

*Advanced
Socket 370
Motherboard*

FX810E

User's Manual

<http://www.bcmcom.com>



Declaration

Declaration

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Compliance & Certificate

Compliance & Certificate

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DESIGN & MANUFACTURE OF MOTHE BOARDS AND PERSONAL COMPUTERS.

CE Declaration:

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Year 2000 Compliance:

This product is test to be qualified to bear the NSTL Year 2000 Compliant logo. Year2000 problem is mainly a problem of computer software (OS), and the hardware issue. With the support of BIOS on motherboard, the Y2K problem can be thoroughly conquered.

Easy Installation

Easy Installation

Easy Installation Steps

The following “Easy Installation” steps are for users accustomed to the assembly of a computer system. For those individuals requiring more specific information, please refer to the more detailed descriptions located within the latter chapters of this manual.

Note: You must keep your power cable unplugged until the following installation steps are completed.



Getting Started

Touch a grounded metal surface to release static electricity stored in your body before unpacking your motherboard. For details please refer to Precaution section in Chapter 3.

Install the CPU by correctly aligning the CPU with the socket 370 as noted in the motherboard diagram. Once aligned, press down on the CPU gently but firmly and lock it. Next, install the 3.3 volt un-buffered SDRAM into the 168 pin DIMM slots. See Sec. Sec. 3.4.

Plug in all cables included in the package except for the power cord. Please see Sec. 3.5.

Please recheck all steps to ensure no mistakes have been made and then plug in the power cord and turn on the power to enter the BIOS setup, Chapter 4.

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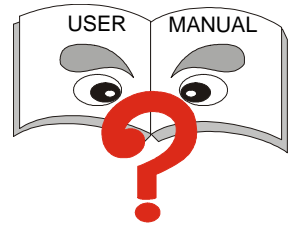
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Introduction

1. Introduction

1.1 How To Use This Manual

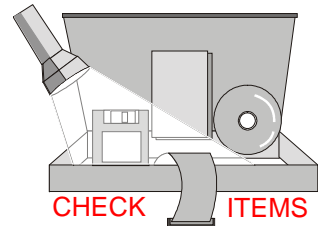
This manual provides information necessary for Original Equipment Manufactures (OEMs) and home users to build a ATX compatible system using Intel Socket 370 CPU motherboard. Follow the installation procedure presented on the **Easy Installation Page** and refer to the section number following each step if you require more detailed instructions.



1.2 Check Your Device Items

The standard package should contain the following items. If you find any of these items be missing or damaged, please contact your retailer.

- 1 FX810E motherboard
- 1 IDE ribbon cable (80-pin for ATA66)
- 1 floppy ribbon cable
- 1 CD with drivers for FX810E Motherboard and all of the components
- 1 Users Manual (this manual)
- 1 Norton Anti Virus (optional)



2. Features

2.1 Features Of The Motherboard

This product is based on the “Flex ATX” form factor. It features the advanced multimedia function and provides support for business PC maker. This motherboard incorporates Intel 810E chipset. Providing features such as integrated 2D/3D AGP VGA controller, Ultra DMA 33/66 IDE Interface, ACPI power management, 3Com 10/100Mbps LAN, USB connectivity, and soft sound support.

Processor

- Single Intel Socket-370 mechanism for Intel Celeron or Coppermine Processor
- Supports 66/100/133 MHz FSB

Chipset

- Intel 810E Chipset includes GMCHE (Memory Controller Hub), ICH (I/O Controller Hub) and FWH (Firmware Hub)
- Winbond W83627HF-AW Super I/O Controller
- AD1881 Soft Audio
- 3Com 10/100 LAN

System Memory

- Two 168-pin DIMM sockets
- Minimum of 8MB up to maximum of 1GB memory capacity supported
- 100MHz or 133MHz DIMM modules supported

Graphics Support

- Integrated H/W 3D AGP Graphic controller (2X Mode)
- Supports AGP (Accelerated Graphics Port) for increased performance of graphic display, special 3D operations in multimedia, and higher speed to satisfy the users' optical vision
- Supports 3D hyper-pipelined architecture, parallel data processing and compression, precise pixel interpolation, full 2D hardware acceleration and motion video compression

Features

PCI Bus Master IDE Controller

- Two PCI Busmaster IDE Connectors (up to 4 IDE devices)
- Either the 5.25-inch or 3.5-inch (1.44MB or 2.88MB) floppy drives can be used without requiring an external card and supports up to 2 drives in any combination
- Floppy 3 mode (Japanese standard 3.5 inch disk drive, 1.2MB) and LS-120 floppy disk drives (3.5 inch disk drive: 120MB, 1.44MB, 720K) are also supported
- Supports Ultra DMA 33MB/s or 66MB/s
- Supports PIO Mode 4, with a transfer burst up to 17MB/s

Integrated I/O

- LPC revision 1.0 super I/O controller
- 1 Parallel Port (SPP/ECP/EPP/ECP+EPP)
- 1 Serial Port (16C550 Fast UART Compatible – 115kbps)
- 1 PS/2 Mouse Port
- 1 PS/2 Keyboard Port
- 1 LAN Port
- 4 Standard USB Ports (48MHz, version 1.1)

System BIOS

- 4M-bit Flash device in FWH
- A unique RNG (Random Number Generator) in FWH to enable platform security
- PC-99 and PnP (Plug 'n Play) compatible
- Supports ACPI (Advanced Configuration and Power Interface), and APM (Advanced Power Management) (required by Windows 2000)
- Supports to boot from CD-ROM, SCSI, IDE, FDD, ZIP, and LS-120

Green Features

- Power Management APM version 1.2
- Intelligent Power Management fully supported by Windows 2000 with On-Now

Sound System

- AD1881 Soft Audio and AC'97 V2.1 Codec compliant
- 3 Audio Phone Jacks (Line-Out, Line-In, Mic-In)
- Includes one of each: CD-In, and Aux-In

