MSI

MICRO-STAR INTERNATIONAL

MS-6315 Micro ATX Mainboard

Version 5.0
G52-MA00354

Manual Rev: 5.0
Release Date: May 2001

CE N1996

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.

Micro-Star International MS-6315

FC **Tested to comply with FCC Standard**

For Home or Office Use

Edition

May 2001

Copyright Notice

Trademarks

Revision History

Revision	Revision History	Date
V5.0	Change 815E/EP chipset to 815E/EP B-step chipset	May 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 cannot 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 cannot 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 60^0 C (140^0F), 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.

CONTENTS

Introduction 1

The MS-6315 (V5.X) Micro ATX mainboard is a high-performance computer mainboard based on Intel® 815E/EP B-step chipset. The MS-6315 is optimized to support the Intel® Pentium® III (FC-PGA/FC-PGA2) processors for high-end business/personal desktop markets.

The Intel® 815E (Option G) chipset integrates a Display Cache SDRAM controller that supports a 32-bit 133MHz SDRAM array for enhanced integrated 3D graphics performance. It is a highly-flexible chipset which is designed to extend the basic graphics/multimedia PC platform up to the mainstream performance desktop platform.

The Intel® 815E/EP chipset implements the host address, control, and data bus interfaces within a single device. It takes advantage of the pipelined addressing capability of the processor to improve the overall system performance. In addition, the chipset also integrates a system memory controller that supports a 64-bit 100/133 MHz SDRAM array.

The Intel® 82801BA (ICH2) chipset is a highly integrated multifunctional I/O Controller Hub that provides the interface to the PCI Bus and integrates many of the functions needed in today's PC platforms. It communicates with the host controller over a dedicated hub interface and provides added flexibility in designing cost-effective system solutions.

This chapter contains the following topics:

Mainboard Specifications

CPU

- Support Socket370 for Intel® Pentium® III Coppermine™, Tualatin™, Celeron™ (FC-PGA/FC-PGA2) processors.
- Support 667MHz, 700MHz, 733MHz, 800MHz, 866MHz and up to 1.33GHz.

Chipset

- Intel® 815E B-Step (with VGA port) or
  Intel® 815EP B-Step (without VGA port)
  - 544 BGA
  - AGP 4x/2x universal slot
  - Support 66/100/133MHz FSB
- Intel® ICH2 chipset. (360 BGA)
  - AC'97 controller integrated
  - 2 full IDE channels, up to ATA100
  - Integrated 10/100Mbit/sec Ethernet (optional)
  - Low pin count interface for Winbond SIO

Main Memory

- Support three 168-pin DIMM sockets.
- Support a 64 to 512MB memory size using 16/64/128/256 Mbit technology.

Slots

- One CNR (Communication Network Riser).
- One AGP (Accelerated Graphics Port) 2x/4x slot
- Three PCI 2.2 32-bit Master PCI Bus slots.
- Support 3.3v/5v PCI bus Interface.

On-Board IDE

- An IDE controller on the ICH2 chipset provides IDE HDD/CD-ROM with PIO, Bus Master and Ultra DMA 66/100 operation modes.
- Can connect up to four IDE devices.

On-Board Peripherals

- On-Board Peripherals include:
  - 1 floppy port supports 2 FDD with 360K, 720K, 1.2M, 1.44M and 2.88Mbytes.
  - 2 serial ports COM A + (COM B for 815EP only)
  - 1 VGA connector (for 815E only)
  - 1 parallel port supports SPP/EPP/ECP mode
  - 4 USB ports (Rear * 2 / Front * 2)
  - 1 RJ45 connector (optional)
  - 1 Line-In/Line-Out/Mic-In/Game Port

Network

- ICH2 Integrated LAN Controller
- Intel® 86562 ET (optional)
  - ACPI and APM supported (ET/EM)
  - Wake-On-LAN and WFM 2.0 supported (ET/EM)
  - Backward compatible software with 82557,82558 and 82559

Audio

- ICH2 chip integrated
- ADI 1885
  - AC'97 2.1 compliant
  - Support 2-channel audio

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.

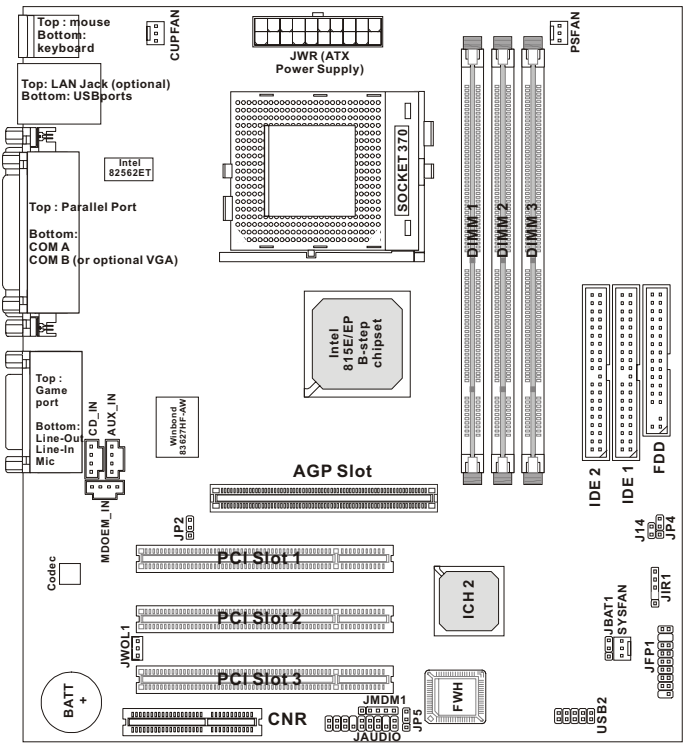
Dimension

- Micro ATX Form Factor (9.6" x 8.58")

Mounting

- 6 mounting holes.

Mainboard Layout



MS-6315 V5.X Micro ATX Mainboard

Quick Components Guide

Component	Function	Reference
JWR	ATX 20-Pin Power Connector	See p. 2-7
JKBMS1	Mouse Connector	See p. 2-8
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CNR Slot	Connecting to expansion cards	See p. 2-30

Key Features

- Micro ATX Form Factor
- Microsoft® PC99 compliant
- Support DMI (Desktop Management Interface) through BIOS
- Support STR (Suspend to RAM) & STD (Suspend to Disk)
- CPU: Socket370 for Intel® Pentium® III Coppermine™, Tualatin™, Celeron™ (FC-PGA/FC-PGA2) processors
- Memory: three 168-pin DIMM sockets/64 to 512MB memory size using 16/64/128/256 Mbit technology
- Slot: 1 AGP slot, 1 CNR slot, 3 PCI slots
- I/O: 2 serial ports (one VGA port for 815E only), 1 parallel port, 4 USB ports, 1 floppy port, 3 Audio/1 Game port, 1 RJ45 connector (optional), 1 serial port header (for 815E only)
- Fuzzy Logic™ III overclocking utility
- PC Alert™ III system hardware monitor
- Audio: 2 channel audio integrated/AC'97 2.1 compliant
- LAN Wake up Function
- Modem (External/Internal) Ring Wake up Function

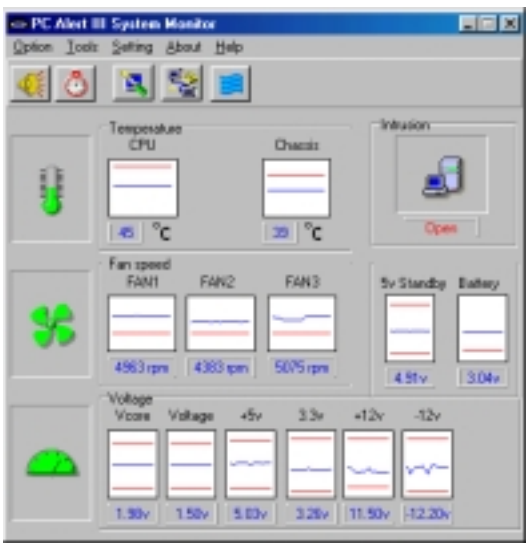
MSI Special Features

PC Alert™ III

The PC Alert™ III is an utility you can find in the CD-ROM disk. The utility is just like your PC doctor that can detect the following PC hardware status during real time operation:

* monitor CPU & system temperatures
* monitor fan speed(s)
* monitor system voltage
* monitor chassis intrusion

If one of the items above is abnormal, the program main screen will be immediately shown on the screen, with the abnormal item highlighted in red. This will continue to be shown,until user disables the warning.



Note: *Items shown on PC Alert III vary depending on your system's status.*

Features:

- Network Management
  - Monitoring & remote control
- Basic System Utilities
  - Scandisk & Defragment to maintain your HDD
- 3D Graphics Design
  - Enables a more friendly user interface
- Sofware Utilities
  - SoftCooler Optimized Cooling

T.O.P Tech™

The T.O.P Tech™ is a extended sensing device that can 100% accurately detect the CPU's temeprature. You can find out the temperature on BIOS setup menu. The PC Alert™ also provides the information.

CPU temperaure on Setup menu

CMOS Setup Utility - Copyright(C) 1984-2000 Award Software
PC Health Status

Current CPU1 Temp.	40°C/104°F	Item Help
Current CPU2 Temp.	30°C/86°F	
Current CPUFAN1 Speed 4200Rpm		Menu Level ▸
Current CPUFAN2 Speed 6124Rpm		
CPU1 Vcore	1.64V	
CPU2 Vcore	1.98V	
3.3V	3.31V	
5V	4.95V	
12V	11.64V	

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Fuzzy Logic™ III

The Fuzzy Logic™ III utility allows users to overclock the CPU FSB (Front Side Bus) frequency in the Windows environment. Select the CPU frequency you prefer and click Go to apply the frequency or click Save allowing the system to run at the specified frequency each time when the system is powered on.

Features:

- Display Current System Status
  - CPU Fan
  - CPU Temp.
  - Vcore
  - Vio
  - Memory Clock
  - CPU Clock
  - AGP Clock
  - PCI Clock
- Adjust CPU FSB Frequency

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.

