

MSI

MICRO-STAR INTERNATIONAL

MS-6318 (v5.X) Micro ATX Mainboard



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Release Date: Oct. 2001



FCC-B Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

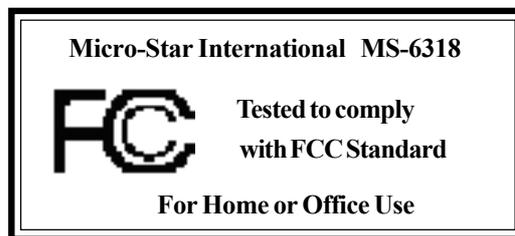
Notice 1

The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Notice 2

Shielded interface cables and A.C. power cord, if any, must be used in order to comply with the emission limits.

VOIR LA NOTICE D'INSTALLATION AVANT DE RACCORDER AU RESEAU.



Edition

Oct. 2001

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Revision History

Revision	Revision History	Date
V5.0	First release for PCB 5.X	Oct. 2001

Safety Instructions

1. Always read the safety instructions carefully.
2. Keep this User's Manual for future reference.
3. Keep this equipment away from humidity.
4. Lay this equipment on a reliable flat surface before setting it up.
5. The openings on the enclosure are for air convection hence protects the equipment from overheating. **DO NOT COVER THE OPENINGS.**
6. Make sure the voltage of the power source and adjust properly 110/220V before connecting the equipment to the power inlet.
7. Place the power cord such a way that people can not step on it. Do not place anything over the power cord.
8. Always Unplug the Power Cord before inserting any add-on card or module.
9. All cautions and warnings on the equipment should be noted.
10. Never pour any liquid into the opening that could damage or cause electrical shock.
11. If any of the following situations arises, get the equipment checked by a service personnel:
 - The power cord or plug is damaged
 - Liquid has penetrated into the equipment
 - The equipment has been exposed to moisture
 - The equipment has not work well or you can not get it work according to User's Manual.
 - The equipment has dropped and damaged
 - If the equipment has obvious sign of breakage
12. **DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT UNCONDITIONED, STORAGE TEMPERATURE ABOVE 60°C (140°F), IT MAY DAMAGE THE EQUIPMENT.**



CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.

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Introduction

1

Thank you for purchasing the MS-6318 v5.X Micro ATX mainboard. The MS-6318 is a superior computer mainboard based on VIA® **Apollo Pro133T** chipset for optimal system efficiency. Designed to fit the advanced Intel® Pentium® III/Celeron™/Coppermine™/Tualatin™, and VIA® C3™ processors, the MS-6318 delivers a high performance and professional desktop platform solution.

This chapter includes the following topics:

Mainboard Specification	1-2
Mainboard Layout	1-4
Quick Components Guide	1-5
Key Features	1-6

Chapter 1

Mainboard Specification

CPU

- Supports Socket 370 for Intel® Pentium® III/Celeron™/Coppermine™/Tualatin™, and VIA® C3™ processors.
- Supports 600MHz~1.2 GHz CPU.

Chipset

- VIA® 694T chipset (520 BGA)
 - Supports 66/100/133MHz FSB.
 - AGP 4x and PCI plus Advanced ECC Memory Controller.
 - Supports PC100/133 SDRAM, VCM & ESDRAM technology.
- VIA® VT82C686B chipset (352 BGA)
 - Enhanced Power Management Features.
 - Integrated Super I/O (FDC, LPT, COM 1/2, and IR).
 - DirectSound AC97 Audio.
 - Integrated hardware Soundblaster.
 - Dual bus Master IDE Ultra DMA33/66/100.
 - ACPI.

Main Memory

- Support two 168-pin DIMM sockets.
- Support a maximum memory size of 256MB(64-bit) or 512MB(128-bit) SDRAM.

Slots

- One AGP (Accelerated Graphics Port) slot.
- Three PCI 2.2 32-bit PCI bus slots (support 3.3v/5v PCI bus interface)
- One 16-bit ISA bus slot (optional).

On-Board IDE

- An IDE controller on the VIA® VT82C686B chipset provides IDE HDD/CD-ROM with PIO, Bus Master and Ultra DMA 33/66/100 operation modes.
- Can connect up to four IDE devices.

On-Board Peripherals

- On-Board Peripherals include:
 - 1 floppy port supports 2 FDDs with 360K, 720K, 1.2M, 1.44M and

Introduction

- 2.88Mbytes.
- 2 serial ports (COM A + COM B).
- 1 parallel port supports SPP/EPP/ECP mode.
- 4 USB ports (Rear * 2/ Front * 2).
- 1 audio/game port.

Audio

- DirectSound AC97 audio integrated.
- Sigmatel 9708T software audio (optional).
- Creative CT5880 hardware audio (optional).

BIOS

- The mainboard BIOS provides “Plug & Play” BIOS which detects the peripheral devices and expansion cards of the board automatically.
- The mainboard provides a Desktop Management Interface (DMI) function which records your mainboard specifications.

Dimension

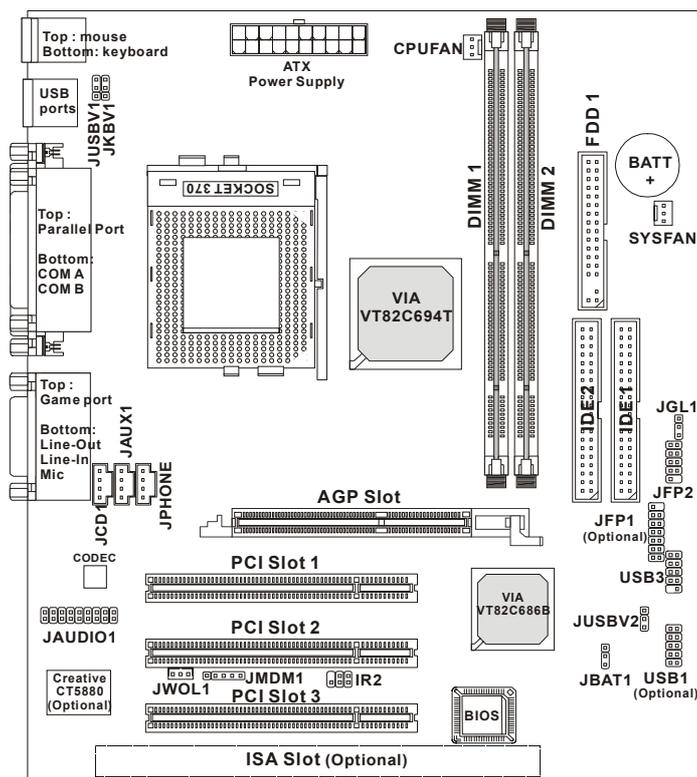
- Micro ATX Form Factor: 24.3cm x 21.0cm.

Mounting

- 6 mounting holes.

Chapter 1

Mainboard Layout



MS-6318 v5.X Micro ATX Mainboard

Quick Components Guide

Component	Function	Reference
JWR1	ATX power connector	See p. 2-6
JKBMS1	Mouse/keyboard connector	See p. 2-7
USB Connectors	Connecting to USB devices	See p. 2-8
COM A & COM B	Serial port connector	See p. 2-9
LPT1	Parallel port connector	See p. 2-10
FDD1	Floppy disk drive connector	See p. 2-11
IDE1~ IDE2	Hard disk connectors	See p. 2-12
CPU/SYS FAN	Fan power connectors	See p. 2-13
JCD1/JAUX1/JPHONE	CD/AUX/Modem-in connectors	See p. 2-14
JWOL1	Wake on LAN connector	See p. 2-15
JMDM1	Wake on ring connector	See p. 2-15
JFP1/JFP2	Front panel connector	See p. 2-16
JAUDIO1	Front panel audio connector	See p. 2-17
USB1/USB3	Connecting to USB devices	See p. 2-18
IR2	IrDA infrared module connector	See p. 2-19
JGL1	Power saving LED connector	See p. 2-20
JBAT1	Clear CMOS jumper	See p. 2-21
JUSBV1 & JUSBV2	USB KB/MS wake-up jumpers	See p. 2-22
JKBV1	PS2 KB/MS power jumper	See p. 2-23
AGP Slot	Connecting to AGP cards	See p. 2-24
PCI Slots	Connecting to expansion cards	See p. 2-24
ISA Slot	Connecting to expansion cards	See p. 2-24

Chapter 1

Key Features

- Micro ATX Form Factor
- Audio Chip Integrated
- Support DMI(Desktop Management Interface) through BIOS
- LAN Wake Up Function
- Modem (Internal/External) Ring Wake Up Function
- Suspend to RAM/Disk
- Support PC2001

Hardware Setup **2**

This chapter provides you with the information about hardware setup procedures. While doing the installation, be careful in holding the components and follow the installation procedures. For some components, if you install in the wrong orientation, the components will not work properly.

Use a grounded wrist strap before handling computer components. Static electricity may damage the components.

This chapter contains the following topics:

Central Processing Unit: CPU	2-2
Memory Installation	2-4
Power Supply	2-6
Back Panel	2-7
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Jumpers	2-21
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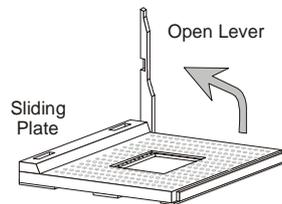
Chapter 2

Central Processing Unit: CPU

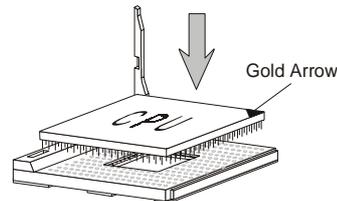
The mainboard supports Intel® Pentium® III/Celeron™/Coppermine™/Tualatin™, VIA® C3™ processors and uses a CPU socket called PGA370 for easy CPU installation. When you are installing the CPU, **make sure the CPU has a heat sink and a cooling fan attached on the top to prevent overheating.** If you do not find the heat sink and cooling fan, contact your dealer to purchase and install them before turning on the computer.

CPU Installation Procedures

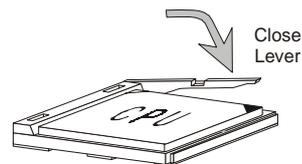
1. Pull the lever sideways away from the socket. Then, raise the lever up to a 90-degree angle.



2. Look for the gold arrow. The gold arrow should point towards the end of lever. The CPU will only fit in the correct orientation.



3. Hold the CPU down firmly, and then close the lever to complete the installation.



	<p><i>Overheating will seriously damage the CPU and system, always make sure the cooling fan can work properly to protect the CPU from overheating.</i></p>
---	---

CPU Core Speed Derivation Procedure

If CPU Clock = 100MHz
Core/Bus ratio = 9
then CPU core speed = Host Clock x Core/Bus ratio
= 100MHz x 9
= 900MHz



WARNING!