Additional features

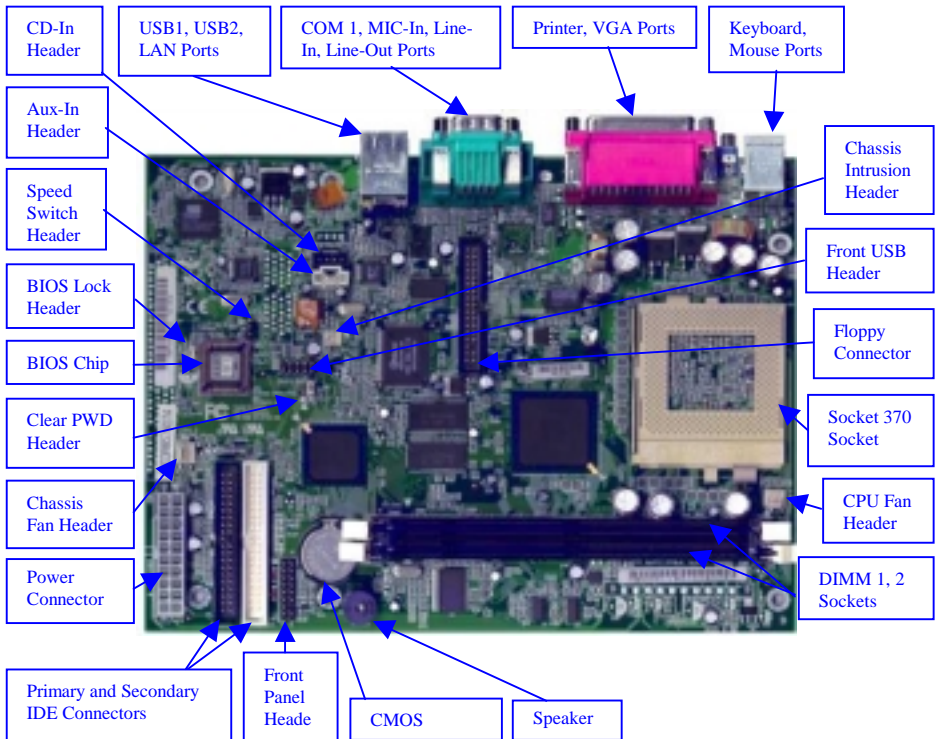
- Keyboard/Mouse wake-up included with ICH
- Integrated LAN with 3Com 10/100Mbps, with WOL (Wake On LAN) support
- Front USB Header

Mechanical

- This motherboard complies with the Micro ATX Form Factor specification and has a four layers with dimensions of 9.6" x 8.36"

3. Installation

3.1 Motherboard Layout & Main Parts



Installation

Significant Parts List

Front Panel Connectors

IrDA Header (Part of Front Panel Header)	Refer to Sec. 3.5.5
Sleep Header (Part of Front Panel Header)	Refer to Sec. 3.5.5
Power Switch Header (Part of Front Panel Header)	Refer to Sec. 3.5.5
Reset Switch Header (Part of Front Panel Header)	Refer to Sec. 3.5.5
HDD LED Header (Part of Front Panel Header)	Refer to Sec. 3.5.5
Power LED Header (Part of Front Panel Header)	Refer to Sec. 3.5.5

Back Panel Ports

Keyboard/Mouse Ports	Refer to Sec. 3.5.6
USB/LAN Ports	Refer to Sec. 3.5.6
Printer/VGA Ports	Refer to Sec. 3.5.6
Sound/Serial Port	Refer to Sec. 3.5.6

Connectors

Primary IDE Connector	Refer to Sec. 3.5.1
Secondary IDE Connector	Refer to Sec. 3.5.2
Floppy Connector	Refer to Sec. 3.5.3
Power Connector	Refer to Sec. 3.5.4

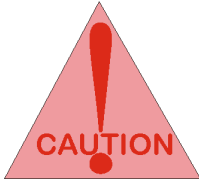
Additional Connectors

Clear PWD Header	Refer to Sec. 3.5.7
CD-In (CD-ROM) Header	Refer to Sec. 3.5.7
Aux-In (Auxiliary Line-In) Header	Refer to Sec. 3.5.7
CPU Fan Header	Refer to Sec. 3.5.7
BIOS Lock Header	Refer to Sec. 3.5.7
Chassis Fan Header	Refer to Sec. 3.5.7
Chassis Intrusion Header	Refer to Sec. 3.5.7
Safe Speed Header	Refer to Sec. 3.5.7
Front USB Header	Refer to Sec. 3.5.7

Installation

Precaution Before Start

Static Electricity Damage:



Static electricity can easily damage your motherboard. Observing a few basic precautions can help safeguard against damage that could result in expensive repairs. Follow the simple measures below to protect your equipment from static electricity damage.

1. Keep the motherboard and other system components in their anti-static packaging until you are ready to install them.
2. Touch a grounded surface before you remove any system component from its protective anti-static packaging. Unpacking and installation should be done on a grounded, anti-static mat. The operator should be wearing an anti-static wristband, grounded at the same points as the anti-static mat.
3. After removing the motherboard from its original packaging, only place it on a grounded, anti-static surface component side up. Immediately inspect the board for damage. Due to shifting during shipping, it is suggested that the installer press down on the entire socket ICs to ensure they are properly seated. Do this only with the board placed on a firm flat surface.
4. During configuration and installation touch a grounded surface frequently to discharge any static electrical charge that may have built up in your body. The best precaution is to wear a grounded wrist strap. Avoid touching the components when handling the motherboard or a peripheral card. Handle the motherboard and peripheral cards either by the edges or by the peripheral card case-mounting bracket.

Misplaced Jumper Damage:

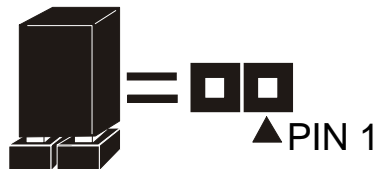
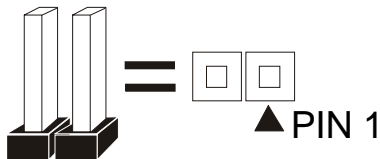


There are critical headers used for connectors or power sources. These are clearly marked separately from the jumpers listed in Motherboard Layout. Incorrect setting jumpers and connectors may lead to damage to your motherboard. Please pay special attention not to connect these headers in wrong directions

Installation

3.2 Connectors and Jumpers

This motherboard requires jumper setting for some features. The following graphic shows you how to set a proper jumper setting.



Note: In the following pages, the triangle ▲ mark stands for pin 1 of the connector or header.

Connectors/Jumpers List

J1: USB 1, USB2, and LAN Ports

J2: VGA Port

J3: Keyboard, and Mouse Ports

J5: Serial, and Audio Ports

J7: Parallel Port

J11: CD-In Header (Black)

J12: Aux-In Header (White)

J13: Chassis Intrusion Header

J14: Floppy Connector

J15: Front USB Header

J16: Chassis Fan Header

J17: Primary IDE Connector (Black)

J18: Secondary IDE Connector (White)

J19: ATX Power Connector

J20: CPU Fan Header

J21: Front Panel Header

DM1: DIMM 1 Slot

DM2: DIMM 2 Slot

PPGA1: CPU Socket (Socket 370)

JP1: Safe Speed Header

JP2: BIOS Lock Header

JP3: Clear CMOS Header

Installation

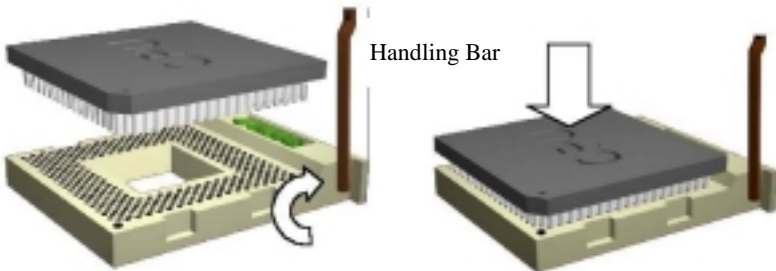
3.3 CPU (Central Processing Unit)

This motherboard supports a PGA 370 Intel Celeron/Coppermine PGA family processor. To complete CPU installation, please install CPU to socket firmly, presented in Sec. 3.3.1.

