Main Features

■ **Processor Supported**

Supports 462-pin SocketA for AMD Athlon XP and Duron processors with 200/266/333MHz Front Side Bus

- Athlon XP (1500+ to 2800+) @ 266/333MHz Front Side Bus,

- Duron (800 to 1.3GHz) @ 200MHz Front Side Bus

■ **Chipset**

nVIDIA Crush 18G +MCP AGPset

■ **Main Memory**

Two 184-pin DDR DIMM sockets for 64-bit, Unbuffered, Single/
Double-side and Non-ECC DDR-200/266/333/400 DIMMs

- ◆ Supports 128-bit dual channel memory architecture
- ◆ Supports up to 2 GB memory size
- ◆ Supports complete FSB/Memory and FSB/AGP Asynchronous scheme for over-clocking

■ **BIOS**

2Mb Flash EEPROM with Award BIOS

- ACPI v2.0 compliant

- S3 (Suspend to DRAM) sleep-state support

- SMBIOS (System Management BIOS) v2.2 compliant

- Supports Power failure recovery

- Capable to waked the computer up from specific states by LAN, Power switch, PME#, RTC alarm, USB, Modem ring on COM#1...

- **Onboard PCI Devices**

    - LAN --> Realtek RTL8201BL Fast Ethernet controller

    - IDE --> Embedded IDE controller supports 2 IDE ports for up
      to 4 IDE devices
      - Supports ATA-133 with up to 133MB bandwidth

- **Legacy IO Controller**

    - iTE IT8712F IO controller with floppy, printer, and serial interface

- **Audio**

    - 2 channel audio with analog and digital output using Realtek
      ALC650E AC97 CODEC

        - AC97 v2.2 compliant

        - Supports CD-In, Aux-In interface

        - Supports Line-out and Mic-In for front panel

- **Peripheral Interfaces**

    - PS/2 keyboard and mouse ports (at rear panel)

    - One Parallel (printer) port (at rear panel)

    - One RJ45 LAN connector (at rear panel) (Optional)

    - One Serial ports (at rear panel)

    - One floppy drive interface

- **Front Panel Controller**

    - Supports Reset & Soft-Off switches

    - Supports HDD & Power LEDs

    - Supports PC speaker

■ **Expansion Slots**

◆ 1 AGP slots supporting 1.5V/0.8V 4X/8X-AGP cards

- AGP v3.0 compliant

◆ 3 PCI bus sockets with Bus Master support

- PCI v2.3 compliant

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Installation Procedures

The mainboard has several user-adjustable jumpers on the board that allow you to configure your system to suit your requirements. This chapter contains information on the various jumper settings on your mainboard.

To set up your computer, you must complete the following steps:

- ■ Step 1 - **Set system jumpers/switches**
- ■ Step 2 - **Install memory modules**
- ■ Step 3 - **Install the Central Processing Unit (CPU)**
- ■ Step 4 - **Install expansion cards**
- ■ Step 5 - **Connect ribbon cables, cabinet wires, and power supply**
- ■ Step 6 - **Set up BIOS software**
- ■ Step 7 - **Install supporting software tools**

WARNING: Excessive torque may damage the mainboard. When using an electric screwdriver on the mainboard, make sure that the torque is set to the allowable range of 5.0 ~ 8.0kg/cm.

Mainboard components contain very delicate Integrated Circuit (IC) chips. To prevent static electricity from harming any of the sensitive components, you should follow the following precautions whenever working on the computer:

1. Unplug the computer when working on the inside.
2. Hold components by the edges and try not to touch the IC chips, leads, or circuitry.
3. Wear an anti-static wrist strap which fits around the wrist.
4. Place components on a grounded anti-static pad or on the bag that came with the component whenever the components are separated from the system.