Overclocking

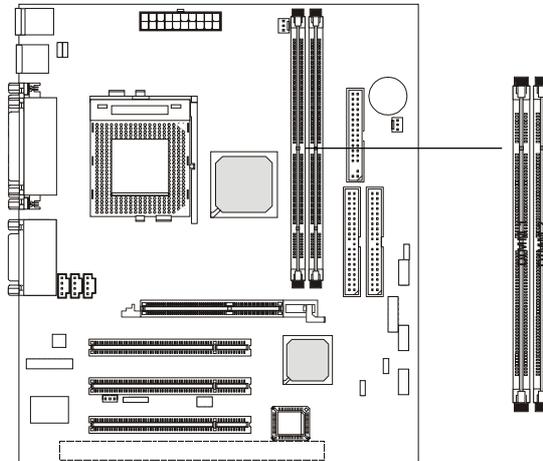
*This motherboard is designed to support overclocking. However, please make sure your components are able to tolerate such abnormal setting, while doing overclocking. Any attempt to operate beyond product specifications is not recommended. **We do not guarantee the damages or risks caused by inadequate operation or beyond product specifications.***

Chapter 2

Memory Installation

Memory Bank Configuration

The mainboard supports a maximum memory size of 1GB. It provides two 168-pin **unbuffered** SDRAM DIMM (Double In-Line Memory Module) slots and supports 8MB to 512MB technology.



Synchronous DRAM is a type of dynamic RAM memory chip that has been widely used starting in the latter part of the 1990s. SDRAMs are based on standard dynamic RAM chips, but have sophisticated features that make them considerably faster. First, SDRAM chips are fast enough to be synchronized with the CPU's clock, which eliminates wait states. Second, the SDRAM chip is divided into two cell blocks, and data is interleaved between the two so that while a bit in one block is being accessed, the bit in the other is being prepared for access. This allows SDRAM to burst the second and subsequent, contiguous characters at a rate of 10ns, compared to 60ns for the first character.

SDRAM provides 800 MBps or 1 GBps data transfer depending on whether the bus is 100MHz or 133MHz.

Memory Installation Procedures

Installing DIMM Modules

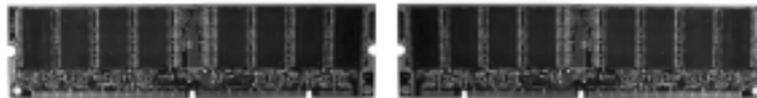
You can install memory modules in any combination as follows:

Slot	Memory Module	Total Memory
Slot 1 (Bank 0 & Bank 1)	8MB~512MB	8MB~512MB
Slot 2 (Bank 2 & Bank 3)	8MB~512MB	8MB~512MB
Total System Memory		8MB~1GB

Memory Population Rules

1. Supports only SDRAM DIMM.
2. To operate properly, at least one 168-pin DIMM module must be installed.
3. This mainboard supports Table Free memory, so memory can be installed on DIMM1 or DIMM 2 in any order.
4. Supports 3.3 volt DIMM.

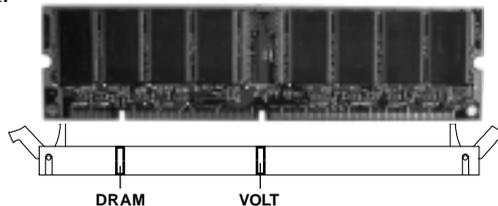
1. The DIMM slot has 2 Notch Keys “VOLT and DRAM”, so the DIMM memory module can only fit in one direction.



Front View

Rear View

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



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

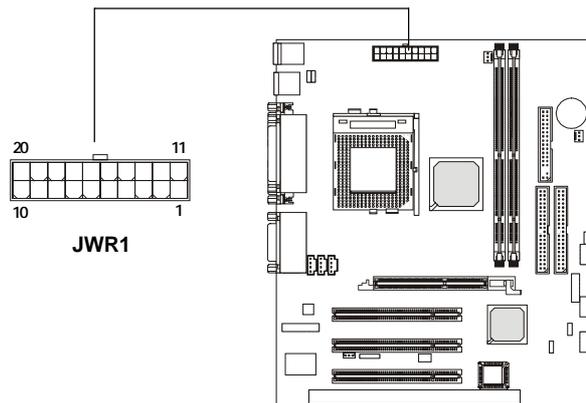
Chapter 2

Power Supply

The mainboard supports ATX power supply for the power system. Before inserting the power supply connector, always make sure that all components are installed properly to ensure that no damage will be caused.

ATX 20-Pin Power Connector: JWR1

This connector allows you to connect to an ATX power supply. To connect to the ATX power supply, make sure the plugs of the power supply is inserted in the proper orientation and the pins are aligned. Then push down the power supply firmly into the connector. The power connector supports **instant power on** function which means that system will boot up immediately when the power supply connector is inserted on the board.

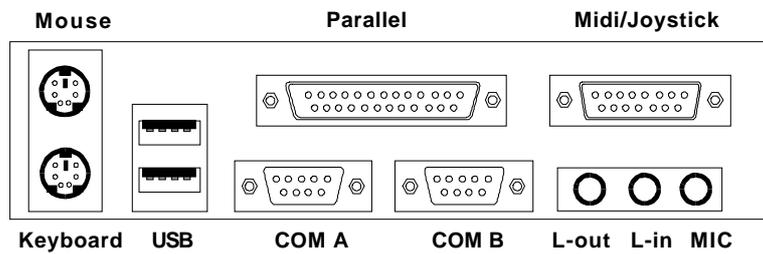


JWR1 Pin Definition

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

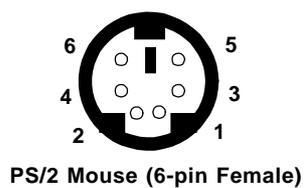
Back Panel

The Back Panel provides the following connectors:



Mouse Connector: JKBMS1

The mainboard provides a standard PS/2[®] mouse mini DIN connector for attaching a PS/2[®] mouse. You can plug a PS/2[®] mouse directly into this connector. The connector location and pin assignments are as follows:



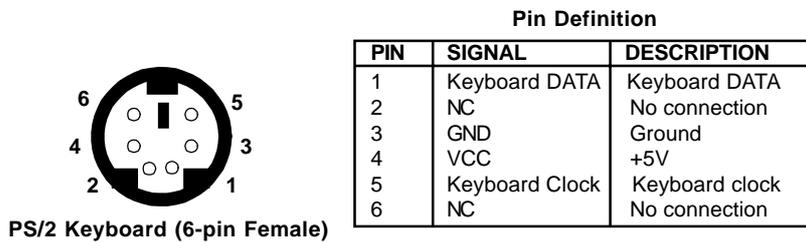
Pin Definition

PIN	SIGNAL	DESCRIPTION
1	Mouse DATA	Mouse DATA
2	NC	No connection
3	GND	Ground
4	VCC	+5V
5	Mouse Clock	Mouse clock
6	NC	No connection

Chapter 2

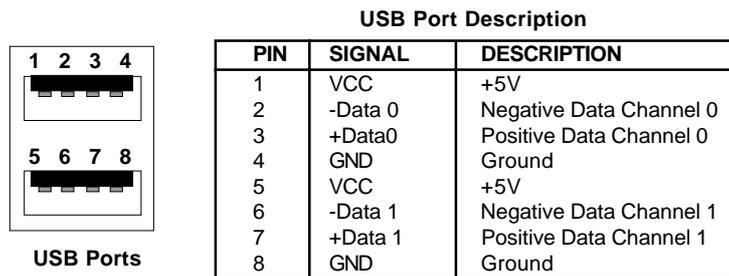
Keyboard Connector: JKBMS1

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



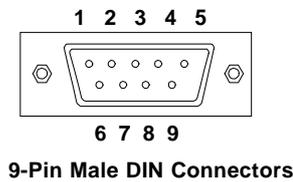
USB Connectors

The mainboard provides a UHCI (Universal Host Controller Interface) Universal Serial Bus root for attaching USB devices such as keyboard, mouse or other USB-compatible devices. You can plug the USB device directly into this connector.



Serial Port Connector: COM A & COM B

The mainboard offers two 9-pin male DIN connectors for serial port COM A and COM B. The ports are 16550A high speed communication ports that send/receive 16 bytes FIFOs. You can attach a serial mouse or other serial devices directly to them.

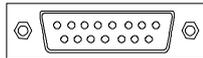


Pin Definition

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

Joystick/Midi Connectors

You can connect a joystick or game pad to this connector.



Audio Port Connectors

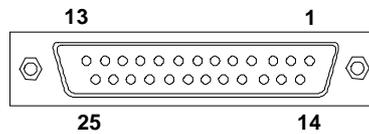
Line Out is a connector for Speakers or Headphones. **Line In** is used for external CD player, Tape player, or other audio devices. **Mic** is a connector for microphones.



Chapter 2

Parallel Port Connector: LPT1

The mainboard provides a 25-pin female centronic connector for LPT. A parallel port is a standard printer port that supports Enhanced Parallel Port (EPP) and Extended Capabilities Parallel Port (ECP) mode.



Pin Definition

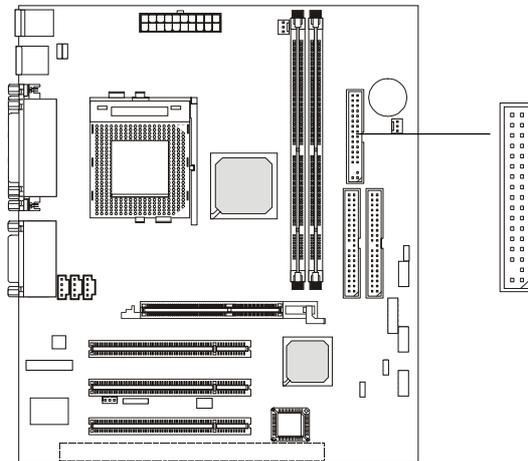
PIN	SIGNAL	DESCRIPTION
1	STROBE	Strobe
2	DATA0	Data0
3	DATA1	Data1
4	DATA2	Data2
5	DATA3	Data3
6	DATA4	Data4
7	DATA5	Data5
8	DATA6	Data6
9	DATA7	Data7
10	ACK#	Acknowledge
11	BUSY	Busy
12	PE	Paper End
13	SELECT	Select
14	AUTOFEED#	Automatic Feed
15	ERR#	Error
16	INIT#	Initialize Printer
17	SLIN#	Select In
18	GND	Ground
19	GND	Ground
20	GND	Ground
21	GND	Ground
22	GND	Ground
23	GND	Ground
24	GND	Ground
25	GND	Ground

Connectors

The mainboard provides connectors to connect to FDD, IDE HDD, case, modem, LAN, USB Ports, IR module and CPU/System FAN.

Floppy Disk Drive Connector: FDD1

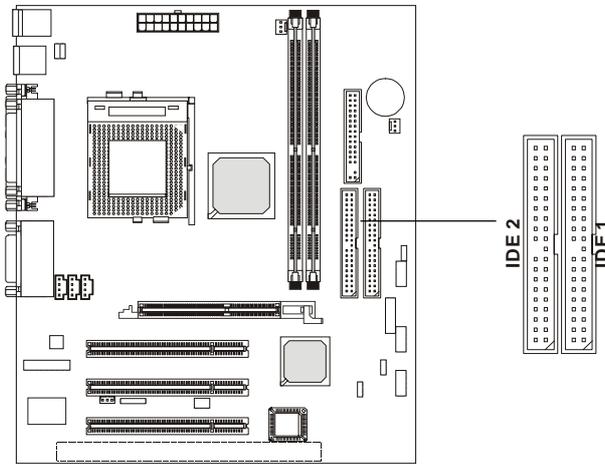
The mainboard provides a standard floppy disk drive connector that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types.



