



## *Getting Started*

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### M011 Motherboard

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## Safety & Regulatory Information

The following sections contain notices for various countries:

**CAUTION:** This device is intended to be installed by the user in a CSA/TUV/UL certified/listed IBM AT or compatible personal computers in the manufacturer's defined operator access area. Check the equipment operating/installation manual and/or with the equipment manufacturer to verify/confirm if your equipment is suitable for user-installed application cards.

**ATTENTION:** Ce carte est destinée à être installée par l'utilisateur, dans un ordinateur compatible certifié CSA/TUV/UL ou listé IBM AT, à l'intérieur de la zone définie par le fabricant. Consulter le mode d'emploi ou le fabricant de l'appareil pour vérifier ou confirmer si l'utilisateur peut y installer lui-même des cartes périphériques.

### Notice for the USA

FCC Part 15: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, this notice is not a guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try one or more of the following measures:

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

### Caution

To comply with the limits for the Class B digital device, pursuant to Part 15 of the FCC Rules, this device must be installed in computer equipment certified to comply with the Class B limits.

All cables used to connect the computer and peripherals must be shielded and grounded. Operation with non-certified computers or non-shielded cables may result in interference to radio or television reception.

### Modifications

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the device.

### Notice for Canada

This apparatus complies with the Class "B" limits for radio interference as specified in the Canadian Department of Communications Radio Interference Regulations.

Cet appareil est conforme aux normes de CLASSE "B" d'interférence radio tel que spécifié par le Ministère Canadien des Communications dans les règlements d'interférence radio.

### Compliance

This product conforms to the following Council Directive:

- ☐ Directive 89/336/EEC, 92/31/EEC (EMC)

## Declaration of Conformity

According to the FCC96 208 and ET95-19 documents,

Name: ***Creative Labs Inc.***

Address: ***1901 McCarthy Boulevard  
Milpitas, CA. 95035  
United States  
Tel: (408) 428-6600***

declares under its sole responsibility that the product

Trade Name: ***Creative Labs***

Model Number: ***M011***

**has been tested according to the FCC / CISPR22/85 requirements for Class B devices and found compliant with the following standards:**

EMI/EMC: ANSI C63.4 1992, FCC Part 15 Subpart B  
Complies with Canadian ICES-003 Class B.

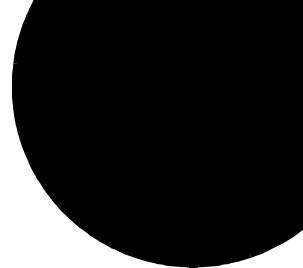
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesirable operation.

Ce matériel est conforme à la section 15 des règles FCC. Son Fonctionnement est soumis aux deux conditions suivantes:

1. Le matériel ne peut être source D'interférences et
2. Doit accepter toutes les interférences reçues, Y compris celles pouvant provoquer un fonctionnement indésirable.

***Compliance Manager  
Creative Labs, Inc.  
14 August, 1998***



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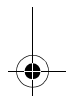
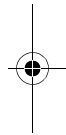
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# Introduction

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The motherboard is the main circuit board in your computer system. It controls all the parts of your computer, including the Central Processing Unit (CPU), hard disk memory, disk drives, power supply, casing controls and various external connectors.

Your BlasterPC is installed with the M011, the latest in Creative's line of motherboards. A high-performance model, the M011 is designed for the Intel® Celeron™ and Pentium III Socket-370 processor. The M011 also boasts the latest chipset — the Apollo Pro133A. This chipset comes with 133 MHz architecture for the CPU and SDRAM. Together, these features work to give you a speedy, reliable yet inexpensive desktop computer.



Upgrades and additions are easy with the M011. Its three Dual Inline Memory Module (DIMM) banks can support up to a total of 1.5 GB of SDRAM\*, and its five PCI slots give you the choice of installing additional functions on your BlasterPC. Also equipped with an Accelerated Graphics Port (AGP) slot, the M011 supports graphics-intensive, 3D applications.

*\*subject to the availability of 512 MB DIMM modules*

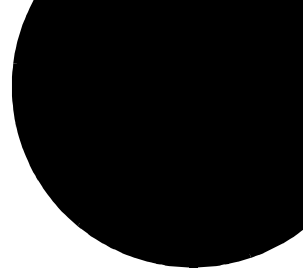
# Document Conventions

The following typographical conventions are used throughout this document:

**Table i: Document conventions**

This	Represents
<b>bold</b>	Text that must be entered exactly as it appears.
<i>italic</i>	Title of a book or a placeholder, which represents the information you must provide.
UPPERCASE	Directory name, file name, or acronym.
	The notepad icon indicates information that is of particular importance and should be considered before continuing.
	The alarm clock designates a caution or warning that can help you avoid situations involving risk.





# Precautions

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## Target users

The tasks described in this manual are meant for intermediate and advanced computer users, who have upgraded, repaired or assembled devices on a computer motherboard.

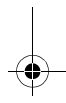
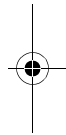
**If you are not familiar with the workings of a motherboard, avoid handling it. You could damage parts or all of the motherboard, and may need to replace it entirely.**

## Safety Considerations

Should you need to open the chassis or computer casing to check or change parts of the motherboard, be sure to do the following.

- ☐ Read all instructions, especially safety warnings, beforehand.
- ☐ Disconnect the power and monitor cables from the mains.
- ☐ Touch any metal surface on your computer to discharge static electricity from your body.
- ☐ Turn off your computer and all its peripheral devices.
- ☐ Place the chassis on a steady flat surface.
- ☐ Keep any liquids away from the work area.





# Specifications and Layout

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This chapter is organized as follows:

- ❑ Specifications
- ❑ Motherboard Layout.

## Specifications

### Central Processing Unit

- ❑ Socket-370 Intel® Celeron™ or FC-PGA Pentium III processor
- ❑ Supports 233 MHz, 266 MHz, 300 MHz, 333 MHz, 350 MHz, 400 MHz, 450 MHz, 500 MHz, 533 MHz...667 MHz or faster processor

### Chipset

- ❑ VIA® VT82C694X chipset
  - i. 133 MHz FSB
  - ii. AGP 4x and PCI plus Advanced ECC Memory Controller
  - iii. Supports PC133 SDRAM, VCM technology

- ☐ VIA® VT82C686A chipset
  - i. Advanced Power Management Features
  - ii. Integrated Super I/O (FDC, LPT, COM A, COM B and IrDA)
  - iii. Dual bus Master IDE Ultra DMA33/66
  - iv. ACPI



## Clock Generator

- ☐ Supports 66.6 MHz, 100 MHz and 133 MHz clocks

## Main Memory

- ☐ Three 168-pin DIMM slots
- ☐ Supports single-sided and double-sided 3.3V SDRAM DIMM
- ☐ Supports a maximum memory size of 1.5 GB (32M x 8)
- ☐ Supports 1-bit Error Code Correction (ECC)

## Slots

- ☐ One Accelerated Graphics Port (AGP) slot
  - i. AGP specification compliant
  - ii. AGP 66 MHz 3.3V/1.5V for 2x/4x device support
- ☐ Five 32-bit Master PCI bus slots
- ☐ Supports 3.3V/5V PCI bus interface

## Onboard IDE

- ☐ An IDE controller on the VIA® VT82C686A chipset provides the IDE HDD/CD-ROM with PIO, Bus Master and Ultra DMA 33/66 operation modes
- ☐ Connects up to four IDE devices



## Onboard Peripherals

- ☐ Onboard peripherals include:
  - i. one floppy port supports two Floppy Disk Drives with 360K, 720K, 1.2M, 1.44M and 2.88M
  - ii. two serial ports (COM A, COM B)
  - iii. one parallel port supports SPP/EPP/ECP mode

- iv. two USB ports
- v. one IrDA connector

## + BIOS

- ☐ Provides “Plug and Play” capability which detects peripheral devices and expansion cards automatically
- ☐ Provides Desktop Management Interface (DMI) which records motherboard specifications

## Dimensions

- ☐ ATX Form Factor: 30.5 cm (L) x 19.2 cm (W) x 4 layers PCB

## Mounting

- ☐ Six mounting holes

## Motherboard Layout

The following page illustrates the connectors, slots, ports and pins on the M011.



