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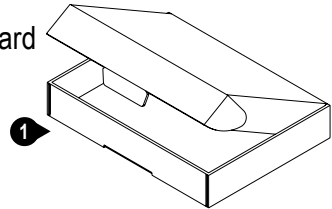
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1. Checklist

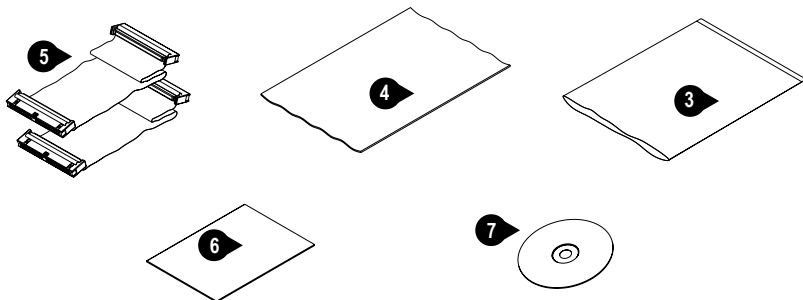
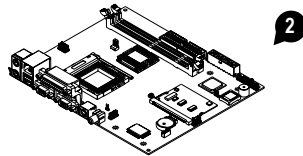
Thank you for choosing the M81E/M81DC2/M812-FX series motherboard. The package box contains the following contents. After unpacking, make sure that you have everything and that individual components are not damaged. If you find any component missing or damaged, contact your retailer immediately.

- 1 Package Box
- 2 M81E/M81DC2/M812-FX Series Motherboard
- 3 Anti-Static Bag
- 4 EPE Sheet
- 5 IDE Ribbon Cable Assembly



- ❖ The 80-Pin ribbon cable is designed with a 40-Pin connector for Ultra DMA33/66 IDE device.
- ❖ The 40-Pin ribbon cable is designed with a 40-Pin connector for Ultra DMA33 IDE devices.

- 6 User's Manual
- 7 Driver and Utility CD



Note : Mini PCI modem card is optional at the time of purchase that you can ignore it on checklist.

2. Introduction

The M81E/M81DC2/M812-FX series motherboard offers the high integration, high performance, high compatibility and power efficient solution on the powerful Intel PPGA370 processors. The motherboard uses the Intel i810E chipset which includes the FW82810/DC100/E (GMCHO/GMCH/GMCHE) / FW82801AA (ICH) and N82802AB (Firmware Hub) chip in the Flex ATX form factor.

The principal feature of this motherboard is it can support PPGA370 Celeron and Coppermine series processors. It operate at 66/100/133MHz FSB and CPU speed running from 300MHz up to 733MHz.

The i810E chipset provides full AGP capability with the internal 2D/3D graphics engine for maximum software compatibility, also supports full MPEG-2 motion compensation for software-assisted DVD video playback and a digital video output that may support (via Chrontel CH7008A external video Encoder) NTSC and PAL broadcast standards.

The motherboard provides a Mini PCI interface that was developed specifically for integrated communications peripherals such as modems and network interface card. For customers who need the flexibility of LAN and modem solutions that can be changed and upgraded by the end user, PC card may offer a better fitting solution. Also integrated AC97 Audio and 10/100 Mbps Fast Ethernet LAN solution, which can be configured for either 100Mbps (100Base-TX) or 10Mbps (10Base-T) Ethernet operation. It provides a RJ-45 port for user to attach the motherboard, and a phone jack to attach the chassis for modem.

The system management chip (Winbond W83627HF-AW) with software, allows user to monitor system environment such as system and CPU fan speed (requires fan with tachometer output), CPU temperature, system temperature and operating voltages.

The motherboard has a comprehensive set of integrated I/O ports. The I/O port array features PS/2 Keyboard and Mouse ports, a Parallel port, five USB ports, a RJ-45 port, a VGA display port, a Audio port, a Serial ports, an Infrared port (for IrDA or ASKIR) and two PCI IDE, also has two 168-Pin DIMM sockets for the installation 3.3V unbuffered SDRAM module, it supports a memory bus of 100MHz, so we recommend you can choose PC-100 compliant for performance and upgrade required.

The fully programmable firmware enhances the system feature like Plug and Play, APM (v1.2)/ACPI (v1.0), Modem Ring-On, Wake On LAN, control of DPMS and BIOS upgrade ability.

3. Specification

Chipset

- M81E/M81DC2/M812-FX consists of the Intel's FW82810/DC100/E + FW82801AA + N82802AB
- Winbond's W83627HF-AW LPC I/O
- AC97 Codec
- SIS's 900 Fast Ethernet PCI 10/100 Mbps LAN
- Chrontel's CH7008A Encoder

CPU Support

- Intel's PPGA370 Celeron and FC-PGA Coppermine series Processors

System Speed Support

- 66/100/133MHz FSB for CPU Interface
- 33MHz PCI Bus for PCI Interface
- 66MHz AGP Bus for AGP Interface
- 100MHz SDRAM Bus for SDRAM Memory Interface

Memory

- Two 168-Pin DIMM sockets for 3.3V unbuffered SDRAM module and PC-100 compliant
- Memory capacity from 8MB up to 256MB
- 100MHz or 133MHz super AGP performance using 4MB display cache memory onboard graphics

Expansion Slots

- Mini PCI Socket

Onboard I/O Support

- Two PCI IDE ports support up to four IDE devices (supports Ultra DMA33/66 hard drivers, ATAPI CD-ROM, LS-120 and ZIP)
- One NS16C550A-compatible DB-9 serial port
- One SPP/ECP/EPP DB-25 parallel port
- Five USB (v1.1) ports
- One mini DIN-6 PS/2 mouse port

3. Specification

- One mini DIN-6 PS/2 keyboard port
- One DB-15 VGA port
- One S terminal signal port for TV-OUT function
- One AV terminal signal port for TV-OUT function
- One infrared port for IrDA or ASKIR interface (Optional)
- One AC97 audio port
- One 10/100 Mbps Ethernet RJ-45 port

Green Support

- Suspend to RAM Function
- APM (v1.2) and ACPI (v1.0) Compliant Power Management
- IDE and Display Power Down Function

Extend Feature Support

- Hardware monitor to Fan Speed, Voltage and Thermal
- System power on by PS/2 Keyboard and Mouse
- Modem Ring-On and Wake On LAN Function

Power

- Harris HIP6021 PWM Power Controller
- Flex ATX Power Supply Configuration

BIOS Support

- Award Medallion Flash BIOS
- Plug and Play, DMI and DPMS Function
- Smart BIOS ROM Protect Function

Compliances

- DOC Compliant
- CE Certification

Form Factor

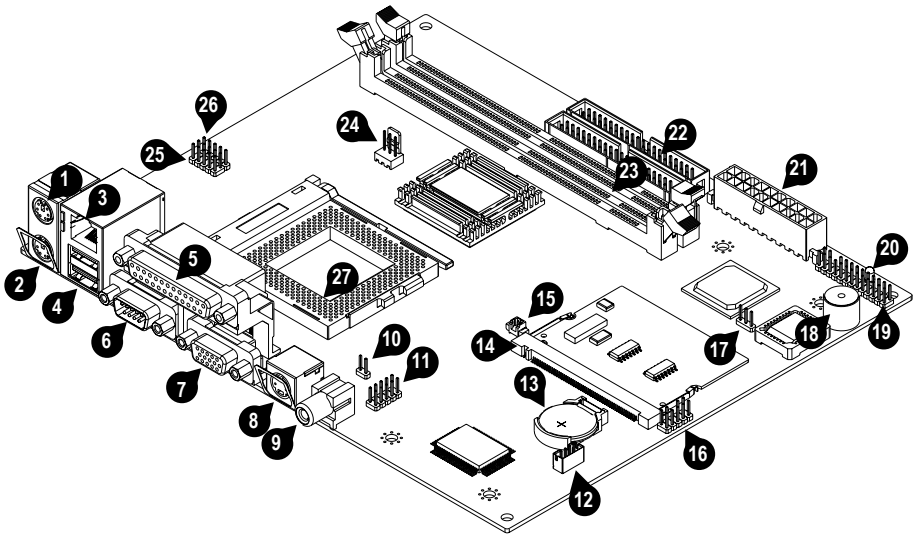
- Flex ATX (228 x 190 x 1.6mm)
- 4 Layer PCB Design

Environment

- Operating Temperature : 0 ~ 50°C
- Operating Humidity : 10 ~ 80%
- Vibration : 0 ~ 500Hz

4. Layout Guide

Use the following illustration and key to identify the components on your motherboard.



- 1 K/B & MS PS/2 Mouse Port
- 2 K/B & MS PS/2 Keyboard Port
- 3 USB1 & LAN RJ-45 LAN Port
- 4 USB1 & LAN Two USB Ports
- 5 LPT1 Parallel Port
- 6 COM1 Serial Port
- 7 VGA1 VGA Display Port
- 8 J21 S_Terminal TV S Signal Out Port
- 9 J20 AV_Terminal TV AV Signal Out Port
- 10 JP4 TV System Format Header

4. Layout Guide

11	J11	IrDA Infrared Header (Optional)
12	J6	CD_IN Header
13	BAT1	Lithium CR2032 Battery
14	U2	Mini PCI Socket
15	J14	Phone Connector
16	J13	Audio Header
17	JP1	CMOS Memory Clear Header
18	BZ1	Buzzer
19	FSP1	Front Panel I/O Header
20	PWR LED	Power LED
21	ATX1	Flex ATX Power Connector
22	IDE1,2	IDE Device Port
23	DIMM1,2	DIMM Socket
24	CPU FAN	CPU Fan Connector
25	USB3	Auxiliary USB Header (Single Port)
26	USB2	Auxiliary USB Header (Dual Port)
27	PGA370	PPGA370 CPU Socket

5. Hardware Installation

5.1 Before You Begin

The M81E/M81DC2/M812-FX series motherboard is designed to fit into a special Flex ATX form factor chassis. The pattern of the mounting holes and the position of back panel I/O ports is designed with a special Flex ATX specification. The chassis may come with various mounting fasteners which are made of metal or plastic. It is highly recommended to use as many metal fasteners as possible to mount the motherboard in the chassis for better grounding.

5.2 Caution Static Electricity

Before removing the motherboard from its anti-static bag, you need to eliminate any static electricity that may be accumulated on your body by touching a grounded or anti-static surface. If noting is available, touch the housing of power supply which is plugged into the AC outlet.

After removing the motherboard from its anti-static bag, place it only on a grounded or anti-static surface, component side up. Inspect the motherboard and contact you retailer immediately if it is damaged.

5.3 Pre Installation Procedure

Before you install your motherboard into a chassis, its convenient to install the CPU, memory modules and set all the jumpers to correct settings. The examples and explain below shown the function and identify of the jumper setting to help you understand the circuits and enable or disable certain features or properties of the motherboard.

Step1: Jumper Settings Explain

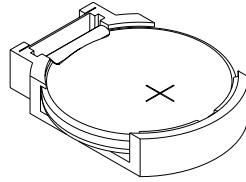
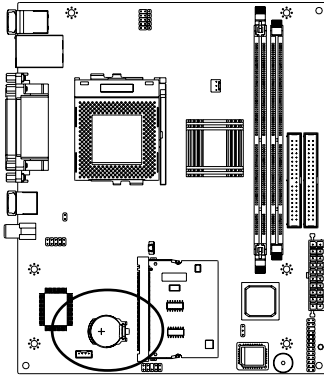
- **Battery “BAT1”**

- It is a coin-cell style Lithium CR2032 battery is used to provide power to the RTC and CMOS RAM for keep the data inviolate and effective. The RTC is a real time clock device, which provides the date and time to system. The CMOS RAM is used for keeping the information of system configuration, so the system can automatically boot O/S every time.
- The battery has a 3~5 years life if the system is not power up. When the system power up, the power for the RTC and CMOS RAM is supplied from the 3.3V power supply to extend the life of battery. The user can change a

5. Hardware Installation

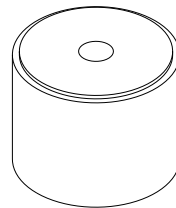
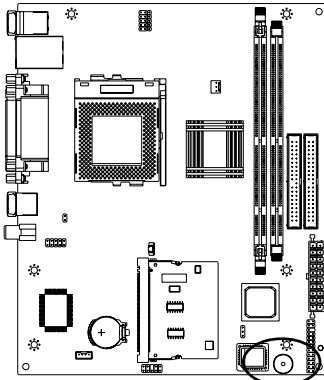
new battery to replace old one after it cannot work or BIOS does not keep its settings.

- Replace only with the same or equivalent type recommended by the manufacturer.



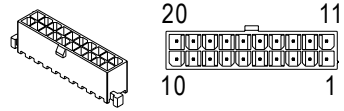
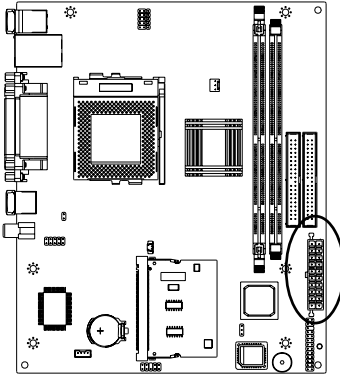
- **Buzzer “BZ1”**

- It is a 5 volts onboard buzzer. When system has any abnormally state that you will hear warnings through buzzer.



- **Power Connector “ATX1”**

It has a single lead connector with a clip on one side of the plastic housing. There is only one way to plug the lead into the power connector “ATX1”. Press the lead connector down until the clip snaps into place and secures the lead on to the connector.

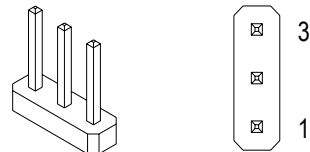
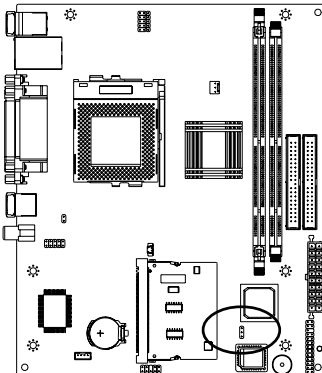


Assignment	Pin	Pin	Assignment
+3.3V	11	1	+3.3V
-12V	12	2	+3.3V
GND	13	3	GND
PW ON/OFF	14	4	+5V
GND	15	5	GND
GND	16	6	+5V
GND	17	7	GND
-5V	18	8	PW-GOOD
+5V	19	9	+5VSB
+5V	20	10	+12V

• CMOS Memory Clear Header “JP1”

It is a 3-Pin header that if your system can not boot-up because you forgot your password or the CMOS setting need to be reset to default values after the system BIOS has been updated. The following instructions can be performed to clear the CMOS and password.