Chapter 2

Hard Disk Connectors: IDE1 & IDE2

The mainboard has a 32-bit Enhanced PCI IDE and Ultra DMA 33/66/100 controller that provides PIO mode 0~4, Bus Master, and Ultra DMA/33/66/100 function. You can connect up to four hard disk drives, CD-ROM, 120MB Floppy (reserved for future BIOS) and other devices. These connectors support the provided IDE hard disk cable.



IDE1 (Primary IDE Connector)

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

IDE2 (Secondary IDE Connector)

IDE2 can also connect a Master and a Slave drive.

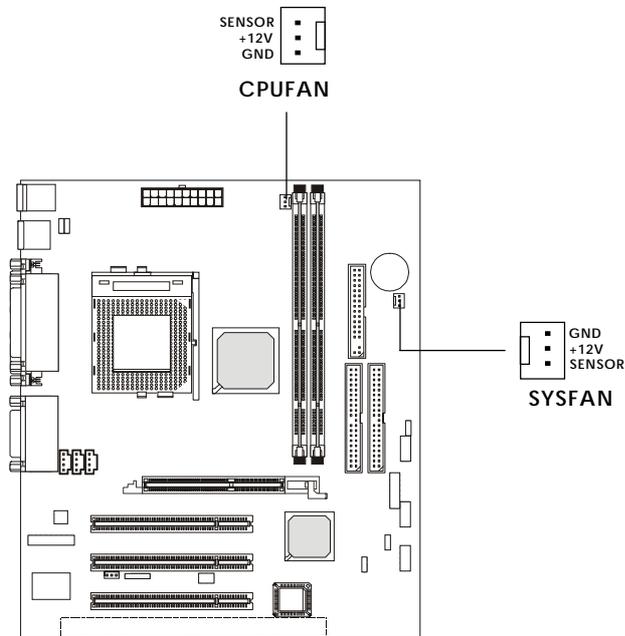


TIP:

If you install two hard disks on cable, you must configure the second drive to Slave mode by setting its jumper. Refer to the hard disk documentation supplied by hard disk vendors for jumper setting instructions.

Fan Power Connectors: CPUFAN/SYSFAN

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



Note:

1. Always consult the vendor for proper CPU cooling fan.
2. CPU Fan supports the fan control. You can install the PC Alert utility that will automatically control the CPU Fan speed according to the actual CPU temperature.

Chapter 2

CD-In Connector: JCD1

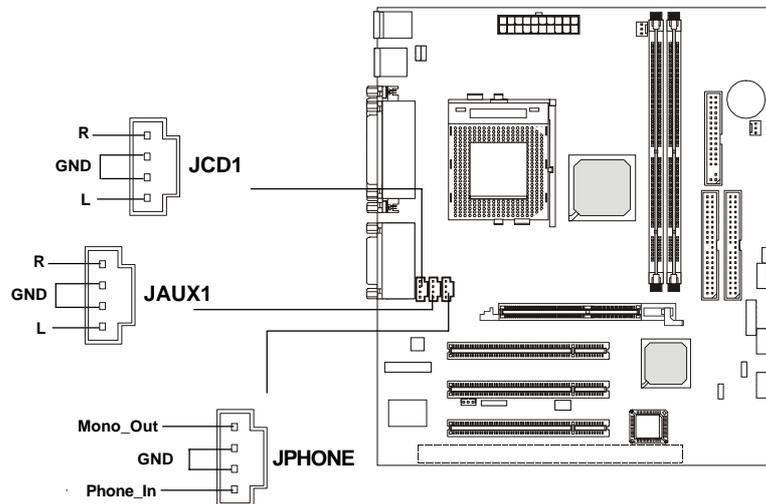
The connector is for CD-ROM audio connector.

Aux Line-In Connector: JAUX1

The connector is for DVD add-on card with Line-in connector.

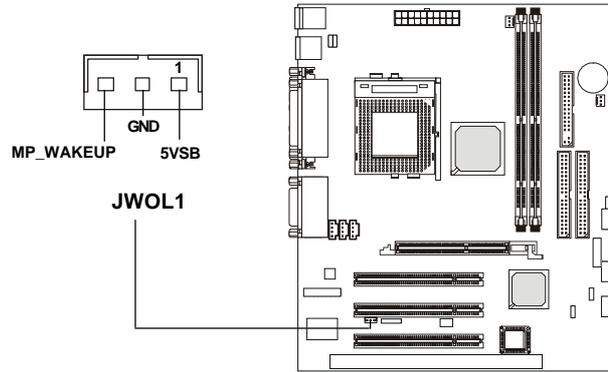
Modem-In Connector: JPHONE

The connector is for modem with internal audio connector.



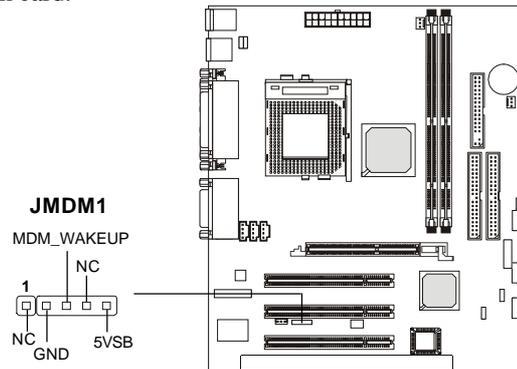
Wake On LAN Connector: JWOL1

This connector allows you to connect to a LAN card with Wake On LAN function. You can wake up the computer via remote control through a local area network.



Wake On Ring Connector: JMDM1

This connector allows you to connect to a modem card with Wake On Ring function. The connector will power up the system when a signal is received through the modem card.

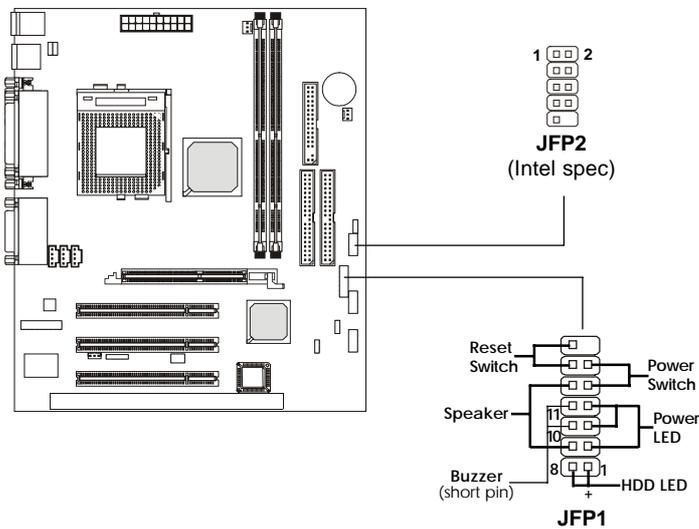


 *Note: To be able to use this function, you need a power supply that provides enough power for this feature. (750 mA 5V Stand-by)*

Chapter 2

Front Panel Connector: JFP1 or JFP2

The mainboard provides one front panel connector for electrical connection to the front panel switches and LEDs. Users can choose either the JFP1 or the JFP2 depending on their needs. The difference between JFP1 & JFP2 is that JFP2 is compliant with Intel® Front Panel I/O Connectivity Design Guide.

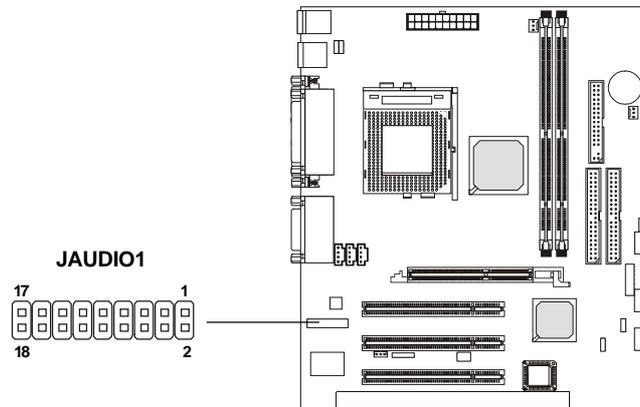


JFP2 Pin Definition

PIN	SIGNAL	DESCRIPTION
1	HD_LED_P	Hard disk LED pull-up
2	FP PWR/SLP	MSG LED pull-up
3	HD_LED_N	Hard disk active LED
4	FP PWR/SLP	MSG LED pull-up
5	RST_SW_N	Reset Switch low reference pull-down
6	PWR_SW_P	Power Switch high reference pull-up
7	RST_SW_P	Reset Switch high reference pull-up
8	PWR_SW_N	Power Switch low reference pull-down to GND
9	RSVD_DNU	Reserved. Do not use.

Front Audio Header: JAUDIO1

This connector allows you to connect to the front panel audio.



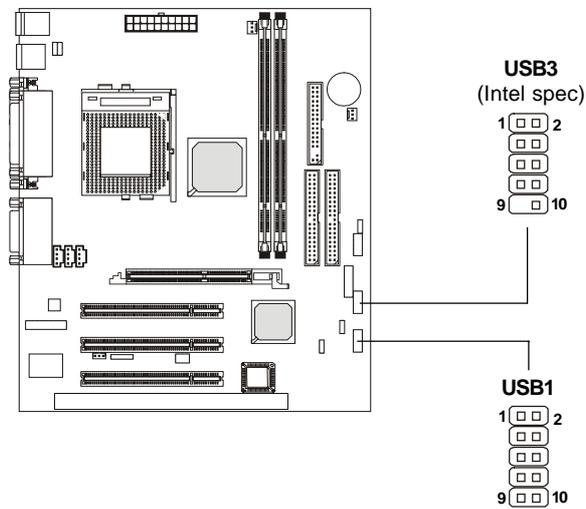
JAUDIO1 Pin Definition

PIN	Description	PIN	Description
1	Active Line Out (R)	2	Active Line Out (L)
3	GND (ALO)	4	GND (ALO)
5	GND (+12)	6	GND (+12)
7	+12V (1A)	8	(Cut)
9	MIC	10	GND (MIC)
11	Front Line Out (R)	12	Line Next (R)
13	Front Line Out (L)	14	Line Next (L)
15	GND (FLO)	16	(Cut)
17	Line In (R)	18	Line In (L)

Chapter 2

Front USB Connector: USB1 or USB3

The mainboard provides one front Universal Serial Bus connector for users to connect to USB devices. Users can choose either the USB1 or the USB3 depending on their needs. The USB3 is compliant with Intel® Front Panel I/O Connectivity Design Guide.