# 1). Set System Jumper

Clear CMOS: CLR_CMOS

The CMOS RAM is powered by the onboard button cell battery. To clear the RTC data: (1) Turn off your computer (2) Place the jumper cap onto the pinpair 2-3 at least 6 seconds to enable CMOS clearance (3) Place the jumper cap onto the pinpair 1-2 to disable the effect of CMOS clearance (4) Turn on your computer until CMOS checksum error appears (5) Hold down the **Delete** key when boots (6) Enter the BIOS Setup to re-enter user preferences.
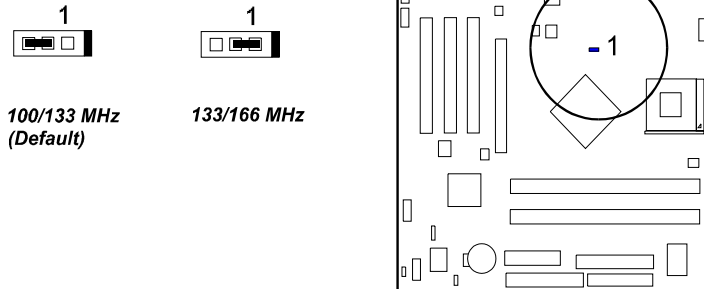
Enable
(Clear CMOS)

Disable
(Default)
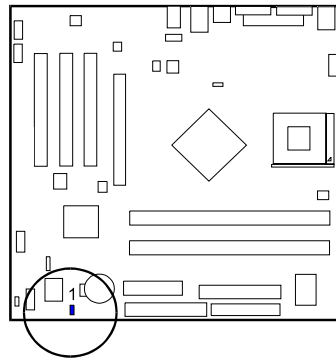
FSB Freq. Select: FSB

This jumper allows you to select the front side bus frequency of the board.

1
100/133 MHz
(Default)

1
133/166 MHz

- 1

2). Install Memory Modules

1. Locate the DIMM slots on the mainboard.
2. Install the DIMM straight down into the DIMM slot using both hands.
3. The clip on both ends of the DIMM slot will close up to hold the DIMM in place when the DIMM reaches the slot bottom.

1
2
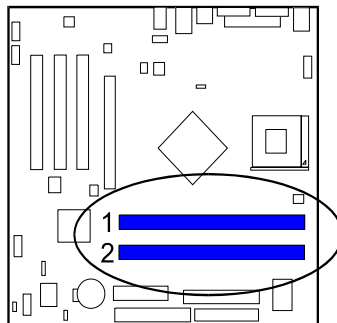
Press the clips with both hands to remove the DIMM.

3). Install the CPU

The mainboard has built-in Switching Voltage Regulator to support CPU Vcore autodetection. That is, It has the ability to detect and recognize the CPU voltage, clock, ratio and enables users to set up the CPU frequency from the BIOS Setup Screen. Users can adjust the frequency through Frequency / Voltage Control of the BIOS Setup Screen.
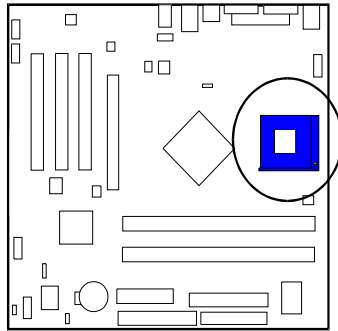
When you install your CPU on this mainboard, please use a power supply that designed and manufactured only for CPU use. Your CPU fansink combined with its retention module must be completely closed and firmly attached on the top of the processor.

To install the CPU, do the following:
1. Lift the lever on the side of the CPU socket.
2. Handle the chip by its edges and try not to touch any of the pins.
3. Place the CPU in the socket. Do not force the chip. The CPU should slide easily into the socket.
4. Swing the lever to the down position to lock the CPU in place.
5. Place the cooling fan with heatsink on top of the installed CPU.

NOTE: Users The CPU installing procedures should be:
1. Insert the CPU (with its fansink and retention module) on the socket.
2. Connect the 4-pin plug of the ATX_12V power supply.
3. Connect the 20-pin plug of ATX_PWR power supply.
To remove the processor, please do it in reverse order.