- Turn off your system power, then place a jumper cap to short Pin 2-3 of JP1 for 3~5 seconds.
- Put the jumper cap back to Pin 1-2 of JP1.
- Turn on your system power then access BIOS setup, please refer to BIOS Configuration explain.

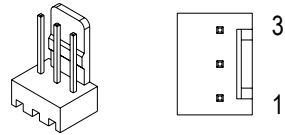
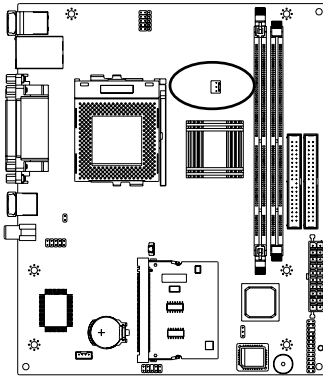


Jumper Cap	Function
Short Pin 1-2	Normal Operation
Short Pin 2-3	Clear CMOS

5. Hardware Installation

● CPU FAN Connector “J2”

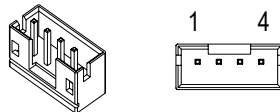
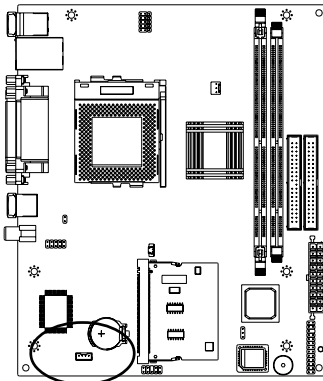
- This is a 3-Pin connector that support cooling fan of 12 VDC/0.5A or less, when the system goes into sleep state, fan should be shut down to eliminate audible noise and reduce power consumption. You can monitor the fan speed by way of W83627HF LPC I/O chip and the fan must come with a tachometer output.
- The CPU and motherboard will overheat if there is no air flow across the CPU and onboard heat sink. Damage may occur to the motherboard and the CPU fan if these pins are incorrectly used.



Pin	Assignment
1	GND
2	+12V
3	Speed/RPM

● CD-IN Header “J6”

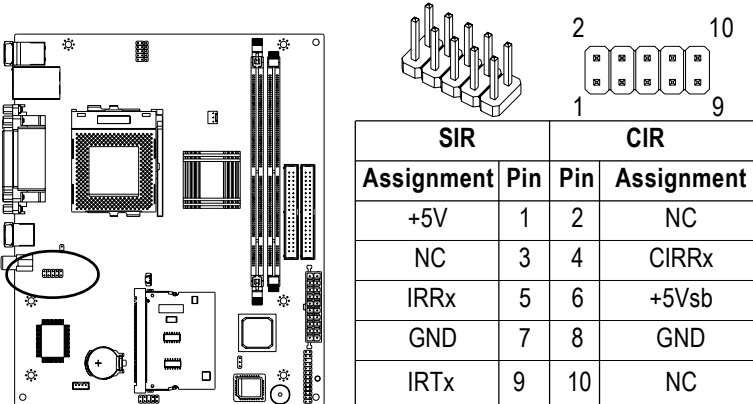
- J6 is a 4-Pin 2.0mm audio connector. Connect the cable from a slim type CD-ROM or DVD drive to J6.



Pin	Assignment
1	GND
2	CD-L
3	GND
4	CD-R

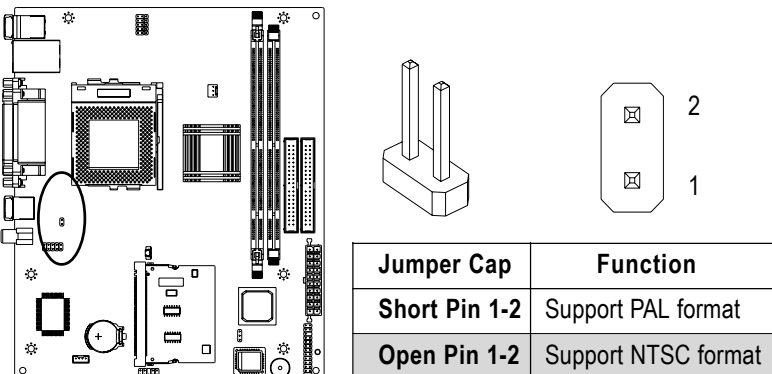
- **IrDA Infrared Header “J11” (Optional)**

- It is a 10-Pin Standard IR(SIR) and Consumer IR(CIR) headers. That support an optional wireless transmitting and receiving infrared module. This module mounts to a small opening on system case that support this feature.
- This is an optional item and it must be connected to the CIR and SIR header simultaneously for both wireless transmitting and remote control functions through one external infrared module.



- **TV System Format Header “JP4”**

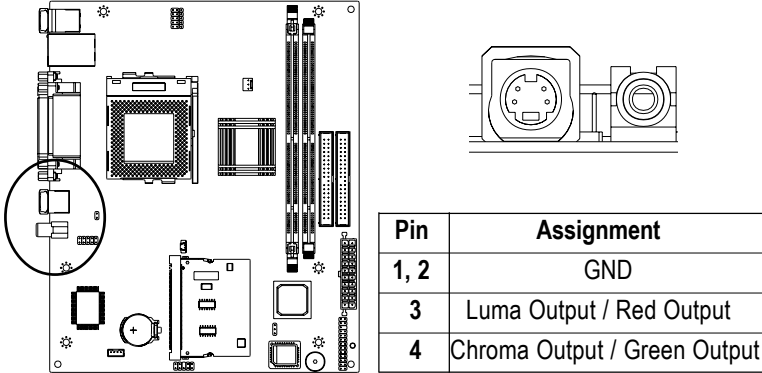
- This motherboard has a 2-Pin header for TV system format setting. It supports NTSC and PAL TV format.
- Use this jumper to setting the TV format that is integrated on this motherboard.
 - Place a jumper cap to short Pin 1-2 of JP4 that supported for PAL format.
 - Remove the jumper cap from Pin1-2 and put the jumper cap back to Pin-1 of JP4 that supported for NTSC format.



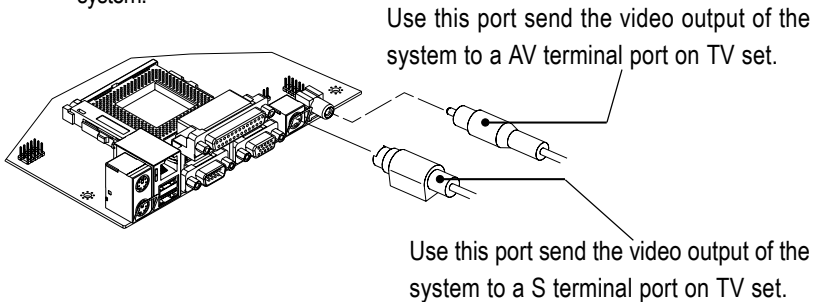
5. Hardware Installation

- **TV S and AV Signal Out Port “S_Terminal, AV_Terminal”**

- The motherboard can display on a regular TV set using either an S terminal or an AV terminal port for TV signal output by chrontel CH7008A video encoder, the chip provides dedicated to converting digital PC output to a TV format.



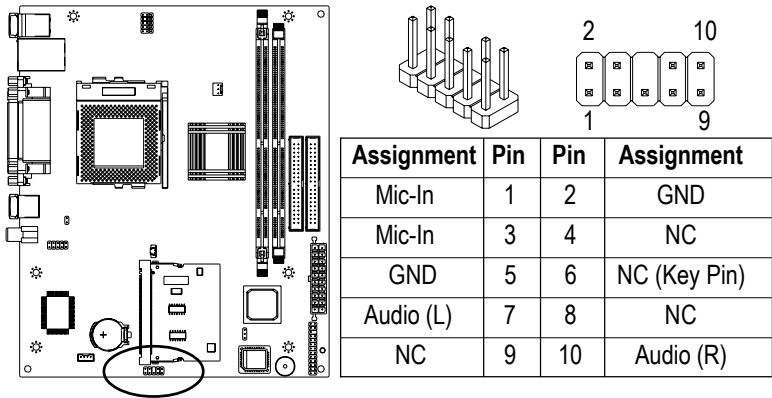
- Locate an available S terminal signal cable or AV terminal signal cable, select either cable to connect the TV-OUT signal from TV set to the rear panel of your system.



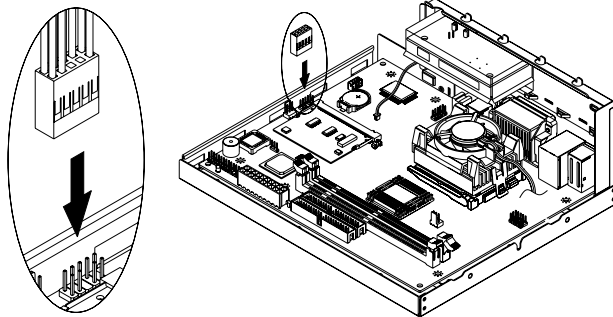
Note : Make sure that connect S or AV terminal signal cable from system to TV set, while you carrying out the TV-OUT function installation.

- **Audio Header “J13”**

- This motherboard has a built-in audio header on the board. Some system chassis have built-in audio port on the chassis that must be connected to a audio header J13 on the motherboard. If you have this kind of system chassis, connect the cable from the chassis-mounted audio port to the J13 header.

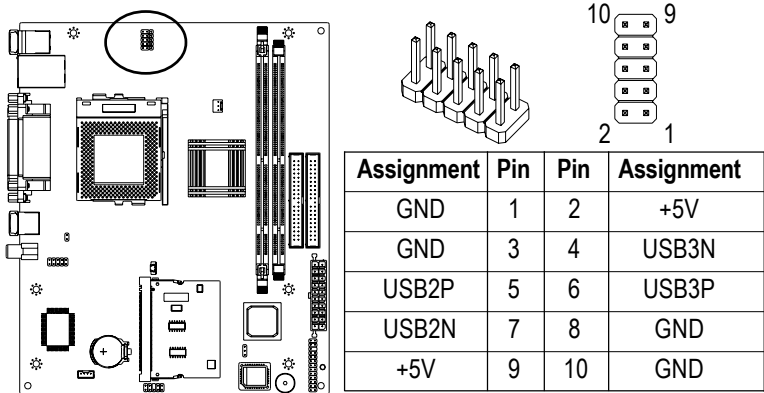


- Follow the steps mentioned below to install the audio cable :
 - On the motherboard, locate the audio header J13.
 - Then connect the cable from chassis-mounted audio port to the J13 header. (The connector has a key pin to prevent you connecting them wrong.)

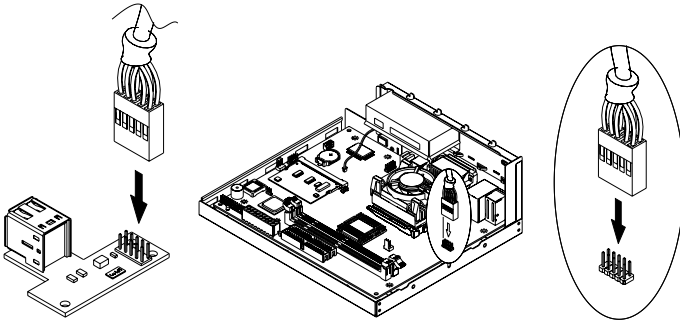


- **Auxiliary USB Header “USB2 J24, USB 3 J22”**
 - This motherboard has two built-in USB header on the board. Some system chassis have built-in USB port on the chassis that must be connected to a USB header J24 on the motherboard. If you have this kind of system chassis, connect the cable from the chassis-mounted USB port to the J24 header.

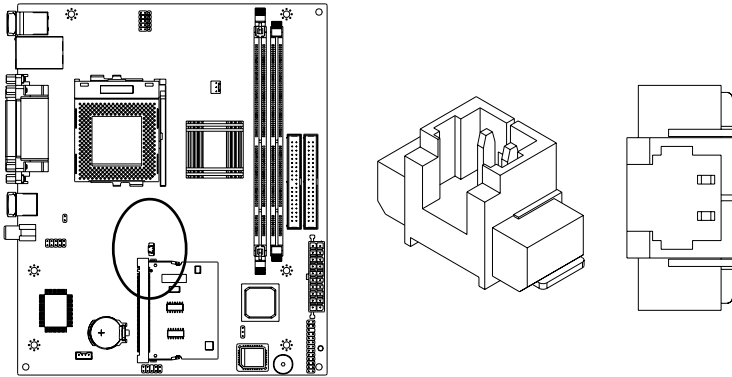
5. Hardware Installation



- Follow the step mentioned below to install the USB cable :
 - On the motherboard, locate the USB 2 header J24.
 - Then connect the cable from chassis-mounted USB port to the J24 header.

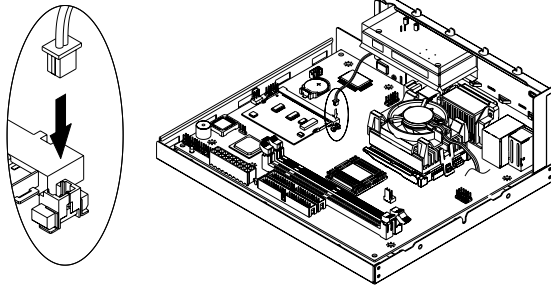


- **Phone Connector “J14”**
 - This motherboard has a built-in phone connector on the board. Some system chassis have built-in Phone port on the chassis that must be connected to a phone connector J14 on the motherboard. If you have this kind of system chassis, connect the cable from the chassis-mounted phone port to the J14 connector.



- Follow the step mentioned below to install the phone cable :
 - On the motherboard, locate the J14 connector.
 - Then connect the cable from chassis-mounted phone port to the J14 connector.