3.3.1 Install a CPU

Please follow the below steps to install your CPU.

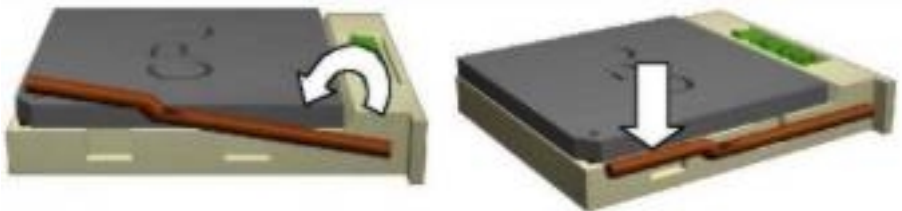
- Step 1: Pull the handling bar of the socket upward to the other end to loosen the socket's openings.
- Step 2: Place the CPU on the middle of the socket, orienting its beveled corner to line up with the socket's beveled corner. Make sure the pins of the CPU fit evenly to the socket openings.



Step 1

Step 2

Step 3: Press the handling bar downward to fasten the CPU to the socket.



Warning: It is strongly recommended that a heatsink and CPU cooling fan be used to prevent the CPU from overheating. Applying a thermal of jelly between the CPU and the heatsink/fan will further cool the CPU.

Installation

3.4 System Memory (DRAM)

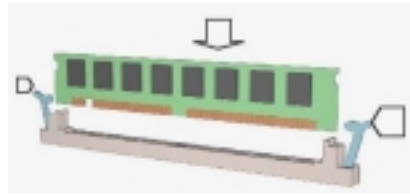
3.4.1 DIMM (Dual Inline Memory Module)

The motherboard features two 168-pin DIMM sockets, share memory module. If you have only one DIMM RAM, note that you must insert it into DIMM 1. You can configure the system memory size from 8MB to 1GB in a variety of ways by using different combinations of the two 168-pin DIMMs.

3.4.2 Installation Procedure

Step1: Make sure Pin 1 of the DIMM match with pin 1 of the DIMM socket.

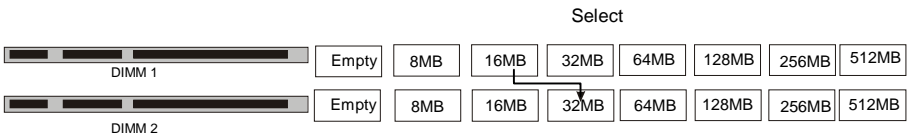
Step2: Insert the DIMM module into the DIMM socket vertically. After inserting the DIMM module completely into the socket, push up on the socket latches securing the DIMM into place. If the pin 1 of the DIMM module does not line up with pin 1 of the socket, the DIMM module will not be inserted correctly into the socket.



Be careful not to misfit the DIMM Module into DIMM sockets in wrong direction. This module can be inserted into the socket only one way. To release the memory module, push both latches down and carefully rock the module forward and backward while slowly lifting it upward.

3.4.3 DIMM Combinations

Each DIMM socket can be inserted with 8MB, 16MB, 32MB, 64MB, 128MB, 256MB, and 512MB DIMM. For example, the following figure shows you one way to insert your DIMM.



Select DIMM 1: 16MB
DIMM 2: 32MB

Total
 $16+32=48\text{MB}$

Select 1 out of 8 Choices (empty, 8MB, 16MB, 32MB, 64MB, 128MB, 256MB, and 512MB) in DM1. Then, repeat again in DM2 for 8 choices (Empty, 8 MB, 16 MB, 32 MB, 64 MB, 128MB, 256MB, and 512MB) to go through your own path.

Installation

3.5 Connectors, Headers, and Ports

This motherboard contains IDE, floppy, power connector, front panel, and additional connectors.

3.5.1 Primary IDE Connector (J17, 39-pin block, Black)

This connector supports two primary channel IDE devices as well as the LS120 floppy, Zip, CD-ROM, and DVD-ROM drives via a ribbon cable. When two IDE devices are installed using the primary IDE connector, make sure that the second IDE device is set to slave mode as indicated in the device's manual.

3.5.2 Secondary IDE Connector (J18, 39-pin block, White)

This connector supports two secondary channel IDE devices as well as the LS120 floppy, Zip, CD-ROM, and DVD-ROM drives via a ribbon cable. When two IDE devices are installed using the secondary IDE connector, make sure that the second IDE device is adjusted to slave mode as indicated in the device's manual.

Warning: When you connect a ribbon cable to these ports, you must orient the cable connector so that the PIN 1 edge of the cable is at the PIN 1 edge of the on-board connector.

3.5.3 Floppy Drive Connector (J14, 33-pin block)

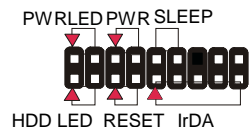
The FDC sub-system can control three types of floppy drives (1.2, 1.44, and 2.88 MB) and/or compatible tape drives. The connection to the floppy drive is via a header (J14). The floppy disk interface includes 48mA current support and inputs on the drive interface.

3.5.4 ATX Power Connector (J19, 20-pin block)

This connector supports one standard ATX power supply. When connecting, make sure the lock key matches the hook attached on a power supply cable. The power cord should be unplugged when you connect it.

3.5.5 Front Panel Header (J21, 17-pin block)

Front Panel includes headers for the following six I/O connectors: Power Switch, Power LED, Reset, Sleep, IrDA, and HDD LED.



IrDA Header (5-pin)

The motherboard offers an IrDA infrared header that supports third party infrared modules. The case must reserve space for the IR module if you want to use the IrDA function. This option supports wireless transmission and reception of infrared data. The module mounts in a small opening on the system case that supports this feature. The efficient distance is 100cm

Installation

and the transfer rate is 115,200 bits/s.

Reset Switch Header (2-pin)

This connector supports the front panel case-mounted reset button. It is advised that the reset switch be used for rebooting the system in order to extend the life of the system's power supply.

HDD LED Header (2-pin)

The motherboard supports one 2-pin header for connecting to front Panel Hard Disk activity LED indicator.