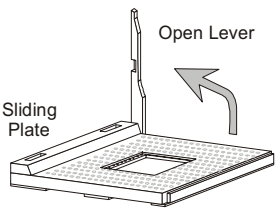
This chapter contains the following topics:

Central Processing Unit: CPU

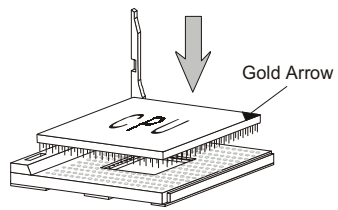
The mainboard operates with the whole series of new generation **Intel®** **Pentium® III (FC-PGA/FC-PGA2) processors.** The mainboard uses a CPU socket called Socket 370 for easy CPU installation. The CPU should always have a Heat Sink and a cooling fan attached to prevent overheating.

CPU Installation Procedures

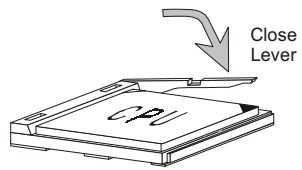
1. Pull the lever sideways away from the socket. Then, raise the lever up to a 90-degree angle.



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.



CPU Core Speed Derivation Procedure

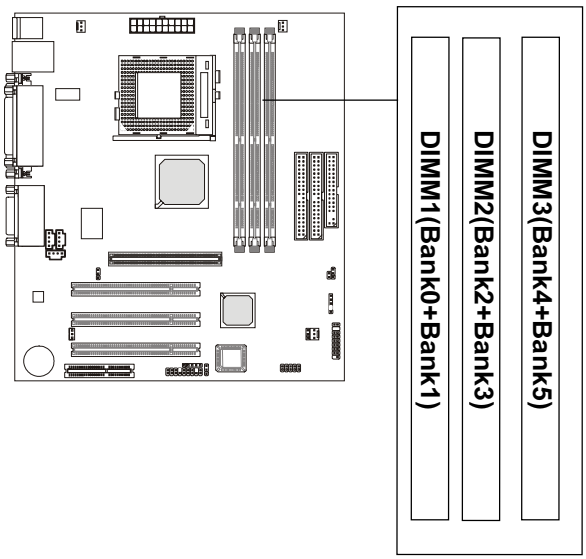
If	CPU Clock	=	100MHz
	Core/Bus ratio	=	8.5
then	CPU core speed	=	Host Clock x Core/Bus ratio
		=	100MHz x 8.5
		=	850MHz

While replacing the CPU, always turn off the ATX power supply or unplug the power cable of the ATX power supply from grounded outlet first to ensure the safety of CPU.

Memory Installation

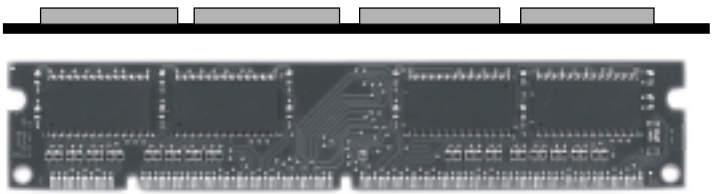
Memory Bank Configuration

The mainboard supports a maximum memory size of 512MB. It provides three 168-pin **unbuffered** DIMMs (Double In-Line Memory Module) sockets. It supports 8MB to 512MB DIMM memory module.

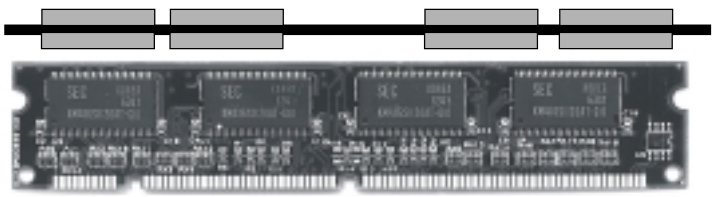


Memory Installation Procedures

A. How to install a DIMM Module



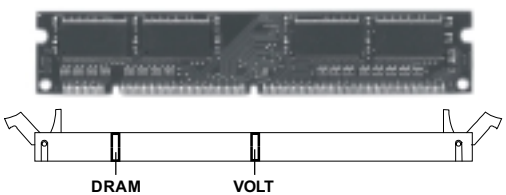
Single Sided DIMM



Double Sided DIMM

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

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



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

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, DIMM2 or DIMM3 in any order.

4. Supports 3.3 volt DIMM.

5. The DRAM addressing and the size supported by the mainboard is as follows:

SDRAM Memory Addressing

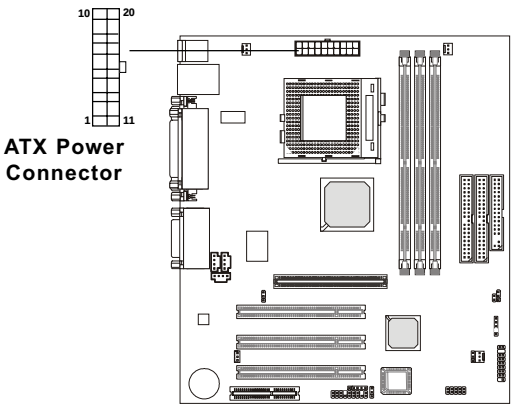
DRAM Tech.	DRAM Density & Width	DRAM Addressing	Address Size		MB/DIMM	
			Row	Column	Single no. Side(S) pcs.	Double no. Side(D) pcs.
16M	1Mx16	ASYM	11	8	8MBx4	16MBx8
	2Mx8	ASYM	11	9	16MBx8	32MBx16
64M	2Mx32	ASYM	11	9	32MBx2	64MBx4
	2Mx32	ASYM	12	8	16MBx2	32MBx4
	4Mx16	ASYM	11	10	32MB	64MB
	4Mx16	ASYM	13	8	32MB	64MB
	8Mx8	ASYM	13	9	64MB	128MB
64M	2Mx32	ASYM	11	8	16MB	32MB
	4Mx16	ASYM	12	8	---	---
	8Mx8	ASYM	12	9	---	---

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: JWR

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.

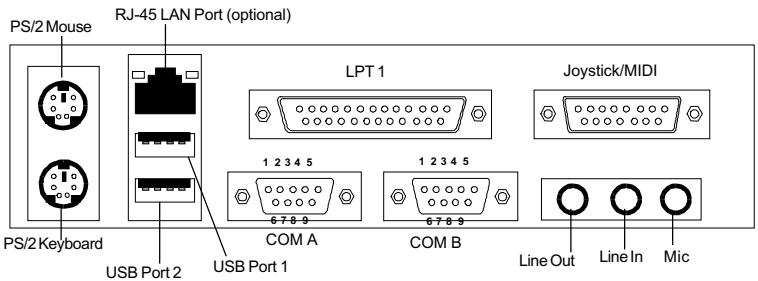


PIN	SIGNAL	PIN	SIGNAL
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	GND	13	GND
4	5V	14	PS_ON
5	GND	15	GND
6	5V	16	GND
7	GND	17	GND
8	PW_OK	18	-5V
9	5V_SB	19	5V
10	12V	20	5V

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

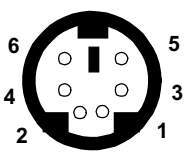
Back Panel

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:



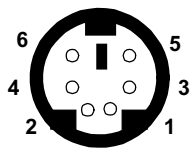
PS/2 Mouse (6-pin Female)

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

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.



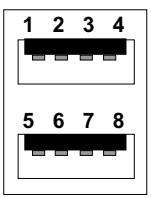
PS/2 Keyboard (6-pin Female)

Pin Definition

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

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 ths connector.



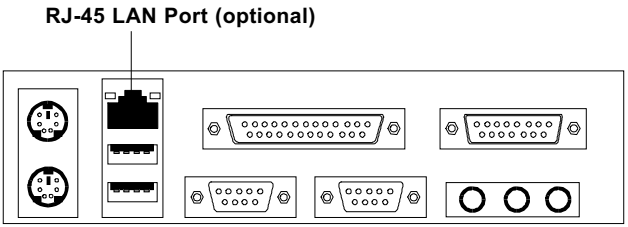
USB Ports

USB Port Description

PIN	SIGNAL	DESCRIPTION
1	VCC	+5V
2	-Data 0	Negative Data Channel 0
3	+Data0	Positive Data Channel 0
4	GND	Ground
5	VCC	+5V
6	-Data 1	Negative Data Channel 1
7	+Data 1	Positive Data Channel 1
8	GND	Ground

LAN Connector (Optional)

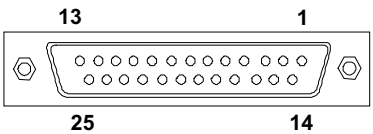
The mainboard provides an optional **RJ-45** LAN connector for your network connection.



PIN	SIGNAL	DESCRIPTION
8	NC	Not Used
7	NC	Not Used
6	RDN	Receive Differential Pair
5	NC	Not Used
4	NC	Not Used
3	RDP	Receive Differential Pair
2	TDN	Transmit Differential Pair
1	TDP	Transmit Differential Pair

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.

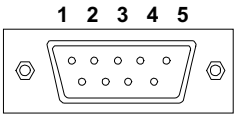


Pin Definition

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	AUTO FEED#	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

Serial Port Connector: COM A & COM B (optional)

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.



9-Pin Male DIN Connectors

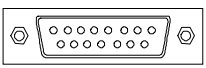
Pin Definition

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

For 815EP B-Step chipset, the mainboard is equipped with two serial ports: COMA & COMB.
For 815E B-Step chipset, the mainboard is equipped with one serial port COMA and one VGA port .

Joystick/Midi Connectors

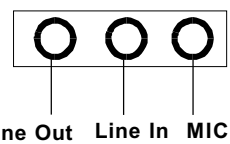
You can connect a joystick or game pad to this connector.



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.