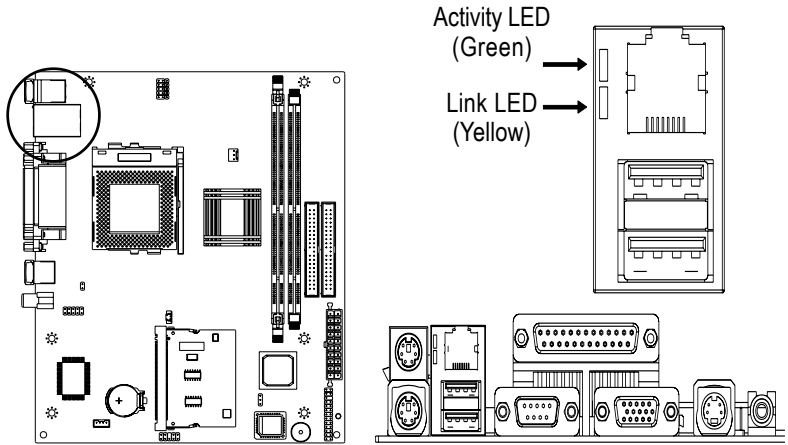
Note : If you has a Mini PCI modem card installed in the motherboard, you must be plug the cable from the chassis-mounted phone port into J14 connector on the motherboard.



• **RJ-45 Port “USB1 & LAN”**

- It is a 8-Pin RJ-45 port for you to connect to either Ethernet 10Base-T or 100Base-TX network. The motherboard provides an RJ-45 port to connect Twisted Pair Ethernet(TPE) cable to Hub, orient the connector so the key is aligned with the port, then push the connector into port until you hear a click voice.
- The RJ-45 port has two LED indicators which indicate the presence of station Link and Activity status for installation verification and diagnostic purpose.

5. Hardware Installation



- Link LED (Yellow):** The Link LED is located on the left part of the port. It is associated with the RJ-45 phone jack to indicate whether the twisted pair link connected. When there is no coming network data packet on the jack, the jack will start to detect periodical link-integrity pulses which should be sent by the device connected at the other end of the link, on the received pair of the twisted-pair cable. If link-integrity pulse is not detected, there is a link failure and the Link LED will be turned off and the transmit and receive functions of the jack will also be disabled. Table shows all the status of the Link LED, it is useful as a troubleshooting aid. Match the activity of LED on the port with one of the status indicated in the table.

State	Description
On	<ul style="list-style-type: none"> Normal data packet are received or link-integrity pulse is detected.
Off	<ul style="list-style-type: none"> When no twisted-pair connected. When link test is disabled. No power source into Hub. Twisted-pair is faulty. Non 10Base-T or non 100Base-TX device connected at the other end of the twisted-pair. A twisted-pair wire exceeds the recommended length (Maximum length is 100 meters).

- **Activity LED(Green):** The activity LED is located on the left part of the port. It indicates the activity(transmit data) status of the system. The LED should be blinking when the data packet being transmitted from the cable. Table shows status of the activity LED.

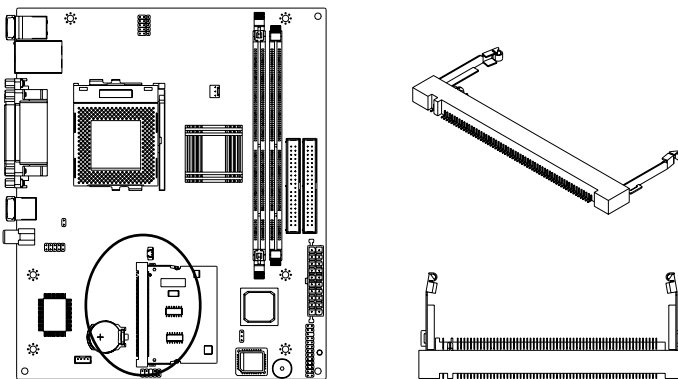
State	Description
Blink	<ul style="list-style-type: none"> ● Data packet being transmitted
Off	<ul style="list-style-type: none"> ● Power off ● No data package transmitted

- **Mini PCI Socket “U2”**

- The Mini PCI is a standard for integrated peripherals, with emphasis on communications. Mini PCI defines a small card that is functionally equivalent to a standard PCI expansion card. It was developed specifically for integrated communications peripherals such as modems and network interface card (NICs). The Mini PCI card maintains the essential electronics, functionality. PC signals and software drivers of standard PCI expansion cards.

The motherboard build a Mini PCI of Type III is designed to provide the smallest form factor.

- It allows for smaller size and placement flexibility, particularly in terms of height or thickness of the integrated peripheral. You can use the Mini PCI socket to install modem interface card that add new feature to your system.

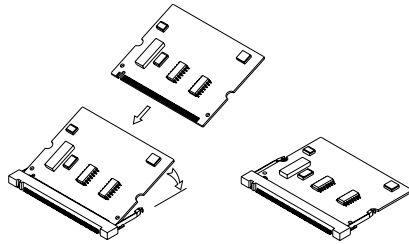


- Follow the steps mentioned below to install the Mini PCI modem card:
 - Locate Mini PCI socket U2 on the motherboard.
 - Align the Mini PCI modem interface card correctly. The edge connector

5. Hardware Installation

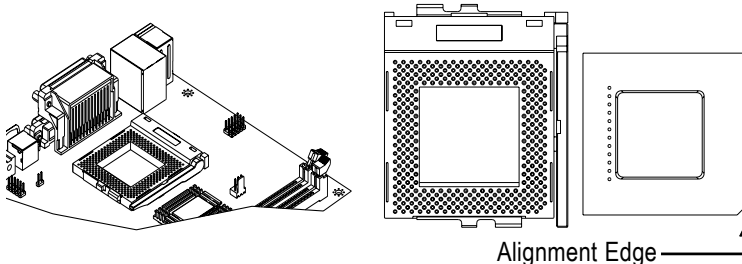
of the interface card has notches that match obstructions in the Mini PCI socket. You must match the notches with the obstructions in order to install the interface card.

- Insert the interface card at a 25 degree angle then snap the interface card into place as shown in the illustration.

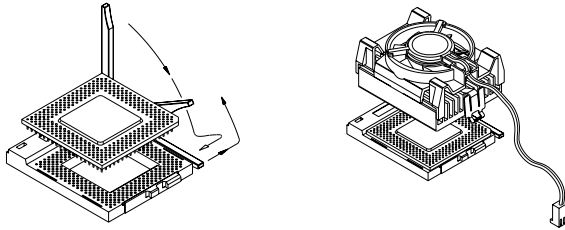


Step2: Install the PPGA370 Processor

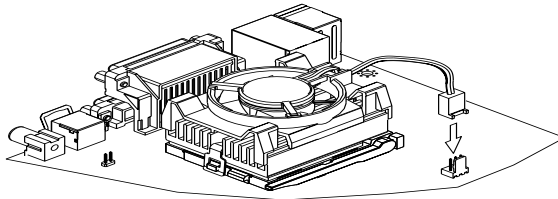
- The M81E/M81DC2/M812-FX series motherboard supports a wide range of Intel PPGA370 processor include the Celeron and the Coppermine (FC-PGA). It operate over 66/100/133MHz FSB.
- This motherboard provides a PGA370 socket (370-Pin Zero Insertion Force ZIF socket) which a FC-PGA (Flip Chip Pin Grid Array) or PPGA (Plastic Pin Grid Array) package plugs into.
 - FC-PGA : The package technology used on Coppermine -256K processors for the PGA370 socket.
 - PPGA : The package technology used for Intel Celeron-128K processors which utilize the PGA370 socket.
- Follow the steps mentioned below to install the PPGA370 processor :
 - On the motherboard, locate Pin-1 on the processor and PGA370 socket, then open the locking lever for processor.



- Orient the processor and insert vertically on to the socket until the processor clip into place.
- Turn the swivel to locking position and hook it under the latch on the side of the socket to lock it in place.
- Orient the cooling fan and heat sink then insert firmly.



- Locate the power connector J2 for the processor cooling fan, then connect the cable from cooling fan to J2.

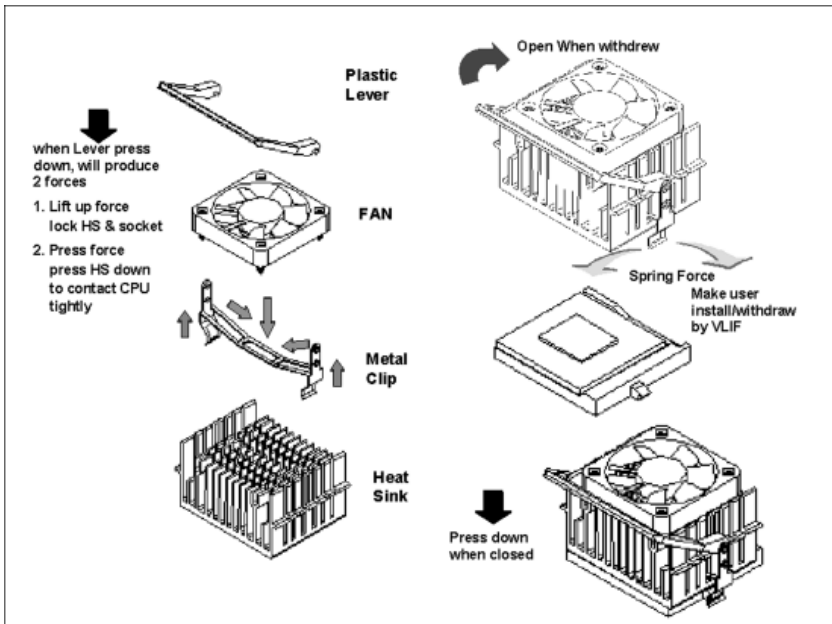


Warning : Processors require a heat sink with a cooling fan. Failure to provide adequate cooling of the processor may seriously affect system performance or cause permanent damage to the processor.

Note : VLIF Clip Designing Principle for FC-PGA processor.

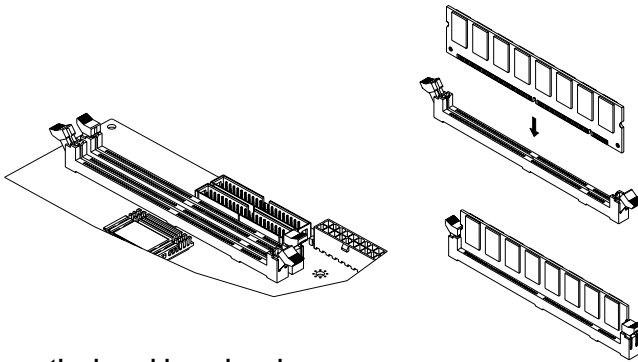
- Max press force onto FC-PGA dies will not allow larger than 200lbs.
- Same experience as OLGA dies, if the press force can controlled and full strength on contact surface at the same time will make FC-PGA dies more safety.
- Very low insertion force will let user easy install and withdraw without any tool.
- Follow the steps mentioned below to install the FC-PGA processor :

5. Hardware Installation



Step3: Install the SDRAM Modules

- The motherboard has two DIMM (Dual In-line Memory Module) sockets which support SDRAM modules installed with 3.3V, unbuffered, PC-100 (100MHz) SDRAM memory chips. Each memory module can support a maximum capacity of 128MB so total maximum memory is 256MB.
- Follow the steps mentioned below to install the SDRAM module :
 - On the motherboard, locate DIMM sockets.
 - Pull the locking latches of the DIMM sockets outwards.
 - Align the memory module correctly. The edge connector of the memory module has notches that match obstructions in the DIMM socket. You must match the notches with the obstructions in order to install the module.
 - Press the edge connector of the memory module into the DIMM socket. Press down quite firmly so that the locking latches of the DIMM socket are levered upwards to secure the memory module in place.
 - Repeat the process with any other memory modules that you want to install.



5.4 Install the motherboard in a chassis

After you have prepared the motherboard by installing a processor, one or more memory modules and have set the jumpers correctly, install the motherboard into a chassis and begin connecting essential peripheral items to the connectors on the motherboard.

Follow the instructions given with the chassis to install the motherboard into the mounting brackets inside the chassis. The motherboard has several holes drilled through it and you should be able to drive a screw through some of these holes into the mounting brackets in the chassis. Don't overtighten the screws as this can stress the motherboard.

Note: Make sure that the power supply unit in the chassis is not connected to a power outlet while you are carrying out the installation procedure.

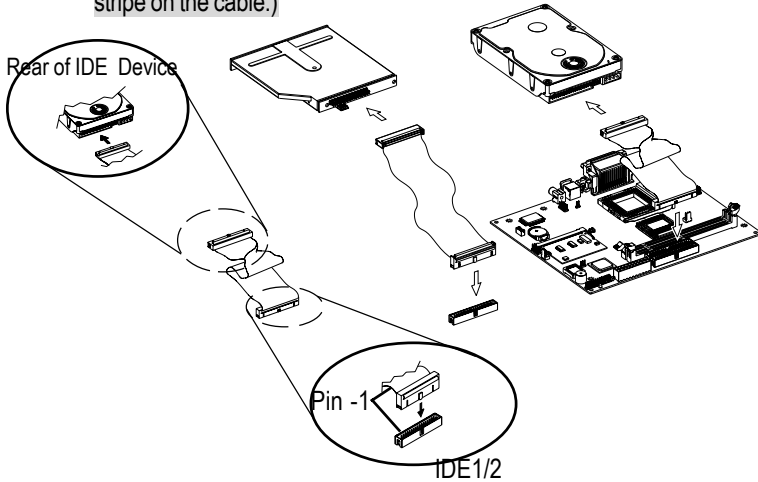
We will begin the installation of the motherboard. Please follow the procedure step by step which designed to guide you to a complete and correct installation.

Step1: Install the IDE Device

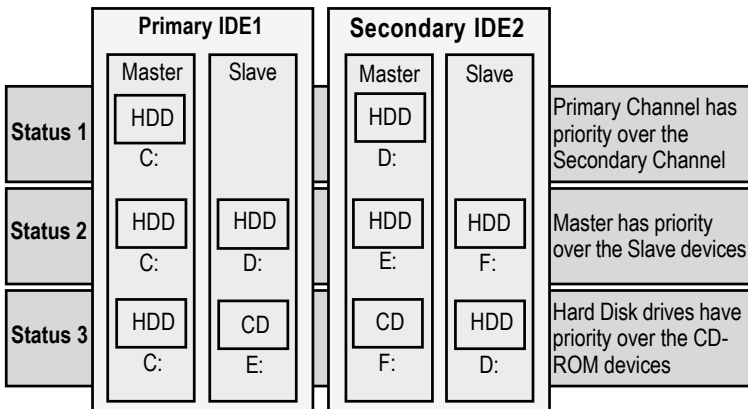
- The motherboard has two IDE channel ports, the Primary IDE channel and Secondary IDE channel. Each IDE channel can support two IDE devices. IDE devices include hard disk drives, and slim type CD-ROM drives. Typically, most people install one IDE hard disk drive and one IDE slim type CD-ROM drive so this motherboard ships with one IDE cable. You can easily obtain a second IDE cable if you want to install more than two IDE devices.
- Follow the steps mentioned below to install the IDE device :
 - Locate the IDE1 and IDE2 box header on the motherboard.
 - IDE1-Connect one end of the 40-Pin ribbon cable that comes with the drive to the HDD header, and the other end of the cable to the IDE1 box header on the motherboard.

