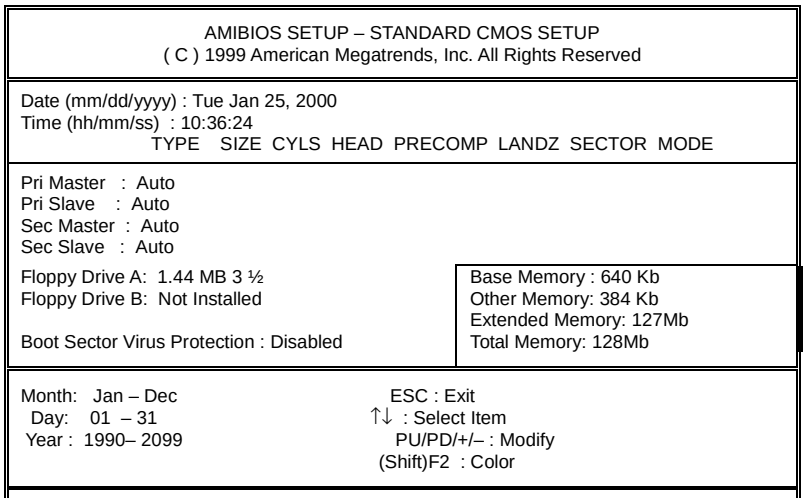


Figure 2: Standard CMOS Setup

- **Date**

  The date format is <Week> <Month> <Day>, <Year>.

Week	The week, from Sun to Sat, determined by the BIOS and is display-only
Month	The month, Jan. Through Dec.
Day	The day, from 1 to 31 (or the maximum allowed in the month)
Year	The year, from 1990 through 2099

- **Time**

  The times format in <hour> <minute> <second>. The time is calculated base on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00.

- **Primary Master, Slave / Secondary Master, Slave**

  The category identifies the types of hard disk from drive C to F that has been installed in the computer. There are two types: auto type, and user definable type. User type is user-definable; Auto type which will automatically detect HDD type.

  Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category.

  If you select User Type, related information will be asked to enter to the following items. Enter the information directly from the keyboard and press <Enter>. Such information should be provided in the documentation

form your hard disk vendor or the system manufacturer.

CYLS.	Number of cylinders
HEADS	number of heads
PRECOMP	write precomp
LANDZONE	Landing zone
SECTORS	number of sectors

If a hard disk has not been installed select NONE and press <Enter>.

- **Floppy Drive A / Drive B**

The category identifies the types of floppy disk drive A or drive B that has been installed in the computer.

None	No floppy drive installed
360K, 5.25 in.	5.25 inch PC-type standard drive; 360K byte capacity.
1.2M, 5.25 in.	5.25 inch AT-type high-density drive; 1.2M byte capacity (3.5 inch when 3 Mode is Enabled).
720K, 3.5 in.	3.5 inch double-sided drive; 720K byte capacity
1.44M, 3.5 in.	3.5 inch double-sided drive; 1.44M byte capacity.
2.88M, 3.5 in.	3.5 inch double-sided drive; 2.88M byte capacity.

- **Boot Sector Virus Protection**

If it is set to enable, the category will flash on the screen when there is any attempt to write to the boot sector or partition table of the hard disk drive. The system will halt and the following error message will appear in the mean time. You can run anti-virus program to locate the problem.

Enabled	Activate automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table
Disabled	No warning message to appear when anything attempts to access the boot sector or hard disk partition table. **(Default Value)**

- **Memory**

The category is display-only which is determined by POST (Power On Self Test) of the BIOS.

Base Memory

The POST of the BIOS will determine the amount of base (or conventional) memory installed in the system.

The value of the base memory is typically 512 K for systems with 512 K memory installed on the motherboard, or 640 K for systems with 640 K or more memory installed on the motherboard.

Extended Memory

The BIOS determines how much extended memory is present during the POST.

This is the amount of memory located above 1 MB in the CPU's memory address map.

Other Memory

This refers to the memory located in the 640 K to 1024 K address space. This is memory that can be used for different applications.

DOS uses this area to load device drivers to keep as much base memory free for application programs. Most use for this area is Shadow RAM