Sleep Switch Header (2-pin)

When the APM (Advanced Power Management) feature is enabled in the system BIOS and the operating system's APM driver is loaded, the system can enter the sleep (standby) mode in one of the following ways:

- Optional front panel sleep/resume button
- Prolonged system inactivity using the BIOS inactivity timer feature

The 2-pin header supports a front panel sleep/resume switch, which must be a momentary SPST type that is normally open

Power Switch Header (2-pin)

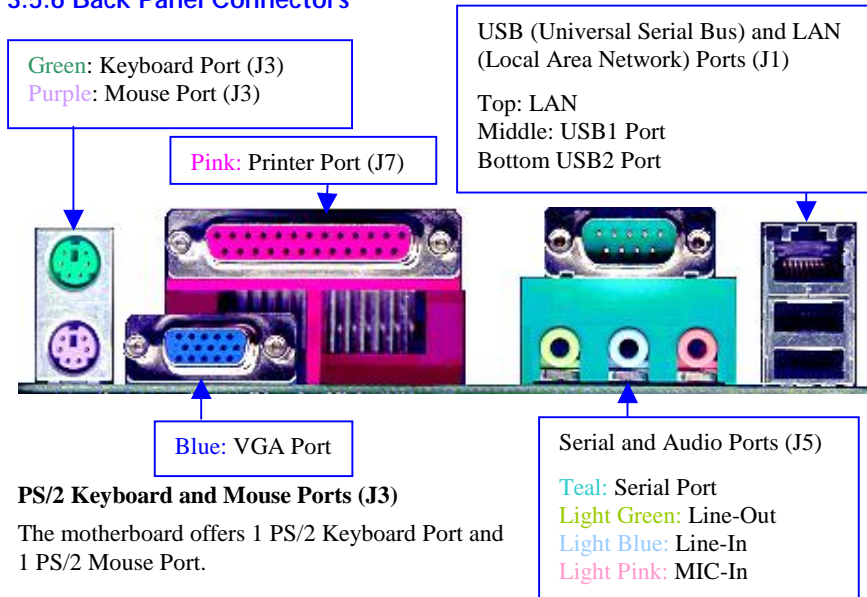
This connector supports the ATX case-mounted Power Switch, which in turn supports System Suspend function. When the BIOS sets the Power Button function to "Suspend", the system can be set to the suspended mode once you push the power switch for no longer than 4 seconds. If the power switch is pushed down for over 4 seconds the system will be totally Power Off. When this BIOS setting sets to "Instant-off", then Power Switch function work as a regular power switch.

Power LED Header (2-pin)

This header can be connected to a 2-color LED that will light yellow or green when the computer is in "Suspend" or "Normal" operation.

Installation

3.5.6 Back Panel Connectors



PS/2 Keyboard and Mouse Ports (J3)

The motherboard offers 1 PS/2 Keyboard Port and 1 PS/2 Mouse Port.

USB (Universal Serial Bus) and LAN (Local Area Network) Ports (J4)

The motherboard has two USB and a LAN ports. USB devices provide a more convenient operating environment and improve data transferring capacity. True Plug & Play. This new bus technology will support over 127 different peripherals through a hub. This also supports combination of both low and high speed devices (version 1.1) The LAN port (using RJ-45) provided to hook the system up on a local network or with a DSL (Digital Subscriber Line), or a Cable modem internet boxes.

Parallel Port (J7)

The motherboard includes a parallel port (SPP, EPP, and ECP compatible). The parallel port is capable of being disabled or remapped to either the secondary LPT address or the primary LPT address through BIOS if another parallel port is installed.

Serial and Audio Ports (J5)

The motherboard has two serial ports (one on rare panel, one on board). The electrical characteristics are compliant with the EIA-232-D Serial Communications Specifications. The serial ports may be remapped over other installable serial ports or disabled through the BIOS. The motherboard also provides external sound system through a user accessible stereo jack connector soldered to the PWA. This jack allow the connection of self-amplified speakers, Line-In voice input and MIC-In voice input.

Installation

VGA Port (J2)

This product integrates the AGP function via a VGA port. The Accelerated Graphics Port (AGP) is a high performance 3D graphical display for 3D/2D graphic intensive applications. The monitor hooks up here.

3.5.7 Additional Connectors and Headers

Front USB Header (J15, 9-pin)

The motherboard offers you to hook up front USB ports via chassis. It is always enabled.

BIOS Lock Header (JP2, 2-pin)

By unlocking it allows you to flash the BIOS. It is added to protect the BIOS being accidentally flashed by you or overwritten by a virus.

Clear CMOS Header (JP3, 2-pin)

It is built to clear CMOS settings, including password and all CMOS setting to Default. To do so, enable the jumper for a few minutes and disable it before you boot the system.

Safe Speed Header (JP1, 3-pin)

Usually socket 370 processors have locked frequency multipliers. In this case, there is no way to exceed the specified multiplier whether through motherboard settings or BIOS setup. With unlocked socket 370 processor, exceeding the specified multiple is possible through BIOS setup. Exceeding the specified multiple may result in hanging during boot up. If this occurs, enable Safe Speed (close pin 1 and 2) to force a multiplier of 2 in order to enter BIOS setup to correct the problem.

Chassis Intrusion Header (J13, 2-pin)

This header is for a chassis designed for chassis intrusion detection. After-market toggle switches may also be installed to the chassis panel or on any removable components. Two wires should be available from the chassis to connect to this header. When any chassis component is removed, the contact should open and the motherboard will record a chassis intrusion event. The event can then be processed by software such as LDCM.

Fan 2 (J16, 3-pin)

This header is used for chassis fan or power fan if needed.

Fan 1 (J20, 3-pin)

The CPU may have an attached heatsink and fan; this connector is for the Fan 1.

CD-In Header (J11, 4-pin, Black)

A connector is available for audio input from CD-ROM drives.

Aux-In Header (J12, 4-pin, White)

Access the Aux-In connection for audio input from the auxiliary devices.

Installation

Are You Ready To Turn On The System?

Check Again

1. Is the CPU installed exactly and firmly into the socket (Sec. 3.3)?
2. Are all the DRAM modules installed properly (Sec. 3.4)?
3. Are you sure that all the connectors (described in Sec. 3.5) have been connected to their related devices (Sec. 3.5)?

Yes, I have checked and assured the above steps!

Now get ready to turn on your device by following the steps below.

1. Mount your motherboard to the chassis frame and close the case cover.
2. Connect the power supply cord into inlet of the system case.
3. Connect the power supply cord into an outlet of power supply.
4. Connect Monitor signal cable to the system VGA port and the monitor power cord to power outlet.
5. Now turn on the monitor and system power.

After Power On, the power LED on the front panel of the system case will light. For ATX power supplies, the system LED will light when the ATX power switch is pressed.