5. Hardware Installation

- IDE2-Connect one end of the 40-Pin ribbon cable that comes with the drive to the slim type CD-ROM header, and the other end of the cable to the IDE2 box header on the motherboard. (Note : Each header has the Pin-1 side clearly marked. The Pin-1 side of the each ribbon cable is always marked with a red stripe on the cable.)



- The primary channel has priority to the secondary channel. Within each channel, the two different devices are distinguished by master and slave relationship. The master device has priority over the slave device. (Refer to illustration on the below)

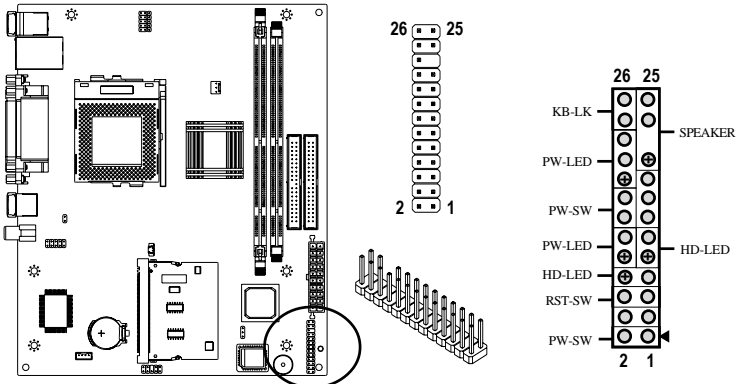


Note : In order to achieve higher data transfer rate, you must be use an 80-Pin ribbon cable is designed with a 40-Pin connector for IDE Ultra DMA66 devices.

Step2: Front Panel I/O Connections

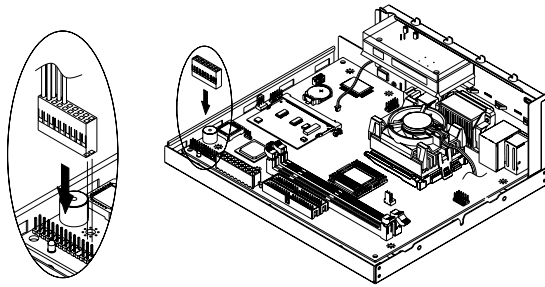
This motherboard connects to the front panel I/O are located on jumper block FSP1. Follow the instruction carefully for proper connections to your front panel display and control. This section explains how to connect these components.

- **PW-SW** : It is a 2-Pin header connects to the chassis-mounted power button.
- **RST-SW** : It is a 2-Pin header connects to the chassis-mounted reset switch and is used to reboot the system.
- **HD-LED** : It is a 2-Pin header connects to the chassis-mounted HDD LED to indicate HDD activity.
- **SPEAKER** : It is a 4-Pin header connects to the chassis-mounted speaker. When system has any abnormally state that you will hear warnings through speaker.(If you have a speaker on the chassis that we recommend not to use them because it will have buzzer noise when the system is booted.)
- **PW-LED** : It is a 3-Pin header connects to the chassis-mounted power LED to indicate onboard power state.
- **KB-LK** : It is a 2-Pin header connects to the chassis-mounted key lock switch that is used to lock the keyboard for security purpose.



- Follow the step mentioned below to install the FSP1 header:
 - Locate FSP1 header on the motherboard.
 - Then connect the cable from chassis-mounted front panel I/O into FSP1 header on the motherboard.

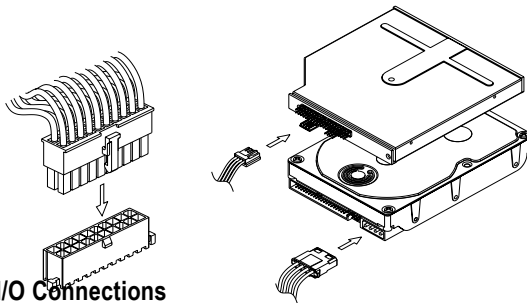
5. Hardware Installation



Step3: ATX1 / HDD / CD-ROM Power Connection

- Connect ATXPWR of the power supply unit to the ATX1 connector on the motherboard.
- Connect HDDPWR of the power supply unit to the power connector on the HDD device.
- Connect FDDPWR of the power supply unit to the power connector of the slim type CD-ROM device.

Note : Incorrect installation of the power supply could result in serious damage to the motherboard and connected peripherals. Make sure the power supply is unplugged from the AC outlet before connecting the leads from the power supply.

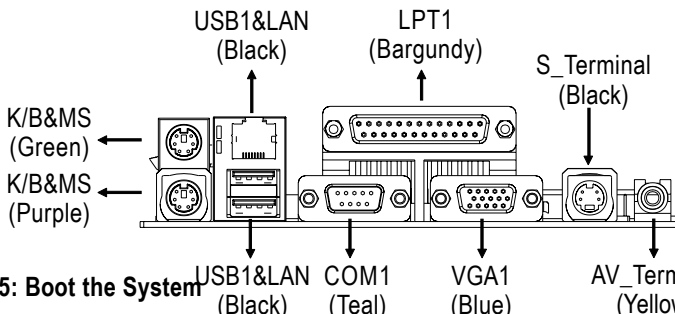


Step4: Back I/O Connections

The back I/O panel provides external access to PS/2 style Keyboard and Mouse Port, a Serial Ports, a VGA Port, two USB Ports, a Parallel Port, a RJ-45 Port, a S_Terminal Port and a AV_Terminal Port, which are integrated on the motherboard for PC99 compliant. Follow the instruction carefully for properly connection I/O peripherals to your system.

- **K/B & MS** is a stack of the two PS/2 mini DIN ports.

- K/B & MS (Green 6-Pin Mouse Port) can be used by a PS/2 Mouse or pointing device.
- K/B & MS (Purple 6-Pin Keyboard Port) can be used by a PS/2 Keyboard.
- **USB1 & LAN** (Black 8-Pin LAN Port) allows you to connect to a Local Area Network(LAN) through a network hub.
- **USB1 & LAN** (Black two 4-Pin USB Ports) is available for connecting USB devices.
- **LPT1** (Burgundy 25-Pin Parallel Port) can be used by printers or other parallel communication devices.
- **COM1** (Teal/Turquoise 9-Pin Serial Port) is ready for a mouse or other serial devices.
- **VGA1** (Blue 15-Pin VGA Display Port) is for output to a VGA compatible devices.
- **S_Terminal** (Black 4-Pin S Signal Out Port) can be used this port send the video output of the system to a S terminal port on TV set.
- **AV_Terminal** (Yellow 2-Pin AV Signal Out Port) can be used this port send the video output of the system to a AV terminal port on TV set.

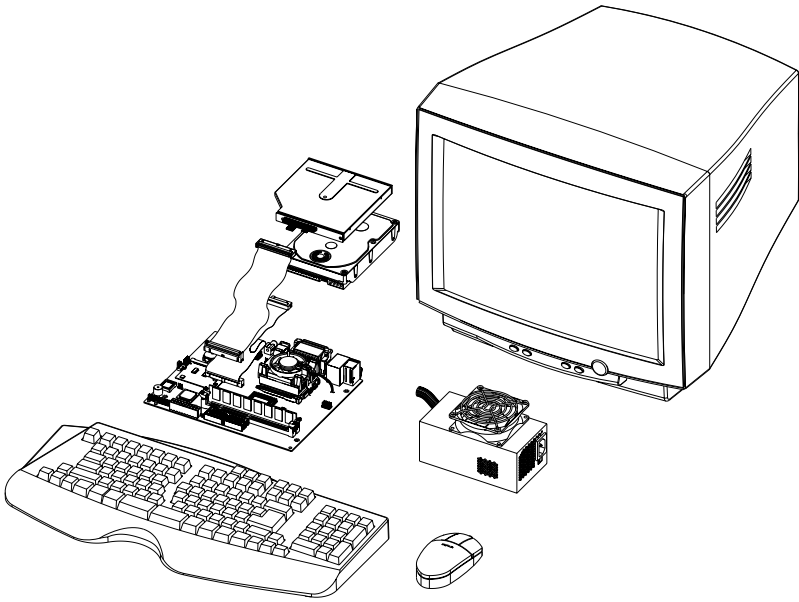


Step5: Boot the System

This chapter is a step by step guide that explains how to use your M81E/M81DC2/ M812-FX series motherboard to build a powerful system. At a minimum, you will need the following components in order to build a fully function system.

- After hardware configuration of motherboard is completed and system hardware has been assembled. Refer to combination as follows.
- You are now ready to boot the system for the first time. Please continue to the next section to configure your BIOS (Basic Input Output System) setting. It must be configured after booting.

5. Hardware Installation

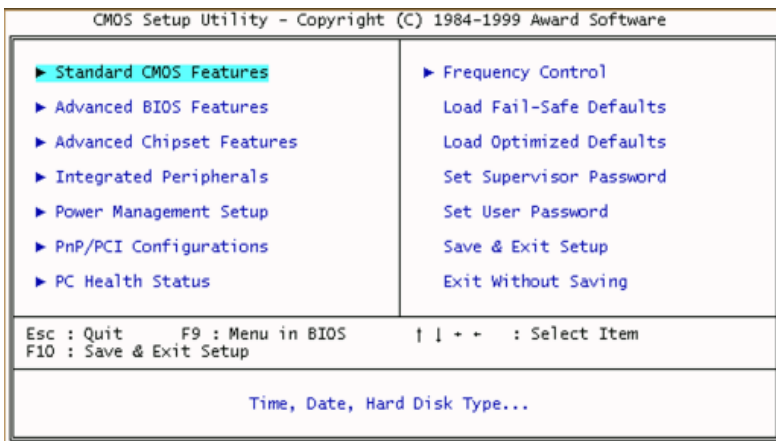


6. BIOS Configuration

The motherboard provides a 4MB, 3.3V, 32-Pin PLCC package Firmware Hub chips that can be updated using provided BIOS Utility. The Setup Utility stores data about motherboard components and the configuration of devices that are connected to it. The information is used to test and initialize components at start up time and to make sure everything runs properly when the system is operating. The Utility provide you the opportunity whenever you need to install your motherboard, change its default value for better performance or reconfigure your system when new components or device are used. We will suggest updating your BIOS if you have problems with your motherboard and you know that the new BIOS revision will solve your problems. Unnecessary updating may result more problems for your motherboard.

When you start up the system, the system provides the opportunity to run this program. This appears during the Power On Self Test (POST), press <DELETE> key to call up "Setup Utility". If you are a little bit late pressing the mentioned key(s), POST will continue with its test routines. If you still need to call setup, restart the system by pressing <Ctrl> + <Alt> + <Delete> keys, or press the reset button on your chassis.

You can also restart by turning system off and then back on again. But do it only first 2 way fail. The below table, CMOS Setup Utility will appear on screen after call up.



Note : If you are not sure how to configure the setup utility, we suggest that you select auto configuration with Optimal Settings on the CMOS Setup Utility screen, then exit saving changes. This load optimized default settings for normal use.

6. BIOS Configuration

At the bottom of the setup screen you will notice a legend bar. The keys in the legend bar allow you to navigate through the various setup menus. The following table lists shown you the keys found in the legend bar with their corresponding alternates and functions.

Navigation Key(s)	Function Description
<F1>	Displays the General Help screen from anywhere in the BIOS setup.
<Esc>	Jumps to the EXIT menu or returns to the main menu from a sub-menu
← or → (Keypad arrow)	Selects the menu item to the left or right
↑ or ↓ (Keypad arrow)	Moves the highlight up or down between fields
- (Minus key)	Scrolls backward through the values for the highlighted field
+ (Plus key)	Scrolls forward through the values for the highlighted field
<Enter>	Brings up a selection menu for the highlighted field
<Home> or <PgUp>	Moves the cursor to the first field
<End> or <PgDn>	Moves the cursor to the last field
<F5>	Load previous values from CMOS
<F6>	Load the fail-safe defaults from BIOS default table
<F7>	Load the optimized defaults
<F10>	Save all the CMOS changes and exit

When you start setup, the main menu appears. The main menu of the setup Utility shows a list of the options that are available. A highlight shows which option is currently selected. You can use the cursor arrow <↑><↓><←><→> keys to move the highlight to other options. When an option is highlighted, you can execute the option by pressing the <Enter> key. Some option lead to tables of items that usually have a value on the right side. The value of the first item is highlighted, and you can use the cursor arrow keys to select any of the other values in the table of items. When an item is highlighted, you can change the value by pressing the <PgUp> <PgDn> or <-> <+> keys. The <PgUp> and <+> keys cycle forward through the available values the <PgDn> and <-> keys cycle backward through the available values.

When you are in an option that displays a table of items, you can return to the main menu by pressing the <Esc> key. For some items, you can display a general help screen by pressing the <F1> key. Press the <F5> key to discard any changes you have made and return all items to the value that they held when the setup Utility was started. Press the <F6> key to load the displayed item with a standard list of fail-safe value. Press the <F7> key to load the displayed items with a high performance list of default values.

6.1 Standard CMOS Features

Selecting “Standard CMOS Features” on the main program screen display this menu :

CMOS Setup Utility - Copyright (C) 1984-1999 Award Software		Item Help
Standard CMOS Features		
Date (mm:dd:yy)	Tue, Dec 28 1999	Menu Level > Change the day, month, year and century
Time (hh:mm:ss)	13 : 39 : 32	
▶ IDE Primary Master	Press Enter 3227 MB	
▶ IDE Primary Slave	Press Enter None	
▶ IDE Secondary Master	Press Enter 10263 MB	
▶ IDE Secondary Slave	Press Enter None	
Video	EGA/UGA	
Halt On	All,But Keyboard	
Base Memory	640K	
Extended Memory	65472K	
Total Memory	1024K	
↑↓←→:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

User configured fields appear in a different color. If you need information on selected field, press the <F1> key. The help menu will appear to provide you with the information you need. The memory display at the lower side of the screen is read-only and automatically adjusts accordingly.