ATX Power Connector. See page 3-9.

Central Processing Unit. See page 3-2.

See page 3-9.

DIMM banks. See page 2-2.

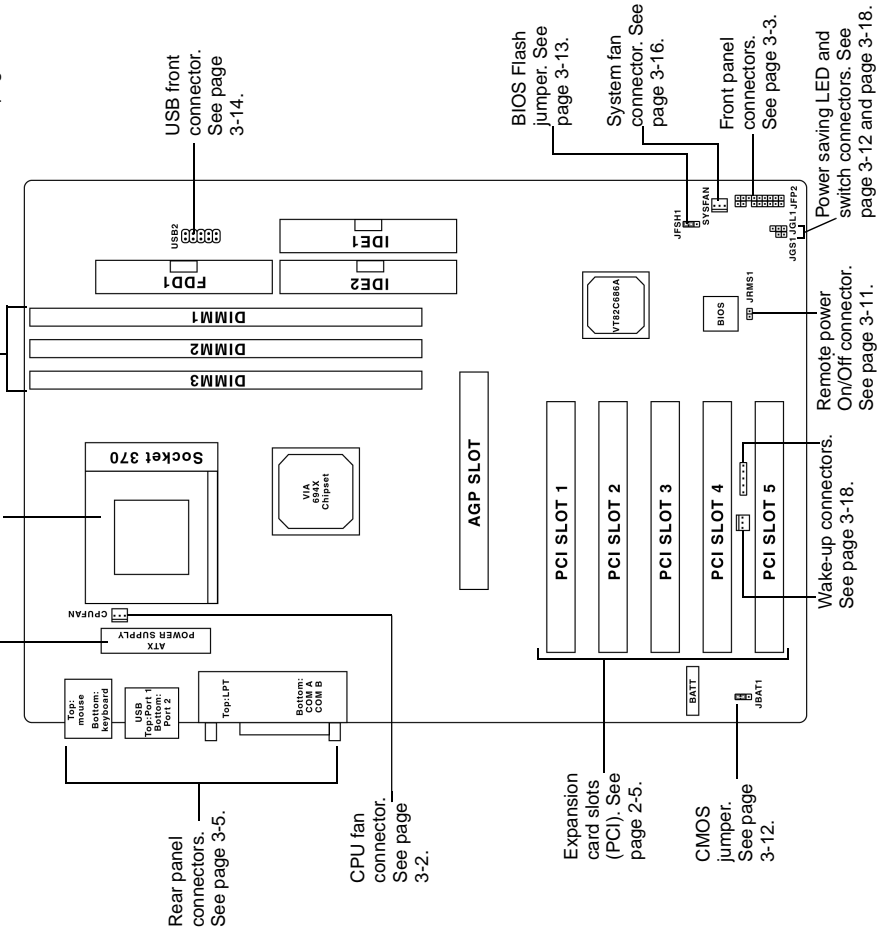


Figure 1-1: M011 motherboard layout

# Installing Upgrades

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Working on a motherboard is a potentially hazardous activity. Be sure to follow the general safety guidelines on page ix, and to take note of any specific warnings.

The M011 has been pre-assembled and pre-set to provide you with reliable, competent and optimum performance. To upgrade your system, however, you will need to open up the chassis, and change or add hardware on your M011.

To help you work safely, this chapter describes the correct procedures for doing the following:

- ☐ Installing additional memory
- ☐ Installing expansion cards.

# Installing additional memory

The M011 has three 168-pin unbuffered DIMM banks that support a maximum memory size of 1.5 GB SDRAM\*. One DIMM bank is normally already occupied. This leaves you with two free DIMM banks for installing additional DIMM modules.

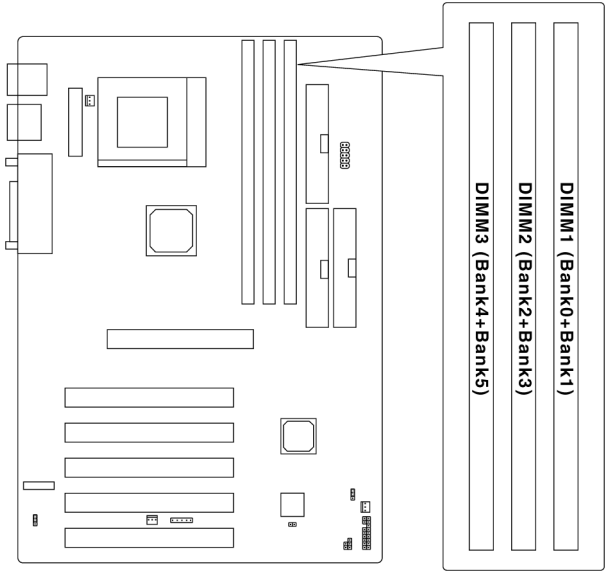


Figure 2-1: DIMM banks.

\*subject to the availability of 512 MB DIMM modules



## Procedure



- Only 3.3V SDRAM DIMM is supported.
- Single- or double-sided DIMM modules may be used. Both may also be used together.
- DIMM banks need not be occupied in any order.

1. Press the two clips at the ends of the DIMM bank outwards (Figure 2-2). This is to unlock them.
2. Identify the DRAM and 3.3V notch keys on the DIMM bank.
3. Identify the corresponding notches on the DIMM module. Use only the edges when handling the module.
4. Position the DIMM module vertically over the DIMM bank, with the module's notches facing down. The module will only fit in this direction.
5. Insert the module gently but firmly into the DIMM bank. The side clips snap shut automatically.

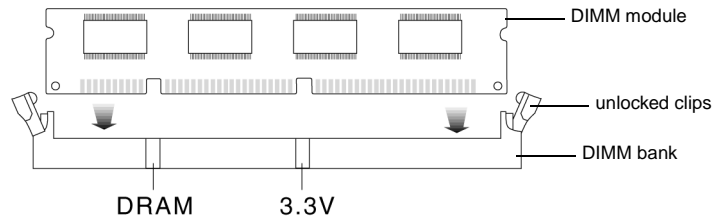


Figure 2-2: Installing a DIMM module correctly.

Information for  
advanced users

The M011 supports the following DRAM addresses and sizes.

Table 2-1: SDRAM Memory Addressing

DRAM Tech.	DRAM Density and Width	DRAM Addressing	Address Size		MB/DIMM	
			Row	Column	Single-sided x No.	Double-sided x No.
16M	1M x 16	ASYM	11	8	8 MB x 4	16 MB x 8
	2M x 8	ASYM	11	9	16 MB x 8	32 MB x 16
64M	2M x 32	ASYM	11	9	32 MB x 2	64 MB x 4
	2M x 32	ASYM	12	8	16 MB x 2	32 MB x 4
	4M x 16	ASYM	11	10	32 MB	64 MB
	4M x 16	ASYM	13	8	32 MB	64 MB
	8M x 8	ASYM	13	9	64 MB	128 MB
64M	2M x 32	ASYM	11	8	16 MB	32 MB
	4M x 16	ASYM	12	8	—	—
	8M x 8	ASYM	12	9	—	—

## Installing expansion cards

Depending on the configuration of your system, you may have one to four empty PCI slots on your motherboard. PCI slots are for new expansion cards that you might want to install, for example, a modem or PC-DVD card.