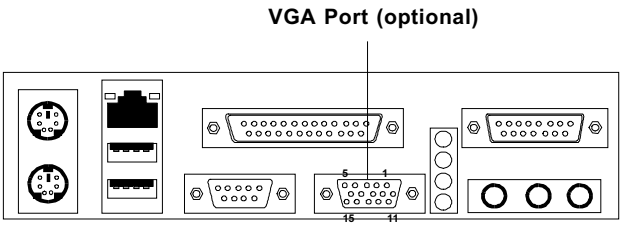
1/8" Stereo Audio Connectors



Note: If you choose to enable the Audio Multi-Channel, this will change the **Line In** to 3, 4 channel output and **MIC** to 5, 6 channel output (optional). To use this function, set the Audio Multi-Channel to enable located at the BIOS Integrated Peripherals or install the driver provided with this mainboard.

VGA DB15 Pin Connector (Optional)

For the 815E B-Step chipset, the mainboard is supplied with a 15-pin VGA port. The VGA port is used to connect to a VGA monitor.



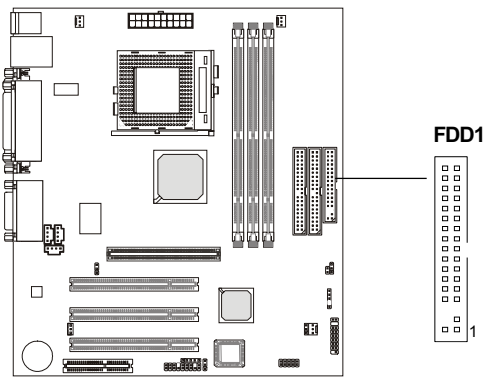
Analog Video Display Connector(DB15-S)	
Pin	**Signal Description**
1	Red
2	Green
3	Blue
4	Not used
5	Ground
6	Ground
7	Ground
8	Ground
9	Not used
10	Ground
11	Not used
12	SDA
13	Horizontal Sync
14	Vertical Sync
15	SCL

Connectors

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

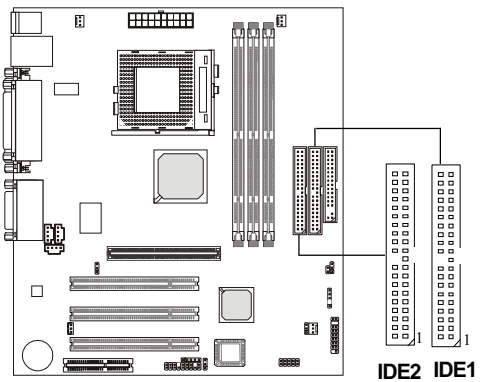
Floppy Disk Drive Connector: FDD1

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



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.

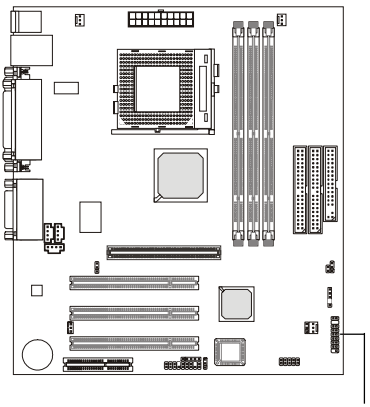
IDE2 (Secondary IDE Connector)

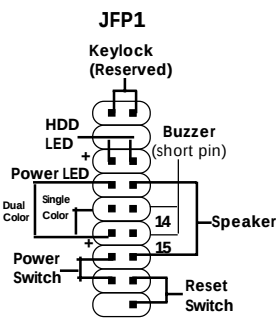
IDE2 can also connect a Master and a Slave drive.

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.

Case Connector: JFP1

The case connector block JFP1 allows you to connect to the Power Switch, Reset Swtich, Speaker, Power LED, and HDD LED on the case.





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

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

Power LED
The Power LED is lit while the system power is on.

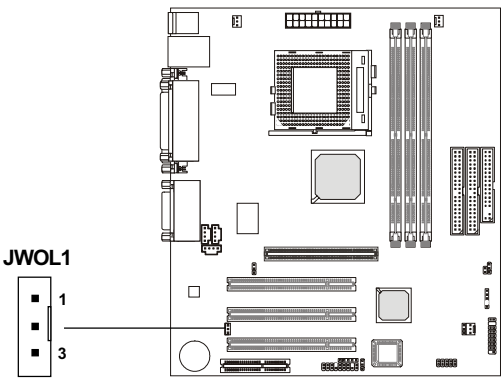
Speaker
Speaker from the system case is connected to this pin.
If on-board Buzzer is available:
Short pin 14-15: On-board Buzzer Enabled.
Open pin 14-15: On-board Buzzer Disabled.

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

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

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.



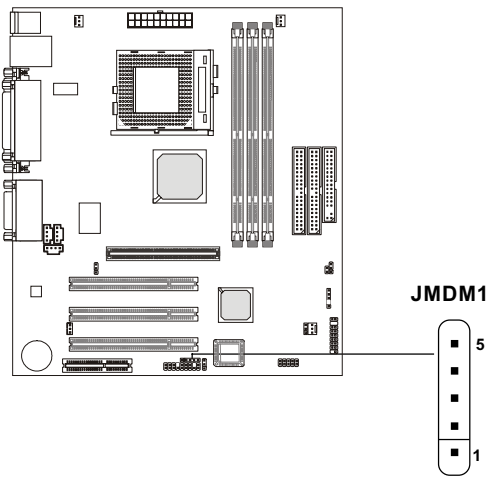
PIN	SIGNAL
1	5VSB
2	GND
3	MP_WAKEUP

Note: LAN wake-up signal is active "high".

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

Wake On Ring Connector: JMDM1

The JMDM1 connector is for use with Modem add-on card that supports the Modem Wake Up function. To use this function, you need to set the "Power On by Ring" to enable at the BIOS Power Management Setup.



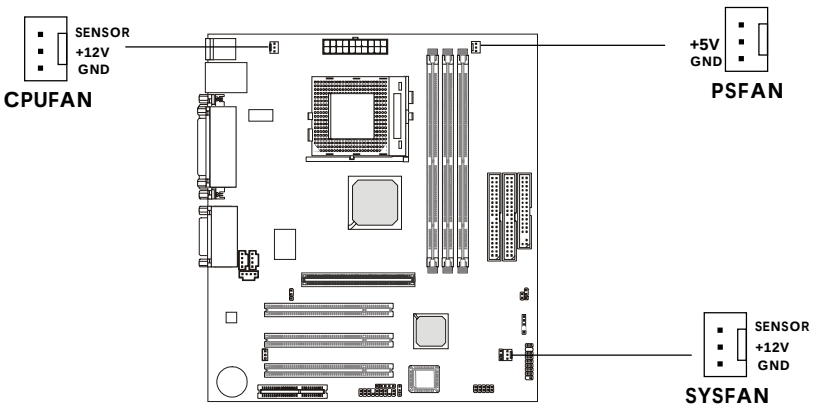
PIN	SIGNAL
1	NC
2	GND
3	MDM_WAKEUP
4	NC
5	5VSB

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

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

Fan Power Connectors: CPUFAN/SYSFAN/PSFAN

The CPUFAN (processor fan), SYSFAN (system fan) and PSFAN (power supply 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.



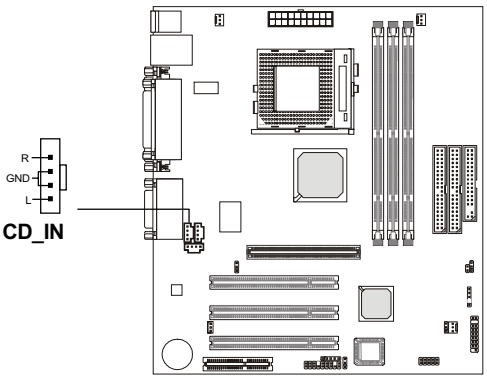
CPUFAN: Processor Fan
SYSFAN: System Fan
PSFAN: Power Supply Fan

For fans with fan speed sensor, every rotation of the fan will send out 2 pulses. System Hardware Monitor will count and report the fan rotation speed.

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 temeperature.

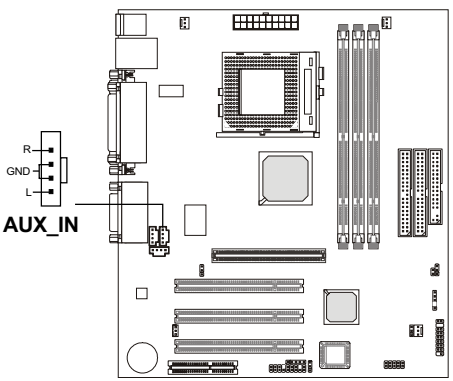
CD-In Connector: CD_IN

The connector is for CD-ROM audio connector.



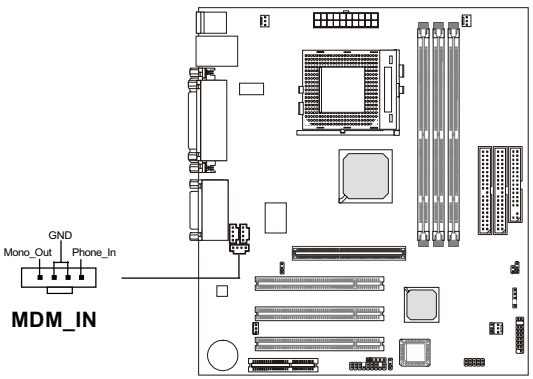
Aux Line-In Connector: AUX_IN

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



Modem-In Connector: MDM_IN

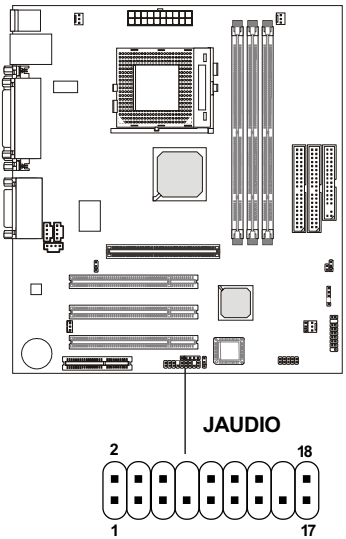
The connector is for modem with internal audio connector.



Mono_Out is connected to the Modem Speaker Out connector.
Phone_In is connected to the Modem Microphone In connector.