6.1.1 Date and Time Setting

Date : To set the date, highlight the “Date” field and then press the <PgUp> / <PgDn> or <+> / <-> keys to set the current date. Follow the month, day and year format. Valid values for month, day and year are :

Month : **1 to 12**

Day : **1 to 31**

Year : up to **2079**

Time : To set the time, highlight the “Time” field and then press the <PgUp> / <PgDn> or <+> / <-> keys to set the current time. Follow the hour, minute and second format. Valid values for hour, minute and second are :

Hour : **00 to 23**

Minute : **00 to 59**

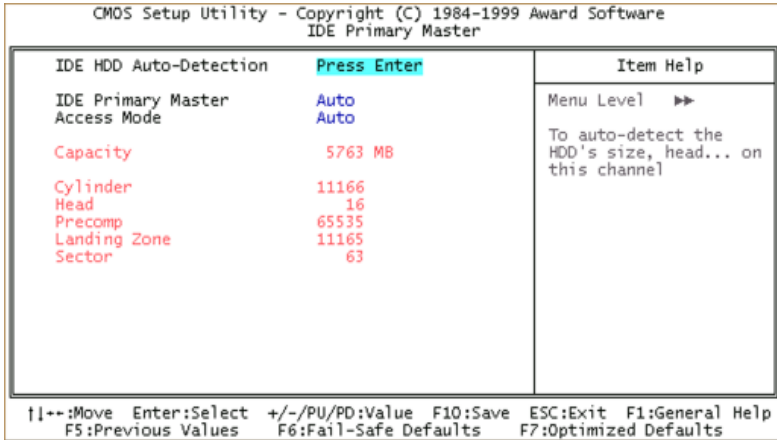
Second : **00 to 59**

You can by pass the date and time prompts by creating an AUTOEXE.BAT file. For information on how to create this file, please refer to a MS-DOS manual.

6. BIOS Configuration

6.1.2 IDE HDD Disks

Selecting “**IDE Primary Master**” on the Standard CMOS Features screen display this menu:



Press <Enter> key to automatically detect an IDE hard disk drive. If automatic detection is successful, the correct values will be filled in the remaining fields on this screen. Displayed up are explanation of the Maxtor Diamond 5.7GB HDD.

- If automatic detection fails, your hard disk drive may be to older too, now. You can try updating your BIOS or enter the correct parameters manually. Press the <PgUp> or <PgDn> key to [Manual] mode on the IDE Primary Master screen. Manually enter Access Mode, number of Cylinder, Head, Precomp, Landing Zone and Sector for your drive. Refer to your drive documentation or look on the drive for this information. If no drive is installed or you are removing a drive away, select [None] mode.
- The **Access Mode** entry is for IDE hard disks only, and can be ignored for MFM and ESDI drive. This entry provides four options : [Auto] [Normal] [LBA] [Large]. Set access mode to the [Normal] for IDE hard disk drive smaller than 528MB. Set it to [LBA] for drive over 528MB that support Logical Block Addressing (LBA) to allow large IDE hard disk drive. Set it to [Large] for drive over 528MB that do not support LBA. [Large] type of drive can only be used with MS-DOS and is very uncommon. Most IDE drive over 528MB support the [LBA] mode.

- After the IDE hard disk drive information has been entered into BIOS, new IDE hard disk drive must be partitioned (such as with FDISK.EXE), please refer to a MS-DOS manual and then formatted before data can be read from and write on Primary IDE hard disk drive must have its partition set to active (also possible with FDISK.EXE).

The available options for IDE HDD Auto-Detection are : [Press Enter].

The available options for IDE Primary Master are : [Auto] [Manual] [None].

The available options for Access Mode are : [Auto] [Normal] [LBA] [Large].

6.1.3 Video

This item set the Video mode of the system. This motherboard has a built-in VGA graphics circuit so you must leave this item at the default value.

- **[EGA/VGA]** : Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, SVGA, or PGA monitor adapters.
- **[CGA 40]** : Color Graphics Adapter, power up in 40 column mode.
- **[CGA 80]** : Color Graphics Adapter, power up in 80 column mode.
- **[MONO]** : Monochrome adapter, includes high resolution monochrome adapters.

The available options for Video are : [EGA/VGA] [CGA 40] [CGA 80] [MONO].

6.1.4 Halt On

This item set whether the system will stop If an error is detected during POST (Power On Self Test) routine.

- **[All, But Keyboard]** : The system boot will not stop for a keyboard error; it will stop for all other errors.
- **[All, But Diskette]** : The system boot will not stop for a disk error; it will stop for all other errors.
- **[All, But Disk/Key]** : The system boot will not stop for a keyboard or disk error; it will stop for all other errors.
- **[All Errors]** : Whenever the BIOS detects a non-fatal error the system will be stopped.
- **[No Errors]** : The system boot will not stop for any error that may be detected and you will be prompted.

6. BIOS Configuration

The available options for Halt On are : [All, But Keyboard] [All, But Disk/Key] [All Errors] [No Errors].

6.1.5 Base Memory, Extended Memory, Total Memory

These item are display-only which is determine by POST of the BIOS.

- **[Base Memory]** : Display the amount of conventional memory detected during boot up.
- **[Extended Memory]** : Display the amount of extended memory detected during boot up.
- **[Total Memory]** : Display the total memory available in the system.

After you have made your selection(s) in the Standard CMOS Features, press the <Esc> key to go back to main program screen.

6.2 Advanced BIOS Features

Selecting “Advanced BIOS Features” on the main program screen display this menu :

CMOS Setup Utility - Copyright (C) 1984-1999 Award Software		Item Help
Advanced BIOS Features		
Virus Warning	Disabled	Menu Level > Allows you to choose the VIRUS warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep
CPU Internal Cache	Enabled	
External Cache	Enabled	
CPU L2 Cache ECC Checking	Enabled	
Processor Number Feature	Disabled	
Quick Power On Self Test	Enabled	
First Boot Device	HDD-0	
Second Boot Device	LS/ZIP	
Third Boot Device	CDROM	
Boot Other Device	Enabled	
Boot Up NumLock Status	On	
Typeomatic Rate Setting	Disabled	
x Typeomatic Rate (Chars/Sec)	6	
x Typeomatic Delay (Msec)	250	
Security Option	Setup	
OS Select For DRAM > 64MB	Non-OS2	
Report No FDD For WIN OS	Yes	
↑↓←→:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help		
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

This feature allows you to set the various system options of your choice, including virus warning, external cache, security option and boot operations. To access the Advanced BIOS Features screen, highlight this option on the main menu screen and press <Enter> key.

6.2.1 Virus Warning

If this item is enabled, it provides some protection which try to write to the boot sector and partition table of your hard disk drive. We recommend that you enabled virus warning as soon as you have installed your disk with an OS. When enabled a warning message is displayed and a beep sound is produced whenever an attempt is made to write on the hard disk's boot sector.

The available options for Virus Warning are : [Disabled] [Enabled].

6.2.2 CPU Internal Cache/External Cache

These item enabled or disabled the cache of your system. The cache feature enhances system performance because the most frequently used data is accessed from and written to the high-speed cache memory.

The available options for CPU Internal Cache and External Cache are : [Enabled] [Disabled].

6. BIOS Configuration

6.2.3 CPU L2 Cache ECC Checking

When this item is enabled, it allows the system to carry out cache memory error checking if the cache memory chips support ECC (Error Checking and Correction).

The available options for CPU L2 Cache ECC Checking are : [Enabled] [Disabled].

6.2.4 Processor Number Feature

The Pentium III processors are installed with a unique processor identification number. If you Disabled this item, the number will be suppressed so that it cannot be read by other systems on the network.

The available options for Processor Number Feature are : [Disabled] [Enabled].

Note : You can ignore this item while you unused Pentium III processor on the system.

6.2.5 Quick Power On Self Test

This will skip some diagnostic checks during the Power On Self Test (POST) to speed up the booting process.

The available options for Quick Power On Self Test are : [Enabled] [Disabled].

6.2.6 First/Second/Third Boot Device

These items to setting the priority and sequence the devices that your system will search for an operating device during bootup.

The available options for First/Second/Third Boot Device are : [HDD-0] [SCSI] [CDROM] [HDD-1] [HDD-2] [HDD-3] [LAN] [Disabled] [LS/ZIP].

6.2.7 Boot Other Device

If you enable this item, the system will search all other possible locations for an operating device it fails to find one in the devices specified under First, Second and Third Boot Devices.

The available options for Boot Other Device are : [Enabled] [Disabled].

6.2.8 Boot Up NumLock Status

This item defines if the keyboard <NumLock> key is active when your system is bootup.

The available options for Boot Up NumLock Status are : [On] [Off].

6.2.9 Typematic Rate Setting

Typematic Rate (Chars/Sec)

Typematic Delay (Msce)

This setting allows you to select which key strokes repeat at a rate determined by the keyboard controller. When Enabled, the typematic rate and typematic delay can be selected. You can use Typematic Rate (Chars/Sec) to define how many characters per second are generated by a held-down key. And use Typematic Delay (Msec) to define how many milliseconds must elapse before a held-down key begins generating repeat characters.

The available options for Typematic Rate Setting are : [Disabled] [Enabled].

The available options for Typematic Rate (Chars/Sec) are : [6] [8] [10] [12] [15] [20] [24] [30].

The available options for Typematic Delay (Msec) are : [250] [500] [750] [1000].

6.2.10 Security Option

This item allows you to limit access to the system and setup, or just to setup.

- **[Setup]** : The system will boot, but access to setup will be denied if the correct password is not entered at the prompt.
- **[System]** : The system can not boot and can not access to setup page will be denied if the correct password not entered at the prompt.

Note : Security takes effect only if a password is set. (See set Supervisor/User Password in this chapter.)

The available options for Security Option are : [Setup] [System].

6.2.11 OS Select For DRAM > 64MB

This item is only required if you have installed more than 64MB of memory and running the OS/2 operating system. Otherwise, leave this item at the default [Non-OS2].

The available options for OS Select For DRAM > 64MB are : [Non-OS2] [OS2].

6.2.12 Report No FDD For WIN OS

This setting controls whether report no FDD for WIN OS or not.

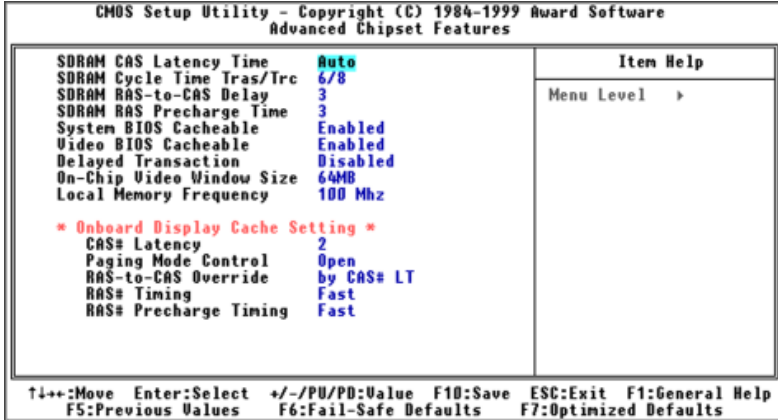
The available options for Report No FDD For WIN OS are : [Yes] [No].

After you have made your selection(s) in the Advanced BIOS Features, press the <Esc> key to go back to the main program screen.

6. BIOS Configuration

6.3 Advanced Chipset Features

Selecting “Advanced Chipset Features” on the main program screen display this menu :



To access the Advanced Chipset Features screen that define critical timing parameters of the motherboard components. Generally, you should leave the item on this feature at their default values unless you are very familiar with the technical specification of your system hardware. If you change the values incorrectly you may introduce fatal and instability into your system. Highlight this option on the main menu screen and press <Enter> key.

6.3.1 SDRAM CAS Latency Time

SDRAM RAS-to-CAS Delay

SDRAM RAS Precharge Time

These items set the timing of the Column Address Strobe and Row Address Strobe for SDRAM. We recommend that you leave these items at the default. Slower rate [3] may be required for slower SDRAMs or more than 2 banks of SDRAM DIMMs are installed.

The available options for SDRAM CAS Latency Time are : [Auto] [2] [3].

The available options for SDRAM RAS-to-CAS Delay and SDRAM RAS Precharge Time are : [3] [2].

6.3.2 SDRAM Cycle Time Tras/Trc

This setting controls the number of SDRAM clock used per access cycle.

The available options for SDRAM Cycle Time Tras/Trc are : [6/8] [5/7].

6.3.3 System BIOS Cacheable

Video BIOS Cacheable

These items allow the System BIOS and Video BIOS to be cached in memory for faster performance. We recommend that you leave these item at the default values. The available options for System and Video BIOS Cacheable are : [Enabled] [Disabled].

6.3.4 Delayed Transaction

The chipset has an embedded 32-bit write buffer to support delay transactions cycles.

The available options for Delayed Transaction are : [Disabled] [Enabled].

6.3.5 On-Chip Video Window size

This option determines the effective size of the AGP graphic aperture, which memory-mapped graphic data structures can reside in.

The available options for On-Chip Video Windows Size are : [64MB] [32MB] [Disabled].

6.3.6 Local Memory Frequency

This item is used to set the onboard display cache memory frequency for intel i810E chipset.

The available options for Local Memory Frequency are : [100MHz] [133MHz].

6.3.7 Onboard Display Cache Setting

CAS# Latency

Paging Mode Control

RAS-to-CAS Override

RAS# Timing

RAS# Precharge Timing

These items under this Onboard Display Cache Setting are used to set the parameters for display cache memory which may be optionally installed on the motherboard, we recommend that you leave these items at the default setting.

The available options for CAS# Latency are : [2] [3].

The available options for Paging Mode Control are : [Open] [Close].

The available options for RAS-to -CAS Override are : [by CAS# LT] [Override (2)].

The available options for RAS# Timing are : [Fast] [Slow].

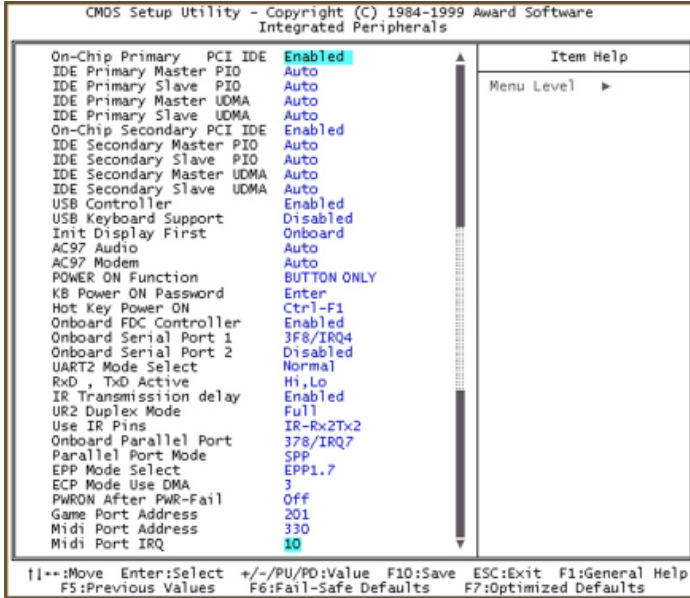
The available options for RAS# Precharge are : [Fast] [Slow].