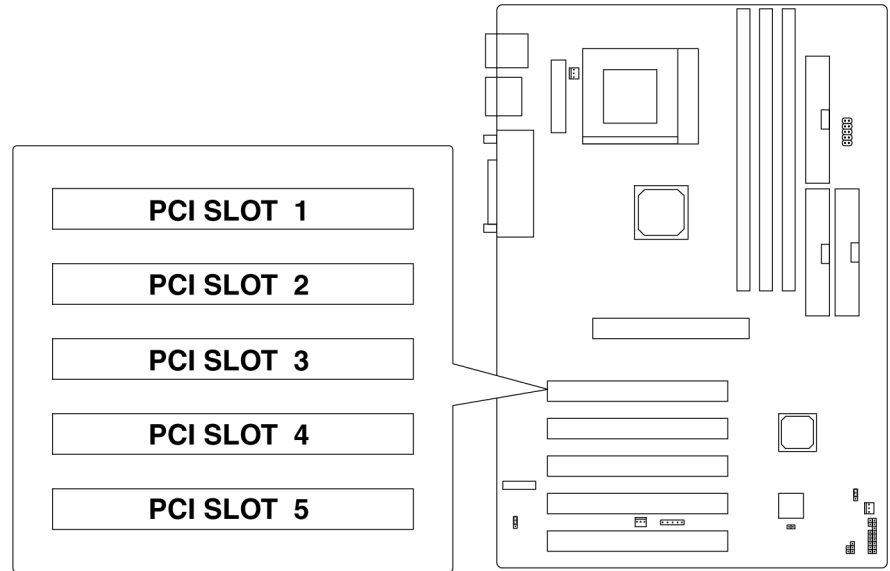


Figure 2-3: PCI slots.

## Procedure



Before installing an expansion card, read the documentation that comes with it.

1. Unscrew and remove the metal plate that covers the PCI slot that you want to use. Keep the screw and metal plate aside for use later.
2. Align the bus connector of the expansion card with the PCI slot.
3. Press the bus connector firmly but gently into the slot. Be sure that the card comes into full contact with the slot; otherwise, it will not be recognized by your system later.
4. Secure the card to the computer casing with the screw from Step 1.

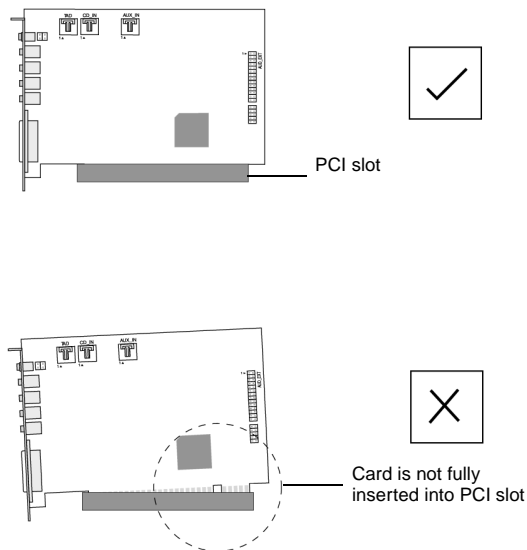


Figure 2-4: Inserting an expansion card correctly.

# Jumpers and Connectors

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The M011 has many jumpers and connectors that have been activated or pre-connected at factory:

- ☐ Central Processing Unit (CPU)
- ☐ CPU fan connector (CPUFAN)
- ☐ Front panel connectors (JFP2)
- ☐ Rear panel connectors
- ☐ Mouse and keyboard connectors (JKBMS1)
- ☐ ATX power connector (JWR1)
- ☐ Remote power and power saving connectors
- ☐ CMOS jumper (JBAT1)
- ☐ BIOS flash jumper (JFSH1)
- ☐ USB front connector (USB2).

The M011 also has other jumpers and connectors that can be activated or connected later:

- ☐ System fan connector (SYSFAN)
- ☐ Wake-up and power saving switch connectors
- ☐ Power saving switch connector (JGS1).

## Central Processing Unit (CPU)

### CPU fan connector (CPUFAN)



If you suspect that the heat sink or cooling fan is faulty, contact Technical Support immediately. Heat sinks and cooling fans vary widely and installing an incompatible model could damage your motherboard.

The M011 uses the Socket 370 design for the Intel Celeron or Coppermine processor. A heat sink and cooling fan must be attached to the processor to prevent it from being overheated.

The CPUFAN connector on the M011 supports the CPU fan. The fan uses a three-pin connector that runs on 12V. The red wire from the fan should be connected to **+12V** and the black wire, to **GND**.

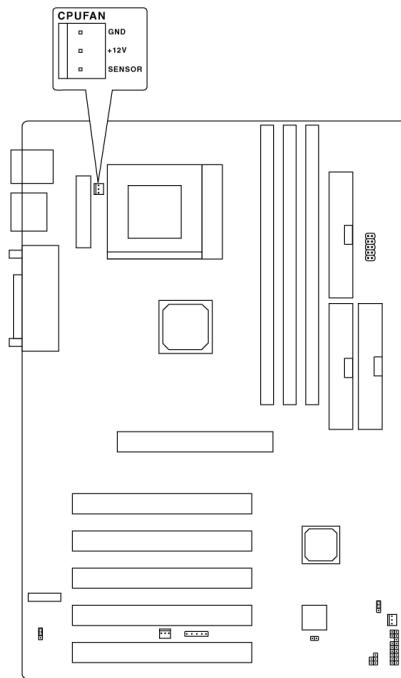


Figure 3-1: CPU fan connector (CPUFAN).

## Front panel connectors (JFP2)



Avoid turning on the system when the HDD LED light is lit.

The connector block JFP2 is used for the switches and LEDs on your computer's front panel. Each connector may only be used for its corresponding switch or LED.

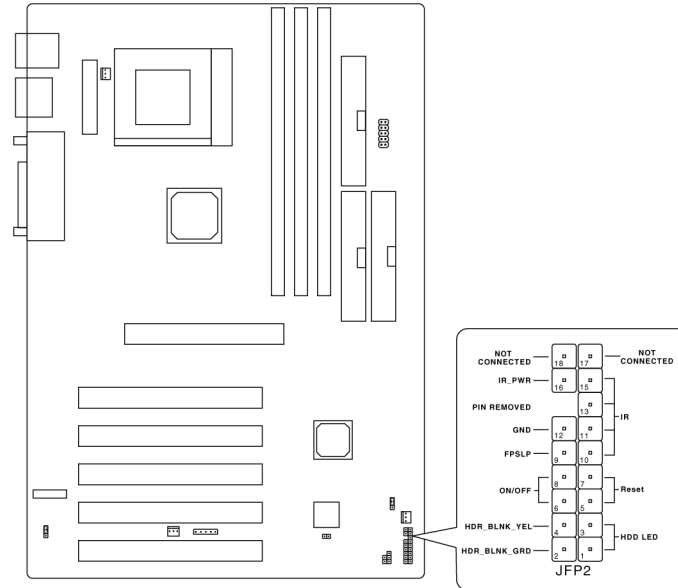


Figure 3-2: Front panel connectors (JFP2).



The pin definitions for JFP2 are given in Table 3-1 and Table 3-2. Note that not all the pins are connected at factory.

**Table 3-1: JFP2 pin definitions (connected)**

Pin	Switch/LED	Signal Name	Pin	Switch/LED	Signal Name
1	HDD LED	HD_PWR	9	IR	+5V
3		HDA	11		IRRX
5	Reset switch	GND	13		GND
7		FP_RESET	15		IRTX

**Table 3-2: JFP2 pin definitions (not connected)**

Pin	Switch/LED	Signal Name	Pin	Switch/LED	Signal Name
2	Green LED	HDR_BLNK_GRN	10	Sleep button	FPSLP
4	Yellow LED	HDR_BLNK_YEL	12		GND
6	On/Off Power Switch	FPBUT_IN	16	IR	IR_PWR
8		GND	17	—	N/C
			18	—	N/C



# Rear panel connectors

The M011 has the following connectors for external devices: two USB ports, a parallel port (LPT1), two serial ports (COM A and B), a mouse port and a keyboard port.

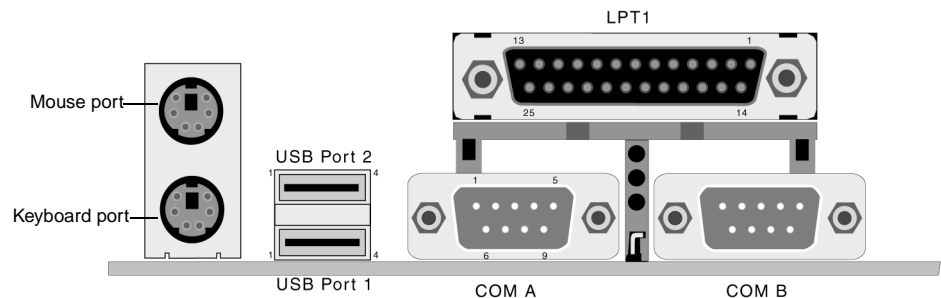


Figure 3-3: Rear panel connectors.