Front Panel Audio Connector: JAUDIO

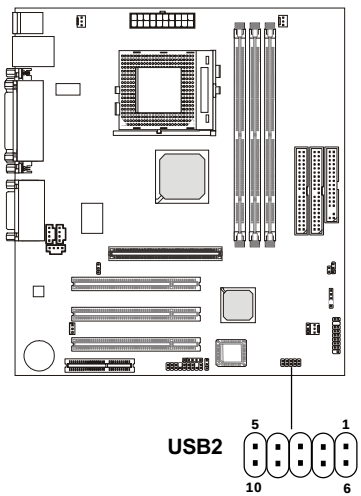
You can connect an optional front panel audio connector to this connector.



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)

USB Front Connector: USB2

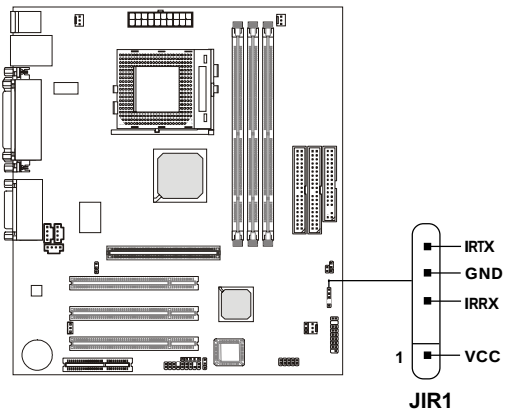
The mainboard provides a **front Universal Serial Bus connector**. This is an optional USB connector for front panel.



Pin	Description	Pin	Description
1	VCC	6	GND
2	USB2-	7	GND
3	USB2+	8	USB3+
4	GND	9	USB3-
5	GND	10	VCC

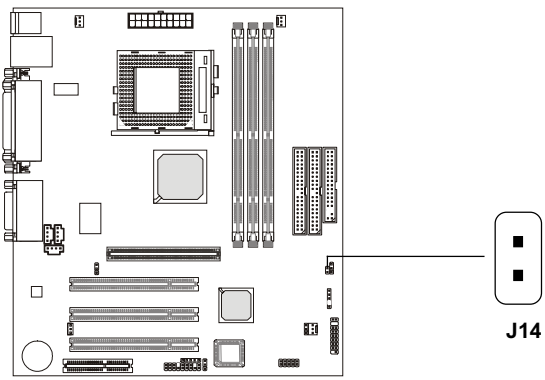
IrDA Infrared Module Connector: JIR1

The mainboard provides one infrared (IR) connector for IR modules. This connector is for optional wireless transmitting and receiving infrared module. You must configure the setting through the BIOS setup to use the IR function.



Chassis Intrusion Switch Connector: J14

This connector is connected to 2-pin connector chassis switch. If the Chassis is open, the switch will be short. The system will record this status. To clear the warning, you must enter the BIOS settting and clear the status.

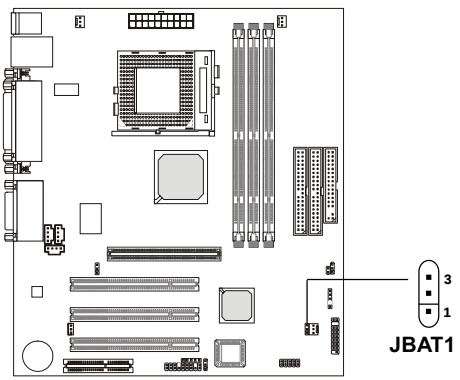


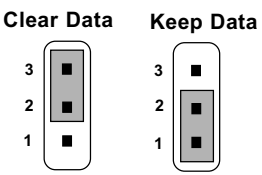
Jumpers

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

Clear CMOS Jumper: JBAT1

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



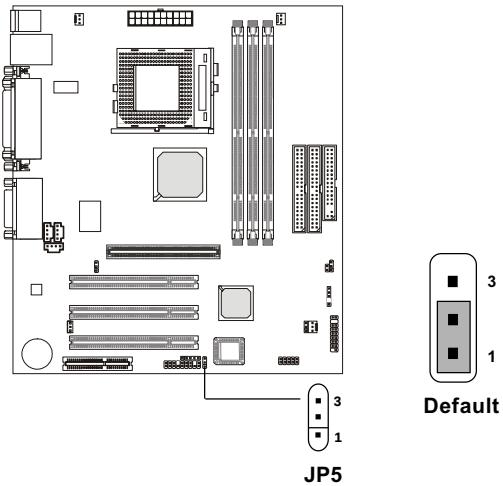


WARNING!

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.

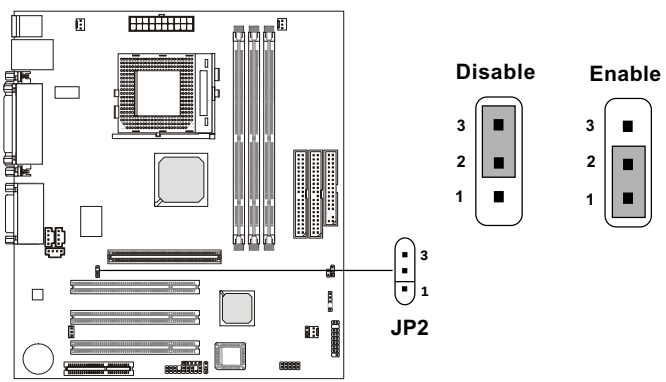
JP5 (Reserved)

This jumper is for manufacturer test setting only. Default setting short 1-2 pin.



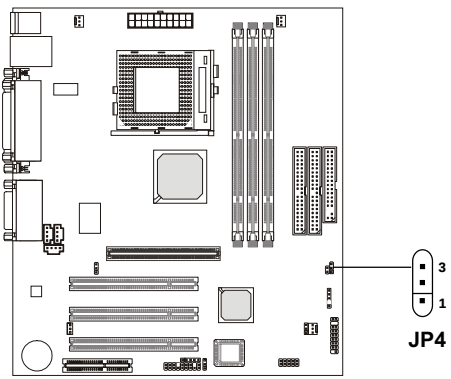
LAN Enable/Disable Jumper: JP2

This jumper allows you to enable/disable LAN function.

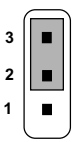


Onboard Audio Codec Jumper: JP4

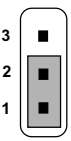
The jumper is used to enable or disable the onboard software audio codec. In Auto Mode, the system will use the onboard codec as the PRIMARY audio adapter and the installed CNR card as the SECONDARY one. But some types of CNR cards cannot be set to the secondary one, then the onboard audio codec must be disabled to resolve the system conflict.



Disable onboard Audio Codec

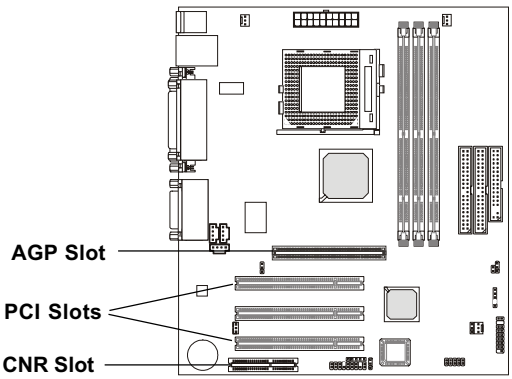


Auto Mode (default)



Slots

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



AGP (Accelerated Graphics Port) Slot

The AGP Slot allows you to insert the AGP card.

PCI 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.

CNR (Communication Network Riser)

The CNR specification is an open industry-standard specification that defines a hardware scalable Original Equipment Manufacturer (OEM) mainboard riser board and interface, which supports audio, LAN card, modem and other network devices.

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

Power on the computer. When the below message appears briefly at the bottom of the screen during the POST (Power On Self Test), press <Del> key or simultaneously press <Ctrl>, <Alt>, and <Esc> keys to enter Setup.

TO ENTER SETUP BEFORE BOOT, PRESS <CTRL-ALT-ESC>
OR <DEL> KEY

If the message disappears before you respond and you still wish to enter Setup, restart the system by turning it OFF then On or pressing the RESET button to try again. You may also restart 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
<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

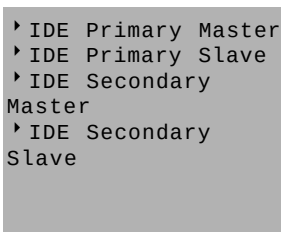
After entering the Setup menu, the first menu you will see is the Main Menu.

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 can be launched from this field. A sub-menu contains additional options for a field parameter. 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 the <Esc >.

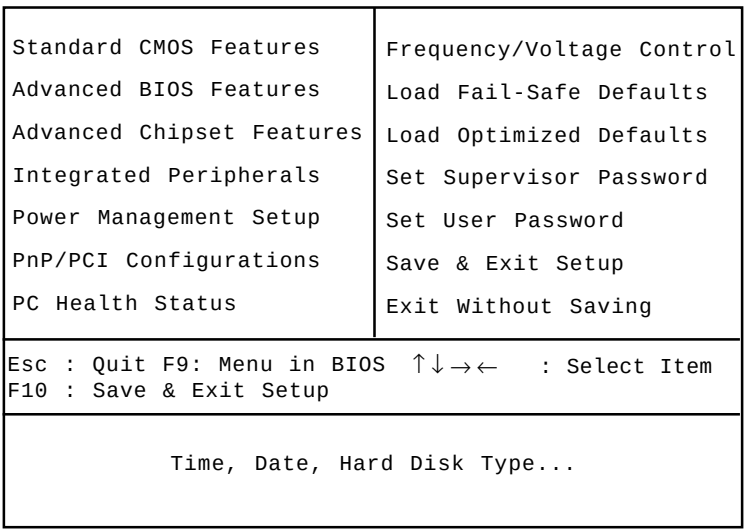


General Help <F1>

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.

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 Configuration
This entry appears if your system supports PnP/PCI.

PC Health Status
This entry shows your PC health status.

Frequency/Voltage Control
Use this menu to specify your settings for frequency/voltage control.

Load Fail-Safe Defaults
Use this menu to load the BIOS default values for the minimal/stable performance for your system to operate.