After you have made your selection(s) in the Advanced Chipset Features, press the <Esc> key to go back to the main program screen.

6. BIOS Configuration

6.4 Integrated Peripherals

Selecting “Integrated Peripherals” on the main program screen display this menu :



This option displays a list of items which defines the operation of some. Peripheral items on the systems input/output ports. To access the Integrated Peripherals screen, highlight this option on the main menu screen and press <Enter> key.

6.4.1 On-Chip Primary PCI IDE

IDE Primary Master/Slave PIO

IDE Primary Master/Slave UDMA

On-Chip Secondary PCI IDE

IDE Secondary Master/Slave PIO

IDE Secondary Master/Slave UDMA

- On-Chip Primary/Secondary PCI IDE these items allows you to Enabled or Disabled the Primary and Secondary PCI IDE channels that are integrated on the system.

The available options for On-Chip Primary/Secondary PCI IDE are : [Enabled] [Disabled].

- IDE Primary Master/Slave PIO and IDE Secondary Master/Slave PIO these four items let you assign which kind of PIO (Programmed Input/Output) is used by IDE devices. You can choose Auto, to let the system auto detect which PIO mode is best, or you can install a PIO mode from 0-4. Each IDE channel supports a master device and slave device.

The available options for IDE Primary Master/Slave PIO and IDE Secondary Master/Slave PIO are : [Auto] [Mode 0] [Mode 1] [Mode 2] [Mode 3] [Mode 4].

- IDE Primary Master/Slave UDMA and IDE Secondary Master/Slave UDMA. When set to Auto the BIOS will automatically load Ultra DMA (Ultra DMA technology provides faster access to IDE devices) drive to match the transfer rate of IDE hard drive which supports Ultra DMA devices.

The available options for IDE Primary Master/Slave UDMA and IDE Secondary Master/Slave UDMA are : [Auto] [Disabled].

6.4.2 USB Controller

USB Keyboard Support

This setting allow you to enabled the USB ports that are integrated on the motherboard. And if you are using a keyboard connected through the USB port. The available options for USB Controller are : [Enabled] [Disabled].

The available options for USB Keyboard Support are : [Disabled] [Enabled].

6.4.3 Init Display First

This item to define if your graphics adapter is installed in one of the PCI slots or select Onboard if you have a graphics system integrated on the motherboard.

The available options for Init Display First are : [Onboard] [PCI Slot].

6.4.4 AC97 Audio

AC97 Modem

These items allows you to decide to Enabled or Disabled the i810 chips family to support AC97 Audio and Modem. We recommend that you set these items to enabled when you use an AMR card.

The available options for AC97 Audio and AC97 Modem are : [Auto] [Disabled].

6.4.5 POWER ON Function

KB Power ON Password

Hot Key Power ON

6. BIOS Configuration

The POWER ON Function item allows you to power on the system by pressing hot keys or typing a password. Refer to explain in the below.

- **[Password]** : Disable the function of power button and let the system can only be powered on through the preset keys (like a password).
- **[BUTTON ONLY]** : Disable Wake on Keyboard an Mouse function. You can boot up your system by power button only.
- **[Keyboard 98]** : You can boot up the system by wake up button on keyboard 98.
- **[Any KEY]** : This function allows you power on the system by clicking any key.
- **[Mouse Left]** : This function allows you power on the system by double click on mouse's left button.
- **[Mouse Right]** : This function allows you power on the system by double click on mouse's right button.
- **[Hot KEY]** : This function allows you power on the system by pressing function key <Ctrl> + <F1> through <Ctrl> + <F12> on keyboard.

The available options for POWER ON Function are : [BUTTON ONLY] [Keyboard 98] [Password] [Hot KEY] [Mouse Left] [Mouse Right] [Any KEY].

The available options for KB Power ON Password are : [Enter].

The available options for Hot Key Power ON are : [Ctrl-F1]~[Ctrl-F12].

6.4.6 Onboard FDC Controller

This item to turn on or turn off the floppy disk controller that is built into the motherboard.

The available options for Onboard FDC Controller are : [Enabled] [Disabled].

6.4.7 Onboard Serial Port 1

Onboard Serial Port 2

These options are used to assign an I/O address and Interrupt Request Line (IRQ) for two onboard serial ports.

The available options for Onboard Serial Port 1/2 are : [3F8/IRQ4] [2F8/IRQ3] [3E8/IRQ4] [2E8/IRQ3] [Auto] [Disabled].

6.4.8 UART2 Mode Select

RxD, TxD Active

IR Transmission Delay

UR2 Duplex Mode

Use IR Pins

The IrDA is Hewlett Packard infrared communication protocol with maximum baud rate up to 115.2K bps, and the ASKIR is Sharp infrared communication protocol with maximum baud rate up to 57.6K bps. The UART2 Mode Setting depends on which type of infrared module is used in the system. When set to “ASKIR” or “IrDA”, the UART2 is used to support the infrared module connected on the motherboard. If this option is not set to “Normal”, a device connected to the COM2 port will no longer work.

RxD, TxD Active. It will define voltage level to match for your infrared module used in the system.

IR Transmission Delay. When set to “Enabled”, you will utilize, the capability of your motherboard to allow for faster infrared transmission rates.

The available options for UART2 Mode Select are : [Normal] [IrDA] [ASKIR].

The available options for RxD, TxD Active are : [Hi,Lo] [Lo,Hi] [Lo,Lo] [Hi, Hi].

The available options for IR Transmission Delay are : [Enabled] [Disabled].

The available options for UR2 Duplex Mode are : [Full] [Half].

The available options for Use IR Pins are : [IR-Rx2Tx2] [RxD2, TxD2].

6.4.9 Onboard Parallel Port

This item controls the onboard parallel port address and Interrupt.

The available options for Onboard Parallel Port are : [378/IRQ7] [278/IRQ5] [3BC/IRQ7] [Disabled].

6.4.10 Parallel Port Mode

EPP Mode Select

ECP Mode Use DMA

These item lets you set the parallel port mode.

- **[SPP]** : Standard Parallel Port is the IBM AT and PS/2 compatible mode.
- **[EPP]** : Enhanced Parallel Port is enhances the parallel port throughput by directly writing/reading data to/from parallel port without latch.
- **[ECP]** : Extended Parallel Port is supports DMA and RLE (Run Length Encoded) compression and decompression.

EPP Mode Select item lets you select EPP version to match your parallel device.

ECP Mode Use DMA item lets you set the DMA channel of ECP mode.

The available options for Parallel Port Mode are : [SPP] [EPP] [ECP] [ECP+EPP].

6. BIOS Configuration

The available options for EPP Mode Select are : [EPP1.7] [EPP1.9].

The available options for ECP Mode Use DMA are : [3] [1].

6.4.11 PWRON After PWR-Fail

A traditional ATX system should remain at power off stage when AC power resumes from power failure. This design is inconvenient for a network server or workstation, without an UPS, that need to keep power on. This item is used to solve this problem.

- **[Off]** : If you select Off, the system keep power-off state after AC power resumes.
- **[On]** : If you select On, the system can automatically power-on after AC power resume.
- **[Former-Sts]** : If you select Former-Sts, the system will power-on or power-off based on the original state.

The available options for PWRON After PWR-Fail are : [Off] [On] [Former-Sts].

6.4.12 Game Port Address

This item let you disable the built-in Game port or enabled it by assigning an I/O address.

The available options for Game Port Address are : [201] [209] [Disabled].

6.4.13 Midi Port Address

Midi Port IRQ

This item let you disable the built-in Midi port or enabled it by assigning an I/O address and IRQ.

The available options for Midi Port Address are : [330] [300] [290] [Disabled].

The available options for Midi Port IRQ are : [10] [5].

After you have made your selection(s) in the Integrated Peripherals, press the <Esc> key to back to the main program screen.

6.5 Power Management Setup

Selecting “Power Management Setup” on the main program screen display this menu:



The Power Management Setup option controls the power management functions. This motherboard supports ACPI (Advanced Configuration and Power management Interface). The system has various power saving modes that allows the system to be automatically resumed by certain events. To access the Power Management Setup screen, highlight this option on the main menu screen and press <Enter> key.

6.5.1 ACPI Function

This item allows you to Enabled or Disabled the ACPI (Advanced Configuration and Power management Interface) function.

The available options for ACPI Function are : [Enabled] [Disabled].

6.5.2 ACPI Suspend Type

This item allows you to set how your system suspends.

- **[S1(POS)]** : This suspend mode is equivalent to a software power down.
- **[S3(STR)]** : This motherboard features the suspend to RAM function. In a suspend to RAM, the system is totally powered down with the exception of the small current required to refresh the system memory. To resume from a suspend to RAM, press the power button (or use the hot keys or password if you have enabled a hot key or password power on). The system will resume in just a few seconds, and it will appear in exactly the same state as it was before it was

6. BIOS Configuration

suspended to RAM.

The available options for ACPI Suspend Type are : [S1(POS)] [S3(STR)].

6.5.3 Power Management

Suspend Mode

HDD Power Down

These items act like a master switch for the power saving mode and hard disk timeout.

- **[User Define]** : Set to User Define to choose your own timeout for the power saving modes.
- **[Min Saving]** : Set to Min Saving, power saving modes occur after a longer timeout.
- **[Max Saving]** : Set to Max Saving, power saving modes occur after a short timeout.

Suspend Mode item lets you set the period of time after which the system enters into suspend mode. The suspend mode can be power on suspend or suspend to hard drive. HDD Power Down item lets you set the IDE HDD idle time before the device enters the power down state.

The available options for Power Management are : [User Define] [Min Saving] [Max Saving].

The available options for Suspend Mode are : [Disabled] [Enabled].

The available options for HDD Power Down are : [Disabled] [Enabled].

6.5.4 Video Off Method

This item sets the video off method in power saving mode.

- **[V/H SYNC + Blank]** : BIOS will blank the screen and turn off vertical and horizontal scanning when gets into power saving mode.
- **[DPMS]** : This function applies only for DPMS (Display Power Management Standard) monitor. BIOS will use DPMS to control VGA display controller.
- **[Blank Screen]** : Only blanks the screen when gets into power saving mode.

The available options for Video Off Method are : [V/H SYNC+Blank] [DPMS] [Blank Screen] .

6.5.5 Video Off In Suspend

It is defined if the Video is powered down when the system is put into suspend mode.

The available options for Video Off In Suspend are : [Yes] [No].

6.5.6 Suspend Type

You can set suspend mode by this item.

- **[Stop Grant]** : If Stop Grant is selected, the CPU clock will enter into sleep mode.
- **[PwrOn Suspend]** : If PwrOn Suspend is selected, the CPU will enter into doze mode.

The available options for Suspend Type are : [Stop Grant] [PwrOn Suspend].

6.5.7 MODEM Use IRQ

If you want an incoming call on a modem to automatically resume the system from a power saving mode, use this option to specify the IRQ that is used by the modem. You might have to connect the fax/modem to onboard modem connector for this feature to work.

The available options for MODEM Use IRQ are : [3] [4] [5] [7] [9] [10] [11] [NA].

6.5.8 Soft-Off by PWR-BTTN

Under ACPI (Advanced Configuration and Power management Interface) you can create a software power down. This item lets you install a software power down that is controlled by the normal power button on your system.

- **[Instant-Off]** : When Instant-Off is selected, the power button causes a software power down.
- **[Delay 4 sec.]** : When Delay 4 sec. is selected, the power button can be used to control power on, Suspend and Off, If the power button is pressed less than 4 sec during power on, the system will go into suspend mode. If the power button is pressed longer than 4 sec, the system will be turned off.

The available options for Soft-Off by PWR-BTTN are : [Instant-Off] [Delay 4 Sec.].

6.5.9 Wake-Up by PCI card

If you enable this item that allows activity on an add-on card (must be meet PCI v2.2 specification) in one of the PCI slots to resume the system from a power saving mode.

The available options for Wake-Up by PCI card are : [Disabled] [Enabled].

6.5.10 Power On By Ring/Lan

If "Enabled", the system power will be turned on if the FAX/Modem receives an incoming telephone call. You might have to connect the fax/modem to the moth-

6. BIOS Configuration

erboard modem connector for this feature to work.

The available options for Power On By Ring/Lan are : [Disabled] [Enabled].

6.5.11 CPU Thermal-Throttling

This option defines what percentage of time the system will halt the Processor clock when it is in power-saving mode.

The available options for CPU Thermal-Throttling are : [50.0%] [37.5%] [25.0%] [12.5%] [87.5%] [75.0%] [62.5%].

6.5.12 Resume By Alarm

Date (of Month) Alarm

Time (hh : mm : ss) Alarm

If "Enabled", it allows you to set a date and time alarm that will automatically resume the system from a software power down. When you enable this feature, new setup items appear to let you set the alarm. Date (of Month) Alarm lets you select a day from 1 to 31. Time Alarm lets you select a time for the alarm in hours, minutes, and seconds.

The available options for Resume By Alarm are : [Disabled] [Enabled].

The available options for Date (of Month) Alarm are : [0~31].

The available options for Time (hh:mm:ss) Alarm are : [0~23 : 0~59 : 0~59].

6.5.13 Reload Global Timer Events

Primary IDE 0/1

Secondary IDE 0/1

FDD, COM, LPT, Port

PCI PIRQ [A-D] #

When these items is enabled, the system will restart the power saving timeouts counter when any activity is detected on the system's IDE HDD, FDD. Serial and Parallel devices and IRQ signal.

The available options are : [Enabled] [Disabled].

After you have made your selection(s) in the "Power Management Setup", press the <Esc> key to back to the main program screen.

6.6 PnP/PCI Configurations

Selecting “PnP/PCI Configurations” on the main program screen display this menu :

CMOS Setup Utility - Copyright (C) 1984-1999 Award Software		Item Help
PnP/PCI Configurations		
PnP OS Installed	No	Menu Level ▶ Select Yes if you are using a Plug and Play capable operating system Select No if you need the BIOS to configure non-boot devices
Reset Configuration Data	Disabled	
Resources Controlled By	Auto(ESCD)	
x IRQ Resources	Press Enter	
x Memory Resources	Press Enter	

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

This option that configures how PnP and PCI expansion slots operate on the motherboard use system IRQs & DMAs. You must setup the IRQ and DMA assignment correctly through the PnP/PCI Configuration setup Utility, otherwise the motherboard will not work properly.