The system will then do a power-on-self-test, and additional messages will appear on screen. If the screen blinks or the tests stop more than 30 seconds, the system may have failed the power-on-self-test. If so, please recheck the above steps or call your retailer for assistance.

If the power-on-self-test goes well, hold down <F2> key on the keyboard to enter BIOS Setup. Next, follow the instructions in the next chapter: **BIOS SETUP**.

BIOS Setup

4. BIOS Setup

The BIOS provides critical low-level support for the system's central processing unit, memory bus and I/O (Input/Output) subsystems. The remainder of this manual is intended to guide you through the process of configuring your system using the BIOS Setup.

The BIOS is immediately activated when you first turn on the computer. The BIOS reads system configuration information in CMOS RAM and begins the process of checking the system and configuring it through the POST (Power On Self Test). When these preliminaries are finished, the BIOS seek an operation system on the data storage devices (hard drive, floppy drive, etc.). The BIOS launches the operating system and hands over control of system operation to it.

To start Setup, press the key during boot-up before or while a message similar to this appears briefly at the bottom of the screen during POST:

Press key if you want to enter SETUP

If the above message disappears before you have responded and you still wish to enter Setup, reboot the system to try again by pressing the "RESET" button on the system case. You may also restart by simultaneously pressing the <CTRL> + <ALT> + keys. Press <F1> to continue, to enter SETUP.

The keys below help you navigate in Setup.

<↑> / <↓>	Move to previous or next item
<←> / <→>	Move to the item in the left or right hand
<ESC>	Main Menu – Quit and not save changes into CMOS
<ESC>	Other Pages -- Exit current page and return to Main Menu
<PgUp> / <+>	Increase the numeric value or make changes
<PgDn> / <->	Decrease the numeric value or make changes
<F2> / <F3>	Change color from total 9 colors.
<F10>	Save all the CMOS changes, only for Main Menu

If after making and saving system changes with Setup, you discover that your computer no longer is able to boot, the BIOS supports an override to the CMOS settings that resets your system to its default configuration.

The best advice is to alter only settings that you thoroughly understand the setup. In particular, do not change settings in the Advanced Chipset Setup without a good reason. BCM Advanced Research, Inc. or your system manufacturer for the best performance and reliability has carefully chosen the defaults for general configuration. Even a seemingly small change to the Advanced Chipset Setup may cause the system to become unstable or fail to boot.

BIOS Setup

4.1 Main Setup Menu

When you enter the BIOS CMOS Setup Utility, a Main Menu appears on the screen. The Main Menu allows you to select from several Setup functions and two exit choices. Use the arrow keys to select among the items and press <ENTER> key to accept and enter the sub-menu.

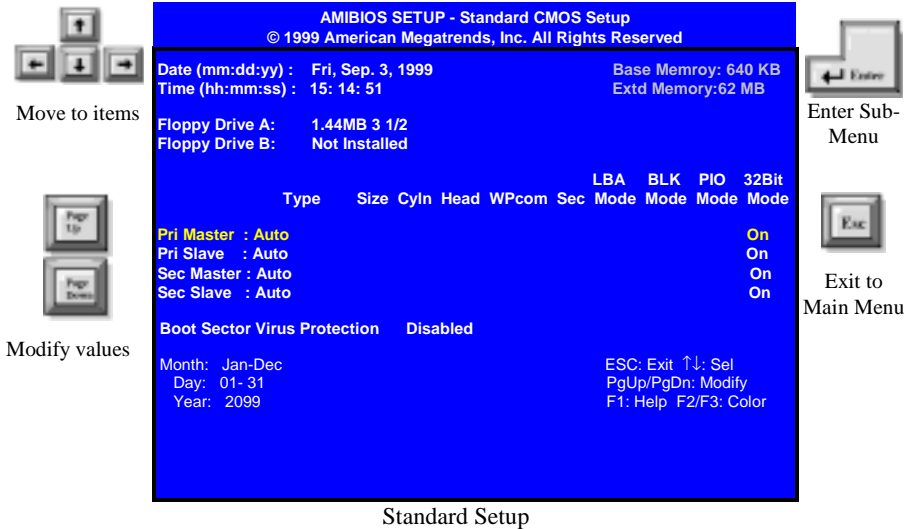
Following is a brief summary of each Setup category.

Standard Setup	Options in the original PC AT-compatible BIOS.
Advanced CMOS Setup	AMI enhanced BIOS options.
Chipset Setup	Options specific to your system chipset.
Power Management Setup	Advanced configuration Power Management Interface (APCI) options.
PCI/Plug and Play Setup	Plug and Play standard and PCI Local Bus configuration options.
Peripheral Setup	I/O subsystems that depend on the integrated peripherals controller in your system.
Hardware Monitor Setup	Provide information for hardware system.
Auto - Detection Hard Disks	Automatically detect and configure IDE hard disk parameters.
Change User Password	Change, set, or disable a password. The user password allows only power-on access.
Change Supervisor Password	Once this item is set with a password.
Auto Configuration with Optimal Settings	Setup defaults are factory settings for optimal performance system operations.
Auto Configuration with Fail Safe Settings	Setup defaults are factory settings for fail-safe performance system operations.
Save Settings and Exit	Save settings in nonvolatile CMOS RAM and exit Setup.
Exit Without Saving	Abandon all changes and exit Setup.

BIOS Setup

4.2 Standard Setup Menu

In the Standard Setup Menu, you can set the system clock and calendar, record disk drive parameters and the video subsystem type, and select the type of errors that stop the BIOS POST.



AMIBIOS SETUP - Standard CMOS Setup
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Date (mm:dd:yy) : Fri, Sep. 3, 1999 Base Memroy: 640 KB
Time (hh:mm:ss) : 15:14:51 Extd Memory:62 MB

Floppy Drive A: 1.44MB 3 1/2
Floppy Drive B: Not Installed

Type	Size	CyIn	Head	WPcom	Sec	Mode	Mode	Mode	Mode
Pri Master	: Auto								On
Pri Slave	: Auto								On
Sec Master	: Auto								On
Sec Slave	: Auto								On

Boot Sector Virus Protection Disabled

Month: Jan-Dec ESC: Exit ↑↓: Sel
Day: 01-31 PgUp/PgDn: Modify
Year: 2099 F1: Help F2/F3: Color

Standard Setup

4.2.1 Date

The BIOS determines the day of the week from the other date information. This field is for information only. Press the left or right arrow key to move to the desired field (date, month, year). Press the <PgUp> or <PgDn> keys to increment the setting, or type the desired value into the field.

4.2.2 Time

The time format is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Press the left or right arrow key to move to the desired field. Press the <PgUp> or <PgDn> keys to increment the setting, or type the desired value into the field.