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

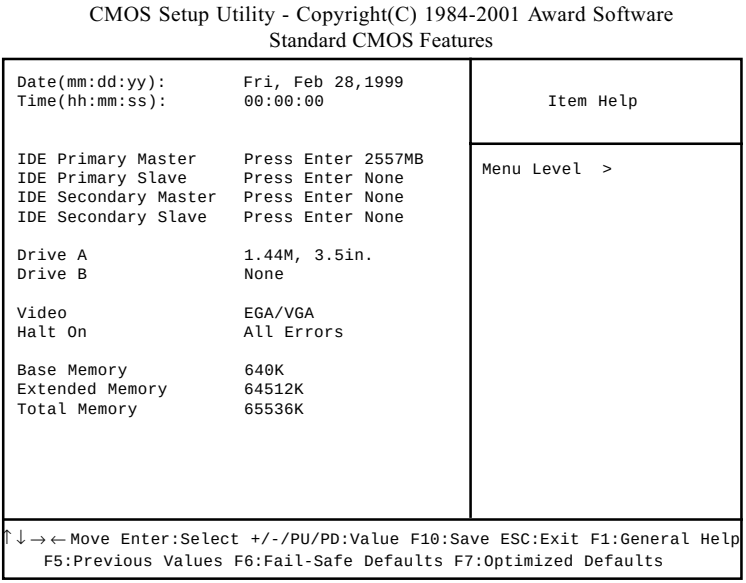
Supervisor/User Password
Use this menu to set User and Supervisor Passwords.

Save & Exit Setup
Save CMOS value changes to CMOS and exit setup.

Exit Without Saving
Abandon all CMOS value changes and exit setup.

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>.

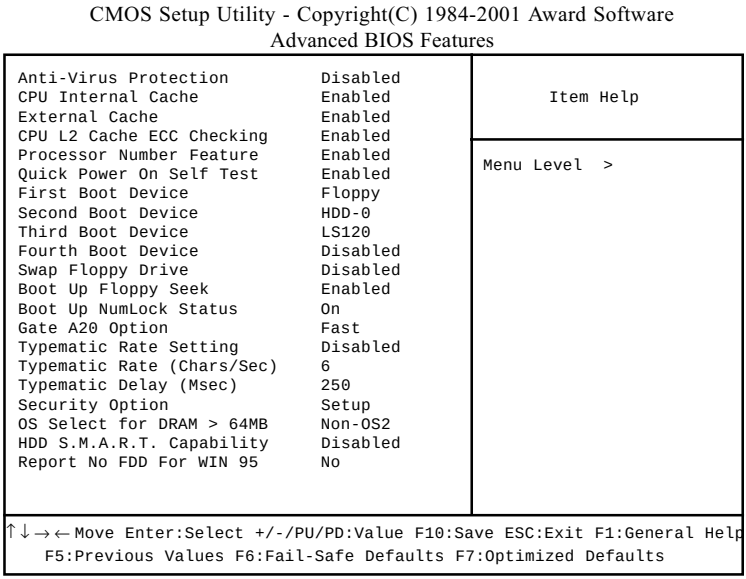
PrimaryMaster/PrimarySlave
SecondaryMaster/Secondary Slave
Press PgUp/<+> or PgDn/<-> to select Manual, None, Auto type. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk 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 following 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 Auto, Normal, Large,LBA.
Cylinder	number of cylinders
Head	number of heads
Precomp	write precom
Landing Zone	landing zone
Sector	number of sectors

Advanced BIOS Features



Anti-Virus Protection

Allows you to choose the VIRUS Warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep.

Disable (default) No warning message to appear when anything attempts to access the boot sector or hard disk partition table.

Enable Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector of hard disk partition table.

CPU Internal Cache

The default value is Enabled.

Enabled (default) Enable cache

Disabled Disable cache

Note: The internal cache is built in the processor.

External Cache
Choose Enabled or Disabled. This option enables the level 2 cache memory.

CPU L2 Cache ECC Checking
Choose Enabled or Disabled. This option enables the level 2 cache memory ECC(error check correction).

Processor Number Feature
This option is for Pentium® III processor. During Enabled, this will check the CPU Serial number. Disabled this option if you don't want the system to know the Serial number.

Quick Power On Self Test
This category speeds up Power On Self Test (POST) after you power on the computer. If this is set to Enabled, BIOS will shorten or skip some check items during POST.

Enabled	Enable quick POST
Disabled (default)	Normal POST

First/Second/Third/Fourth Boot Device
The BIOS attempts to load the operating system from the devices in the sequence selected in these items. The settings are Floppy, LS120, HDD-0/HDD-1/HDD-2/HDD-3, SCSI, CDROM, LAN, ZIP100, and Disabled.

Swap Floppy Drive
Switches the floppy disk drives between being designated as A and B. Default is Disabled.

Boot Up Floppy Seek
When enable during POST, BIOS will determine if the floppy disk drive installed is 40 or 80 tracks. 360K type is 40 tracks while 760K, 1.2M and 1.44M are all 80 tracks.

Boot Up NumLock Status
The default value is On.

On (default)	Keypad is numeric keys.
Off	Keypad is arrow keys.

Gate A20 Option

Normal	The A20 signal is controlled by keyboard controller or chipset hardware.
Fast(default)	The A20 signal is controlled by port 92 or chipset specific method.

Typematic Rate Setting

Key strokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected.
The settings are: Enabled/Disabled.

Typematic Rate (Chars/Sec)

Sets the number of times a second to repeat a key stroke when you hold the key down. The settings are: 6, 8, 10, 12, 15, 20, 24, 30.

Typematic Delay (Msec)

Sets the delay time after the key is held down before it begins to repeat the keystroke The settings are: 250, 500, 750, 1000.

Security Option

This category allows you to limit access to the system and Setup, or just to Setup.

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

Setup(default) The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

OS Selection for DRAM > 64MB

Allows OS2® to be used with > 64 MB of DRAM. Settings are Non-OS/2 (default) and OS2. Set to OS/2 if using more than 64MB and running OS/2®.

HDD S.M.A.R.T Capability

This item allows you to Enabled or Disabled the HDD S.M.A.R.T. (Self-Monitoring Analysis and Reporting Technology) Capability. The default setting is Disabled.

Report No FDD For WIN 95

Whether report no FDD for Win 95 or not. The settings are: Yes, No.

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.

CMOS Setup Utility - Copyright(C) 1984-2001 Award Software
Advanced Chipset Features

SDRAM CAS Latency Time	3	Item Help
SDRAM Cycle Time Tras/Trc	7/9	
SDRAM RAS-to-CAS Delay	3	
SDRAM RAS Precharge Time	3	
System BIOS Cacheable	Disabled	Menu Level >
Video BIOS Cacheable	Disabled	
Memory Hole at 15M-16M	Disabled	
CPU Latency Timer	Enabled	
Delayed Transaction	Enabled	
AGP Graphics Aperture Size	64MB	
System Memory Frequency	Auto	
On-Chip Video Window Size	64MB	
Display Cache Frequency	100MHz	
* Onboard Display Cache Setting *		
CAS# Latency	3	
Paging Mode Control	Open	
RAS-to-CAS Override	by CAS# LT	
RAS# Timing	Fast	
RAS# Precharge Timing	Fast	

↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

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

SDRAM CAS latency Time
When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. The settings are: 2, 3 and Auto.

SDRAM Cycle Time Tras/Trc
Select the number of SCLKs for an access cycle. The settings are: 5/7 and 7/9.

SDRAM RAS-to-CAS Delay
This field lets you insert a timing delay between the CAS and RAS strobe

signals, used when DRAM is written to, read from, or refreshed. *Fast* gives faster performance; and *Slow* gives more stable performance. This field applies only when Synchronous DRAM is installed in the system. The settings are: 2 and 3.

SDRAM RAS Precharge Time
If an insufficient number of cycles is allowed for the RAS to accumulate its charge before DRAM refresh, the refresh may be incomplete and the DRAM may fail to retain data. *Fast* gives faster performance; and *Slow* gives more stable performance. This field applies only when synchronous DRAM is installed in the system. The settings are: 2 and 3.

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. The settings are: Enabled and Disabled.

Video BIOS Cacheable
Select Enabled allows caching of the video BIOS , resulting in better system performance. However, if any program writes to this memory area, a system error may result. The settings are: Enabled and Disabled.

Memory Hole At 15M-16M
You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements. The settings are: Enabled and Disabled.

CPU Latency Timer
During Enabled, A deferrable CPU cycle will only be Deferred after it has been in a Snoop Stall for 31 clocks and another ADS# has arrived. During Disabled, A deferrable CPU cycle will be Deferred immediately after the GMCH receives another ADS#.

Delayed 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. The settings are: Enabled and Disabled.

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

System Memory Frequency
Select the System Memory Frequency. The settings are 100MHz, 133MHz or Auto. The default value is "Auto."

On-Chip Video Window Size (Optional)
This option appears only when the optional VGA port is integrated onboard. Video Window is the amount of system memory that can be used by the on-chip VGA controller. The settings are 64MB and Disabled.

Display Cache Frequency (Optional)
This option appears only when the optional VGA port is integrated onboard. It allows you to set the frequency for the display cache. The settings are 100MHz or 133MHz. The default value is "100MHz."

Onboard Display Cache Setting (Optional):
The following five options are for onboard display cache setting only. They appear only when the optional VGA port is integrated onboard.

CAS# Latency
When onboard display cache is installed, the number of clock cycles of CAS latency depends on the cache timing. The settings are: 2 and 3. The default is 3.

Paging Mode Control
This option allows you to control the paging mode. The settings are Close or Open. The default is "Open."

RAS-to-CAS Override
This option allows you to set the RAS-to-CAS override. The settings are: "by CAS# LT" or "Override<2>." The default is: by CAS# LT.

RAS# Timing
This option allows you to set the RAS# timing. The settings are: Slow or Fast. *Fast* gives faster performance and *Slow* gives more stable performance.

RAS# Precharge Timing
If an insufficient number of cycles is allowed for the RAS to accumulate its charge before SRAM refresh, the refresh may be incomplete and the SRAM may fail to retain data. The settings are: Slow or Fast. *Fast* gives faster performance and *Slow* gives more stable performance.