The tables that follow contain information for advanced users.

## USB connectors

The USB pin definitions are described below.

Table 3-3: USB port pin definitions

Pin	Signal	Pin	Signal
1	VCC	3	+Data
2	-Data	4	GND

Parallel port connector  
(LPT I)

The 25-pin female connector is a standard printer port that also supports Enhanced Parallel Port (EPP) and Extended Capabilities Parallel Port (ECP). The pin definitions are described below.

Table 3-4: Parallel port pin definitions

Pin	Signal	Pin	Signal
1	STROBE	14	AUTO FEED#
2	DATA0	15	ERR#
3	DATA1	16	INIT#
4	DATA2	17	SLIN#
5	DATA3	18	GND
6	DATA4	19	GND
7	DATA5	20	GND
8	DATA6	21	GND
9	DATA7	22	GND
10	ACK#	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SELECT		

Serial port connectors  
(COM A and COM B)

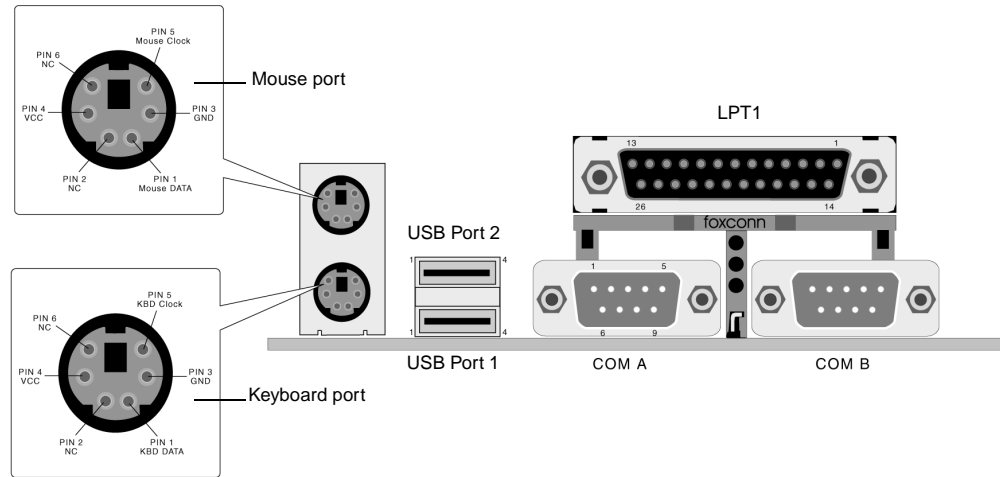
The two 9-pin male DIN connectors are 16550A high-speed communication ports that send and receive 16 bytes FIFOs. The pin definitions are described below.

**Table 3-5: Serial port pin definitions**

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

## Mouse and keyboard connectors (KBMSI)

Both the mouse and keyboard connectors use a standard PS/2 mini DIN configuration. The pin definitions are provided below.



*Figure 3-4: Mouse and keyboard connector pin definitions.*

## ATX power connector (JWR1)



As ATX provides instant power supply, be sure that all other components are properly installed before connecting the ATX power connector to the motherboard.

The M011 uses ATX power supply, meaning that functions such as Modem Ring Wake-Up and Soft Power Off are available. The power supply is controlled by the 20-pin ATX power connector, which supports the power button onboard. When the ATX power connector is inserted into the motherboard, the computer starts up instantly.

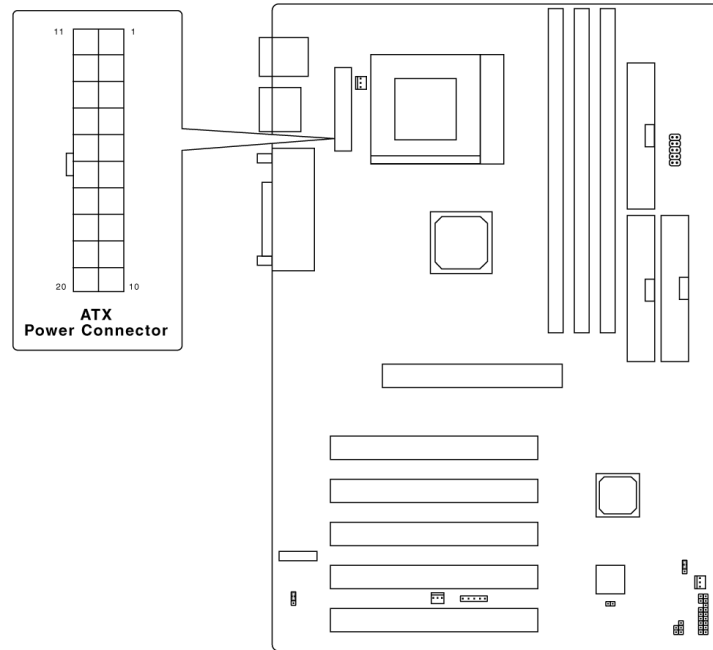


Figure 3-5: ATX power connector (JWR1).

The ATX power connector pin definitions are described below.

**Table 3-6: ATX power connector pin definitions**

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



## Remote power and power saving connectors

These two connectors provide you with the power management functions. They are for the remote power on/off and power saving LED on your computer.

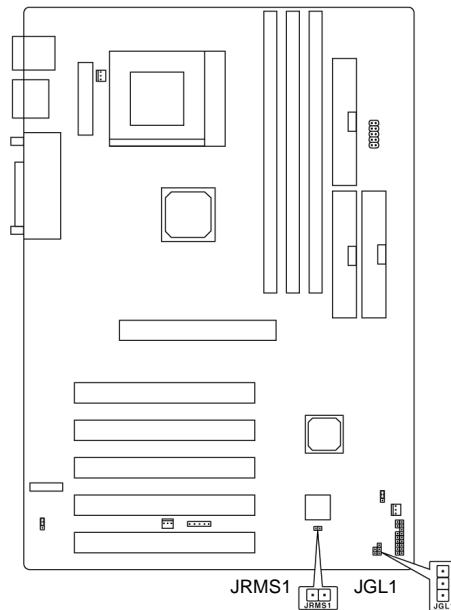


Figure 3-6: Remote power and power saving connectors.



## Remote power On/Off connector (JRMS1)

This connector is used with a 2-pin push button switch that controls the computer's remote power. The switch operates as follows:

- ☐ To turn on the system, press the button once during OFF mode.
- ☐ To turn off the system, press and hold the button for more than four seconds during ON mode.

## Power saving LED connector (JGLI)

## CMOS jumper (JBAT1)



- Unless you have a good understanding of your system settings, do not clear the CMOS. All your settings will be lost. See “Optimum BIOS Settings” on page 4-1.
- Do not clear the CMOS when your system is turned on. It will damage the motherboard.

This connector is used with a three-pin LED. The LED indicator becomes green when the system is turned on. It is unlit when the system is turned off or in Suspend mode.

Pins 1 and 2 on JBAT1 are shorted at factory, so as to retain the motherboard configuration in the CMOS RAM.

Under certain unusual circumstances, the CMOS may become corrupted and unusable. This can cause the motherboard to stop functioning properly. To correct this, you need to clear the CMOS by shorting pins 2 and 3.

1. Turn off the computer.
2. Move the jumper cap from pins 1 and 2 to pins 2 and 3.
3. Wait for five seconds.
4. Return the jumper cap to pins 1 and 2.