BIOS Features Setup

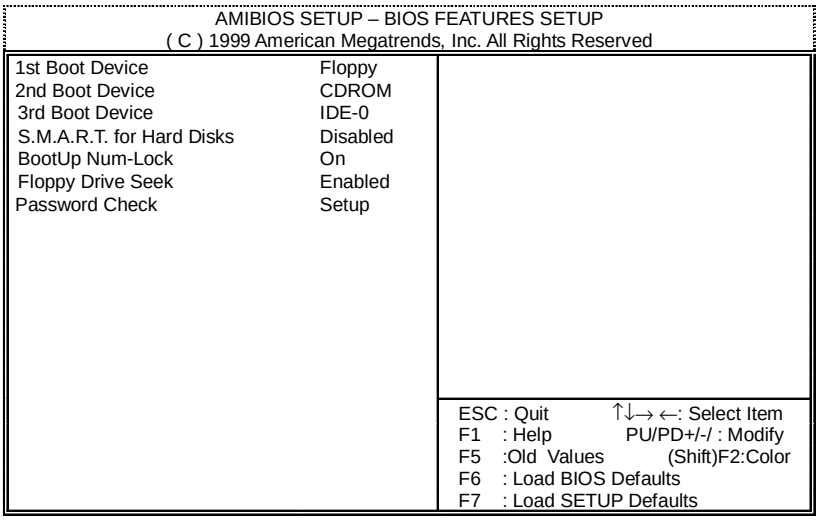


Figure 3: BIOS Features Setup

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

Floppy	Boot Device by Floppy.
ZIP A: / LS-120	Boot Device by ZIP A: / LS-120.
CDROM	Boot Device by CDROM.
SCSI	Boot Device by SCSI.
NETWORK	Boot Device by NETWORK.
IDE-0~IDE-3	Boot Device by IDE-0~IDE-3.
Disabled	Boot Device by Disabled.
USB FDD	Boot Device by USB FDD.
ATAPI ZIP C:	Boot Device by ATAPI ZIP C:.

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

Enabled	Enabled S.M.A.R.T. Hard for Disks.
Disabled	Disabled S.M.A.R.T. Hard for Disks. **(Default Value)**

- **Boot Up Num-Lock**

On	Keypad is number keys. **(Default Value)**
Off	Keypad is arrow keys.

- **Floppy Drive Seek**

During POST, BIOS will determine if the floppy disk drive installed is 40 or 80 tracks. 360 type is 40 tracks while 720 , 1.2 and 1.44 are all 80 tracks.

Enabled	BIOS searches for floppy disk drive to determine if it is 40 or 80 tracks. Note that BIOS can not tell from 720, 1.2 or 1.44 drive type as they are all 80 tracks. **(Default Value)**
Disabled	BIOS will not search for the type of floppy disk drive by track number. Note that there will not be any warning message if the drive installed is 360.

- **Password Check**

Setup	Set Password Check to Setup. **(Default Value)**
Always	Set Password Check to Always.

Chipset Features Setup

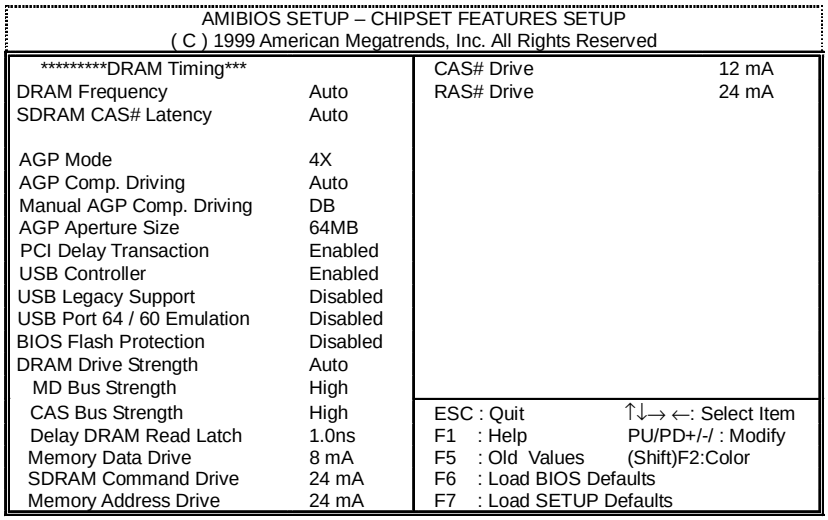


Figure 4: Chipset Features Setup

- **DRAM Frequency**

100MHz	Set DRAM Frequency to 100MHz.
133MHz	Set DRAM Frequency to 133MHz.

- **SDRAM CAS# Latency**

2	For Fastest SDRAM DIMM module.
3	For Slower SDRAM DIMM module.
Auto	Detect SDRAM CAS# Latency by SPD. **(Default Value)**

- **AGP Mode**

4X	Set AGP Mode to 4X. **(Default Value)**
1X	Set AGP Mode to 1X.
2X	Set AGP Mode to 2X.

- **AGP Comp. Driving**

Auto	Set AGP Comp. Driving to Auto. **(Default Value)**
Manual	Set AGP Comp. Driving to Manual.

If AGP Comp. Driving is Manual.

Manual AGP Comp. Driving :	00~FF

- **AGP Aperture Size**

4MB	Set AGP Aperture Size to 4MB.
8MB	Set AGP Aperture Size to 8 MB.
16MB	Set AGP Aperture Size to 16 MB.
32MB	Set AGP Aperture Size to 32 MB.
64MB	Set AGP Aperture Size to 64 MB. **(Default Value)**
128MB	Set AGP Aperture Size to 128 MB.
256MB	Set AGP Aperture Size to 256 MB.