4.2.3 Drive A/B type

Select the correct specifications for the diskette drive(s) installed in the computer. The options are: None, 360K, 720K, 1.2M, 1.44M, and 2.88M.

BIOS Setup

4.2.4 Primary/Secondary IDE Master/Slave

Not Installed	No diskette drive installed
1 to 46	Drive types 1 through 46 with preprogrammed values
User	Enter values into each drive parameter field manually
Auto	Detect HDD type automatically
ATAPI CDROM	Use for ATAPI CD-ROM drives

The BIOS supports up to four IDE drives. This section does not show information about other IDE devices, such as a CD-ROM drive, or about other hard drive types, such as SCSI drives.

NOTE: We recommend that you select type AUTO for all drives.

The BIOS can automatically detect the specifications and optimal operating mode of almost all IDE hard drives. When you select type AUTO for a hard drive, the BIOS detects its specifications during POST, every time the system boots. If you do not want to select drive type AUTO, other methods of selecting the drive type are available:

1. Match the specifications of your installed IDE hard drive(s) with the preprogrammed values for drive types 1 through 45.
2. Select USER and enter values into each drive parameter field.
3. Use the IDE HDD AUTO DETECTION function in Setup.

Here is a brief explanation of drive specifications:

- **Type:** The BIOS contains a table of pre-defined drive types. Each defined drive type has a specified number of cylinders, number of heads, write precompensation factor, landing zone, and number of sectors. Drives whose specifications do not accommodate any pre-defined type are classified as type USER.
- **Size:** Disk drive capacity (approximate). Note that this size is usually slightly greater than the size of a formatted disk given by a disk-checking program.
- **Cyln:** Number of cylinders
- **Head:** Number of heads
- **WPcom:** Write precompensation cylinder
- **Sec:** Number of sectors
- **Mode:** LBA, Blk, PIO, 32Bit
- **LBA (Logical Block Addressing):** During drive accesses, the IDE controller Transforms the data address described by sector, head, and cylinder number into a physical block address, significantly improving data transfer rates.

BIOS Setup

4.2.5 Boot Sector Virus Protection

This will enable a warning message if a virus attempts to write to the boot sector or the partition table of the hard disk drive. Keep in mind that this feature not only protects the boot sector, but the entire hard drive.

4.2.6 Memory

You cannot change any values in the Memory fields; they are only for your information. The fields show the total installed random access memory (RAM) and amounts allocated to base memory, extended memory, and other (high) memory. RAM is counted in kilobytes (KB: approximately one thousand bytes) and megabytes (MB: approximately one million bytes). RAM is the computer's working memory, where the computer stores programs and data currently being used, so they are accessible to the CPU. Modern personal computers may contain up to 64 MB, 128 MB, or more.

Base Memory

Typically 640 KB. Also called conventional memory. The DOS operating system and conventional applications use this area.

Extended Memory

Above the 1MB boundary. Early IBM personal computers could not use memory above 1 MB, but current PCs and their software can use extended memory.

BIOS Setup

4.3 Advanced CMOS Setup Menu

This screen contains industry-standard options additional to the core PC-AT BIOS. This section describes all fields in this screen. Some fields may vary from those in your setup program. Your system board designer may omit or modify some fields.

AMIBIOS SETUP -Advanced CMOS Setup
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		Available Options
CPU Ratio Selection	2.0x (Safe)	Off
1 st Boot Device	Floppy	On
2 nd Boot Device	IDE-0	
3 rd Boot Device	CDROM	
Boot Up Num-Lock	On	
Floppy Drive Swap	Disabled	
Floppy Drive Seek	Disabled	
Primary Display	Enabled	
Password Check	VGA/EGA	
System BIOS Cacheable	Setup	
C000, 64k Shadow	Disabled	
D000, 64k Shadow	Cached	
	Disabled	

ESC: Exit ↑↓: Sel
PgUp/PgDn: Modify
F1: Help F2/F3: Color

Advanced CMOS Setup Menu

4.3.1 CPU Ratio Selection

This option sets the CPU frequency ratio. The settings are 1:2, 2:5, 1:3, 2:7, 1:4, 2:9, 1:5, 2:11, 1:6, 2:13, 1:7, 2:15, 1:8 and Locked.

4.3.2 First Boot Device

This option sets the type of device for the first boot drives that the BIOS attempts to boot from after POST completes.

4.3.3 Second Boot Device

This option sets the type of device for the second boot drives that the BIOS attempts to boot from after POST completes.

4.3.4 Third Boot Device

This option sets the type of device for the third boot drives that the BIOS attempts to boot from after POST completes.

4.3.5 Boot Up NumLock

Toggle between On or Off to control the state of the NumLock key when the system boots. When toggled on, the numeric keypad generates numbers instead of controlling cursor operations.

BIOS Setup

4.3.6 Floppy Drive Swap

This field is effective only in systems with two floppy drives. Switch the floppy disk drives between being designated as A and B. Default is Disabled. Selecting Enabled assigns physical drive B to logical drive A, and physical drive A to logical drive B.

4.3.7 Floppy Drive Seek

During POST, BIOS will determine if the floppy disk drive installed is 40 or 80 tracks.

4.3.8 Primary Display

This option configures the type of monitor attached to the computer. The settings are Mono, CGA40x25, CGA80x25, VGA/EGA or Absent. The Optimal and Fail-Safe default settings are VGA/EGA.

4.3.9 Password Check

This option enables password checking every time the system boots or when you run AMIBIOS Setup. If Always is chosen, a user password prompt appears every time the computer is turned on. If Setup is chosen, the password prompt appears if BIOS is executed. See the Advanced Setup chapter for instructions on changing a password. The Optimal and Fail-Safe defaults are Setup.

4.3.10 System BIOS Cacheable

When set to Enabled, the contents of the F0000h system memory segment can be read from or written to cache memory. The contents of this memory segment are always copied from the BIOS ROM to system RAM for faster execution. The settings are Enabled or Disabled. The Optimal default setting is Enabled. The Fail-Safe default setting is Disabled.

4.3.11 C000 Shadow (64K)

These options specify how the 64 KB of video ROM at C0000h is treated. The settings are:

Setting	Description
<i>Disabled</i>	The contents of the video ROM are not copied to RAM.
<i>Enabled</i>	The contents of the video ROM area from C0000h – C7FFFh are copied (shadowed) from ROM to RAM for faster execution.
<i>Cached</i>	The contents of the video ROM area from C0000h – C7FFFh are copied from ROM to RAM and can be written to or read from cache memory.

4.3.12 D000 Shadow (64K)

These options enable shadowing of the contents of the ROM area named in the option. The ROM area not used by ISA adapter cards is allocated to PCI adapter cards.