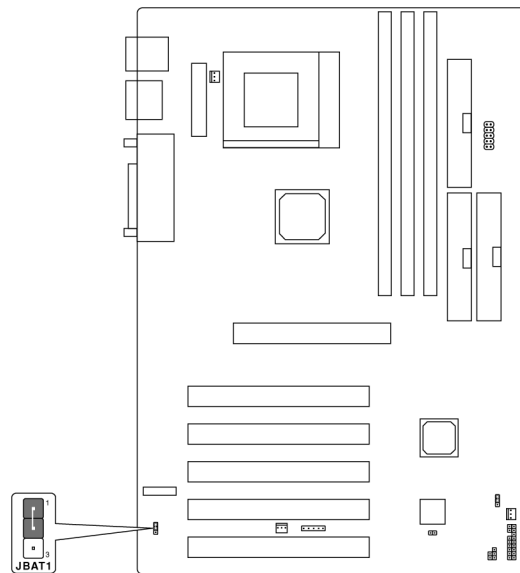
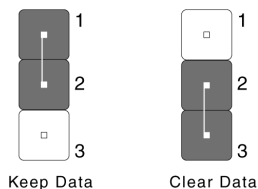


Figure 3-7: CMOS jumper (JBAT1).



## BIOS flash jumper (JFSH1)

The BIOS jumper locks the BIOS Flash. Should you need to flash the BIOS, be sure to unlock this jumper. Remember, however, to lock the jumper again after flashing the BIOS.

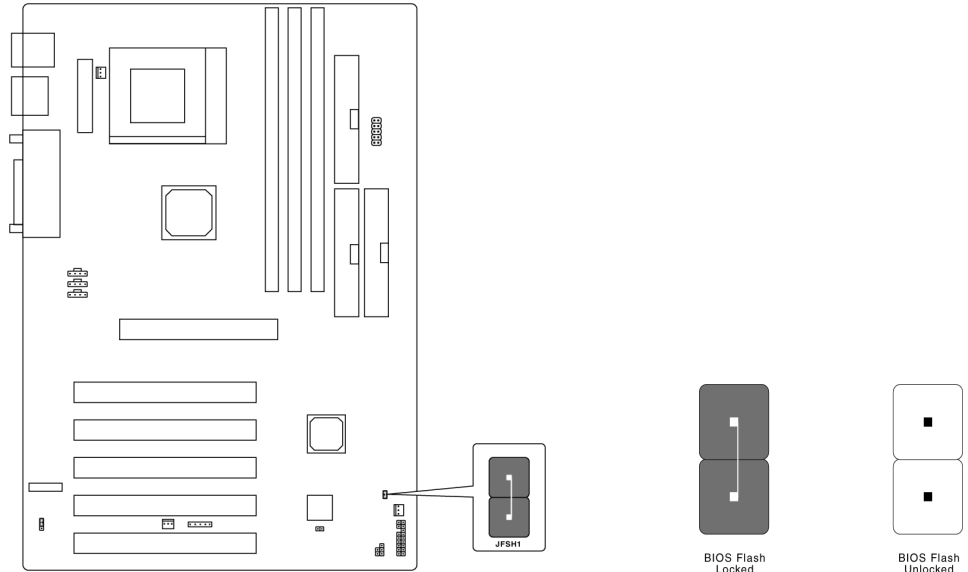
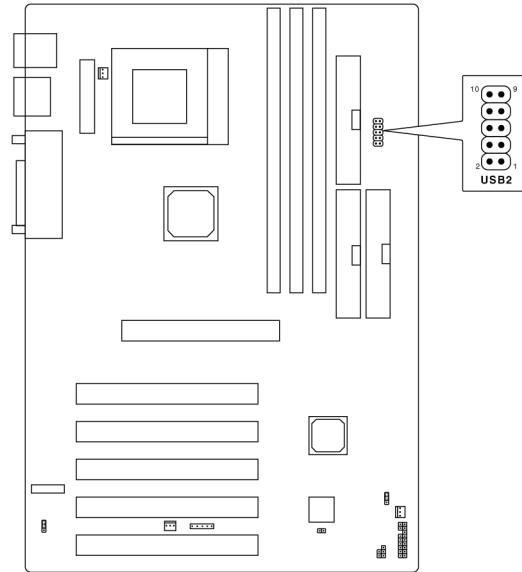


Figure 3-8: BIOS jumper (JFSH1).

## USB front connector (USB2)

The M011 contains a 10-PIN connector that can be used for a USB port on the computer's front panel.



*Figure 3-9: USB2 front connector (USB2).*

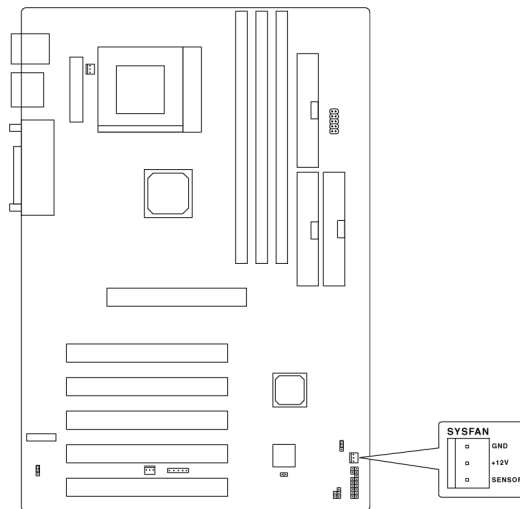
The pin definitions for the connector are as follows.

**Table 3-7: USB2 front connector pin definitions**

Pin	Signal	Pin	Signal
1	VCC	6	GND
2	USBD3-	7	GND
3	USBD3+	8	USBD2+
4	GND	9	USBD2-
5	GND	10	VCC

## System fan connector (SYSFAN)

Use the SYSFAN connector if you are installing an extra fan. For installation instructions, refer to the documentation that accompanies the system fan.



*Figure 3-10: SYSFAN connector.*

## Wake-up and power saving switch connectors

Use the following connectors if you install expansion cards that support the wake-up function.

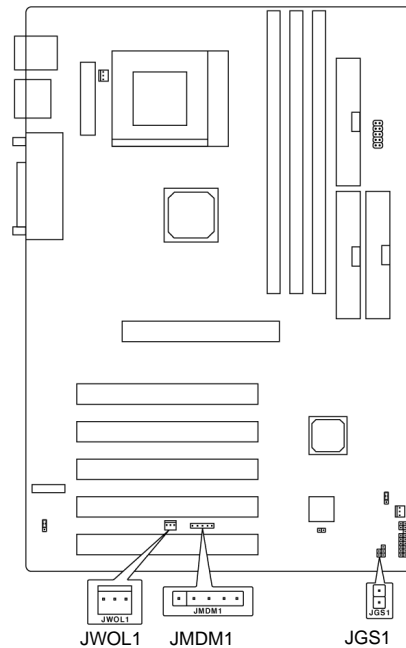


Figure 3-11: Wake-up and power saving switch connectors.

Wake-up on LAN  
connector (JWOLI)

This connector is for LAN expansion cards that support the Wake-up on LAN function.

For this function to be activated, the “Wake-Up on LAN” option must be enabled in the BIOS Power Management Setup.

**Table 3-8: Wake-up on LAN connector pin definitions**

Pin	Signal	Pin	Signal
1	5VSB	3	MP_WAKEUP
2	GND		
<b>Note:</b> The LAN wake-up signal is active “high”.			

Modem wake-up  
connector (JMDMI)

This connector is for modem expansion cards that support the Modem Wake-up function.

**Table 3-9: Modem wake-up connector pin definitions**

Pin	Signal	Pin	Signal
1	NC	4	NC
2	GND	5	5VSB
3	MDM_WAKEUP		
<b>Note:</b> The modem wake-up signal is active “low”.			

Power saving switch  
connector (JGSI)

This connector can be attached to a power saving switch that when pressed, suspends/wakes up your system.

# Optimum BIOS Settings

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Your system settings are stored on your motherboard's CMOS chip. To access and modify the settings, you need to use BIOS Setup Utilities, a built-in program on your system.

This chapter shows you how to enter and use the BIOS, and what the optimum BIOS settings for M011 are.

The BIOS settings are described in the following order.

- ☐ Standard CMOS Setup
- ☐ BIOS Features Setup
- ☐ Chipset Features Setup
- ☐ Power Management Setup
- ☐ PNP/PCI Configuration
- ☐ Integrated Peripherals
- ☐ Hardware Monitor Setup
- ☐ IDE HDD Auto Detection
- ☐ Supervisor/User Password
- ☐ Load BIOS Defaults
- ☐ Load Setup Defaults.