USB1 Pin Definition

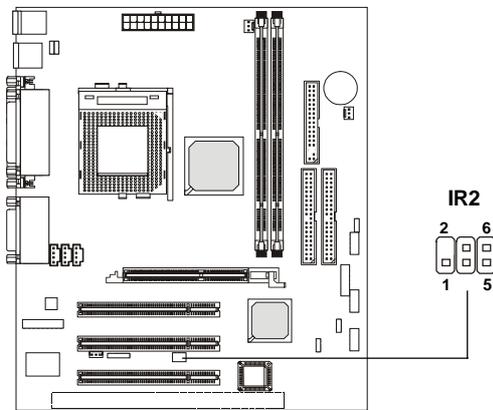
Pin	Description	Pin	Description
1	VCC	2	GND
3	USB0-	4	GND
5	USB0+	6	USB1+
7	GND	8	USB1-
9	GND	10	VCC

USB3 Pin Definition

Pin	Description	Pin	Description
1	VCC	2	VCC
3	USB0-	4	USB1-
5	USB0+	6	USB1+
7	GND	8	GND
9	NC	10	OC0

IrDA Infrared Module Header: IR2

This connector allows you to connect to IrDA Infrared modules. You must configure the setting through the BIOS setup to use the IR function. The IR2 is compliant to Intel Front Panel I/O Connectivity Design Guide.



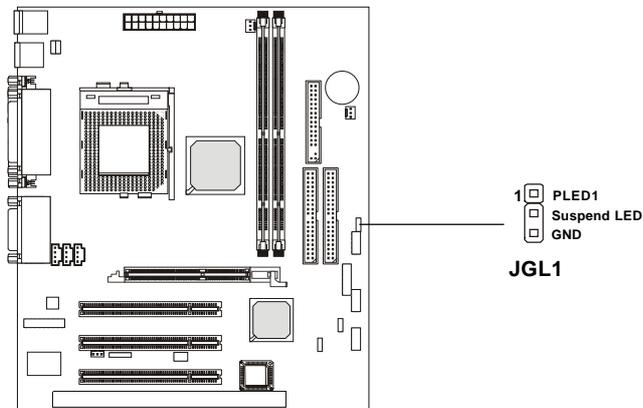
IR2 Pin Definition

Pin	Signal
1	NC
2	NC
3	VCC
4	GND
5	IRTX
6	IRRX

Chapter 2

Power Saving LED Connector: JGL1

JGL1 is connected to a power saving LED. There are two types of LED that you can use: 3-pin or 2-pin (ACPI request) LED. If connected to a dual color LED, the LED light is green when system is turned on, and turns to orange color while entering the sleep state. For single color LED, the LED is lit when system is on, and blinks during the sleep state.



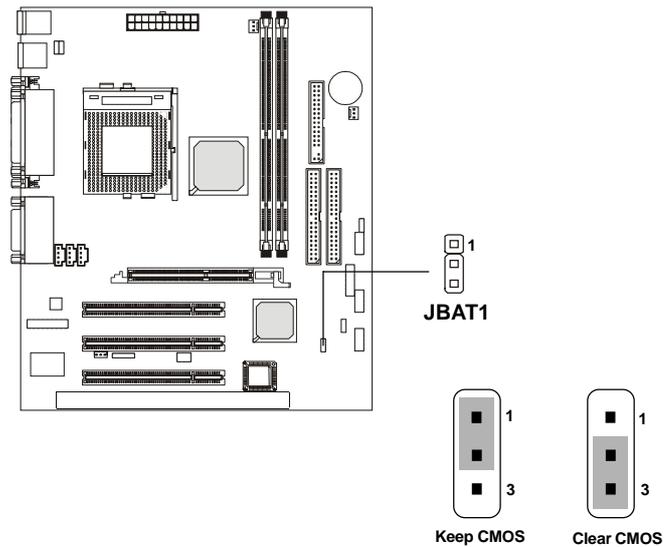
3-Pin LED	2-Pin LED
<p>Green Color Orange Color 1 3</p>	<p>Green Color Orange Color 1 3</p>
Green: Full-On Mode Orange: Sleep Mode	Dual Color

Jumpers

The motherboard provides one jumper for you to set the computer's function. This section will explain how to change your motherboard's function through the use of the jumper.

Clear CMOS Jumper: JBAT1

There is a CMOS RAM on board that has a power supply from external battery to keep the data of system configuration. With the CMOS RAM, the system can automatically boot OS every time it is turned on. That battery has long life time for at least 5 years. If you want to clear the system configuration, use the JBAT1 (Clear CMOS Jumper) to clear data. Follow the instructions below to clear the data:

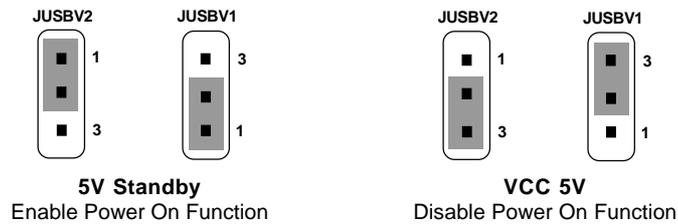
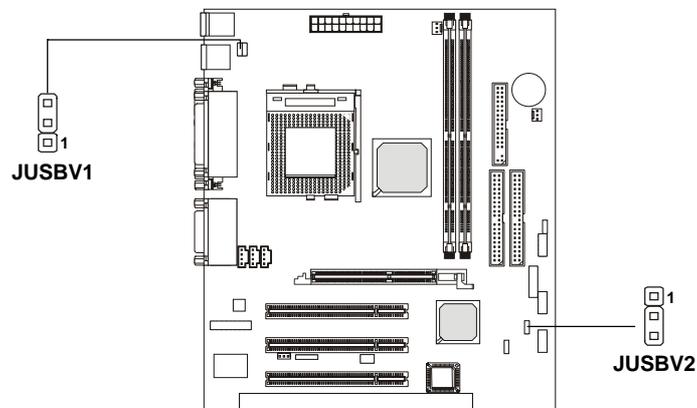


 WARNING!	<p><i>You can clear CMOS by shorting 2-3 pin while the system is off. Then return to 1-2 pin position. Avoid clearing the CMOS while the system is on; it will damage the mainboard.</i></p>
--	--

Chapter 2

USB KB/MS Wake-Up Jumpers: JUSBV1 & JUSBV2

The JUSBV1/JUSBV2 jumpers are used to set USB keyboard/mouse wake-up function. Please note JUSBV1 is for USB rear ports and JUSBV2 is for USB front pin header USB3. To use the function, you should also go to BIOS to enable the USB keyboard/mouse wake-up (power on) function.

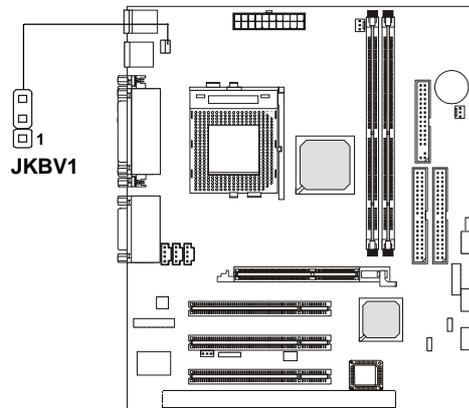


 **Note:** To be able to use this function, you need a power supply that provides enough power for this feature. (Power supply with 750mA 5V Stand-by)

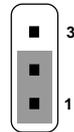
Hardware Setup

PS2 KB/MS Power Jumper: JKBV1

The JKBV1 jumper is used to set the system power through PS2 keyboard/mouse.

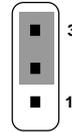


JKBV1



Standby

JKBV1

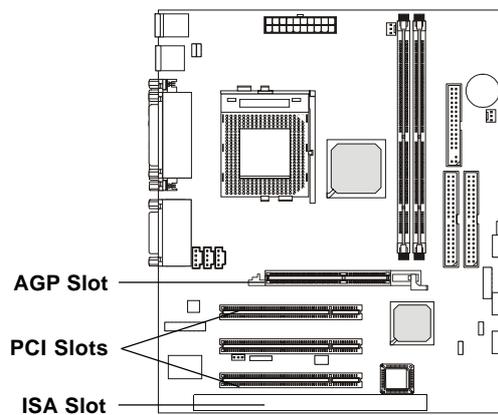


Normal

Chapter 2

Slots

The motherboard provides three 32-bit Master PCI bus slots, one AGP slot, and one optional 16-bit ISA slot.



AGP (Accelerated Graphics Port) Slot

The AGP slot allows you to insert the AGP graphics card. AGP is an interface specification designed for the throughput demands of 3D graphics. It introduces a 66MHz, 32-bit channel for the graphics controller to directly access main memory and provides three levels of throughputs: 1x (266Mbps), 2x (533Mbps) and 4x (1.07Gbps).

PCI (Peripheral Component Interconnect) Slots

Three PCI slots allow you to insert the expansion cards to meet your needs. When adding or removing expansion cards, make sure that you unplug the power supply first. Meanwhile, read the documentation for the expansion card to make any necessary hardware or software settings for the expansion card, such as jumpers, switches or BIOS configuration.

ISA (Industry Standard Architecture) Slot (optional)

The slot allows you to install ISA expansion card.

Hardware Setup

PCI Interrupt Request Routing

The IRQ, abbreviation of interrupt request line and pronounced I-R-Q, are hardware lines over which devices can send interrupt signals to the microprocessor. The PCI IRQ pins are typically connected to the PCI bus INT A# ~ INT D# pins as follows:

	Order 1	Order 2	Order 3	Order 4
PCI Slot 1	INT A#	INT B#	INT C#	INT D#
PCI Slot 2	INT B#	INT C#	INT D#	INT A#
PCI Slot 3	INT C#	INT D#	INT A#	INT B#

AWARD® BIOS Setup

3

The mainboard uses AWARD® BIOS ROM that provides a Setup utility for users to modify the basic system configuration. The information is stored in a battery-backed CMOS RAM so it retains the Setup information when the power is turned off.

This chapter provides you with the overview of the BIOS Setup program. It contains the following topics:

Entering Setup	3-2
Control Keys	3-2
Getting Help	3-3
The Main Menu	3-4
Standard CMOS Features	3-6
Advanced BIOS Features	3-8
Advanced Chipset Features	3-12
Integrated Peripherals	3-16
Power Management Setup	3-19
PNP/PCI Configurations	3-24
Load Fail-Safe/Optimized Defaults	3-26
Set Supervisor/User Password	3-28
Save & Exit Setup	3-30
Exit Without Saving	3-31

Chapter 3

Entering Setup

Power on the computer and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press key to enter Setup.

Press DEL to enter SETUP

If the message disappears before you respond and you still wish to enter Setup, restart the system by turning it OFF and On or pressing the RESET button. You may also restart the system by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.

Control Keys

<↑>	Move to the previous item
<↓>	Move to the next item
<←>	Move to the item in the left hand
<→>	Move to the item in the right hand
<Enter>	Select the item
<Esc>	Jumps to the Exit menu or returns to the main menu from a submenu
<+ / PU>	Increase the numeric value or make changes
<- / PD>	Decrease the numeric value or make changes
<F1>	General help, only for Status Page Setup Menu and Option Page Setup Menu
<F5>	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
<F6>	Load the default CMOS value from Fail-Safe default table, only for Option Page Setup Menu
<F7>	Load Optimized defaults
<F10>	Save all the CMOS changes and exit

Getting Help

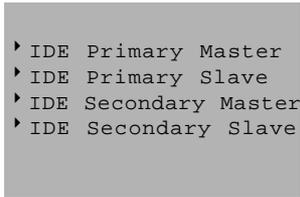
After entering the Setup menu, the first menu you will see is the Main Menu.