4). Install Expansion Cards

This section describes how to connect an expansion card to one of your system expansion slots. Expansion cards are printed circuit boards that, when connected to the mainboard, increase the capabilities of your system. For example, expansion cards can provide video and sound capabilities. The mainboard features one AGP and three PCI bus expansion slots.
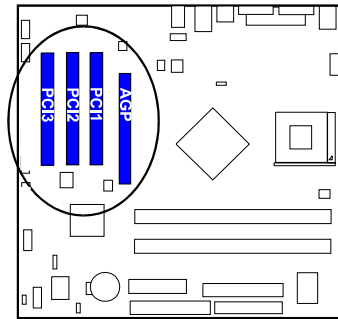
CAUTION: Make sure to unplug the power supply when adding or removing expansion cards or other system components. Failure to do so may cause severe damage to both the mainboard and expansioncards.
Always observe static electricity precautions.
Please read Handling Precautions at the start of this manual.

To install an expansion card, follow the steps below:

1. Remove the computer chassis cover and select an empty expansion slot.
2. Remove the corresponding slot cover from the computer chassis. Unscrew the mounting screw that secures the slot cover and pull the slot cover out from the computer chassis. Keep the slot cover mounting screw nearby.

3. Holding the edge of the peripheral card, carefully align the edge connector with the expansion slot.

4. Push the card firmly into the slot. Push down on one end of the expansion card, then the other. Use this rocking" motion until the add on card is firmly seated inside the expansion slot.

5. Secure the board with the mounting screw removed in Step 2. Make sure that the card has been placed evenly and completely into the expansion slot.

6. Replace the computer system cover.

7. Setup the BIOS if necessary.

8. Install the necessary software drivers for the expansion card.

5). Connect Devices

Floppy Diskette Drive Connector
This connector provides the connection with your floppy disk drive.
The red stripe of the ribbon cable must be the same side with the Pin 1.
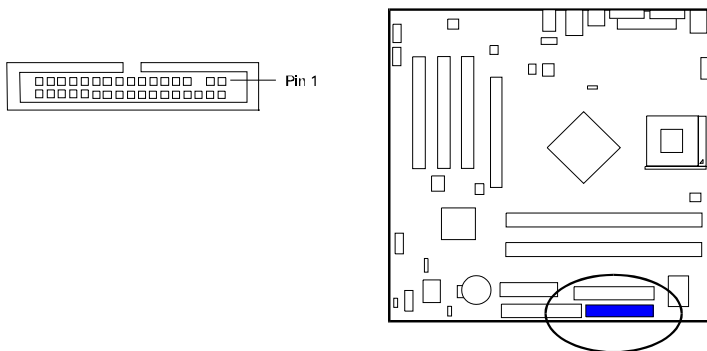
Pin 1

IDE Device Connectors

These two connectors are used for your IDE hard disk drives, CD drives, LS-120 drives, or IDE ZIP drives. The red stripe of the ribbon cable must be the same side with the Pin 1.
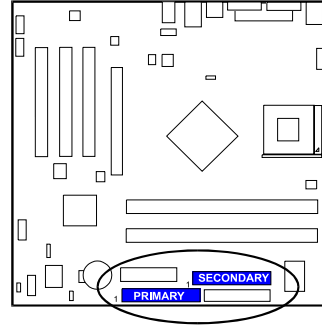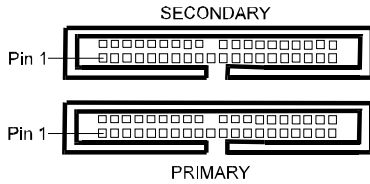
Power Connectors

The 20-pin male block connector is connected to the ATX power supply. The 4-pin male block connector is for the 12V power use. The connectors are linked with your ATX power supply. The plug from the power supply will only insert in one orientation because of the different hole sizes. Find the proper orientation and push down firmly making sure that the pins are aligned.
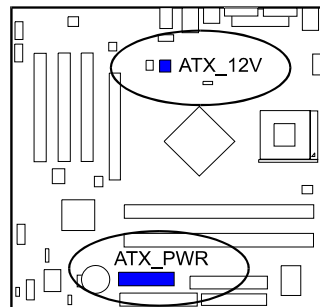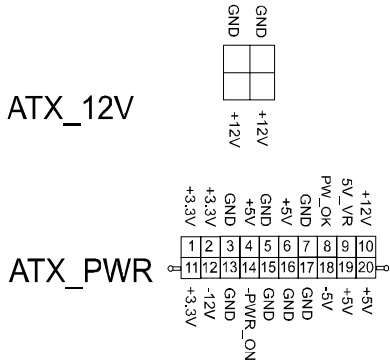
CD Audio-In Connectors