# Entering and using BIOS



Do not change the BIOS settings unless you have a good understanding of how the settings work and know the effects of any changes you make. Incorrect BIOS settings may cause your system to stop functioning.

1. Turn on your computer. When the startup screen appears, press and hold down the **Delete** key. Your system runs the BIOS Setup Utilities.  
If you do not respond in time, restart your system by pressing the **Reset** button on your computer.
2. When the BIOS Setup Utilities main menu appears (Figure 4-1), use the arrow keys to scroll to an item on the menu, then press the **Enter** key to select it.

AMIBIOS SIMPLE SETUP UTILITIES - VERSION 1.21f (C) 1999 American Megatrends, Inc. All Rights Reserved	
Standard CMOS Setup	Integrated Peripherals
BIOS Features Setup	Hardware Monitor Setup
Chipset Features Setup	Supervisor Password
Power Management Setup	User Password
PNP/PCI Configuration	IDE HDD Auto Detection
Load BIOS Defaults	Save and Exit Setup
Load Setup Defaults	Exit Without Saving
Esc :Quit                    ↑↓←→ : Select Item    (Shift)F2: Change Color F5: Old Values F6 :Load BIOS Defaults       F7 :Load Setup Defaults       F10: Save & Exit	
Standard CMOS Setup for changing time, date , hard disk, etc.	

Figure 4-1: BIOS Setup Utilities main menu.





For some settings to take effect, you must first restart the system.

3. If a sub-menu of settings appears, use the arrow keys to scroll to the setting you want to change.
4. View the available options for that setting by pressing the **Page Up** or **Page Down** key.
5. To select an option, highlight the option and then press any arrow key. The new option appears for the setting.
6. Press the **Esc** key to return to the main menu.
7. To save your setting and exit the BIOS, press the **F10** key. Otherwise, press the **Esc** key to exit the BIOS. Your system continues to start up.

# BIOS settings and commands

## Standard CMOS Setup

Each item on the BIOS main menu leads to a sub-menu of settings or to a command, eg “Load BIOS Defaults”. These are described in detail in the following sections.

This sub-menu sets the date, time, disk drive, video display and error handling procedure on your system. The factory default settings are shown below.

AMIBIOS SETUP - STANDARD CMOS SETUP									
(C)1999 American Megatrends, Inc. All Rights Reserved									
Date (mm/dd/yyyy):		Fri Oct 29, 1999							
Time (hh/mm/ss):		17:09:25							
	Type	Size	Cyln	Head	WPcom	Sec	LBA Mode	Blk Mode	PIO Mode 32Bit
Pri Master	:Auto						ON	ON	AUTO ON
Pri Slave	:Auto						ON	ON	AUTO ON
Sec Master	:Auto						ON	ON	AUTO ON
Sec Slave	:Auto						ON	ON	AUTO ON
Floppy Drive A:							Base Memory : 0 Kb Other Memory : 384 Kb Extended Memory : 0 Mb Total Memory : 1 Mb		
Floppy Drive B:		1.44 MB 3 1/2 Not Installed							
Boot Sector Virus Protection Disabled									
Available Options:							ESC:Exit		
Disabled							↑↓:Select Item		
Enabled							PU/PD/+/-:Modify		
							(Shift)F2:Color		

Figure 4-2: Standard CMOS Setup default settings.

## BIOS Features Setup

This sub-menu sets the system customization features and video display settings on your system. The factory default settings are shown below.

AMIBIOS SETUP - BIOS FEATURES SETUP			
(C) 1999 American Megatrends, Inc. All Rights Reserved			
Quick Boot	:Enabled	D800, 16K Shadow	:Disabled
1st Boot Device	:CDROM	DC00, 16K Shadow	:Disabled
2nd Boot Device	:Floppy		
3rd Boot Device	:IDE-0		
4th Boot Device	:Disabled		
S.M.A.R.T. For Hard Disk	:Enabled		
Boot Num-Lock	:On		
Floppy Drive Swap	:Disabled		
Floppy Drive Seek	:Disabled		
Password Check	:Setup		
Boot to OS/2 > 64M	:No		
CPU Serial Number	:Enabled		
L2 Cache	:Write Back		
Cache Bus ECC	:Disabled		
System BIOS Cacheable	:Enabled	ESC:Exit	↑ ↓ → ← :Select Item
C000, 32k Shadow	:Enabled	F1 :Help	PU/PD/+ /-:Modify
C800, 16K Shadow	:Disabled	F5 :Old Values(Shift)	F2:Color
CC00, 16K Shadow	:Disabled	F6 :Load BIOS Defaults	
D000, 16K Shadow	:Disabled	F7 :Load Setup Defaults	
D400, 16K Shadow	:Disabled		

Figure 4-3: BIOS Features Setup default settings.

Table 4-1: BIOS Features Setup settings and options

Setting	Options
Quick Boot	<i>Enabled</i> allows the BIOS to boot up within 5 seconds.
1st Boot Device, 2nd Boot Device, 3rd Boot Device and 4th Boot Device	These settings allow you to decide the order in which your disk drives start up. The following describes each available option: <i>Disabled</i> — disables this sequence <i>IDE-0</i> — boots up from the first hard disk drive <i>IDE-1</i> — boots up from the second hard disk drive <i>IDE-2</i> — boots up from the third hard disk drive <i>IDE-3</i> — boots up from the fourth hard disk drive <i>Floppy</i> — boots up from the floppy drive <i>ZIP A:/LS120</i> — boots up from the LS-120 drive <i>CDROM</i> — boots up from the CD-ROM drive <i>SCSI</i> — boots up from the SCSI device <i>Network</i> — boots up from the Network drive
S.M.A.R.T for Hard Disks	Applies only if the hard disk has the SMART function.
Boot up Num Lock	<i>On</i> turns on the Num Lock key automatically when your system starts up. This means that only the number keys (not the arrow keys) on your numeric keypad are enabled.
Floppy Drive Swap	Applies only if you have two floppy drives. <i>Enabled</i> will swap floppy drive assignments so that Drive A: will function as Drive B: and Drive B: as Drive A:

**Table 4-1: BIOS Features Setup settings and options**

Setting	Options
Floppy Drive Seek	Applies if you need to know if you are using a 40-track or 80-track floppy disk. <i>Enabled</i> will determine this for you.
Password Check	Selects a password protection scheme for your system. <i>Always</i> limits access to both System and Setup. System does not boot up, and entry to BIOS Setup is denied without the correct password. <i>Setup</i> limits access only to Setup. System continues to boot up but entry to BIOS Setup is denied without the correct password. <b>Note:</b> Passwords are created in the Supervisor Password and/or User Password sub-menus. If no password is set, the system will ignore this setting.
Boot To OS/2 <sup>®</sup> > 64 MB	Applies only if you are using the operating system OS/2 and if you have more than 64 MB of DRAM.
L2 Cache	The options are <i>Write Back</i> , <i>Write Thru</i> and <i>Disabled</i> .
Cache Bus ECC	Enables/disables Error Check Correction (ECC) in the Level 2 cache memory.
System BIOS Cacheable	<i>Enabled</i> allows the BIOS contents in the RAM to be read and written from cache memory, giving you a faster system.
C000, 32K Shadow	This setting specifies how video ROM is handled. The options are: <i>Disabled</i> — video ROM is not copied to RAM <i>Cached</i> — video ROM is copied from ROM to RAM, and can also be written to and read from cache memory <i>Enabled</i> — video ROM is copied from ROM to RAM

# Chipset Features Setup

The settings in this sub-menu specify chipset settings, memory configuration features for expansion cards and VGA memory configuration. The factory default settings are shown below.