Main Menu

The main menu lists the setup functions you can make changes to. You can use the control keys (↑↓) to select the item. The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Sub-Menu

If you find a right pointer symbol (as shown in the right view) appears to the left of certain fields that means a sub-menu containing additional options can be launched from this field. You can use control keys (↑↓) to highlight the field and press <Enter> to call up the sub-menu. Then you can use the control keys to enter values and move from field to field within a sub-menu. If you want to return to the main menu, just press <Esc>.



```
▶ IDE Primary Master
▶ IDE Primary Slave
▶ IDE Secondary Master
▶ IDE Secondary Slave
```

General Help <F1>

The BIOS setup program provides a General Help screen. You can call up this screen from any menu by simply pressing <F1>. The Help screen lists the appropriate keys to use and the possible selections for the highlighted item. Press <Esc> to exit the Help screen.

Chapter 3

The Main Menu

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



Standard CMOS Features

Use this menu for basic system configurations.

Advanced BIOS Features

Use this menu to set the Advanced Features available on your system.

Advanced Chipset Features

Use this menu to change the values in the chipset registers and optimize your system's performance.

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals.

Power Management Setup

Use this menu to specify your settings for power management.

PnP/PCI Configurations

This entry appears if your system supports PnP/PCI.

Load Fail-Safe Defaults

Use this menu to load the BIOS default values for minimal but stable system performance.

Load Optimized Defaults

Use this menu to load the BIOS default values that are factory settings for optimal system operations.

Supervisor/User Password

Use this menu to set User and Supervisor Passwords.

Save & Exit Setup

Save CMOS value changes to CMOS and exit setup.

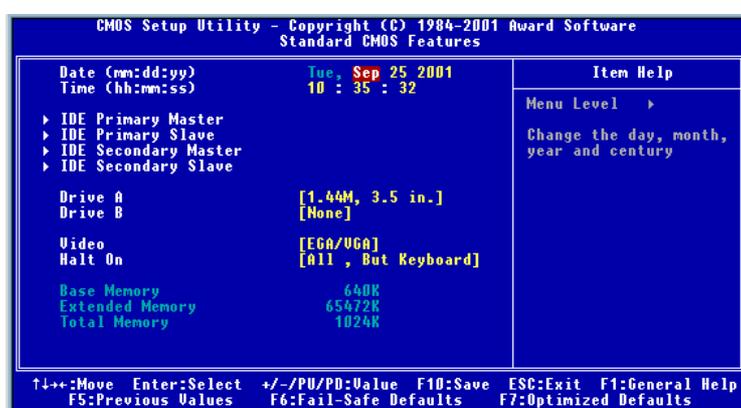
Exit Without Saving

Abandon all CMOS value changes and exit setup.

Chapter 3

Standard CMOS Features

The items in Standard CMOS Features Menu are divided into 10 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.



Date

The date format is <day><month> <date> <year>.

day Day of the week, from Sun to Sat, determined by BIOS. Read-only.

month The month from Jan. through Dec.

date The date from 1 to 31 can be keyed by numeric function keys.

year The year, depends on the year of the BIOS

Time

The time format is <hour> <minute> <second>.

IDE Primary/Secondary Master/Slave

Press PgUp/<+> or PgDn/<-> to select Manual, None, Auto 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 your hard disk drive type is not matched or listed, you can use Manual to define your own drive type manually.

If you select Manual, related information is asked to be entered to the follow-

ing items. Enter the information directly from the keyboard. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.

If the controller of HDD interface is SCSI, the selection shall be "None".

If the controller of HDD interface is CD-ROM, the selection shall be "None".

Access Mode	The settings are CHS, LBA, Large, Auto.
Capacity	The formatted size of the storage device.
Cylinder	Number of cylinders.
Head	Number of heads.
Precomp	Write precompensation.
Landing Zone	Cylinder location of the landing zone.
Sector	Number of sectors.

Drive A/B

This item allows you to set the type of floppy drives installed. Available options are *None*, *360K, 5.25 in.*, *1.2M, 5.25 in.*, *720K, 3.5 in.*, *1.44M, 3.5 in.*, *2.88M, 3.5 in.*

Video

The setting controls the type of video adapter used for the primary monitor of the system. Available options are *EGA/VGA*, *CGA 40*, *CGA 80* and *Mono*.

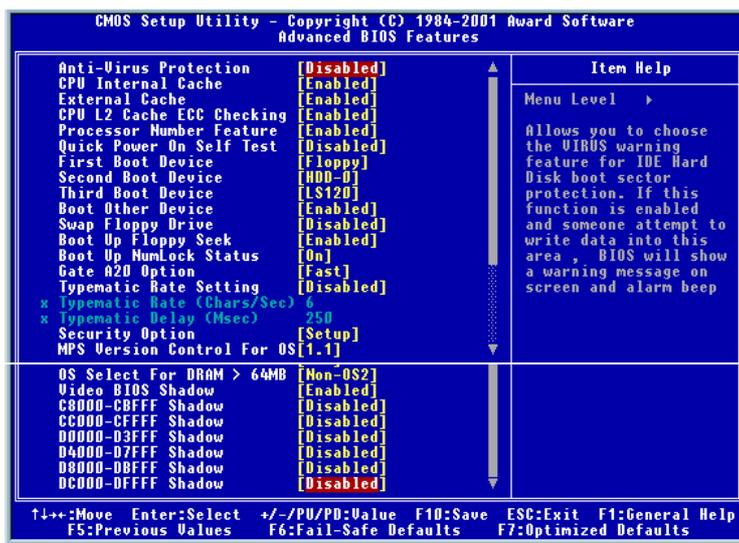
Halt On

The setting determines whether the system will stop if an error is detected at boot. Available options are:

<i>All Errors</i>	The system stops when any error is detected.
<i>No Errors</i>	The system doesn't stop for any detected error.
<i>All, But Keyboard</i>	The system doesn't stop for a keyboard error.
<i>All, But Diskette</i>	The system doesn't stop for a disk error.
<i>All, But Disk/Key</i>	The system doesn't stop for either a disk or a keyboard error.

Chapter 3

Advanced BIOS Features



Anti-Virus Protection

The setting is to set the virus warning feature for IDE hard disk boot sector protection. If the function is enabled and any attempt to write data into this area is made, BIOS will display a warning message on the screen and beep. Setting options: *Disabled, Enabled*.

CPU Internal/External Cache

Cache memory is additional memory that is much faster than conventional DRAM (system memory). When the CPU requests data, the system transfers the requested data from the main DRAM into cache memory, for even faster access by the CPU. This setting enables/disables the internal cache (also known as L1 or level 1 cache) and external cache (also known as L2 or level 2 cache). Setting options: *Disabled, Enabled*.

CPU L2 Cache ECC Checking

This setting allows you to enable or disable the ECC (Error-Correcting Code) feature for error detection and correction when data passes through L2 cache memory. Setting options: *Enabled, Disabled*.

Processor Number Feature

This option is for Pentium® III processor only. During *Enabled*, this will check the CPU Serial number. Disable this option if you don't want the system to know the serial number.

Quick Power On Self Test

The option speeds up Power On Self Test (POST) after you power on the computer. When setting the item to *Enabled*, BIOS will shorten or skip some check items during POST. Settings: *Enabled* and *Disabled*.

First/Second/Third Boot Device

The items allow you to set the sequence of boot devices where BIOS attempts to load the disk operating system. The settings are:

<i>Floppy</i>	The system will boot from floppy drive.
<i>LS120</i>	The system will boot from LS-120 drive.
<i>HDD-0</i>	The system will boot from the first HDD.
<i>SCSI</i>	The system will boot from the SCSI.
<i>CDROM</i>	The system will boot from the CD-ROM.
<i>HDD-1</i>	The system will boot from the second HDD.
<i>HDD-2</i>	The system will boot from the third HDD.
<i>HDD-3</i>	The system will boot from the fourth HDD.
<i>ZIP100</i>	The system will boot from ATAPI ZIP drive.
<i>LAN</i>	The system will boot from the Network drive.
<i>Disabled</i>	Disable this sequence.

Boot Other Device

Setting the option to *Enabled* allows the system to try to boot from other device if the system fails to boot from the First/Second/Third boot device.

Swap Floppy Drive

Setting to *Enabled* will swap floppy drives A: and B:.

Boot Up Floppy Seek

Setting to *Enabled* will make BIOS seek floppy drive A: before booting the system. Settings: *Disabled* and *Enabled*.

Boot Up NumLock Status

This setting is to set the Num Lock status when the system is powered on.

Chapter 3

Setting to *On* will turn on the Num Lock key when the system is powered on. Setting to *Off* will allow users to use the arrow keys on the numeric keypad. Setting options: *On, Off*.

Gate A20 Option

This item is to set the Gate A20 status. A20 refers to the first 64KB of extended memory. When the default value *Fast* is selected, the Gate A20 is controlled by Port92 or chipset specific method resulting in faster system performance. When *Normal* is selected, A20 is controlled by a keyboard controller or chipset hardware.

Typematic Rate Setting

This setting is used to enable or disable the typematic rate setting including Typematic Rate & Typematic Delay.

Typematic Rate (Chars/Sec)

After *Typematic Rate Setting* is enabled, this item allows you to set the rate (characters/second) at which the keys are accelerated. Settings: *6, 8, 10, 12, 15, 20, 24* and *30*.

Typematic Delay (Msec)

This item allows you to select the delay between when the key was first pressed and when the acceleration begins. Settings: *250, 500, 750* and *1000*.

Security Option

This specifies the type of BIOS password protection that is implemented. Settings are described below:

Option	Description
<i>Setup</i>	The password prompt appears only when end users try to run Setup.
<i>System</i>	A password prompt appears every time when the computer is powered on or when end users try to run Setup.

MPS Version Control For OS

This field allows you to select which MPS (Multi-Processor Specification) version to be used for the operating system. You need to select the MPS

version supported by your operating system. To find out which version to use, consult the vendor of your operating system. Settings: *1.4* and *1.1*.

OS Select For DRAM > 64MB

This allows you to run the OS/2® operating system with DRAM greater than 64MB. Setting options: *Non-OS2*, *OS2*.

Video BIOS Shadow

Shadowing is a technique used to increase a computer's speed by using high-speed RAM memory in place of slower ROM memory. This setting enables/disables the video BIOS to shadow into memory area C0000-C7FFF. Setting options: *Disabled*, *Enabled*.