- **PCI Delay Transaction**

Enabled	Enabled Delay Transaction. **(Default Value)**
Disabled	Disabled Delay Transaction.

- **USB Controller**

Enabled	Enabled USB Controller. **(Default Value)**
Disabled	Disabled USB Controller.

- **USB Legacy Support**

Keyboard/FDD	Set USB Legacy Support Keyboard / Floppy.
KB/Mouse/FDD	Set USB Legacy Support Keyboard / Mouse /Floppy.
Disabled	Disabled USB Legacy Support Function. **(Default Value)**

- **BIOS Flash Protection**

Enabled	BIOS Flash Write Protection.
Disabled	Normal. **(Default Value)**

- **DRAM Drive Strength**

Auto	Set DRAM Drive Strength Auto. **(Default Value)**
Manual	Set DRAM Drive Strength Manual.

If DRAM Drive Strength is Manual, then you can adjust item below.

- **MD Bus Strength**

High	Set MD Bus Strength High. **(Default Value)**
Low	Set MD Bus Strength Low.

- **CAS Bus Strength**

High	Set CAS Bus Strength High. **(Default Value)**
Low	Set CAS Bus Strength Low.

- **Delay DRAM Read Latch**

1.0ns	Set DRAM Read Latch Delay 1.0ns. **(Default Value)**
1.5ns	Set DRAM Read Latch Delay 1.5ns.
0.5ns	Set DRAM Read Latch Delay 0.5ns.
No delay	Set DRAM Read Latch No delay.

- **Memory Data Drive**

6 mA	Set Memory Data Drive 6 mA.
8 mA	Set Memory Data Drive 8 mA. **(Default Value)**

- **SDRAM Command Drive**

16 mA	Set SDRAM Command Drive 16 mA.
24 mA	Set SDRAM Command Drive 24 mA. **(Default Value)**

- **Memory Address Drive**

16 mA	Set Memory Address Drive 16 mA.
24 mA	Set Memory Address Drive 24 mA. **(Default Value)**

- **CAS# Drive**

8 mA	Set CAS# Drive 8 mA.
12 mA	Set CAS# Drive 12 mA. **(Default Value)**

- **RAS# Drive**

16 mA	Set RAS# Drive 16 mA.
24 mA	Set RAS# Drive 24 mA. **(Default Value)**

Power Management Setup

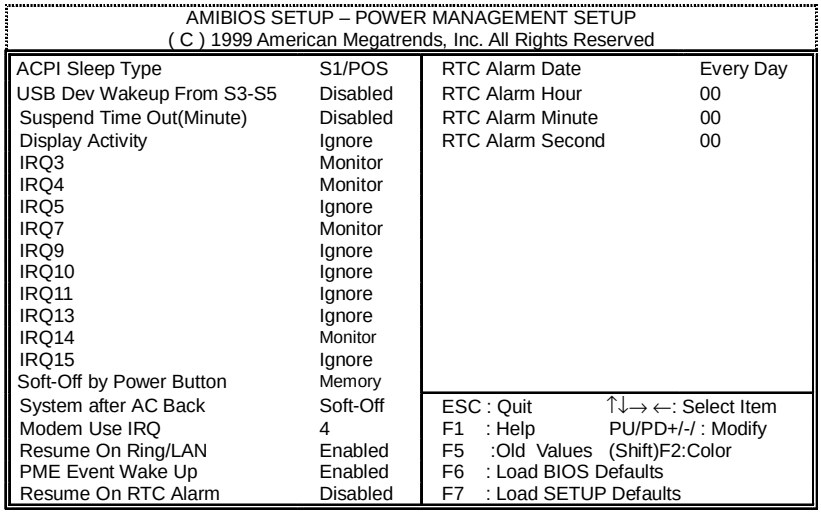


Figure 5: Power Management Setup

- **ACPI Sleep Type**

S1/POS	Set ACPI sleep type to S1. **(Default Value)**
S3/STR	Set ACPI sleep type to S3.

- **USB Dev Wakeup From S3-S5**

Enabled	Enabled USB Dev Wakeup From S3-S5.
Disabled	Disabled USB Dev Wakeup From S3-S5. **(Default Value)**

- **Suspend Time Out (Minute.)**

Disabled	Disabled Suspend Time Out Function. **(Default Value)**
1	Enabled Suspend Time Out after 1min.
2	Enabled Suspend Time Out after 2min.
4	Enabled Suspend Time Out after 4min.
8	Enabled Suspend Time Out after 8min.
10	Enabled Suspend Time Out after 10min.
20	Enabled Suspend Time Out after 20min.
30	Enabled Suspend Time Out after 30min.
40	Enabled Suspend Time Out after 40min.
50	Enabled Suspend Time Out after 50min.
60	Enabled Suspend Time Out after 60min.