BIOS Setup

4.4 Chipset Setup Menu

AMIBIOS SETUP – Advanced Chipset Setup
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USB KB/Mouse Legacy Support	Disabled	Available Options Disabled Enabled
Display Cache Windows Size	64MB	
Primary IDE cable type	Auto detect	
Secondary IDE cable type	Auto detect	

ESC: Exit ↑↓: Sel
PgUp/PgDn: Modify
F1: Help F2/F3: Color

Chipset Setup Menu

4.4.1 USB Keyboard Legacy Support

Set this option to Enabled to invoke support for USB keyboard devices in DOS mode.

4.4.2 Display Cache Windows Size

This option specifies the amount of cache available for the graphics local memory window.

4.4.3 Primary IDE cable type

Set this option to choose primary IDE cable type, 40-pin and 80-pin. 40-pin represents ATA33; 80-pin represents ATA66. The default setting is auto detect.

4.4.4 Secondary IDE cable type

Set this option to choose secondary IDE cable type, 40-pin and 80-pin. 40-pin represents ATA33; 80-pin represents ATA66. The default setting is auto detect.

BIOS Setup

4.5 Power Management Setup Menu

AMIBIOS SETUP – Power Management Setup
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		Available Options
Power Management/APM	Enabled	NO Yes
Video Power Down Mode	Suspend	
Hard Disk Power Down Mode	Suspend	
Suspend Time Out	Disabled	
Keyboard & PS/2 Mouse Access	Monitor	
FDC/LPT/COM Ports Access	Ignore	
Midi Port Access	Ignore	
Primary Master IDE Access	Monitor	
Primary Slave IDE Access	Ignore	
Secondary Master IDE Access	Ignore	
Secondary Slave IDE Access	Ignore	
PIRQ[A] IRQ Active	Ignore	
PIRQ[B] IRQ Active	Ignore	
PIRQ[C] IRQ Active	Ignore	
PIRQ[D] IRQ Active	Ignore	
Power Button Mode	Instant Off	
Restore on AC/Power Loss	Power Off	
PCI Slot PME Function Support	Disabled	
Resume On RTC Alarm	Disabled	
RTC Alarm Date	15	
RTC Alarm Hour	12	SC: Exit ↑↓: Sel
RTC Alarm Minute	30	PgUp/PgDn: Modify
RTC Alarm Second	30	F1: Help F2/F3: Color

Move to items

Modify values

Exit to Main Menu

Power Management Setup Menu

4.5.1 Power Management/APM

Set this option to Enabled to invoke the chipset power management and APM features.

4.5.2 Video Power Down Mode

This option specifies the power state that the video subsystem enters when BIOS places it in a power saving state after the specified period of display inactivity has expired.

4.5.3 Hard Disk Power Down Mode

This option specifies the power conserving state that the hard disk drive enters after the specified period of hard drive inactivity has expired.

4.5.4 Suspend Time Out

This option specifies the length of a period of system inactivity while in Standby state. When this length of time expires, the computer enters Suspend power state.

4.5.5 Access

While choosing Monitor, an event occurring on each device for monitoring: Keyboard and PS/2 Access; FDC/LPT/COM Ports Access; MIDI Ports Access; Primary/Secondary Master IDE Access; Primary/Secondary Slave IDE Access; PIRQ[A]-[D] IRQ Active.

BIOS Setup

4.5.6 Power Button Mode

This option specifies how the power button mounted externally on the computer chassis is used. The settings are:

Setting	Description
On/Off	Pushing the power button turns the computer on or off.
Suspend	Pushing the Power button places the computer in Suspend mode or Full On power mode.

4.5.7 Restore on AC/Power Loss

This option is used to reboot system after power has been interrupted. Power Off leaves the system off and Last State reboots the system.

4.5.8 PCI Slot PME Function Support

This option allows you to enable the PME resume. Set it to *Enabled* to invoke the PME resume.

4.5.9 Resume On RTC Alarm

This option allows you to enable the Real Time Clock (RTC) resume. Set it to *Enabled* to invoke the RTC Alarm.

4.5.10 RTC Alarm Date, Hour, Minute, Second

This allows you to have an unattended or automatic power up of your system. You may configure your system to power up at a certain time in a day by selecting or on the first through the end of one month by selecting the RTC Alarm Date.

BIOS Setup

4.6 PCI/PnP Setup Menu

AMIBIOS SETUP – PCI Plug and Play Setup
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		Available Options
Plug and Play Aware O/S	Yes	No Yes
Clear NVRAM	No	
Primary Graphics Adapter	OnBoard	
PCI VGA Palette Snoop	Disabled	
Allocate IRQ to PCI VGA	Yes	
DMA Channel 0	Disabled	
DMA Channel 1	Disabled	
DMA Channel 3	PnP	
DMA Channel 5	PnP	
DMA Channel 6	PnP	
DMA Channel 7	PnP	
IRQ3	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 ↑↓: Sel
PgUp/PgDn: Modify
F1: Help F2/F3: Color

Move to items

Modify values

Enter

Esc

Exit to Main Menu

PCI/ PnP Setup Menu

4.6.1 Plug and Play Aware O/S

Set this option to Yes to inform BIOS that the operating system can handle Plug and Play (PnP) devices.

4.6.2 Clear NVRAM

Select Yes 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. Normally, leave this setting No.

4.6.3 Primary Graphics Adapter

Leave on default setting if you want to use the onboard VGA. If this field is Add-on VGA, all display cache configurations will not be available.

BIOS Setup

4.6.4 PCI VGA Palette Snoop

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

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

This option must be set to Enabled if any ISA adapter card installed in the system requires VGA palette snooping.

4.6.5 Allocate IRQ to PCI VGA

This option allows you to reserve IRQ for PCI VGA device.

4.6.6 DMA Channel 0/1/3/5/6/7

These options allow you to specify the bus type used by each DMA channel.

4.6.7 IRQ3/4/5/7/9/10/11/14/15

These options specify the bus that the specified IRQ line is used on. These options allow you to reserve IRQs for legacy ISA adapter cards. These options determine if BIOS should remove an IRQ from the pool of available IRQs passed to devices that are configurable by the system BIOS. The available IRQ pool is determined by reading the ESCD NVRAM. If more IRQs must be removed from the pool, the end user can use these options to reserve the IRQ by assigning an ISA/EISA setting to it. Onboard I/O is configured by BIOS. All IRQs used by onboard I/O are configuration as PCI/PnP. **IRQ12** only appears if the **Mouse Support** option in Advanced Setup is set to Disabled. IRQ14 and 15 will not be available if the onboard PCI IDE is enabled. If all IRQs are set to ISA/EISA and IRQ14 and 15 are allocated to the onboard PCI IDE, IRQ9 will still be available for PCI and PnP devices, because at least one IRQ must be available for PCI and PnP devices.