C8000-CBFFF/CC000-CFFFF/D0000-D3FFF/D4000-D7FFF/D8000-DBFFF/DC000-DFFFF Shadow

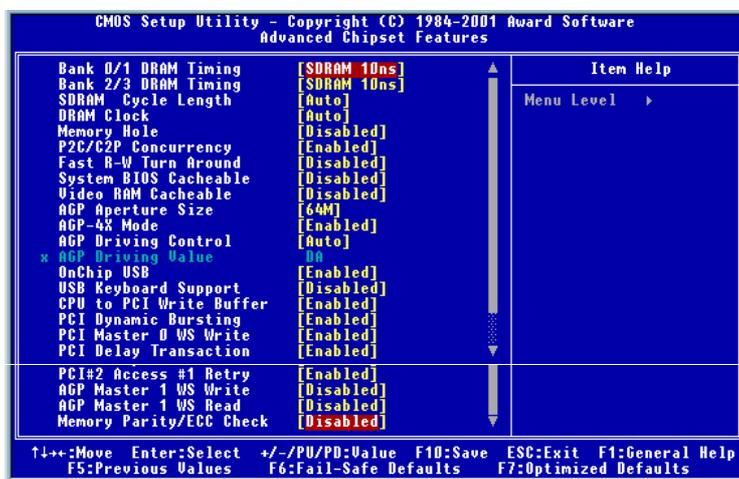
These settings enable/disable shadowing each of the 16K blocks of RAM from C8000 through DFFFF. When enabled, the setting selected turns on adapter ROM shadowing for that 16K block of memory and speeds the adapter up. In short, it speeds up your system by copying the contents of any BIOS code found in adapters using this memory space, from the slow ROM in which it resides into faster RAM. Setting options: *Disabled*, *Enabled*.

Chapter 3

Advanced Chipset Features

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

Choose the “ADVANCED CHIPSET FEATURES” from the Main Menu and the following screen will appear.



Note: Change these settings only if you are familiar with the chipset.

Bank 0/1 DRAM Timing, Bank 2/3 DRAM Timing

The DRAM timing is controlled by the DRAM Timing Registers. The Timings programmed into this register are dependent on the system design. Slower rates may be required in certain system designs to support loose layouts or slower memory. Setting options: *SDRAM 10ns*, *SDRAM 8ns*, *Normal*, *Medium*, *Fast*, *Turbo*.

SDRAM Cycle Length

The option controls the CAS latency, which determines the timing delay before SDRAM starts a read command after receiving it. Settings are *Auto*, 2 and 3 (clock cycles). 2 increases system performance while 3 provides more stable system performance. *Auto* allows BIOS to determine the best CAS latency length.

DRAM Clock

The chipset supports synchronous and asynchronous mode between host clock and DRAM clock frequency. Settings are *Auto*, *133MHz*, *100MHz*, and *66MHz*. *Auto* allows BIOS to determine the best DRAM clock frequency.

Memory Hole

In order to improve performance, certain space in memory can be reserved for ISA cards. This memory must be mapped into the memory space below 16MB. When this area is reserved, it cannot be cached. Setting options: *Disabled*, *15M-16M*.

P2C/C2P Concurrency

This field enables or disables the PCI to CPU and CPU to PCI concurrency feature, which allows synchronous data transmission from PCI to CPU and vice versa. Setting to *Enabled* will increase system performance. Setting options: *Disabled*, *Enabled*.

Fast R-W Turn Around

This is used to control the fast read/write turn around feature for DRAM timing. Settings are *Enabled* and *Disabled*. *Enabled* improves system performance while *Disabled* provides stability.

System BIOS Cacheable

Selecting *Enabled* allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result. Setting options: *Enabled*, *Disabled*.

Video RAM Cacheable

Selecting *Enabled* allows caching of the video memory (RAM) at A0000h to AFFFFh, resulting in better video performance. However, if any program writes to this memory area, a memory access error may result. Setting options: *Disabled*, *Enabled*.

AGP Aperture Size

Selects the size of the Accelerated Graphics Port (AGP) aperture. Aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation. Options are *4M*, *8M*, *16M*, *32M*, *64M* and *128M*.

Chapter 3

AGP-4X Mode

The setting allows you to disable/enable the 4X transfer mode for the installed AGP card. Setting options: *Disabled, Enabled*. Select *Enabled* only if your AGP card supports 4X transfer mode.

AGP Driving Control

This field is used to adjust the AGP driving force. Selecting *Manual* allows you to select an AGP driving force in *AGP Driving Value*. It is strongly suggested to select *Auto* to avoid causing any system error.

AGP Driving Value

This item specifies an AGP driving force.

OnChip USB

Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have USB peripherals. Setting options: *Enabled, Disabled*.

USB Keyboard Support

Set to *Enabled* if you need to use an USB keyboard in the operating system that does not support or have any USB driver installed, such as DOS and SCO Unix.

CPU to PCI Write Buffer

When *Enabled*, CPU can write up to four words of data into the PCI write buffer before the CPU must wait for PCI bus cycles to finish. When *Disabled*, the CPU must wait after each write cycle until the PCI bus signals that it is ready to receive more data. Setting options: *Disabled, Enabled*.

PCI Dynamic Bursting

When *Enabled*, every write transaction goes to the write buffer. Then burstable transactions burst on the PCI bus and nonburstable transactions do not.

PCI Master 0 WS Write

When *Enabled*, writes to the PCI bus are executed with zero wait state.

PCI Delay Transaction

The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select *Enabled* to support compliance with PCI specification version 2.1.

PCI #2 Access #1 Retry

When *Disabled*, PCI#2 will not be disconnected until access finishes. When *Enabled*, PCI#2 will be disconnected if max retries are attempted without success.

AGP Master 1 WS Write

When *Enabled*, writes to the AGP bus are executed with one wait state inserted.

AGP Master 1 WS Read

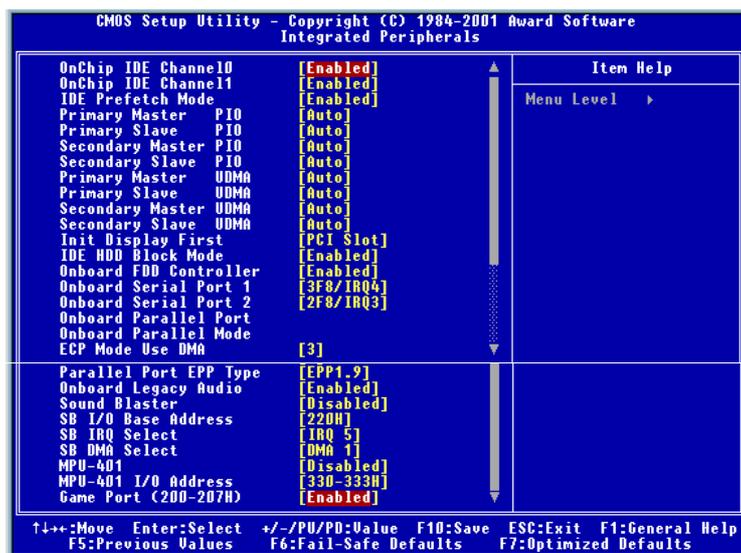
When *Enabled*, one wait state is inserted in the AGP read cycle.

Memory Parity/ECC Check

User can set the field to *Enabled* for memory checking if the type of DRAM installed in your system is Parity or ECC (Error-Correcting Code) DRAM.

Chapter 3

Integrated Peripherals



OnChip IDE Channel 0/1

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Choose *Enabled* to activate each channel separately.

IDE Prefetch Mode

The onboard IDE drive interfaces supports prefetching, for faster drive accesses. Set to *Disabled* if your primary and/or secondary add-in IDE interface does not support prefetching.

Primary/Secondary Master/Slave PIO

The four items allow you to set a PIO (Programmed Input/Output) mode for each of the four IDE devices that the onboard IDE interface supports. *Modes 0-4* provide increased performance. In *Auto* mode, BIOS automatically determines the best mode for each IDE device.

Primary/Secondary Master/Slave UDMA

Ultra DMA implementation is possible only if your IDE device supports it and

your operating environment contains a DMA driver. If both your hard drive and software support Ultra DMA 33/66/100, select *Auto* to enable BIOS support.

Init Display First

This item specifies which VGA card is your primary graphics adapter. Setting options: *PCI Slot* and *AGP*.

IDE HDD Block Mode

This allows your hard disk controller to use the fast block mode to transfer data to and from the hard disk drive. Block mode is also called block transfer, multiple commands or multiple sector read/write. *Enabled* enables IDE controller to use block mode; *Disabled* allows the controller to use standard mode.

Onboard FDD Controller

The item is used to enable or disable the onboard Floppy controller. Select *Enabled* when you have installed a floppy disk drive and want to use it.

Onboard Serial Port 1/2

The items specify the base I/O port address and IRQ for the onboard Serial Port A/Serial Port B. Selecting *Auto* allows BIOS to automatically determine the correct base I/O port address. Settings: *Disabled*, *3F8/IRQ4*, *2F8/IRQ3*, *3E8/IRQ4*, *2E8/IRQ3* and *Auto*.

Onboard Parallel Port

This specifies the I/O port address and IRQ of the onboard parallel port. Settings: *378/IRQ7*, *278/IRQ5*, *3BC/IRQ7* and *Disabled*.

Onboard Parallel Mode

- SPP : Standard Parallel Port
- EPP : Enhanced Parallel Port
- ECP : Extended Capability Port
- ECP + EPP: Extended Capability Port + Enhanced Parallel Port
- SPP/EPP/ECP/ECP+EPP

To operate the onboard parallel port as Standard Parallel Port only, choose "SPP." To operate the onboard parallel port in the EPP mode simultaneously, choose "EPP." By choosing "ECP", the onboard parallel port will operate in ECP mode only. Choosing "ECP + EPP" will allow the onboard parallel port to support both the ECP and EPP modes simultaneously.

Chapter 3

ECP Mode Use DMA

The ECP mode has to use the DMA channel, so choose the onboard parallel port with the ECP feature. After selecting it, the following message will appear: "ECP Mode Use DMA." At this time, the user can choose between DMA channel 3 or 1.

Parallel Port EPP Type

The onboard parallel port is EPP Spec. compliant. After the onboard parallel port is set to EPP function, either EPP 1.7 spec or EPP 1.9 spec can be chosen.

Onboard Legacy Audio

The item enables or disables the onboard audio features of the mainboard and the following audio options in the BIOS.

Sound Blaster

The item turns on/off the Sound Blaster feature of the board. If you want to play the Sound Blaster compatible games, you need to set the field to *Enabled*.

SB I/O Base Address

This item specifies the I/O Base Address for the Sound Blaster. Settings are *220H*, *240H*, *260H* and *280H*.

SB IRQ Select

This item specifies the IRQ for the Sound Blaster. Settings are *IRQ 5*, *IRQ 7*, *IRQ 9* and *IRQ 10*.

SB DMA Select

This item specifies the DMA channel for the Sound Blaster. Settings are *DMA 1*, *DMA 2*, *DMA 3* and *DMA 0*.

MPU-401

The field enables or disables the MPU-401 interface (the Yamaha Sound Blaster mode).