- **Display Activity**

Ignore	Ignore Display Activity**. (Default Value)**
Monitor	Monitor Display Activity.

- **IRQ 3~IRQ15**

Ignore	Ignore IRQ3 ~IRQ15.
Monitor	Monitor IRQ3~IRQ15.

- **Soft-off by Power Button**

Instant-off	Soft switch ON/OFF for POWER ON/OFF. **(Default Value)**
Delay 4 sec	Soft switch on 4sec for power OFF.

- **System after AC Back Function**

Memory	This function depends on computer status. . **(Default Value)**
Soft-Off	Set System Soft-Off Status
Full-On	Set System Full-On Status.

- **Modem USE IRQ**

3, 4, **(Default Value)** 5, 7, N/A

- **Resume On Ring / LAN**

Disabled	Disabled Resume On Ring / LAN.
Enabled	Enabled Resume On Ring / LAN. **(Default Value)**

- **PME Event Wake Up**

Disabled	Disabled PME Event Wake Up.
Enabled	Enabled PME Event Wake Up. **(Default Value)**

- **Resume On RTC Alarm**

You can set “Resume On RTC Alarm” item to enabled and key in Data/time to power on system.

Disabled	Disable this function. **(Default Value)**
Enabled	Enable alarm function to POWER ON system.

If the “Resume On RTC Alarm” is Enabled.

RTC Alarm Date :	Every Day, 1~31
RTC Alarm Hour:	0~23
RTC Alarm Minute :	0~59
RTC Alarm Second :	0~59

PnP/PCI Configurations

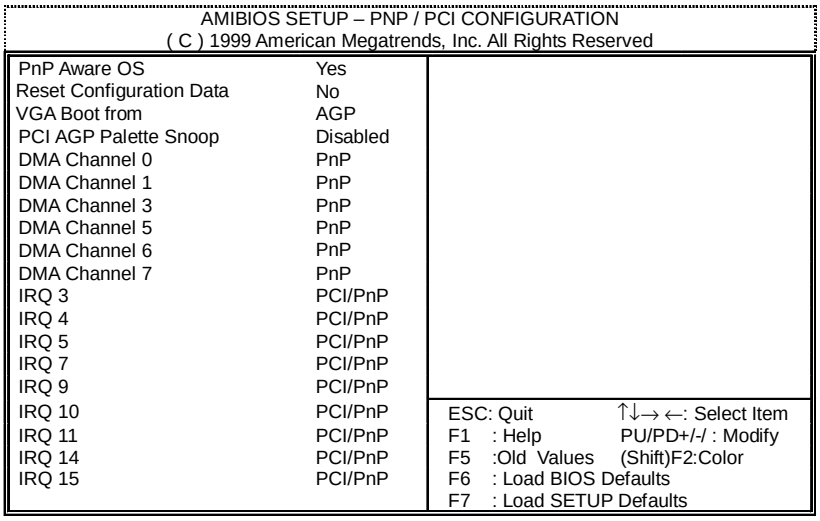


Figure 6: PnP/PCI Configuration

- **PnP Aware OS**

Yes	Enable PNP Aware OS function. **(Default Value)**
No	Disable PNP Aware OS function.

- **Reset Configuration Data**

No	Disable this function. **(Default Value)**
Yes	Clear PnP information in ESCD & update DMI data.

- **VGA Boot From**

AGP	Primary Graphics Adapter From AGP. **(Default Value)**
PCI	Primary Graphics Adapter From PCI.

- **PCI/VGA Palette Snoop**

Enabled	For having Video Card on ISA Bus and VGA Card on PCI Bus.
Disabled	For VGA Card only. **(Default Value)**

- **DMA Channel (0,1,3,5,6,7)**

ISA/ EISA	The resource is used by Legacy ISA device.
PnP	The resource is used by PnP device.

- **IRQ (3,4,5,7,9,10,11,14,15)**

ISA/ EISA	The resource is used by Legacy ISA device.
PCI / PnP	The resource is used by PCI/ PnP device.