AMIBIOS SETUP - CHIPSET FEATURES SETUP		
(C) 1999 American Megatrends, Inc. All Rights Reserved		
Set SDRAM Timing by SPD	:Enabled	
DRAM Frequency	:133Mhz	
SDRAM CAS# Latency	:3	
DRAM Integrity Mode	:Disabled	
CPU In Order Queue	:4-Level	
Memory Hole	:Disabled	
AGP Mode	:Auto	
AGP Comp. Driving	:Auto	
Manual AGP Comp. Driving	:CB	
AGP Aperture Size	:64MB	
USB Controller	:All	
USB KB/Mouse Legacy	:Keyb+Mouse	
		ESC:Exit      ↑↓→← :Select Item
		F1 :Help      PU/PD/+/-:Modify
		F5 :Old Values(Shift)F2:Color
		F6 :Load BIOS Defaults
		F7 :Load Setup Defaults

Figure 4-4: Chipset Features Setup default settings.

## Options

**Table 4-2: Chipset Features Setup settings and options**

Setting	Options
Set SDRAM Timing by SPD	<i>Disabled</i> allows you to customize the DRAM Timing to suit the DRAM Speed. <i>Enabled</i> configures the DRAM Timing automatically.
DRAM Frequency	This setting specifies the DRAM frequency on your system. The options are: <i>66MHz FSB Processor</i> — for 66/100 MHz DRAM frequency <i>100MHz FSB Processor</i> — for 66/100/133 MHz DRAM frequency <i>133MHz FSB Processor</i> — for 100/133 MHz DRAM frequency
SDRAM CAS# Latency	This setting has been preset based on the specifications of the installed SDRAM. Do not change it unless the installed SDRAM or the CPU has changed.
DRAM Integrity Mode	If you are using ECC SDRAM, set the DRAM Integrity Mode to ECC. ECC detects single-bit and multiple-bit errors, and recovers single-bit errors. Without ECC, data integrity is not assured but write capability is enabled.
Memory Hole	Applies if a new expansion card requires a 1 MB address space between 15 MB and 16 MB. Refer to the card's documentation to see if you need this address space.

**Table 4-2: Chipset Features Setup settings and options**

Setting	Options
AGP Aperture Size	Specifies the maximum amount, in MB, of system memory an AGP display card can use to store 3D texture mapping data. The larger the aperture, the better the performance of the card's 3D function.
USB Controller	<i>All</i> enables the USB controller for all USB ports.
USB KB/Mouse Legacy Support	<i>Keyb+Mouse</i> allows a USB keyboard and mouse to be used.



## Power Management Setup

This sub-menu provides settings for the power management features on your system. The factory default settings are shown below.

AMIBIOS SETUP - POWER MANAGEMENT SETUP			
(C) 1999 American Megatrends, Inc. All Rights Reserved			
Compliance With O/S	:Yes	System Thermal	:Ignore
ACPI Standby State	:S3/STR	Thermal Slow Clock Ratio	:50%-56.2%
USB Wakeup From S3/S5	:Enabled	Power Button Function	:On/Off
Power Management/APM	:Enabled	Restore on AC/Power Loss	:Last State
Video Power Down Mode	:Suspend	Resume On Ring/LAN	:Enabled
Hard Disk Power Down Mode	:Stand-by	Resume On PME#	:Disabled
Standby Time Out (Minute)	:Disabled	Resume On RTC Alarm	:Disabled
Suspend Time Out (Minute)	:Disabled	RTC Alarm Date	:15
Throttle Slow Clock Ratio	:50%-56.2%	RTC Alarm Hour	:12
Display Activity	:Ignore	RTC Alarm Minute	:30
IRQ3	:Monitor	RTC Alarm Second	:30
IRQ4	:Monitor		
IRQ5	:Ignore		
IRQ7	:Monitor		
IRQ9	:Ignore		
IRQ10	:Ignore	ESC:Exit      ↑↓→← :Select Item	
IRQ11	:Ignore	F1 :Help      PU/PD/+/-:Modify	
IRQ13	:Ignore	F5 :Old Values(Shift)F2:Color	
IRQ14	:Monitor	F6 :Load BIOS Defaults	
IRQ15	:Ignore	F7 :Load Setup Defaults	

Figure 4-5: Power Management Setup default settings.

Table 4-3: Power Management Setup settings and options

Setting	Options
Compliance with O/S	<i>Yes</i> allows Advanced Configuration Power Interface (ACPI) to be supported on your system. <i>No</i> allows Advanced Power Management (APM) to be supported on your system.
ACPI Standby State	Specifies the type of ACPI standby to be used.
USB Wakeup From S3/S5	This applies if the USB wakeup function is available. <i>Enabled</i> is the factory default.
Power Management/ APM	<i>Enabled</i> turns on the power management and APM features on your system.
Video Power Down Mode	Specifies how the video monitor conserves energy after a period of inactivity. <i>Suspend</i> is the factory default.
Hard Disk Power Down Mode	Specifies how the hard disk conserves energy after a period of inactivity. <i>Standby</i> turns off the hard disk when the system goes into Standby mode.
Standby Time Out (Minute)	<i>Disabled</i> leaves the system turned on regardless of periods of inactivity. The other options define the period of inactivity before the system goes into Standby mode.

**Table 4-3: Power Management Setup settings and options**

Setting	Options
Suspend Time Out (Minute)	<i>Disabled</i> means that the system does not enter Suspend mode at all. The other options specify the period of time in which the system remains in Suspend mode.
Throttle Slow Clock Ratio	Sets the speed at which the system clock runs when the system is in power saving mode.
Display Activity, IRQ 3, IRQ 4, IRQ 5, IRQ 7, IRQ 9, IRQ 10, IRQ 11, IRQ 13, IRQ 14, IRQ 15, System Thermal	These settings allow the hardware Interrupt Request (IRQ) lines to be monitored for activity when your system is in a power saving mode. <i>Monitor</i> returns the system to full power when any activity is detected on an IRQ line. The Standby and Suspend timeout timers are also reloaded.
Thermal Slow Clock Ratio	This applies only if System Thermal in the previous setting is set to <i>Monitor</i> .
Power Button Function	<i>On/Off</i> turns off your system when you push the power button. <i>Suspend</i> sends your system to Suspend mode when you push the power button. To turn off the system, hold the button for four seconds.

**Table 4-3: Power Management Setup settings and options**

Setting	Options
Restore on AC/Power Loss	Tells the system what to do when there is an AC power loss. <i>Last State</i> returns your system to where it was just before the power loss. <i>Power On</i> turns on the system after the power loss. <i>Power Off</i> turns off the system after the power loss.
Resume on Ring/LAN	<i>Enabled</i> turns on your system when the modem or LAN network has an incoming call. <i>Disabled</i> ignores any such calls.
Resume on PME#	<i>Disabled</i> ignores any power management event (PME). <i>Enabled</i> turns on the system if any PME is detected.
Resume on RTC Alarm	Allows you to start up your system at a specific time. The four RTC settings that follow are available only if you choose <i>Enabled</i> here.
RTC Alarm Date, RTC Alarm Hour, RTC Alarm Minute, RTC Alarm Second	Specify the date, hour, minute and second at which your system starts up.

## PNP/PCI Configuration

This sub-menu specifies the system resource and PCI slot settings on your motherboard. The factory default settings are shown below.

AMIBIOS SETUP - PNP/PCI CONFIGURATION		
(C) 1999 American Megatrends, Inc. All Rights Reserved		
PnP Aware 0/S	:No	
Clear NVRAM	:No	
PCI Latency Timer	:64	
Primary Graphics Adapter	:AGP	
PCI VGA Palette Snoop	:Disabled	
DMA Channel 0	:PnP	
DMA Channel 1	:PnP	
DMA Channel 3	:PnP	
DMA Channel 5	:PnP	
DMA Channel 6	:PnP	
DMA Channel 7	:PnP	
IRQ3	:PCI/PnP	
IRQ4	:PCI/PnP	
IRQ5	:PCI/PnP	
IRQ7	:PCI/PnP	
IRQ9	:PCI/PnP	
IRQ10	:PCI/PnP	
IRQ11	:PCI/PnP	
IRQ14	:PCI/PnP	
IRQ15	:PCI/PnP	
		ESC:Exit      ↑ ↓ → ← :Select Item
		F1 :Help      PU/PD/+/-:Modify
		F5 :Old Values(Shift)F2:Color
		F6 :Load BIOS Defaults
		F7 :Load Setup Defaults

Figure 4-6: PNP/PCI Configuration default settings.