MPU-401 I/O Address

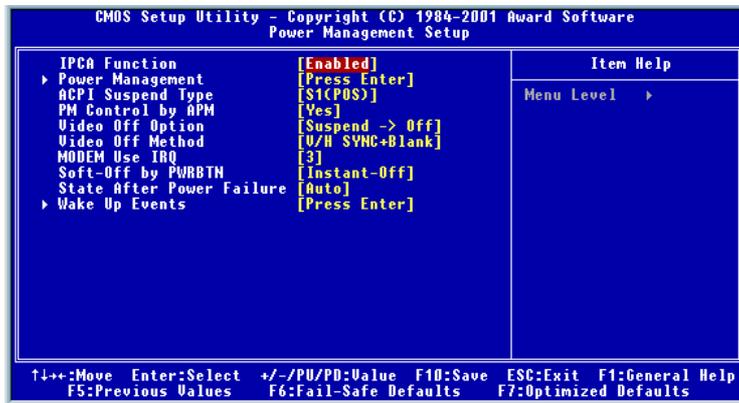
This item selects the base I/O port address for the MPU-401 interface. Settings are *330-333H*, *320-323H*, *310-313H* and *300-303H*.

Game Port (200-207H)

The item enables or disables the Joystick/Game port.

Power Management Setup

The Power Management Setup allows you to configure your system to most effectively save energy while operating in a manner consistent with your own style of computer use.



IPCA Function

This item is to activate the ACPI (Advanced Configuration and Power Management Interface) function. If your operating system is ACPI-aware, such as Windows 98SE/2000/ME, select *Enabled*. Available options: *Enabled* and *Disabled*.

Power Management

Press <Enter> to enter the sub-menu for power management options.



Power Management

This item is used to select the degree (or type) or power saving and is related to these modes: Doze Mode, Suspend Mode and HDD Power Down. There are three options for power management:

Min Saving Minimum Power Management. Doze Mode = 1 hour, Suspend Mode = 1 hour, and HDD Power

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	Down = Disable.
<i>Max Saving</i>	Maximum Power Management. Doze Mode = 10 sec, Suspend Mode = 10 sec, and HDD Power Down = Disable.
<i>User Define</i>	Allows end users to configure each mode separately. Each of the ranges are from <i>1 min.</i> to <i>1 hour</i> except for HDD Power Down which ranges from <i>1 min.</i> to <i>15 min.</i>

HDD Power Down

If HDD activity is not detected for the length of time specified in this field, the hard disk drive will be powered down while all other devices remain active. Settings are *Disable* and *1* through *15 Min.*

Doze Mode

If system activity is not detected for the length of time specified in this field, the CPU clock will run at slower speed while other devices still run at full speed. Settings are *Disable*, *1 Min*, *2 Min*, *4 Min*, *6 Min*, *8 Min*, *10 Min*, *20 Min*, *30 Min*, *40 Min* and *1 Hour*.

Suspend Mode

If system activity is not detected for the length of time specified in this field, all devices except CPU will be shut off. Settings are *Disable*, *1 Min*, *2 Min*, *4 Min*, *6 Min*, *8 Min*, *10 Min*, *20 Min*, *30 Min*, *40 Min* and *1 Hour*.

ACPI Suspend Type

This item specifies the power saving modes for ACPI function. Options are:

<i>S1/POS</i>	The S1 sleep mode is a low power state. In this state, no system context (CPU or chipset) is lost and hardware maintains all system context.
<i>S3/STR</i>	The S3 sleep mode is a power-down state in which power is supplied only to essential components such as main memory and wake-capable devices and all system context is saved to main memory. The information stored in memory will be used to restore the PC to the previous state when an “wake up” event occurs.

PM Control by APM

Setting to *Yes* will activate an Advanced Power Management (APM) device to enhance Max Saving mode and stop CPU internal clock. Settings are *Yes* and *No*.

Video Off Option

The settings are *Always On*, *Suspend* and *All Modes*. This option is for choosing the setting in which the monitor will turn off.

<i>Always On</i>	Always turn on.
<i>Suspend --> Off</i>	During Suspend mode, the monitor will be turned off.
<i>All Modes --> Off</i>	The monitor is turned off during Doze, Standby or Suspend mode.

Video Off Method

This determines the manner in which the monitor is blanked.

<i>V/H SYNC+Blank</i>	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
<i>Blank Screen</i>	This option only writes blanks to the video buffer.
<i>DPMS Support</i>	Initial display power management signaling.

MODEM Use IRQ

Name the interrupt request (IRQ) line assigned to the modem (if any) on your system. Activity of the selected IRQ always awakens the system. Settings are *3, 4, 5, 7, 9, 10, 11* and *NA*.

Soft-Off by PWRBTN

This feature allows users to configure the power button as a normal power-on/-off button or a soft-off button. Settings are:

<i>Instant-Off</i>	The power button functions as a normal power-on/-off button.
<i>Delay 4 Sec.</i>	Pressing the power button for more than 4 seconds will place the system in a very low-power-usage state (Soft-Off state), with only enough circuitry receiving

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power to detect power button activity or Wake Up On LAN/Ring activity.

State After Power Failure

This item specifies whether your system will reboot after a power failure or interrupts occurs. Available settings are:

- Off* Leaves the computer in the power off state.
- On* Reboots the computer.
- Auto* BIOS automatically determines the best mode.

Wake Up Events

Press <Enter> to enter the sub-menu and the following screen appears:

```
USB Resume from S3        [Disabled]
VGA                        [OFF]
LPT & COM                 [LPT/COM]
HDD & FDD                 [ON]
PCI Master                [OFF]
PowerOn by PCI Card       [Disabled]
Wake Up On LAN/Ring       [Disabled]
RTC Alarm Resume          [Disabled]
* Date (of Month)         0
* Resume Time (hh:mm:ss) 0   0   0
* Primary INTR            [ON]
▶ IRQs Activity Monitoring [Press Enter]
```

USB Resume from S3, VGA, LPT & COM, HDD & FDD, PCI Master, PowerOn by PCI Card, Wake Up On LAN/Ring

These fields specify whether the system will be awakened from power saving modes when activity or input signal of the specified hardware peripheral or component is detected.

 *Note: To use the function of “Wake Up On LAN/Ring”, you need to install a modem/LAN card supporting power on function.*

RTC Alarm Resume

The field is used to enable or disable the feature of booting up the system on a scheduled time/date.

Date (of Month)

The field specifies the date for Resume by Alarm. Settings: 0~31.

Resume Time (hh:mm:ss)

The field specifies the time for *Resume by Alarm*. Format is <hour> <minute><second>.

Primary INTR

When this is set to *On*, any event occurring will wake up the system which has been powered down. Setting options: *On*, *Off*.

IRQs Activity Monitoring

Press <Enter> to enter the sub-menu and the following screen appears:

IRQ3 (COM 2)	[Enabled]
IRQ4 (COM 1)	[Enabled]
IRQ5 (LPT 2)	[Enabled]
IRQ6 (Floppy Disk)	[Enabled]
IRQ7 (LPT 1)	[Enabled]
IRQ8 (RTC Alarm)	[Disabled]
IRQ9 (IRQ2 Redir)	[Disabled]
IRQ10 (Reserved)	[Disabled]
IRQ11 (Reserved)	[Disabled]
IRQ12 (PS/2 Mouse)	[Enabled]
IRQ13 (Coprocessor)	[Enabled]
IRQ14 (Hard Disk)	[Enabled]
IRQ15 (Reserved)	[Disabled]

IRQ3-IRQ15

These settings enable/disable the monitoring of the specified IRQ line. If set to *Enabled*, the activity of the specified IRQ line will prevent the system from entering power saving modes or awaken it from power saving modes.



Note: *IRQ (Interrupt Request) lines are system resources allocated to I/O devices. When an I/O device needs to gain attention of the operating system, it signals this by causing an IRQ to occur. After receiving the signal, when the operating system is ready, the system will interrupt itself and perform the service required by the I/O device.*

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PNP/PCI Configurations

This section describes configuring the PCI bus system. PCI, or **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. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.



PNP OS Installed

When set to *Yes*, BIOS will only initialize the PnP cards used for booting (VGA, IDE, SCSI). The rest of the cards will be initialized by the PnP operating system like Windows® 95 or 98. When set to *No*, BIOS will initialize all the PnP cards. So, select *Yes* if the operating system is Plug & Play aware.

Reset Configuration Data

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system can not boot. The settings are: *Enabled* and *Disabled*.

Resource Controlled By

The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating

system such as Windows® 95/98. If you set this field to “Manual”, choose specific resources by going into each of the sub menu that follows this field (a sub menu is preceded by a “>”). The settings are: *Auto (ESCD)*, *Manual*.

IRQ/DMA Resources

The items are adjustable only when *Resources Controlled By* is set to *Manual*. Press <Enter> and you will enter the sub-menu of the items. *IRQ Resources & DMA Resources* list IRQ 3/4/5/7/9/10/11/12/14/15 and DMA 0/1/3/5/6/7 for users to set each IRQ/DMA a type depending on the type of device using the IRQ/DMA. Settings are:

- PCI/ISA PnP* For Plug & Play compatible devices designed for PCI or ISA bus architecture.
- Legacy ISA* For devices compliant with the PC AT bus specification, requiring a specific interrupt.

PCI/VGA Palette Snoop

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

VGA Palette Snoop Bit Setting	Action
<i>Disabled</i>	Data read or written by the CPU is only directed to the PCI VGA device’s palette registers.
<i>Enabled</i>	Data read or written by the CPU is directed to both the PCI VGA device’s palette registers and the ISA VGA device’s palette registers, permitting the palette registers of both VGA devices to be identical.

The setting must be set to *Enabled* if any ISA bus adapter in the system requires VGA palette snooping.

Assign IRQ For VGA/USB

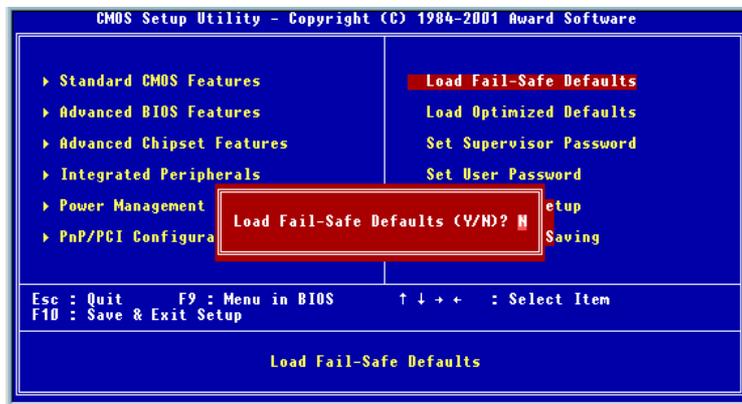
Setting to *Enabled* allows BIOS to assign an IRQ to VGA card/USB device. Choose *Disabled* if you want to release the IRQ.

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Load Fail-Safe/Optimized Defaults

The two options on the main menu allow users to restore all of the BIOS settings to the default Fail-Safe or Optimized values. The Optimized Defaults are the default values set by the mainboard manufacturer specifically for optimal performance of the mainboard. The Fail-Safe Defaults are the default values set by the BIOS vendor for stable system performance.