Load BIOS Defaults

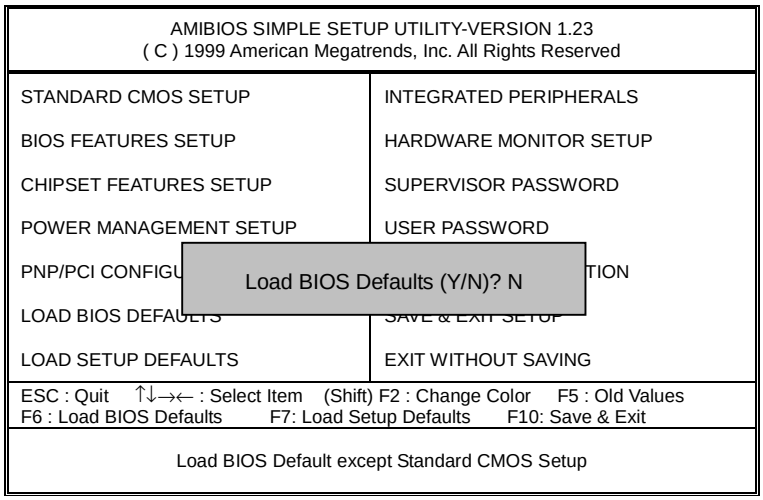


Figure 7: Load BIOS Defaults

- **Load BIOS Defaults**

  BIOS defaults contain the most appropriate values of the system parameters that allow minimum system performance.

Load Setup Defaults

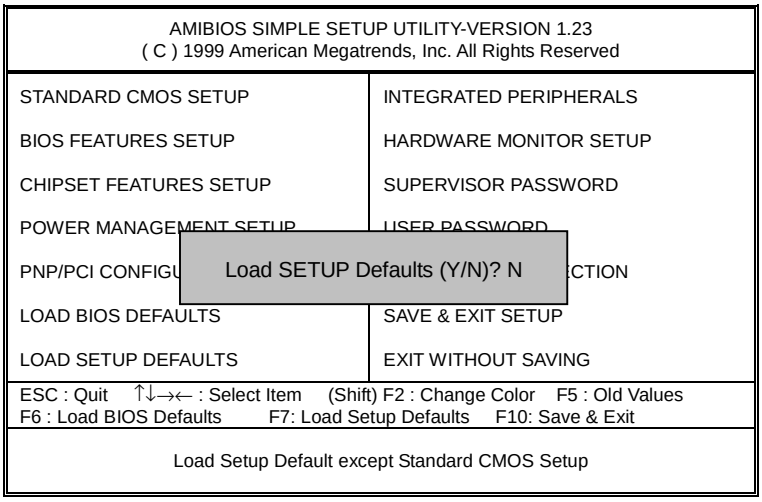


Figure 8: Load Setup Defaults

- **Load Setup Defaults**

  Selecting this field loads the factory defaults for BIOS and Chipset Features which the system automatically detects.

  Please use this setting for maximum system performance.

Integrated Peripherals

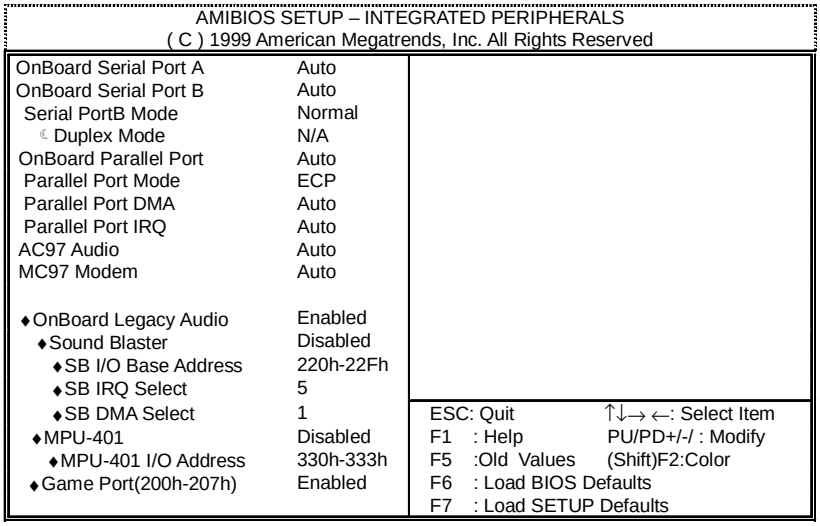


Figure 9: Integrated Peripherals

☾ This items will be available when ”Serial PortB Mode” is set to IrDA or ASK IR.

♦ These eight items will be shown when there are only AC’97 CODEC sound.

- **On Board Serial Port A**

Auto	BIOS will automatically setup the port A address. **(Default Value)**
3F8/COM1	Enable on Board Serial port A and address to 3F8.
2F8/COM2	Enable on Board Serial port A and address to 2F8.
3E8/COM3	Enable on Board Serial port A and address to 3E8.
2E8/COM4	Enable on Board Serial port A and address to 2E8.
Disabled	Disable on Board Serial port A.

- **On Board Serial Port B**

Auto	BIOS will automatically setup the port B address. **(Default Value)**
3F8/COM1	Enable on Board Serial port B and address to 3F8.
2F8/COM2	Enable on Board Serial port B and address to 2F8.
3E8/COM3	Enable on Board Serial port B and address to 3E8.
2E8/COM4	Enable on Board Serial port B and address to 2E8.
Disabled	Disable on Board Serial port B.