Integrated Peripherals

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Integrated Peripherals

On-Chip Primary PCI IDE	Enabled	Item Help
On-Chip Secondary PCI IDE	Enabled	
IDE Primary Master PIO	Auto	
IDE Primary Slave PIO	Auto	
IDE Secondary Master PIO	Auto	Menu Level >
IDE Secondary Slave PIO	Auto	
IDE Primary Master UDMA	Auto	
IDE Primary Slave UDMA	Auto	
IDE Secondary Master UDMA	Auto	
IDE Secondary Slave UDMA	Auto	
USB Controller	Enabled	
USB Keyboard Support	Disabled	
USB Mouse Support	Disabled	
Init Display First	PCI Slot	
AC97 Audio	Auto	
AC97 Modem	Auto	
IDE HDD Block Mode	Enabled	
Keyboard Power On	Disabled	
POWER ON Function	Button Only	
KB Power On Password	Enter	
Hot Key Power ON	Ctrl-F1	
Onboard FDC Controller	Enabled	
Onboard Serial Port 1	3F8/IRQ4	
Onboard Serial Port 2	2F8/IRQ3	
UART Mode Select	Normal	
RxD, TxD Active	Hi, Lo	
IR Transmition Delay	Enabled	
UR2 Duplex Mode	Half	
USE IR Pins	IR-Rx2Tx2	
Onboard Parallel Port	378/IRQ7	
Parallel Port Mode	ECP	
EPP Mode Select	EPP 1.7	
ECP Mode Use DMA	3	
PWRON After PWR-Fail	Off	
Game Port Address	201	
Midi Port Address	290	
Midi Port IRQ	10	
Power Status LED	Single	

↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

OnChip Primary/Secondary PCI IDE

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select *Enabled* to activate each channel separately. The settings are: Enabled and Disabled.

IDE Primary/Secondary Master/Slave PIO
The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device. The settings are: Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

IDE Primary/Secondary Master/Slave UDMA
Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33, Ultra DMA/66 and Ultra DMA/100 select Auto to enable BIOS support. The settings are: Auto, Disabled.

USB Controller
Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have USB peripherals. The settings are: Enabled, Disabled.

USB Keyboard Support
Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard. The settings are: Enabled, Disabled.

USB Mouse Support
Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have a USB mouse. The settings are: Enabled, Disabled.

Init Display First
This item allows you to decide to activate whether PCI Slot or on-chip VGA first. The settings are: PCI Slot, Onboard/AGP.

AC97 Audio/Modem
This item allows you to decide to enable/disable the 815 chipset family to support AC97 Audio/Modem.

IDE HDD Block Mode
Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do),

select Enabled for automatic detection of the optimal number of block read/ writes per sector the drive can support. The settings are: Enabled, Disabled.

Power On Function
This function allows you to select the item to power on the system. The settings are : Button Only, Mouse Left, Mouse Right, Password, Hotkey, keyboard 98.

KB Power On Password
This function allows you to set the password for Keyboard Power On.

Hot Key Power On
This function allows you to set the hot key to power on the system. The default setting is: Ctrl-F1.

Onboard FDC Controller
Select Enabled if your system has a floppy disk controller (FDD) installed on the system board and you wish to use it. If you install add-on FDC or the system has no floppy drive, select Disabled in this field.
The settings are: Enabled and Disabled.

Onboard Serial Port 1/Port 2
Select an address and corresponding interrupt for the first and second serial ports. The settings are: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.

UART Mode Select
This item allows you to determine which InfraRed(IR) function of the onboard I/O chip, this functions uses.

Onboard Parallel Port

Disabled There is a built-in parallel port on the on-board Super I/O chipset that provides Standard, ECP, and EPP features. It has the following options:

Disable	
3BCH/IRQ7	Line Printer port 0
278H/IRQ5	Line Printer port 2
378H/IRQ7	Line Printer port 1

Parallel Port 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.

EPP Mode Select

The onboard parallel port is EPP Spec. compliant, so after the user chooses the onboard parallel port with the EPP function, the following message will be displayed on the screen: "EPP Mode Select." At this time either EPP 1.7 spec. or EPP 1.9 spec. can be chosen.

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.

PWRON After PWR-FAIL

This option will determine how the system will power on after a power failure.

Game Port Address/Midi Port Address/Midi Port IRQ

This will determine which Address the Game Port/Midi Port/Midi Port IRQ will use.

Power Status LED

This item determines which state the Power LED will use. The settings are Blinking, Dual, and Single. During blinking, the power LED will blink when the system enters the suspend mode. When the mode is in Dual, the power LED will change its color. Choose the single and the power LED will always remain lit.

Power Management Setup

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

CMOS Setup Utility - Copyright(C) 1984-2001 Award Software
Power Management Setup

IPCA Function	Enabled	Item Help
ACPI Suspend Type	S1(POS)	
Power Management	User Define	
Video Off Method	DPMS	
Video Off In Suspend	Yes	Menu Level >
Suspend Type	Stop Grant	
Modem Use IRQ	3	
Suspend Mode	Disabled	
HDD Power Down	Disabled	
Soft-Off by PWR-BTTN	Delay 4 Sec.	
Wake-Up by PCI Card	Enabled	
Power On by Ring	Enabled	
Wake-Up On LAN	Enabled	
USB KB Wake-Up From S3	Disabled	
CPU Thermal-Throttling	50.0%	
Resume By Alarm	Disabled	
Date(of Month) Alarm	0	
Date(hh:mm:ss) Alarm	0 0 0	
Reload Global Timer Events		
Primary IDE 0	Disabled	
Primary IDE 1	Disabled	
Secondary IDE 0	Disabled	
Secondary IDE 1	Disabled	
FDD, COM, LPT Port	Disabled	
PCI PIRQ[A-D]#	Disabled	

↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

IPCA Function

This item allows you to Enabled/Disabled the Advanced Configuration and Power Management (ACPI). The settings are Enabled and Disabled.

ACPI Suspend Type

This item will set which ACPI suspend type will be used.

S1 (POS)

The S1 sleeping state is low wake-up latency sleeping state. In this state, no system context is lost(CPU or chip set) and hardware maintains all system context.

S3 (STR)

The S3 state is a low wake-up latency sleeping sate where all system

context is lost expect system memory. CPU, cache, and chipset context are lost in this state. Hardware maintains memory context and restores some CPU and L2 configuration context.

Power Management
This category allows you to select the type (or degree) of power saving and is directly related to the following mode:

HDD Power Down

There are three selections for Power Management, two of which have fixed mode settings.

Min. Power Saving	Minimum power management. HDD Power Down = 15 min.
Max. Power Saving	Maximum power management — HDD Power Down = 1 min.
User Defined (default)	Allows you to set each mode individually. When not disabled, each of the ranges are from 1 min. to 1 hr. except for HDD Power Down which ranges from 1 min. to 15 min. and disable.

Video Off Method
This determines the manner in which the monitor is blanked.

V/HSYNC+Blank	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
Blank Screen	This option only writes blanks to the video buffer.
DPMS (default)	Initial display power management signaling.

Video Off In Suspend
This determines the manner in which the monitor is blanked. The settings are: Yes and No.

Suspend Type
Select the Suspend Type. The settings are: PWRON Suspend, Stop Grant.

Modem Use IRQ
This determines the IRQ in which the MODEM can use. The settings are: 3, 4, 5, 7, 9, 10, 11, NA.

Suspend Mode
When enabled and after the set time of system inactivity, all devices except the CPU will be shut off. The settings are: 1/2/4/8/12/20/30/40 Min, 1 Hour, and Disabled.

HDD Power Down
When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.
The settings are: 1/2/3/4/5/6/7/8/9/10/11/12/13/14/15Min and Disabled.

Soft-Off by PWR-BTTN
Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state. The settings are: Delay 4 Sec, Instant-Off.

Wake-Up by PCI Card
This will enable the system to wake up through PCI Card peripheral. The settings are : Enabled and Disabled.

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

Wake-Up on LAN
To use this function, you need a LAN add-on card which support power on functions. It should also support the wake-up on LAN jumper (JWOL1).

Enabled	Wake up on LAN supported.
Disabled	Wake up on LAN not supported.

USB KB Wake-Up From S3
This option is used to Enabled/Disabled USB keyboard wake up with suspend to RAM.

CPU Thermal-Throttling
Select the CPU THRM-Throttling rate. The settings are: 12.5%, 25.0%, 37.5%, 50.0%, 62.5%, 75.0%, 87.5%.

Resume by Alarm
This function is for setting date and time for your computer to boot up. During

Disabled, you cannot use this function. During Enabled, choose the Date and Time Alarm:

Date (of month) Alarm You can choose which month the system will boot up. Set to 0, to boot every day.

Time (hh:mm:ss) Alarm You can choose what hour, minute and second the system will boot up.

Note: If you have change the setting, you must let the system boot up until it goes to the operating system, before this function will work.

Reload Global Timer Events

Reload Global Timer events are I/O events whose occurrence can prevent the system from entering a power saving mode or can awaken the system from such a mode. In effect, the system remains alert for anything which occurs to a device which is configured as *Enabled* , even when the system is in a power down mode.

Primary IDE 0

Primary IDE 1

Secondary IDE 0

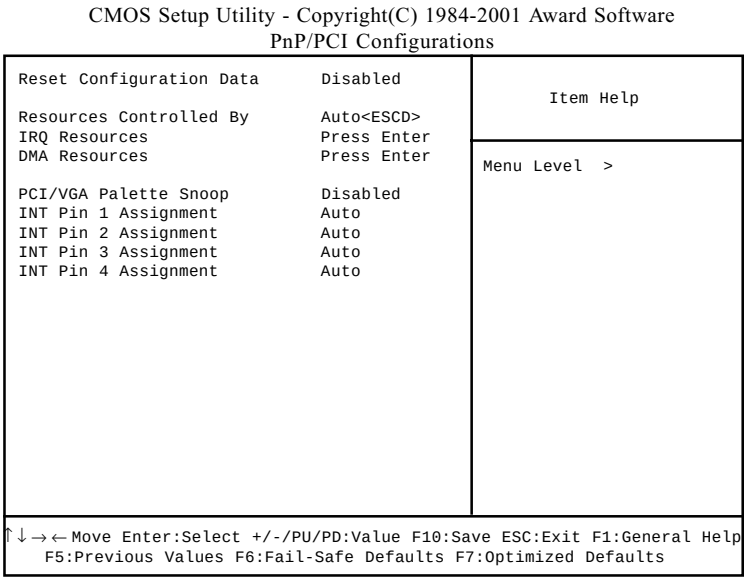
Secondary IDE 1

FDD, COM, LPT Port

PCI PIRQ[A-D] #

PNP/PCI Configurations

This section describes configuring the PCI bus system. PCI, or **P**ersonal **C**omputer **I**nterconnect, 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.