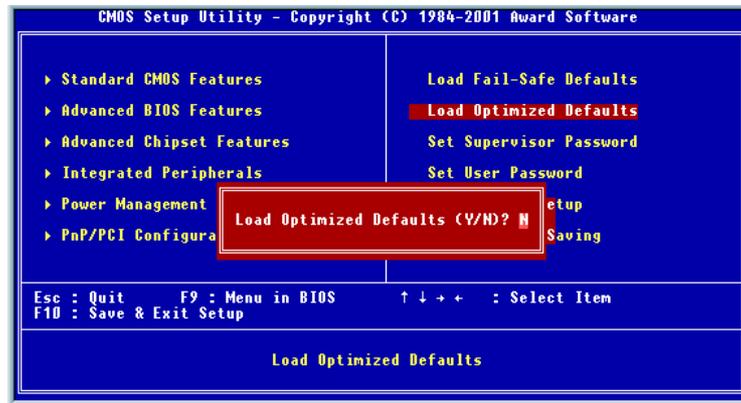
When you select Load Fail-Safe Defaults, a message as below appears:



Pressing *Y* loads the BIOS default values for the most stable, minimal system performance.

AWARD® BIOS Setup

When you select Load Optimized Defaults, a message as below appears:



Pressing Y loads the default factory settings for optimal system performance.

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Set Supervisor/User Password

When you select this function, a message as below will appear on the screen:



Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously set password from CMOS memory. You will be prompted to confirm the password. Re-type the password and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To clear a set password, just press <Enter> when you are prompted to enter the password. A message will show up confirming the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup without entering any password.

When a password has been set, 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 have BIOS to request a password each time the system is booted. This would prevent unauthorized use of your computer. The setting to determine when the password prompt is required is the Security Option of the Advanced BIOS Features menu. If the Security Option is set to *System*, the password is required both at boot and at

entry to Setup. If set to *Setup*, password prompt only occurs when trying to enter Setup.



About Supervisor Password & User Password:

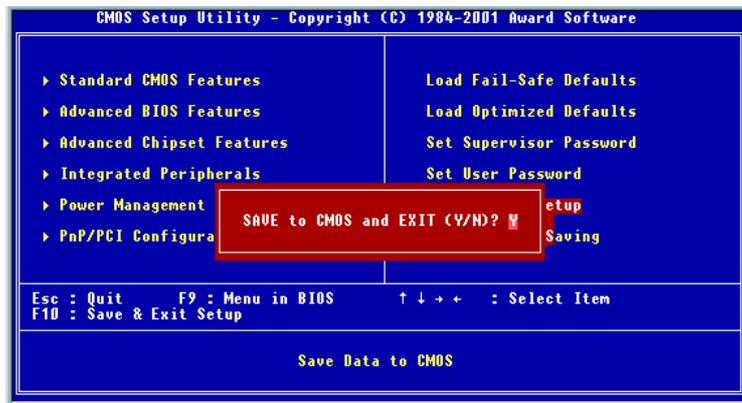
Supervisor password : Can enter and change the settings of the setup menus.

User password: Can only enter but do not have the right to change the settings of the setup menus

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Save & Exit Setup

When you want to quit the Setup menu, you can select this option to save the changes and quit. A message as below will appear on the screen:

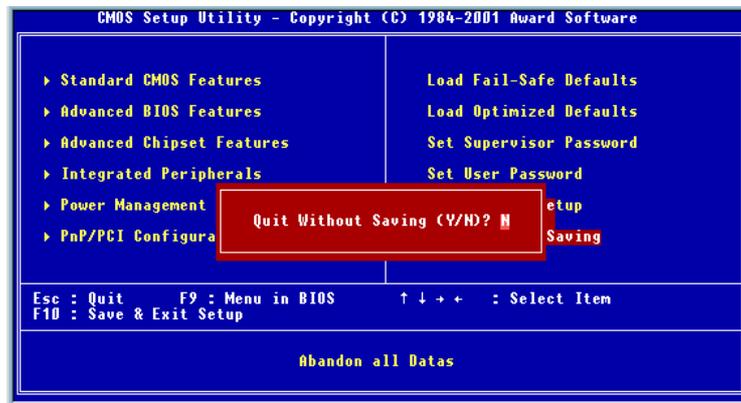


Typing “Y” will allow you to quit the Setup Utility and save the user setup changes to RTC CMOS.

Typing “N” will return to the Setup Utility.

Exit Without Saving

When you want to quit the Setup menu, you can select this option to abandon the changes. A message as below will appear on the screen:



Typing “Y” will allow you to quit the Setup Utility without saving any changes to RTC CMOS.

Typing “N” will return to the Setup Utility.

Glossary

A

ACPI (*Advanced Configuration & Power Interface*)

This power management specification enables the OS (operating system) to control the amount of power given to each device attached to the computer. Windows 98/98SE, Windows 2000 and Windows ME can fully support ACPI to allow users managing the system power flexibly.

AGP (*Accelerated Graphics Port*)

A new, high-speed graphics interface that based on PCI construction and designed especially for the throughput demands of 3-D graphics. AGP provides a direct channel (32-bit wide bus) between the display controller and main memory for high graphics quality and performance.

ATX

A modern shape and layout of mainboard that supersedes the widely-used Baby AT form factor. It improves many placement of components and makes a more efficient design.

BIOS (*basic input/output system*)

On PCs, an essential software that contains all the control code of input/output interface (such as keyboard, disk drives, etc.). It executes hardware test on booting the system, starts the OS, and provides an interface between the OS and the components. The BIOS is stored in a ROM chip.

Buffer

A region of memory reserved as a temporary storage area. In most cases, the OS or applications will create buffer areas to save the necessary data, and the applications can find the data in the areas first to increase the processing speed.

Bus

A set of hardware lines within the computer system, through which the data is transferred among different components. In a PC, the term *bus* usually refers to a local bus that connects the internal components to the CPU and main memory.

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Cache

A special memory subsystem that is used to speed up the data traffer. It stores the contents of frequently accessed RAM locations and the addresses where these data items are stored.

Chipset

A collection of integrated chips designed to perform one or more related functions. For example, a modem chipset contains all the primary circuits for transmitting and receiving data; a PC chipset provides the electronic interfaces between all subsystems.

CMOS (*complementary metal-oxide semiconductor*)

CMOS is a widely used type of semiconductor, which features high speed and low power consumption. PCs usually contain a small amount of battery-powered CMOS memory to retain the date, time, and system setup parameters.

COM

In MS-DOS system, the name of a serial communications port. DOS supports four serial ports. For example, if a modem is connected to one serial port and a serial mouse to another, they are identified as COM1 and COM2.

DIMM (*dual in-line memory module*)

A small circuit board that holds memory chips. A **SIMM** (*single in-line memory module*) has a 32-bit path to the memory chips whereas a DIMM has 64-bit path.

DMA (*direct memory access*)

A transfer mode between the main memory and the peripheral devices that without passing through the CPU. Using the DMA controller, data is transferred much faster.

DRAM (*Dynamic RAM*)

A most common type of computer memory. It usually uses one transistor and a capacitor to represent a bit. As the development of technology, the memory type and specification used in computer becomes variety, such as SDRAM, DDR SDRAM, and RDRAM. For further instruction, please see the table below:

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Dynamic RAM (DRAM) Memory Technologies					
Type	First Used	Clock Rate	Bus* Width	Peak Bandwidth	Volts
FPM (60,70ns)	1990	25MHz	64 bits	200 MBps	5v
EDO (50,60,70ns)	1994	40MHz	64 bits	320 MBps	5v
SDRAM (66MHz)	1996	66MHz	64 bits	528 MBps	3.3v
SDRAM (100MHz)	1998	100MHz	64 bits	800 MBps	3.3v
SDRAM (133MHz)	1999	133MHz	64 bits	1.1 GBps	3.3v
RDRAM (Direct Rambus)	1999	400MHz	16 bits	1.6 GBps	2.5v
DDR SDRAM (100MHz)	2000	100MHz	64 bits	1.6 GBps	3.3v
DDR SDRAM (133MHz)	2000	133MHz	64 bits	2.1 GBps	3.3v

* Memory channel width (64 bits started with 75MHz Pentium)

Source: *Computer Desktop Encyclopedia*

ECC Memory (*error correcting code memory*)

A type of memory that contains special circuitry for testing the accuracy of data and correcting the errors on the fly.

IDE (*Integrated Drive Electronics*)

A type of disk-drive interface widely used to connect hard disks, CD-ROMs and tape drives to a PC, in which the controller electronics is integrated into the drive itself, eliminating the need for a separate adapter card. The IDE interface is known as the ATA (AT Attachment) specification.

IEEE 1394

A new, high speed external bus standard, also known as *FireWire* or *iLink*, which supports data transfer rates of up to 400 Mbps for connecting up to 63 external devices.

IrDA (*Infrared Data Association*)

A group of device vendors, including computer, component and telecommunications, who have developed a standard for transmitting data via infrared light waves. This enables you to transfer data from one device to another without any cables.

LAN (*local area network*)

A computer network that covers a relatively smaller area, such as in a building

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or an enterprise. It is made up of servers, workstations, shared resources, a network operating system and a communications link. These individual PCs and devices on a LAN are known as “nodes”, and are connected by cables to access data and devices anywhere on the LAN, so that many users can share expensive devices and data.

LED (*light emitting diode*)

A semiconductor device that converts electrical energy into light. Since it lights up (usually red) when electricity is passed through it, it is usually used for the activity lights on computer's component, such as disk drivers.

LPT (*line printer terminal*)

Logical device name for a line printer; a name reserved by the MS-DOS for up to three parallel printer ports: LPT1, LPT2, and LPT3. It is frequently used by the OS to identify a printer.

PCI (*Peripheral Component Interconnect*)

A local bus standard developed by Intel that first appeared on PCs in late 1993. PCI provides “plug and play” capability and allows IRQs to be shared. The PCI controller can exchange data with the system's CPU either 32 bits or 64 bits at a time.

PnP (*Plug and Play*)

A set of specifications that allows a PC to configure itself automatically to work with peripherals. The user can "plug" in a peripheral device and "play" it without configuring the system manually. To implement this useful feature, both the BIOS that supports PnP and a PnP expansion card are required.

POST (*Power On Self Test*)

During booting up your system, the BIOS executes a series of diagnostic tests, include checking the RAM, the keyboard, the disk drives, etc., to see if they are properly connected and operating.

PS/2 Port

A type of port developed by IBM for connecting a mouse or keyboard to a PC. The PS/2 port supports a mini DIN plug containing just 6 pins. Most modern PCs equipped with PS/2 ports so that the special port can be used by another device, such as a modem.

Glossary

USB (*universal serial bus*)

A hardware interface for low-speed peripherals such as the keyboard, mouse, joystick, etc. USB provides a maximum bandwidth of 12 Mbit/sec (Mbps) for connecting up to 127 peripheral devices to PC. USB features hot swap capability and multiple data streams, allows external devices to be plugged in and unplugged without turning the system off.

Virus

A program or a piece of code that infects computer files by inserting in those files copies of itself. The virus code is buried within an existing program, and is activated when that program is executed. All the viruses are man-made, and often have damaging side effects.