- **Serial Port B Mode**

Normal	Normal operation. **(Default Value)**
IrDA	Onboard I/O chip supports IRDA
ASK IR	Onboard I/O chip supports ASK IR.

- **Duplex Mode**

Half Duplex	IR Function Duplex Half.
N/A	Disabled this function. **(Default Value)**
Full Duplex	IR Function Duplex Full.

- **On Board Parallel port**

378	Enable On Board LPT port and address to 378.
278	Enable On Board LPT port and address to 278.
3BC	Enable On Board LPT port and address to 3BC.
Auto	Set On Board LPT port to Auto. **(Default Value)**
Disabled	Disable On Board LPT port.

- **Parallel Port Mode**

EPP	Using Parallel port as Enhanced Parallel Port.
ECP	Using Parallel port as Extended Capabilities Port. **(Default Value)**
Normal	Normal Operation.
EPP+ECP	Using Parallel port as Enhanced Parallel Port & Extended Capabilities Port.

- **Parallel Port DMA**

Auto	Set Auto to parallel port mode DMA Channel. **(Default Value)**
3	Set Parallel Port DMA to 3.
1	Set Parallel Port DMA to 1.
0	Set Parallel Port DMA to 0.

- **Parallel Port IRQ**

7	Set Parallel Port IRQ to 7.
Auto	Set Auto to parallel Port IRQ DMA Channel. **(Default Value)**
5	Set Parallel Port IRQ to 5.

- **AC97 Audio**

Auto	Enabled On Board AC'97 Audio. **(Default Value)**
Disabled	Disabled On Board AC'97 Audio.

- **MC97 Modem**

Auto	Enabled On Board MC'97 Modem. **(Default Value)**
Disabled	Disabled On Board MC'97 Modem.

- **OnBoard Legacy Audio**

Enabled	Enabled OnBoard Legacy Audio. **(Default Value)**
Disabled	Disabled OnBoard Legacy Audio.

- **Sound Blaster**

Enabled	Enabled Sound Blaster.
Disabled	Disabled Sound Blaster. **(Default Value)**

- **SB I/O Base Address**

220h-22Fh	Set SB I/O Base Address to 220h-22Fh. **(Default Value)**
280h-28Fh	Set SB I/O Base Address to 280h-28Fh.
260h-26Fh	Set SB I/O Base Address to 260h-26Fh.
240h-24Fh	Set SB I/O Base Address to 240h-24Fh.

- **SB IRQ Select**

IRQ 5 / 7 / 9 / 10. **(Default Value: 5)**

- **SB DMA Select**

DMA 0 / 1 / 2/ 3. **(Default Value: 1)**

- **MPU-401**

Enabled	Enabled MPU-401.
Disabled	Disabled MPU-401. **(Default Value)**

Ps. When Force Feedback joystick is used, MPU-401 needs to be Enable.

- **MPU-401 I/O Address**

330h-333h	Set MPU-401 I/O Address to 330h-333h. **(Default Value)**
300h-303h	Set MPU-401 I/O Address to 300h-303h.
310h-313h	Set MPU-401 I/O Address to 310h-313h.
320h-323h	Set MPU-401 I/O Address to 320h-323h.

- **Game Port (200h-207h)**

Disabled	Disabled Game Port (200h-207h).
Enabled	Enabled Game Port (200h-207h). **(Default Value)**

Hardware Monitor

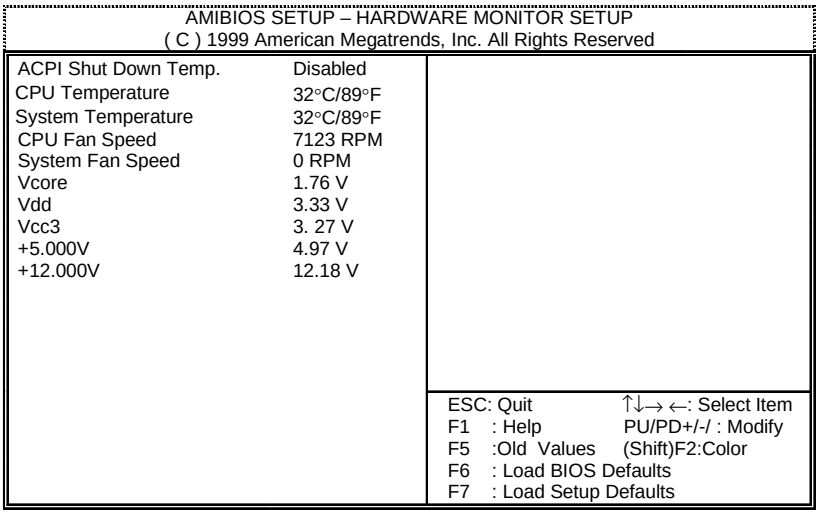


Figure 10: Hardware Monitor

- **ACPI Shutdown Temp. (°C / °F)**

(This function will be effective only for the operating systems that support ACPI Function.)