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 Resources
When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.

DMA Resources
This sub menu can let you control the DMA resource.

PCI/VGA Palette Snoop
Leave this field at *Disabled*. The settings are Enabled, Disabled.

INT Pin1/Pin2/Pin3/Pin4 Assignment
This option enables you to set the IRQ address for up to 4 sets of PCI devices. The settings are: Auto, 3, 4, 5, 7, 9, 10, 11, 12, 14 and 15.

PC Health Status

This section shows the Status of your CPU, Fan, Warning for overall system status.

CMOS Setup Utility - Copyright(C) 1984-2001 Award Software
PC Health Status

CPU Warning Temperature	Disabled	Item Help
Current System Temp.	39ºC/102ºF	
Current CPU Temperature	66ºC/150ºF	
Current Top Tech. III Temp.	32ºC/89ºF	
System fan	0RPM	Menu Level >
Power fan	0RPM	
CPU fan	5532RPM	
Vcore	1.96V	
VTT	1.48V	
3.3V	3.24V	
+5V	4.89V	
+12V	11.79V	
-12V	12.19V	
-5V	-4.53V	
VBAT(V)	3.10V	
5VSB(V)	5.37V	
Chassis Intrusion Detect	Disabled	
Shutdown Temperature	Disabled	

↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

CPU Warning Temperature

During Enabled, this will warn the user when the CPU temperature reach a certain temperature.*Current System Temp/Current CPU Temperature/Current Top Tech. III Temp/System Fan (optional)/Power Fan (optional)/Cpu Fan/Vcore/VTT/3.3V/ +5V/+12V/-12V/-5V/VBAT(V)/5VSB(V)*

This will show the CPU/FAN/System voltage chart and FAN Speed.

Chassis Intrusion Detect

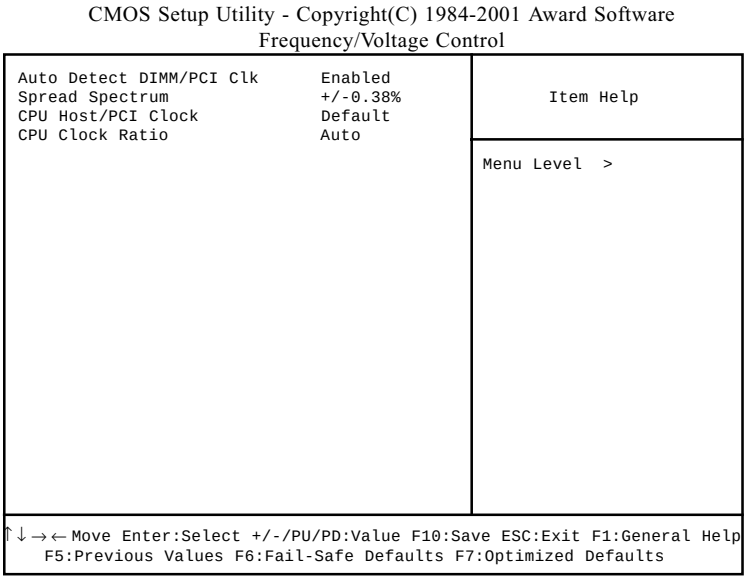
Set this option to Enabled, Reset, or Disabled the chassis intrusion detector. During Enabled, any intrusion on the system chassis will be recorded. The next time you turn on the system, it will show a warning message. To be able to clear those warning, choose reset. After clearing the message it will go back to Enabled.

Shutdown Temperature

This option is for setting the Shutdown temperature level for the processor. When the processor reach the temperature you set, this will shutdown the system.

Frequency/Voltage Control

This section is for setting CPU Frequency/Voltage Control.



Auto Detect DIMM/PCI CLK
This option allows you to enable/disable auto detect DIMM/PCI Clock. The settings are: Enabled, Disabled.

Spread Spectrum
This option allows you to set the Spread Spectrum. The settings are: Disable, +/-0.5%, +/-0.25% and +/-0.38%. When overclocking the processor, always set it to Disabled.

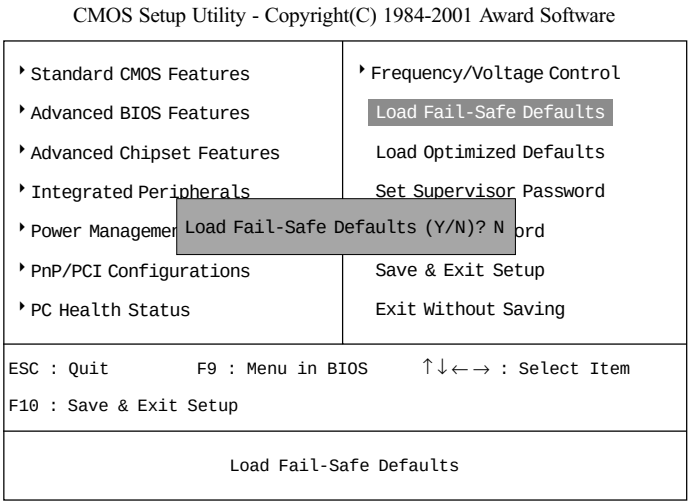
CPU Host/PCI Clock
This option allows you to set the CPU Host/PCI clock into various types of frequencies.

CPU Clock Ratio
This option allows you to set the CPU clock ratio (multiplier).

Load Fail-Safe/Optimized Defaults

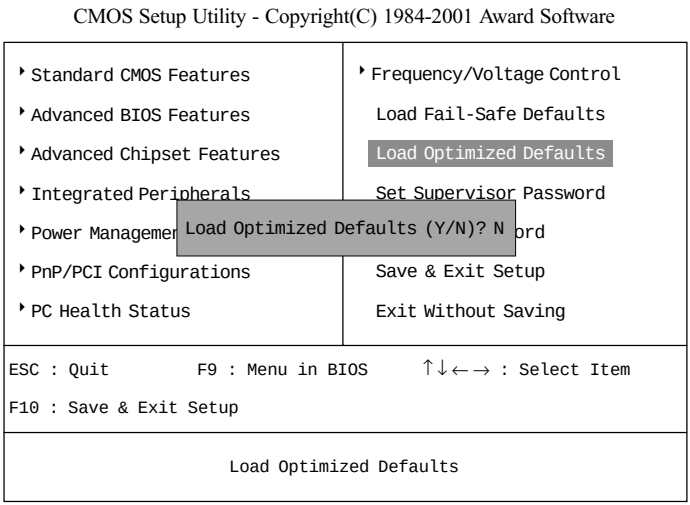
The two options on the main menu allow users to restore all of the BIOS settings to the default Fail-Safe or Optimized values. The Optimized Defaults are the default values set by the mainboard manufacturer specifically for the optimal performance of the mainboard. The Fail-Safe Defaults are the default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

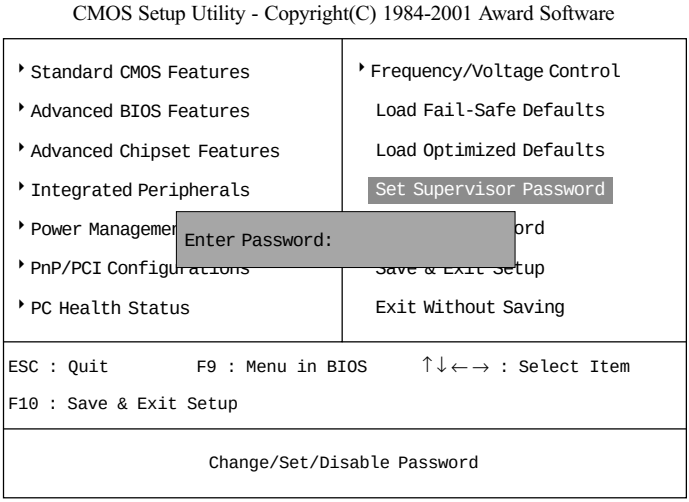
When you select Load Optimized Defaults, a message as below appears:



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

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

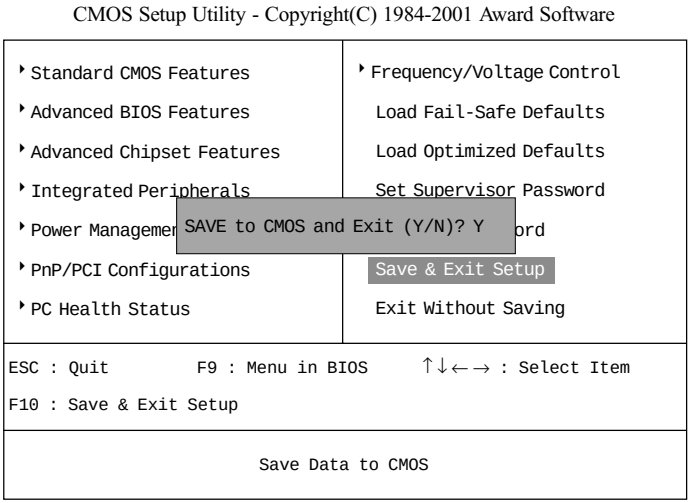
required is the Security Option of the Advanced BIOS Features menu. If the Security Option is set to *System*, the password is required both at boot and at entry to Setup. If set to *Setup*, password prompt only occurs when trying to enter Setup.