6.6.1 PnP OS Installed

If you have installed a PnP operation system such as Windows 95 or 98, you can set this item to Yes. The Device Manager Utility in the operation system to make changes to the configuration of expansion cards.

The available options for PnP OS Installed are : [No] [Yes].

6.6.2 Reset Configuration Data

If you enabled this item and restart the system, any PnP configuration data stored in the BIOS setup is cleared from memory. New updated data is created.

The available options for Reset Configuration Data are : [Disabled] [Enabled].

6.6.3 Resources Controlled By

IRQ Resources

Memory Resources

You should leave this item at the default [Auto (ESCD)]. Under this setting, the system dynamically allocates resources to PnP devices as they are required.

The available options for Resources Controlled By are : [Auto (ESCD)] [Manual].

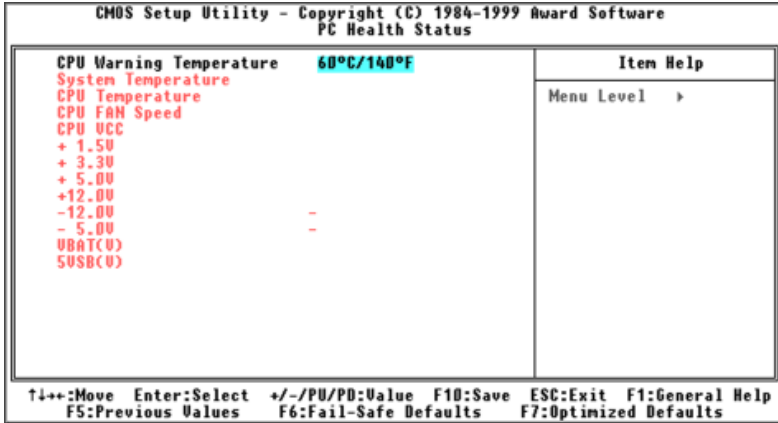
The available options for IRQ/Memory Resources are : [Press Enter].

After you have made you selection(s) in the PnP/PCI Configuration setup, press the <Esc> key to go back to the main program screen.

6. BIOS Configuration

6.7 PC Health Status

Selection “PC Health Status” on the main program screen display this menu :



This option allows you to set CPU Warning Temperature on the motherboard, also display will list a series of items such as critical voltage and fan speeds.

6.7.1 CPU Warning Temperature

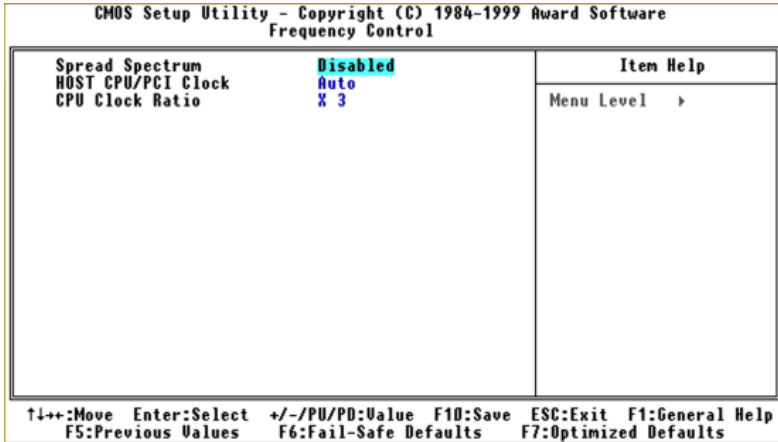
This item is used to set a CPU warning temperature. When the CPU's temperature is higher than this presage fined value, the CPU's speed will automatically slow down and there will be a warning from BIOS and system buzzer will beep. The beep sound will not off unless you turn off system and change CPU's cooling condition. This feature gives CPU overheat protection.

The available options for CPU Warning Temperature are : [60°C/140°F] [63°C/145°F] [66°C/151°F] [70°C/158°F] [Disabled] [50°C/122°F] [53°C/127°F] [56°C/133°F].

After you have made your selection in the PC Health Status, press the <Esc> key to back to the main program screen.

6.8 Frequency Control

Selecting “Frequency Control” on the main program screen display this menu :



The Frequency Control allows you to set the CPU and system bus clock for your system, also system clock frequency will automatically be modulated which help reducing electromagnetic interference.

6.8.1 Spread Spectrum

When you spread spectrum to Enabled, system clock frequency will automatically be modulated which helps reducing electromagnetic interference.

The available options for Spread Spectrum are : [Disabled] [Enabled].

6.8.2 Host CPU/PCI Clock

The motherboard automatically detects and installs the CPU FSB on the system. This item allows you to set Host CPU/PCI Clock.

If your CPU Bus Frequency is support to 66MHz.

The available options for Host CPU/PCI Clock are : [Auto] [66/33MHz] [68/34MHz] [75/37MHz].

If your CPU Bus Frequency is support to 100MHz.

The available options for Host CPU/PCI Clock are : [Auto] [100/33MHz] [112/37MHz] [117/39MHz] [124/41MHz] [129/43MHz] [133/44MHz] [138/46MHz] [140/46MHz].

If your CPU Bus Frequency is support to 133MHz.

The available options for Host CPU/PCI Clock are : [Auto] [133/33MHz] [140/35MHz] [150/50MHz] [150/37MHz].

6. BIOS Configuration

6.8.3 CPU Clock Ratio

This item allows you to set a multiplier for the system FSB frequency. The value of multiplier must be set so that :

$$\text{Multiplier} \times \text{FSB Frequency} = \text{CPU Speed}$$

For example, if you have a processor that is rated to run at 500MHz and the system is running a FSB frequency of 100MHz, you should set a multiplier of 5 so that :

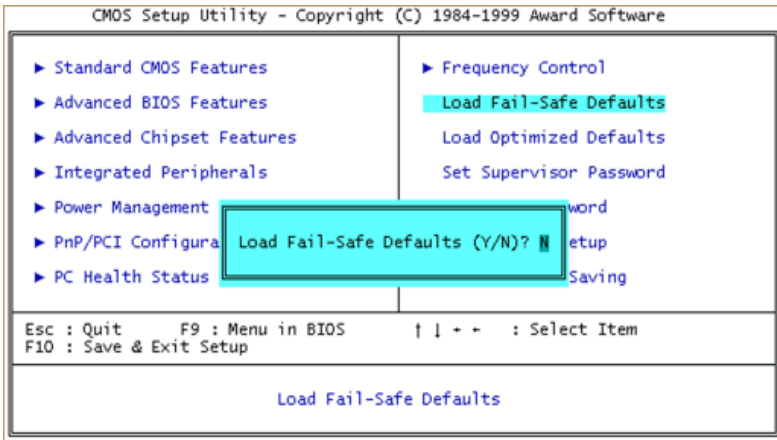
$$5 \text{ (Multiplier)} \times 100\text{MHz (FSB)} = 500\text{MHz (CPU Clock)}$$

The available options for CPU Clock Ratio are : [X3] [X3.5] [X4] [X4.5] [X5] [X5.5] [X6] [X6.5] [X7] [X7.5] [X8].

After you have made your selection in the Frequency Control, press the <Esc> key to go back to the main program screen.

6.9 Load Fail-Safe Defaults

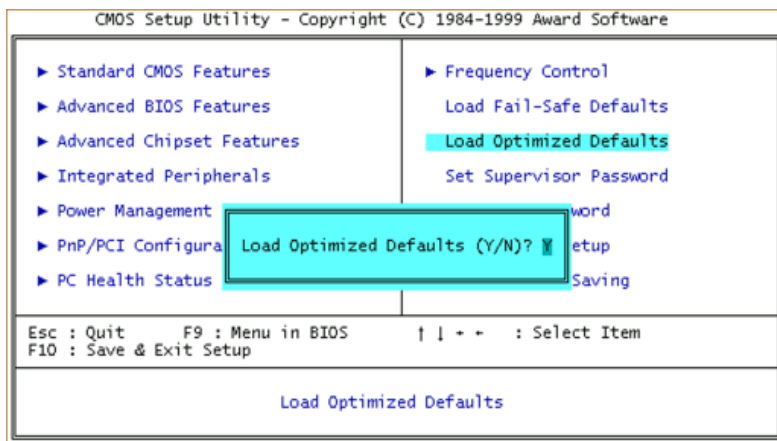
Selecting “**Load Fail-Safe Defaults**” on the main program screen and press <Enter> key on this option. You get a confirmation dialog box with a message display this menu :



When you pressing “Y” key to load the BIOS default values for the most stable, minimal performance system operations.

6.10 Load Optimized Defaults

Selecting “**Load Optimized Defaults**” on the main program screen and press <Enter> key on this option. You get a confirmation dialog box with a message display this menu :



When you pressing “Y” key to load the default values that are factory setting for optimal performance system operations.

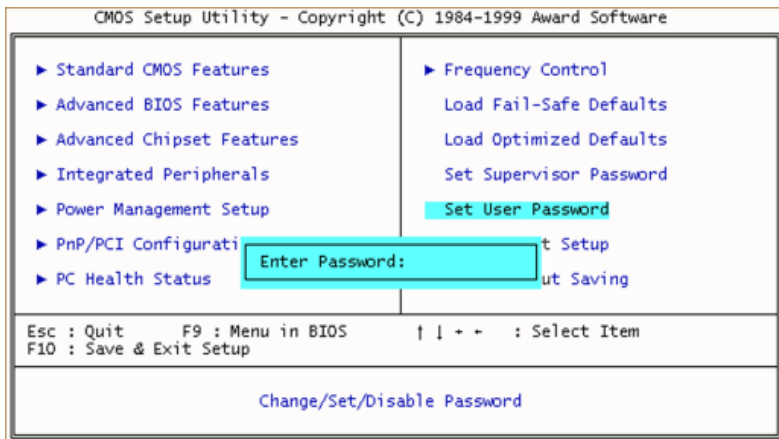
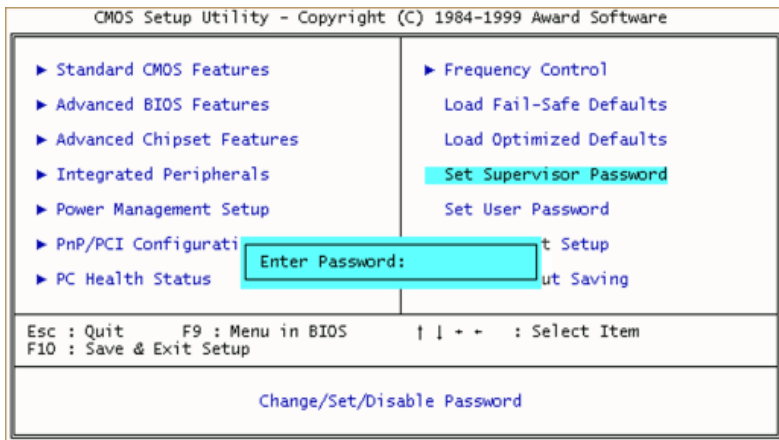
6. BIOS Configuration

6.11 Set Supervisor / User Password

You can set either Supervisor or User Password, or both of them. The differences between are:

- Supervisor Password : Can enter and change the options of the setup menus.
- User Password : Just can only enter but do not have the right to change the options of the setup menus.

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



Type the password, up to eight characters in length, and press <Enter> key. The password typed now will clear any previously entered password from CMOS memory. It will be asked to confirm the password, type the password again and press <Enter> key, or you may also press <Esc> key to abort the selection and not enter a password.

To disabled a password, just press <Enter> key when you are prompted to enter the password. A message will confirm the password will be disabled. Once the password is disabled, the system will boot and you can enter setup freely.

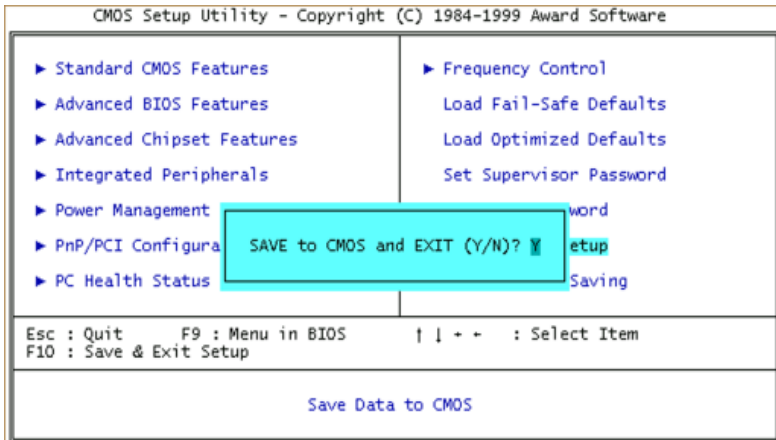
When a password has been enabled, you will be prompted to enter it every time you try to enter setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unanthonzed use of your system. You determine when the password is required within the Advanced BIOS Feature setup menu and its Security Options. If the security option is set to "System" the password will be required both at boot and at enter to setup. If set to "Setup", prompting only occurs when trying to enter setup.

6. BIOS Configuration

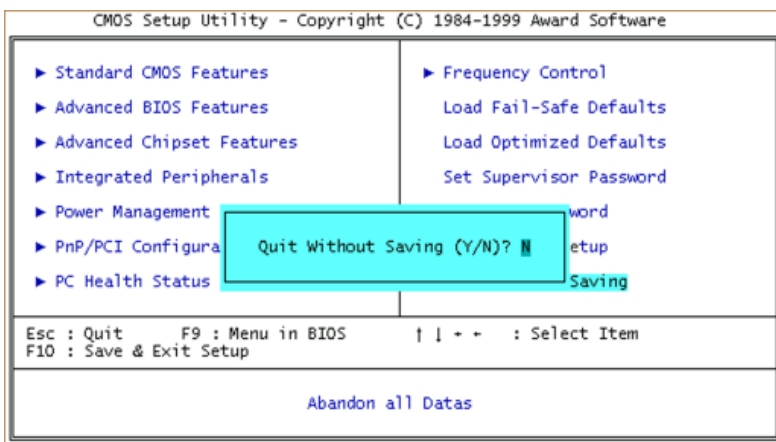
6.12 Save & Exit Setup/Exit Without Saving

Selecting **“Save & Exit Setup”** on the main program screen and press <Enter> key on this option. You get a confirmation dialog box with a message display this menu :



Pressing <Y> key to stores the selections made in the menus in CMOS special section of memory that stays on after you turn your system off. The next time you boot your system, the BIOS configures your system according to the setup selections stored in CMOS. After saving the values the system is restarted again.