Disabled	Disabled ACPI Shutdown function. **(Default Value)**
60°C / 140°F	Monitor CPU Temp. at 60°C / 140°F, if Temp. > 60°C / 140°F system will automatically power off.
70°C / 158°F	Monitor CPU Temp. at 70°C / 158°F, if Temp. > 70°C / 158°F system will automatically power off.
80°C / 176°F	Monitor CPU Temp. at 80°C / 176°F, if Temp. > 80°C / 176°F system will automatically power off.
90°C / 194°F	Monitor CPU Temp. at 90°C / 194°F, if Temp. > 90°C / 194°F system will automatically power off.

- **CPU Temperature (°C / °F)**

  Detect CPU Temperature automatically.

- **System Temperature (°C / °F)**

  Detect System Temperature automatically.

- **CPU Fan Speed**

  Detect CPU Fan speed status automatically.

- **System Fan Speed**

  Detect System Fan speed status automatically.

- **Current Voltage (V) Vcore / Vdd / Vcc3 / +5V / +12V**

  Detect system's voltage status automatically.

Set Supervisor / User Password

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

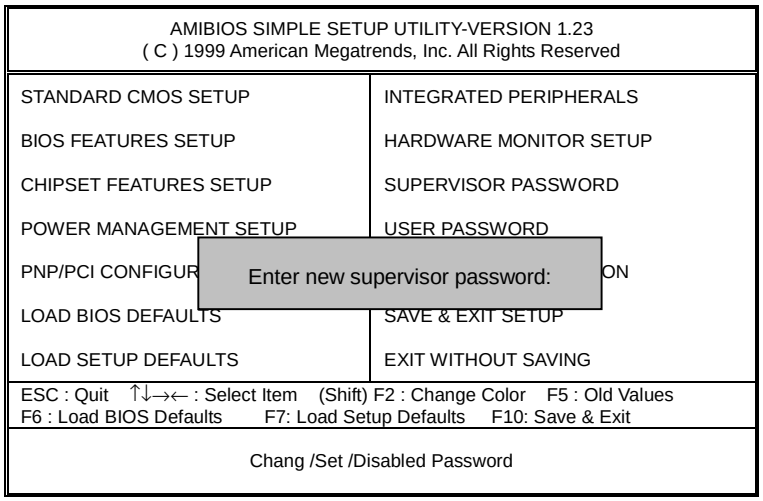


Figure 11: Password Setting

Type the password, up to six characters, and press <Enter>. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable password, just press <Enter> when you are prompted to enter password. A message "**PASSWORD DISABLED**" will appear to confirm the password being disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

The BIOS Setup program allows you to specify two separate passwords: a **SUPERVISOR PASSWORD** and a **USER PASSWORD**. When disabled, anyone may access all BIOS Setup program function. When enabled, the Supervisor password is required for entering the BIOS Setup program and having full configuration fields, the User password is required to access only basic items.

If you select "**System**" at "**Password Check**" in BIOS Features Setup Menu, you will be prompted for the password every time the system is rebooted or any time you try to enter Setup Menu.

If you select "**Setup**" at "**Password Check**" in BIOS Features Setup Menu, you will be prompted only when you try to enter Setup.

IDE HDD AUTO Detection

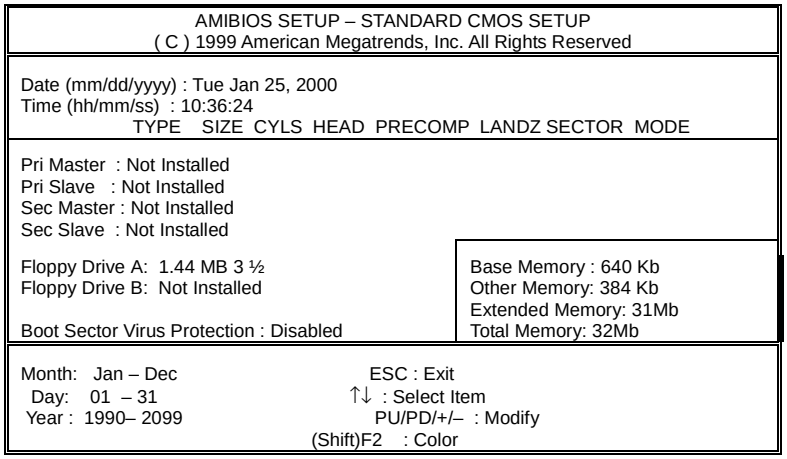


Figure 12: IDE HDD Auto Detection

Type "Y" will accept the H.D.D. parameter reported by BIOS.