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*

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:

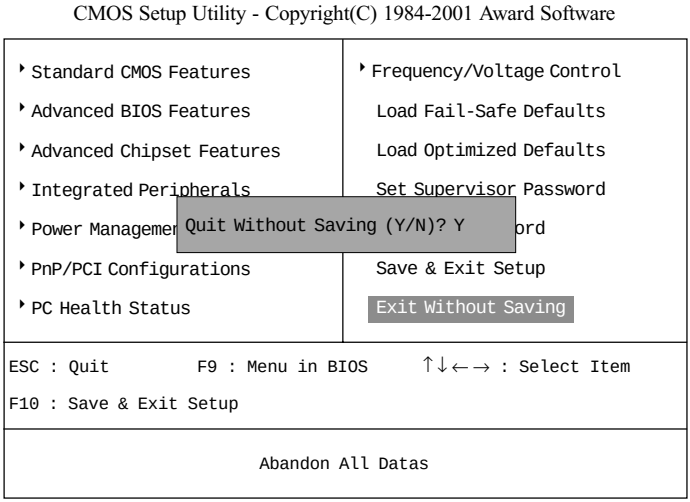


Typing “Y” will allow you to quit the Setup Utility and save the user setup changes to RTC CMOS.

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.

ADI 1885 Audio Driver 4

This chapter gives you detailed instructions for installation & setup of ADI 1885 Audio Driver. It consists of the following topics:

ADI 1885

ADI 1885 is a general-purpose 18-bit stereo, full duplex, audio codec that conforms to the analog component specification of AC'97.

Features

- High performance 3D technology
- Energy saving power down modes
- 18-bit full duplex stereo ADC, DACs
- AC-Link protocol compliance
- Six analog line-level inputs
- SNR > 95 dB through Mixer and DAC

System Requirements

This section describes system requirements for the Audio Driver installation and Usage.

Computer	Intel® Pentium® II/III or Coppermine processor or higher
Operating System	DOS 5.0 or higher, Windows® 95, Windows® 98, Windows® NT 3.51 or 4.0, or OS/2®
CD-ROM	Double Speed or Higher
Chipset	ADI 1885

Audio Driver Setup

Insert the CD-title into your CD-ROM drive. This CD will auto-run. This will display installation for Microsoft DirectX7.0a, Creative Audio PCI Sound Drivers and Intel® chipset. Please make sure that you have finished the installation for Intel® Chipset Drivers before proceeding to install the Audio Driver. To install the audio driver, click on the button for automatic installation.

• Windows® 95/98

If you start Windows® 95/98, this will automatically detect this hardware onboard "PCI Multimedia Audio Device" and "Gameport Joystick". You need to click "Next", then "Finish". Do not click on the "Cancel". The driver need these ID.

Audio Driver Installation Procedure:

Step 1: Insert the provided CD_ROM disk into the CD-ROM drive.
Step 2: Look for the CD_ROM drive, double click on the CD_ROM icon. This will show the setup screen.
Step 3: Click on "ADI1885 Sound Drivers" icon.
Step 4: This will copy the audio drivers into the hard drive.
Step 5: A message will appear stating you must restart the Windows® 95/98 system, select **yes** to restart.

Note: You must install Audio Driver before installing USB support.

• Windows® NT 4.0

Audio Driver Installation Procedure:

Step 1: Click **Start** menu and select **Control Panel** from **Settings** group.
Step 2: Select **Multimedia** icon.
Step 3: Click on the **Devices** tab.
Step 4: Click **Add**.
Step 5: Double click on **Unlisted or Updated Driver** in the list.
Step 6: Insert the **CD-ROM Disk** into the CD-ROM Drive.
Step 7: When the Install from Disk dialog box appears, look for your CD-ROM drive :**\Sound\ADI\Driver\NT4**
Step 8: Click **OK**.
Step 9: Click **OK**.
Step 10: A message will appear stating that the drivers were succesfully installed. Click OK. You must now restart Windows® NT 4.0.

Appendix A: INTEL® 815E Chipset/VGA-Enabled (Optional)

Overview

The Intel® 815E (Option G) Chipset extends Intel's graphics capabilities into the value PC segment by incorporating 2D and 3D capabilities with the memory controller, to provide the industry with complete graphics offerings for every computing segment.

Intel® 815E Chipset

- Support AGP 2X/4X BUS
- 2D & 3D Graphics Accelerator

System Requirements

This section describes system requirements for the VGA Driver installation and Usage.

Computer	Intel® Celeron™/ Pentium® III (FC-PGA) processor or higher
Monitor	VGA Support, mimimum 640x480 resolution
Operating system	DOS 5.0 or higher, Windows® 95/98, Windows® NT 3.51 or 4.0, or OS/2®
CD-ROM	Double Speed or Higher
Chipset	Intel® 815E chipset
VGA BIOS	Version 00.23 or Higher

Intel® 815E VGA Driver Installation

Insert the CD disk into your CD-ROM drive. This CD will auto-run and display installation for VGA driver and sound driver, Intel 815E/820 INF Update (only for Windows® 95/98) and Trend PC-cillin 98. Just click the button for automatic installation of VGA driver.

• Windows® 95/98

If you start Windows® 95/98, this will automatically detect this hardware onboard "Standard PCI Graphics Adapter (VGA)". You need to click "Next", then "Finish". Do not click on the "Cancel". The driver need these ID.

Note: Before installing the Intel 815E VGA Driver, you need to install the Intel 815E/820 INF update first.

Display Driver Installation Procedure:

Step 1: Insert the provided CD_ROM disk into the CD-ROM drive.
Step 2: Look for the CD_ROM drive, double click on the CD_ROM icon. This will show the setup screen.
Step 3: Click on "Intel 815 VGA Driver" icon.
Step 4: This will show an installation menu.
Step 5: Click on "Display Drivers".
Step 6: Click "OK".
Step 7: This will copy the VGA drivers into the hard drive.
Step 8: A message will appear stating you must restart the Windows® 95/98 system, select **yes** to restart.
Step 9: After restarting, Windows® 95/98 will show a new display setting.

• Windows® NT 4.0

You need to install Windows® NT "Service Pack 3" or higher before you install Windows® NT driver.

Display Driver Installation Procedure:

Step 1: Click **Start** menu and select **Control Panel** from **Settings** group.
Step 2: Select **Display** icon.
Step 3: Select **Settings** on the Display Properties.
Step 4: Select **Display Type**.
Step 5: Select **Change** from the **Adapter Type** Area.
Step 6: Select **Have Disk** of Change Display.
Step 7: Insert the **CD-Title Disk** into CD-ROM Drive.
Step 8: When the Install from Disk dialog box appears, look for your CD-ROM drive :**\SVGA\Intel\815E\NT4\WINNT4**
Step 9: When the **Change Display** dialog box appears, click **OK**.
Step 10: When the Third-party Drivers dialog box appears, click **Yes.**
A message will appear stating that the drivers were succesfully installed. Click OK. You must now restart Windows® NT 4.0.

Note: You can also use CD autorun to install the VGA NT driver.

Changing resolution, color depth, and refresh rate:

Step 1: Click **Start** menu and select **Control Panel** from **Settings** group.
Step 2: Select **Display** icon.
Step 3: Select **Settings**.
Step 4: Select Color Palette to change between 256 color, 65536 colors, and 16777216 colors.
Step 5: To select desktop resolution size, go to the Desktop area and use the slide bar to change resolution from 640x480, 800x600, 1024x768, 1152x864, 1280x1024, to 1600x1200.
Step 6: Select Test to test the resolution. If the display test screen was good, then select Yes when the Testing Mode dialog box appears. If the display test screen was bad, then select No. Windows® NT will give you an error message.
Step 7: Click OK. If the display test screen was good and you select Yes, Windows® NT 4.0 will change the mode without restarting the system.

• AutoCAD, OS/2 and other application

Please refer to "On-Line Manual" in the CD-ROM. You need to install the "Acrobat Reader 3.01" program first.

Appendix B: Glossary

Buffer

A temporary storage area, usually in RAM. The purpose of most buffers is to act as a holding area, enabling CPU to manipulate data before transferring it to a device.

Bus

A collection of wires through which data is transmitted from one part of a computer to another. You can think of a bus as a highway on which data travels within a computer.

Chipset

A number of integrated circuits designed to perform one or more related functions. For example, one chipset may provide the basic functions of a modem while another provides the CPU functions for a computer.

CMOS

Abbreviation of ***c****omplementary* ***m****etal* ***o****xide* ***s****emiconductor*. Pronounced ***see****-moss*, CMOS is a widely used type of semiconductor. CMOS chips are particularly attractive for use in battery-powered devices, such as portable computers. Personal computers also contain a small amount of battery-powered CMOS memory to hold the date, time, and system setup parameters.

Com

In DOS system, the name of a serial communications port. DOS supports four serial ports: COM1, COM2, COM3, and COM4.

DIMM

Short for ***d****ual* ***i****n-line* ***m****emory* ***m****odule*, a small circuit board that holds memory chips. A *single in-line memory module (SIMM)* has a 32-bit path to the memory chips whereas a DIMM has 64-bit path.

IDE

Abbreviation of either *Intelligent Drive Electronics* or *Integrated Drive Electronics*, depending on who you ask. An IDE interface is an interface for mass storage devices, in which the controller is integrated into the disk or CD-ROM drive.

IrDA

Short for ***I**nfra**r**ed **D**ata **A**ssociation*, a group of device manufacturing that developed a standard for transmitting data via infrared light waves. This enables you to transfer data from one device to another without any cables.

LED

Abbreviation of ***l**ight **e**mitting **d**iode*, an electornic device that lights up when electricity is passed through it. LEDs are usually red. They are good for displaying images because they can be relatively small, and they do not burn out.

LPT

A name frequently used by operating systems to identify a printer. Although LPT originally stood for ***l**ine **p**rinter **t**erminal*, it is now used more generally to identify any type of printer.

PCI

Acronym for ***P**eripheral **C**omponent **I**nterconnect*, a local bus standard developed by Intel Corporation. Most modern PCs include a PCI bus in addition to a more general ISA expansion bus.

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 PCs have a PS/2 port so that the special port can be used by another device, such as a modem.