Table 4-4: PNP/PCI Configuration settings and options

Setting	Options
PnP Aware O/S	Applies only to Windows 95 operating system, which is currently the only O/S that follows the Plug and Play specifications.
Clear NVRAM	<i>No</i> retains NVRAM data on every boot. <i>Yes</i> clears NVRAM data on every boot.
PCI Latency Timer	The PCI Latency Timer is used to ensure that the PCI agents are given a minimum amount of the system resource. The number of clocks programmed in the PCI Latency Timer represents the time slice in which current data transfer phase must be completed. The factory default setting is 64 PCI clocks.
Primary Graphics Adapter	Selects the default graphics card when your system is turned on.
PCI VGA Palette Snoop	Applies only if both ISA and PCI graphics cards exist on the motherboard. <i>Disabled</i> sends data from the CPU to the PCI graphics card only.
DMA Channel 0/1/3/5/6/7	Applies only to ISA cards.
IRQ 3, IRQ 4, IRQ 5, IRQ 7, IRQ 9, IRQ 10, IRQ 11, IRQ 14, IRQ 15	Applies only to ISA cards.

## Integrated Peripherals

This sub-menu specifies the settings for onboard ports. The factory default settings are shown below.

AMIBIOS SETUP - INTEGRATED PERIPHERALS	
(C) 1999 American Megatrends, Inc. All Rights Reserved	
Onboard IDE	:Both
Onboard FDC	:Auto
Onboard Serial Port 1	:Auto
Onboard Serial Port 2	:Auto
Serial Port 2 Mode	:IrDA
Duplex Mode	:Full duplex
Onboard Parallel Port	:Auto
Parallel Port Mode	:ECP
EPP Version	:N/A
Parallel Port DMA	:Auto
Parallel Port IRQ	:Auto
ESC:Exit      ↑ ↓ → ← :Select Item	
F1 :Help      PU/PD/+/-:Modify	
F5 :Old Values(Shift)F2:Color	
F6 :Load BIOS Defaults	
F7 :Load Setup Defaults	

Figure 4-7: Integrated Peripherals default settings.

Table 4-5: Integrated Peripherals settings and options

Setting	Options
Onboard IDE	<i>Both</i> allows you to enable both the primary and the secondary IDE controllers. The other options are <i>Primary</i> , <i>Secondary</i> and <i>Disabled</i> .
Onboard FDC	<i>Auto</i> lets BIOS detect any onboard floppy disk controller (FDC). This setting allows you to connect your floppy disk drives to the onboard floppy connector.
Onboard Serial Port 1, Onboard Serial Port 2	<i>Auto</i> lets BIOS assign a free IRQ to a device connected to a serial port.
Serial Port 2 Mode	This setting determines the type of InfraRed (IR) function. The options are <i>Normal</i> , <i>IrDA</i> , <i>ASK IR</i> .
Duplex Mode	Specifies whether the onboard IR transfer mode is full duplex or half duplex.
Onboard Parallel Port	<i>Auto</i> lets BIOS assign an address port to the onboard parallel port.
Parallel Port Mode	Specifies the operating mode of the onboard parallel port. The options are <i>SPP</i> (Standard Parallel Port), <i>EPP</i> (Enhanced Parallel Port), <i>ECP</i> (Extended Capabilities Port), and <i>EPP+ECP</i> .
EPP Version	Applies only if EPP is used.



**Table 4-5: Integrated Peripherals settings and options**

Setting	Options
Parallel Port Mode IRQ	<p>This setting allows you to assign an IRQ line to the onboard parallel port if the Onboard Parallel Port (see above) is not set to <i>Auto</i>.</p> <p>If the onboard parallel port is set at LPT1 (378H), set the IRQ to 7.</p> <p>If the onboard parallel port is set at LPT2 (278H), set the IRQ to 5.</p> <p>If the onboard parallel port is set at LPT3 (3BCH), set the IRQ to 5.</p>
Parallel Port DMA	<i>Auto</i> lets BIOS assign a DMA channel to the parallel port.

# Hardware Monitor Setup

This sub-menu specifies the settings for the CPU. The factory default settings are shown below.

AMIBIOS SETUP - Hardware Monitor Setup		
(C) 1999 American Megatrends, Inc. All Rights Reserved		
ClkGen Spread Spectrum	:	Enabled
CPU Host Clock (MHz)	:	Auto
CPU Vcore Selection	:	Auto
-- System Monitor --		
Current CPU Temperature	:	45°C/113°F
Current System Temperature	:	32°C/89°F
Current CPU Fan Speed	:	5200 RPM
Current Chassis Fan Speed	:	0 RPM
Vcore	:	2.112V
+2.500V	:	2.575V
+3.300V	:	3.373V
+5.000V	:	4.946V
+12.000V	:	11.986V
ESC:Exit      ↑↓→← :Select Item		
F1 :Help      PU/PD/+/-:Modify		
F5 :Old Values(Shift)F2:Color		
F6 :Load BIOS Defaults		
F7 :Load Setup Defaults		

Figure 4-8: Hardware Monitor Setup default settings.

## Options



Overclocking the CPU processor can cause your system to be unstable and to malfunction.

**Table 4-6: Hardware Monitor Setup settings and options**

Setting	Options
ClkGen Spread Spectrum	<i>Enabled</i> activates the clock generator Spread Spectrum function, which monitors the clock speed of the CPU processor. When overclocking the processor, select <i>Disabled</i> .
CPU Host Clock (MHz)	<i>Auto</i> lets BIOS assign the recommended clock speed for your CPU processor. <i>Manual</i> lets you assign the clock speed. The CPU Host Clock has frequencies up to 200 MHz.
CPU Vcore Selection	Sets the voltage supply of the processor.

# IDE HDD Auto Detection

This sub-menu allows you to detect and configure the IDE disk drives on your system. The factory default settings are shown below.

AMIBIOS SETUP - STANDARD CMOS SETUP  
(C) 1999 American Megatrends, Inc. All Rights Reserved

Date (mm/dd/yyyy): Fri Oct 29, 1999  
Time (hh/mm/ss): 17:09:25

	Type	Size	Cyls	Head	WPcom	Sec	LBA Mode	Blk Mode	PIO Mode	32Bit Mode
Pri Master	:Auto						ON	ON	AUTO	ON
Pri Slave	:Auto						ON	ON	AUTO	ON
Sec Master	:Auto						ON	ON	AUTO	ON
Sec Slave	:Auto						ON	ON	AUTO	ON

Floppy Drive A: 1.44 MB 3 1/2  
Floppy Drive B: Not Installed  
Boot Sector Virus Protection Disabled

Base Memory : 0 Kb  
Other Memory : 384 Kb  
Extended Memory : 0 Mb  
Total Memory : 1 Mb

Available Options:  
Disabled  
Enabled

ESC:Exit  
↑↓:Select Item  
PU/PD/+/-:Modify  
(Shift)F2:Color

Figure 4-9: IDE HDD Auto Detection default settings.

## Supervisor/User Password



Retain a record of your password in a safe place. If you forget the password, the only way to access the system is to clear the CMOS memory (see “CMOS jumper (JBAT1)” on page 3-12).

This main menu option allows you to limit access to the system by creating passwords for a “supervisor” or “user”. A supervisor has rights to change all the BIOS settings. A user may change only some BIOS settings.

### To set a password

1. In the BIOS Setup Utilities main menu, select “Supervisor Password” or “User Password”. A box with the message “Enter New Supervisor (or User) Password:” appears.
2. If you are setting the password for the first time, type a password up to 6 characters long. Then press the **Enter** key.  
If you do not want to set a password, ignore the message and type the **Enter** key. A box with the message “Retype New Supervisor (or User) Password:” appears.
3. To confirm the password you created, type it again. Then press the **Enter** key.  
If you did not create a password, ignore the message and type the **Enter** key.
4. Press the F10 key to save your password and exit BIOS.  
If you do not want to save the password, press the **Esc** key.

## Load BIOS Defaults

This main menu option lets you load the optimized BIOS ROM settings.

## Load Setup Defaults

This main menu option lets you load the minimum BIOS ROM settings.