Type "N" will keep the old H.D.D. parameter setup. If the hard disk cylinder number is over 1024, then the user can select LBA mode or LARGER mode for DOS partition larger than 528 MB.

Save & Exit Setup

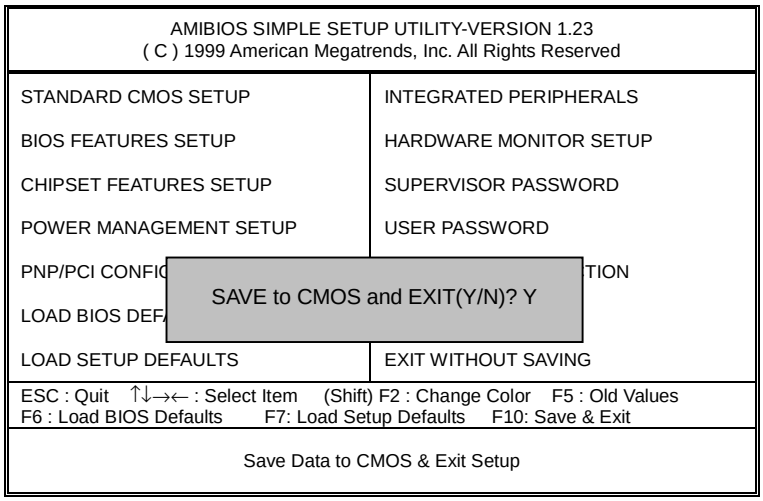


Figure 13: Save & Exit Setup

Type "Y" will quit the Setup Utility and save the user setup value to RTC CMOS.

Type "N" will return to Setup Utility.

Exit Without Saving

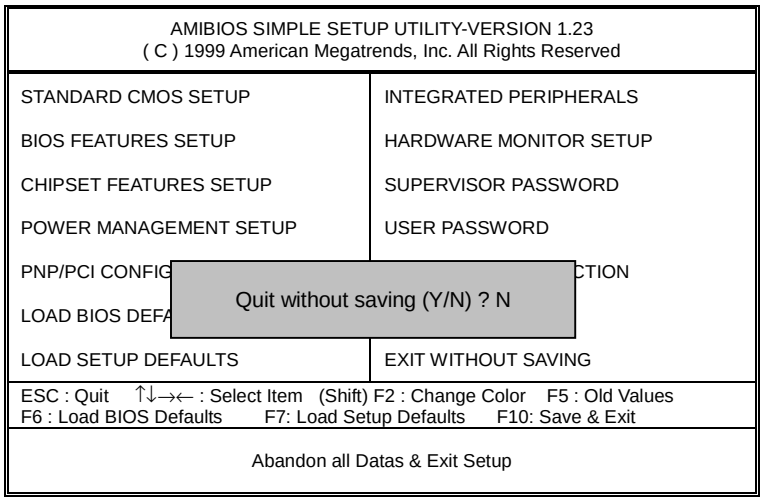


Figure 14: Exit Without Saving

Type "Y" will quit the Setup Utility without saving to RTC CMOS.

Type "N" will return to Setup Utility.

Appendix: Acronyms

Acronyms	Meaning
ACPI	Advanced Configuration and Power Interface
POST	Power-On Self Test
LAN	Local Area Network
ECP	Extended Capabilities Port
APM	Advanced Power Management
DMA	Direct Memory Access
MHz	Megahertz
ESCD	Extended System Configuration Data
CPU	Central Processing Unit
SMP	Symmetric Multi-Processing
USB	Universal Serial Bus
OS	Operating System
ECC	Error Checking and Correcting
IDE	Integrated Dual Channel Enhanced
SCI	Special Circumstance Instructions
LBA	Logical Block Addressing
EMC	Electromagnetic Compatibility
BIOS	Basic Input / Output System
SMI	System Management Interrupt
IRQ	Interrupt Request
NIC	Network Interface Card
A.G.P.	Accelerated Graphics Port
S.E.C.C.	Single Edge Contact Cartridge
LED	Light Emitting Diode
EPP	Enhanced Parallel Port
CMOS	Complementary Metal Oxide Semiconductor
I/O	Input / Output
ESD	Electrostatic Discharge
OEM	Original Equipment Manufacturer
SRAM	Static Random Access Memory
VID	Voltage ID
DMI	Desktop Management Interface
MIDI	Musical Interface Digital Interface
IOAPIC	Input Output Advanced Programmable Input Controller
DIMM	Dual Inline Memory Module
DRAM	Dynamic Random Access Memory
PAC	PCI A.G.P. Controller
AMR	Audio Modem Riser
PCI	Peripheral Component Interconnect
RIMM	Rambus in-line Memory Module
DRM	Dual Retention Mechanism
ISA	Industry Standard Architecture
MTH	Memory Translator Hub
CRIMM	Continuity RIMM