Selecting **“Exit Without Saving”** on the main program screen and press <Enter> key on this option. You get a confirmation dialog box with a message display this menu :



This allow you to exit setup without storing in CMOS any change. The previous selections remain in effect. This exits the setup Utility and restarts your system.

7. Software Installation

● Introduction

Once you have assembled your system, fine-tuned the setup utility, and installed your system with an operating system, you can begin installing the Driver and Utility software that ships with this motherboard.

We recommend that you read this chapter thoroughly before starting your installation. Although this motherboard passed testing on several operating system, some folders are subdivided into different operating system such as DOS, Windows 95/98/NT, Win 2000 and so on. Always make sure that you are installing the correct software for the operating system on your system.

● Utility Folder Installation Program

- The CD-ROM has an installation program that runs automatically when you place the CD-ROM disk into your CD-ROM drive. If the program doesn't run, double click the "CD drive" icon in "My Computer" to bring up the install screen will appear Figure 1, when you click on "810(E) Serial Products" under "Socket 370 Series Motherboard" from the opening screen of the installation program, the screen will appear Figure 2.



Figure 1



Figure 2

● DELTA HardWare Doctor 3.60 For Win9X Installation

The system environment monitoring Utility with the onboard Winbond W83627HF-AW system monitor chip allow you to monitor your system's temperature, fan speed, CPU and system voltage. Using this Utility, you can setup the upper and lower limits of these monitored parameters. A per-warning message will pop up on the screen when the monitored parameters is out of the preset range. This software have to installed under Windows O/S.

7. Software Installation

- Click **“DELTA HardWare Doctor 3.60 For Win9X”** on the Figure 2, the screen will appear Figure 3. for HardWare Doctor 360 Setup.
- Click on the **[OK]** button, the screen will appear Figure 4. Then type in **“C:\Program Files\HWDdoctor”** (assuming that your CD-ROM drive is drive D:). The installation program will now guide you through the rest of the install process.

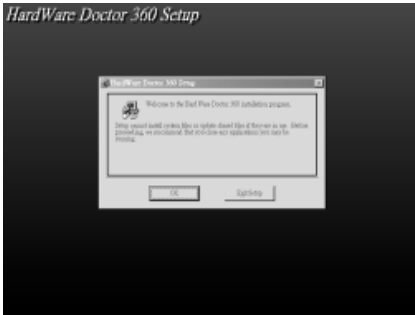


Figure 3

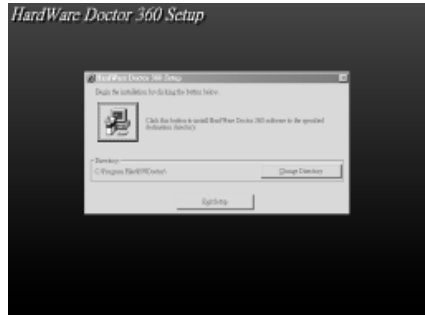


Figure 4

- When completed, you will be prompted to reboot. Select **[OK]** button to complete the installation.
- The **“DELTA HardWare Doctor 3.60”** option will be added to the **“Program”** directory. Click on the **“HardWare Doctor 360”** icon to access the program, the screen will appear Figure 5.
- Then click on the **“HardWare Doctor 360”**, the screen will appear Figure 6. Set the threshold you want for system temperature, voltages and fan speed, by moving the slide bar or by clicking the increase/decrease buttons.

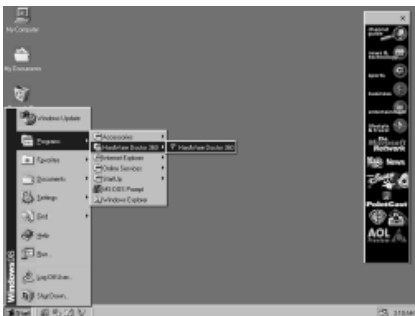


Figure 5

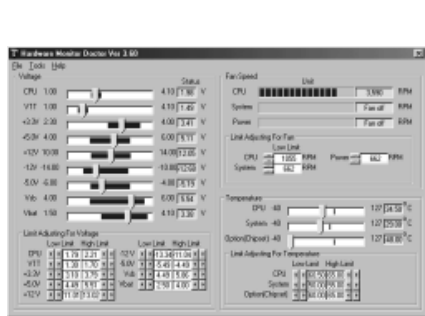


Figure 6

● Intel 810(E) VGA Installation

This folder has the software and drivers for graphics system built into the 810E chipset.

- Click “**Intel 810(E) VGA Install**” on the Figure 2, the screen will appear Figure 7. (Install the VGA driver from sub-folders for Windows 95/98, NT4.0, and 2000).
- Click “**VGA For Win98**” on the Figure 7, the screen will appear Figure 8. The installation program will now guide you through the rest of the install process.



Figure 7

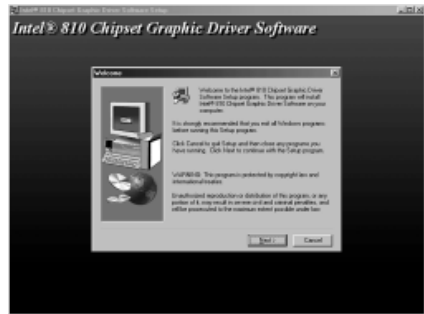


Figure 8

- When completed, you will be prompted to reboot. Select [**Finish**] button to reboot and complete the installation.
- View device through the Device Manager under Windows 98.
 - Go to “**My Computer**” then double click on the “**Control Panel**”, the screen will appear Figure 9.
 - Double click on the “**System**” icon → Select “**Device Manager**” → Click on “**+**” symbol to the left of the “**Display adapters**”, the screen will appear Figure 10. Highlight the “**Intel 810(E) VGA Install**” driver is installed successfully.



Figure 9

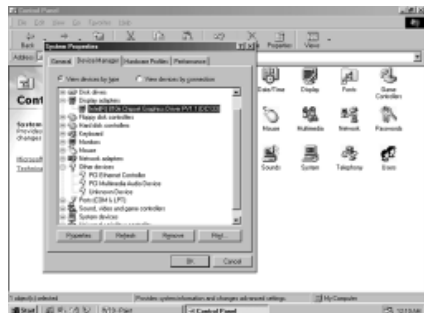


Figure 10

7. Software Installation

● Intel 810(E) INF Installation

This folder installs upgraded information files for Windows' registry so that features of the Intel chipset are fully supported. The files add or enhance the following features :
Core PCI PnP Services / AGP Support / Bus Master IDE Ultra DMA 33/66 Storage Support / USB Support / Identification of Intel Chipset Components in Device Manager.

- Click “**Intel 810(E) INF Install**” on the Figure 2, the screen will appear Figure 11.

The Intel(R) INF installation program will now guide you through the rest of the install process.



Figure 11

- When completed, you will be prompted to reboot. Select [**Finish**] button to reboot and complete the installation.
- View device through the Device Manager under Windows 98.
 - Go to “**My Computer**” then double click on the “**Control Panel**”, the screen will appear Figure 9.
 - Double click on the “**System**” icon → Select “**Device Manager**” → Click on “**+**” symbol to the left of the “**Other devices**”, the screen will appear Figure 12. Highlight the “**Intel 810(E) INF Install**” driver is installed successfully.



Figure 12

● Audio Driver For 810(E) Installation

This folder let you select the drivers for the audio system that is integrated on this motherboard. Drivers are provided for Windows 95/98, and NT4.0.

- Click “**Audio Driver For 810E**” on the Figure 2, the screen will appear Figure 13. (Install the Audio driver from sub-folders for Windows 95/98, and NT4.0)
- Click “**Audio Driver For Win98**” on the Figure 13, the screen will appear Figure 14. The installation program will now guide you through the rest of the installation process. When completed, the screen will back to Figure 13.



Figure 13



Figure 14

- View device through the Device Manager under Windows 98.
 - Go to “**My Computer**” then double click on the “**Control Panel**”, the screen will appear Figure 9.
 - Double click on the “**System**” icon → Select “**Device Manager**” → Click on “**+**” symbol to the left of the “**Display adapters**”, the screen will appear Figure 15. Highlight the “**Audio Driver For Win 98**” driver is installed successfully.
 - Or refer to explain of “**Audio Readme**” on Figure 13.



Figure 15

7. Software Installation

● LAN Driver Installation

In the driver provides the information about the driver installation guide for SIS900 Ethernet network operation system. The following section will describe the most popular network operation system installation procedure.

- Go to **“My Computer”** then double click on the **“Control Panel”** the screen will appear Figure 9.
- Double click on the **“Add New Hardware”** icon, The screen will appear Figure 16. The installation program will now guide you through the rest of the installation process. When completed, the screen will appear Figure 17. Then click on **[Finish]** button to complete the installation.

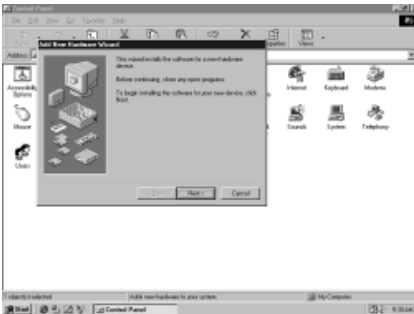


Figure 16

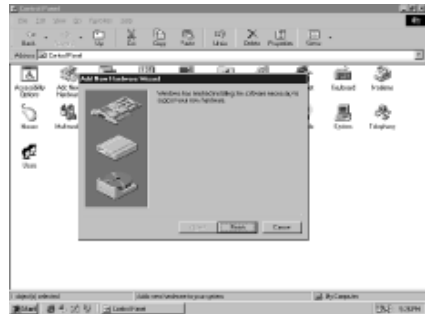


Figure 17

- View device through the Device Manager under Windows 98.
 - Go to **“My Computer”** then double click on the **“Control Panel”**, the screen will appear Figure 9.
 - Double click on the **“System”** icon → Select **“Device Manager”** → Click on **“+”** symbol to the left of the **“Network adapters”**, the screen will appear Figure 18. Highlight the LAN driver is installed successfully.



Figure 18

- Or allows your O/S specify the path for LAN driver install, please refer to “LAN Driver Readme” explain on the Figure 2.

- **BIOS Utility**

This utility lets you erase the system BIOS stored on a Flash Memory chip on the motherboard, and let you copy an updated BIOS to the chip. Take care how you use this program. If you erase the current BIOS and fail to write a new BIOS, or write a new BIOS that is incorrect, your system will malfunction.

The flash memory utility is called **AWDFLASH.EXE**. To use the utility, you must be in real-mode DOS (not the DOS box that is available in Windows 95/98/NT). If you are using Windows 95/98, shut down your system and select the option restart in DOS in the shut down dialog box. If you are running Windows NT, shut down your system and boot from a DOS diskette temporarily in order to run the flash memory utility. You can easily flash a BIOS by following the step below :

- After downloading the appropriate BIOS file from website, extract it to a bootable DOS 6.X or Windows 98 diskette.
 - If you are using DOS 6.X, reboot your system with the bootable diskette in the A: drive. To make sure a clean DOS environment is loaded, press the [F5] key while “Starting MS-DOS” is displayed. After the system has rebooted, the cursor will appear at the A:\>prompt.
 - If you are using Windows 95 or 98, press [F8] key when you see “Starting MS Windows 95 or 98”. Select the option “Safe Mode Command Prompt only”.
- Now you can run the flash utility from the A:\>prompt. For example, to update the motherboard to BIOS version xx, you would type :

A:\>AWDFLASH xxxxxx.BIN

- Then press [Enter] key, after the flash screen appear, select [Y] to save the current BIOS or [N] if you do not want to save the current BIOS. We recommended that you save the current BIOS.
- When prompted, select [Yes] to program the BIOS.
- After the update process has completed, you will be prompted to power off or reset your system. Once the system reboots, verify that the new BIOS version appear on the screen.

Note : After reprogramming the BIOS, you may need to enter BOS setup and reset your settings.

DECLARATION OF CONFORMITY



This device is in conformance with Part 15 of the FCC Rules and Regulations for Information Technology Equipment. Operation of this Product 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 undesired operation.

Responsible Party Name : DELTA PRODUCTS CORPORATION
Address : 4405 CUSHING PARKWAY FREMONT.CA
94538, U.S.A.
Contact Person / Title : Executive Vice President / Frank Hsiung
Telephone : 1-510-668-5100
Fax : 1-510-668-0680

EUT Certification Summary

Standard : FCC Part 15, Subpart B, Class B ANSI C63.4-1992
Product : MOTHER BOARD
Model No. : M81ENT-FX, M81EN-FX, M81ET-FX, M81E-FX
M81DC2NT-FX, M81DC2N-FX, M81DC2T-FX, M81DC2-FX
M812NT-FX, M812N-FX, M812T-FX, M812-FX
Tested by : SPORTON INTERNATIONAL INC.

The Mother Board was tested to conform to the applicable FCC Rule and regulations. The method of testing was in accordance to the most accurate measurement standards possible, equipment will continue to comply with the Federal Communications Commission's requirements.

Representative Person's Name : Frank Hsiung

Signature : 

EC DECLARATION OF CONFORMITY

This certifies that the following designated product

MOTHER BOARD

MODEL NO. : M81ENT-FX, M81EN-FX, M81ET-FX, M81E-FX

M81DC2NT-FX, M81DC2N-FX, M81DC2T-FX, M81DC2-FX

M812NT-FX, M812N-FX, M812T-FX, M812-FX

(Product identification)

complies with the essential protection requirements of Council Directive 89/336/ECC on the approximation of the laws of the Member States relating to electromagnetic compatibility.

This declaration applies to all specimens manufactured in accordance with the attached manufacturing drawings which form part of this declaration.

Assessment of compliance of the product with the requirements relating to electromagnetic compatibility was based on the following standards :

EN 50081-1 / 1992 : EN55022

EN 50082-1 / 1997 : EN61000-4-2/-3/-8, EN 50204

(Identification of regulations / standards)

This declaration is the responsibility of the manufacturer / importer

DELTA ELECTRONICS, INC.

11F-3, 266, 2ND WEN-HWA ROAD., SEC. 1, LINKOU,

TAIPEI HSIEN, TAIWAN, R.O.C.

(Name / Address)



(EC conformity marking)

MANUFACTURER / IMPORTER

.....
Alex Cho
.....

Alex Cho