BIOS Setup

4.7 Peripheral Setup

AMIBIOS SETUP – Peripheral Setup		
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OnBoard Audio	Enabled	Available Options: Enabled Disabled
OnBoard AC'97 Modem	Disabled	
OnBoard IDE	Both	ESC: Exit ↑↓: Sel PgUp/PgDn: Modify F1: Help F2/F3: Color
OnBoard FDC	Auto	
OnBoard Serial Port A	Auto	
OnBoard Serial Port B	Auto	
OnBoard Parallel Port	Auto	
Parallel Port Mode	ECP	
Parallel Port IRQ	Auto	
Parallel Port DMA Channel	Auto	
Keyboard PowerOn Function	Disabled	
Specific Key for PowerOn	N/A	
Mouse PowerOn Function	Disabled	

Peripheral Setup Menu

4.7.1 On Board Audio

This option allows you to enable the onboard Audio control.

4.7.2 On Board AC'97 Modem

This option allows you to enable the onboard Modem control.

4.7.3 On Board IDE

You can select to enable the primary IDE channel, secondary IDE channel, both, or disabled both channels

4.7.4 On Board FDC

Set this option to Enabled to invoke the floppy drive controller on the motherboard.

4.7.5 On Board Serial Port A/B

This option specifies the base I/O port address of serial port A/B.

4.7.6 On Board Parallel Port

This option specifies the base I/O port address of the parallel port on the motherboard.

BIOS Setup

4.7.7 Parallel Port Mode

This option specifies the parallel port mode. The Optimal default setting is Normal. The Fail-Safe default setting is Disabled. The settings are:

Setting	Description
Normal	The normal parallel port mode is used.
EPP	The parallel port can be used with devices that adhere to the Enhanced Parallel Port (EPP) specification. EPP uses the existing parallel port signals to provide asymmetric bi-directional data transfer driven by the host device.
ECP	The parallel port can be used with devices that adhere to the Extended Capabilities Port (ECP) specification. ECP uses the DMA protocol to achieve data transfer rates up to 2.5 Megabits per second. ECP provides symmetric bi-directional communication.

4.7.8 Parallel Port IRQ

This option specifies the IRQ used by the parallel port. The settings are Auto, (IRQ) 5, or (IRQ) 7

4.7.9 Parallel Port DMA Channel

This option is only available if the setting for the **Parallel Port Mode** option is ECP. This option sets the DMA channel used by the parallel port.

4.7.10 Keyboard Power On Function

Set this field to Enabled if you wish to use your PS2 keyboard (by pressing the spacebar) or PS2 mouse (by clicking on the left button) to power up your computer. This feature requires an ATX power supply that can supply at least 300mA on the +5VSB lead. The default is set to Disabled because not all computer have the appropriate ATX power supply. Your computer will not power ON if you set this to Enabled and do not have the appropriate ATX power supply.

4.7.11 Specific Key for Power On

This function allows you to select specific key which features the same function to power on the system.

4.7.12 Mouse Power On Function

This function allows you to power on the system by pressing the left mouse key.

BIOS Setup

4.8 Hardware Monitor Setup

AMIBIOS SETUP – Hardware Monitor Setup
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-==System Hardware Monitor ==-		Available Options
Current CPU Temperature	39°C /102°F	
Current System Temperature	32°C/89°F	
Current CPU Fan Speed	3792 RPM	
Current Chassis Fan Speed	0 RPM	
CPU VID	2.00V	
Vcore	2.032 V	
Vtt	1.536 V	
Vio	3.312 V	
+ 5.000V	5.085 V	
+12.000V	11.802 V	
- 12.000V	-11.907 V	
- 5.000V	N/A	
Battery	3.280 V	
+ 5 SB	4.921 V	

ESC: Exit ↑↓: Sel
PgUp/PgDn: Modify
F1: Help F2/F3: Color

Hardware Monitor Setup Menu

4.8.1 Current CPU Temperature

This field shows the current CPU temperature.

4.8.2 Current System Temperature

This field shows the current system temperature.

4.8.3 Current CPU Fan Speed

The onboard hardware monitor can detect the CPU fan speed in rotations pre minute (PRM). The presence of the fan will be detected automatically. This field shows the current speed of the CPU fan.

4.8.4 Current Chassis Fan Speed

The onboard hardware monitor can detect the chassis fan speed in rotations pre minute (PRM). The presence of the fan will be detected automatically. This field shows the current speed of fan 2.

4.8.5 CPU VID

The onboard hardware monitor can detect the voltage output by the onboard voltage regulators. This field shows the voltage for CPU.

BIOS Setup

4.9 Auto-Detection IDE HDD

BIOS setup will display all possible modes that supported by the HDD including NORMAL, LBA & LARGE. If HDD does not support LBA modes, no 'LBA' option will be shown. If no of cylinders is less than or equal to 1024, no 'LARGE' option will be show. Users can select the appropriate mode for them.

4.10 Change User Password

When you select this function, a message appears at the center of the screen:

ENTER PASSWORD:

Type the password, up to eight characters, and press <ENTER> key. Typing a password clears any previously entered password from CMOS memory. Now the message changes:

CONFIRM PASSWORD:

Again, type the password and press Enter. To abort the process at any time, press Esc.

In the Security Option item in the **BIOS Features** Setup screen select System or Setup:

- System: Enter a password each time the system boots and whenever you enter Setup.
- Setup: Enter a password whenever you enter Setup.

NOTE: To clear the password, simply press <ENTER> key when asked to enter a password. Then the password function is disabled.

4.11 Change Supervisor Password

The BIOS Setup will not be accessible unless you enter the correct password. Select this function and press <ENTER> key, the screen will display a start symbol instead of the characters entered. After the new password is entered, type the new password as prompted and press <ENTER> key again.

If the password confirmation is incorrect, an error message appears. If the new password is typed correctly, press <ESC> key. The password is stored in NVRAM after BIOS completes its cycle. Next time, when you boot the system, a password prompt will appear if this function is enabled.

4.12 Auto Configuration with Optimal Settings

The chipset defaults settings can provide maximum system performance. While the BIOS programmer has designed the custom BIOS to maximize performance, the manufacturer has the right to change these defaults to meet their needs.

BIOS Setup

4.13 Auto Configuration with Fail Safe Settings

Choosing this will automatically set all BIOS setup options to a complete set of default settings. The Fail-Safe settings are designed for maximum system stability, but may not be at the maximum performance. All of your changes made in the setup will be permanently lost if saved. Choose the Fail-Safe option if your computer is experiencing system configuration problems.

4.14 Save Settings and Exit

This feature allows the changes to be made to the CMOS setup to be saved. The system will reboot after a successful save to include new changes.

4.15 Exit Without Saving

Abandon all CMOS value change without saving and exit the BIOS setup. The system will reboot after exiting the BIOS setup.