The connectors, CD_IN and AUX_IN, are for CD-ROM drive audio analog input use.
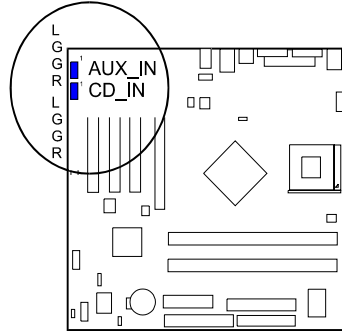
Front Panel Block, Power LED and Speaker Connector

This block connector includes the connectors for linking with Power LED, HDD LED, power button, reset button on the front panel of the system case. Please identify polarities of plug wires for the case speaker and LEDs. Please ask vendor about this information when you buy them and install the system by yourself. The plug wires polarities of these buttons will not affect the function.
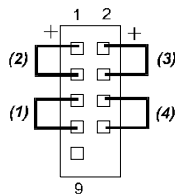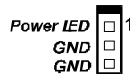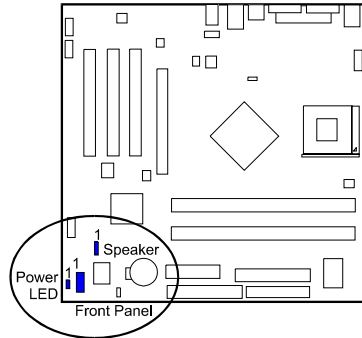
(1) Reset Switch is connected to the reset button. Push this switch to reboot the system instead of turning the power button off and on.

(2) HDD LED is connected to the IDE device indicator. This LED will blink when the hard disk drives are activated.

(3) Power (Single and Dual) /Sleep LED
Please refer to the tables below for the representations of LED states.
There is another 3-Pin Power LED connector on board for some cases that with a 3-pin plug.

Single-Color (2, 3 Pins)

LED	Meaning	State
Off	Off	S4/S5
On	Full On	S0
Flash	Sleep	S1/S3

Dual-Color

LED	Meaning	State
Off	Off	S4/S5
Green	Full On	S0
Other Colors	Sleep	S1/S3

(4) Power Button is connected with power button. Push this switch allows the system to be turned on and off rather than using the power supply button.

Speaker is connected with the case speaker.

Fan Connectors

The two connectors, CPU Fan and System Fan are linked to the CPU fan, case fan, respectively. Chip Fan is connnected with the cooling fan of North Bridge.
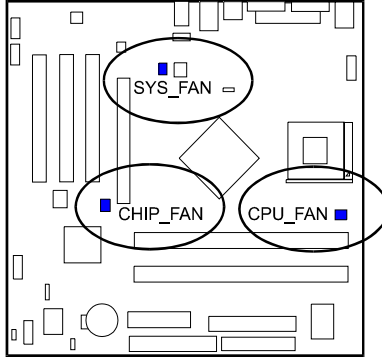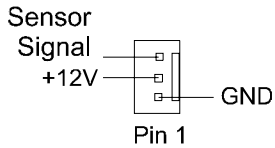
Universal Serial Bus Connectors

These two black connectors integrated on the edge of the board are used for linking with USB peripheral devices. This board also provides two extra USB ports for either linking with front or rear USB sockets of system cases. Please note that your operating system must support USB features.

4 USBs
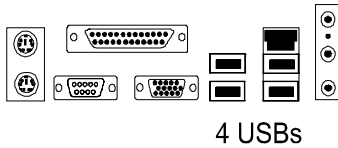
The figure below is the pin assignment of the USB pinheader.

USB
(Intel Spec.)
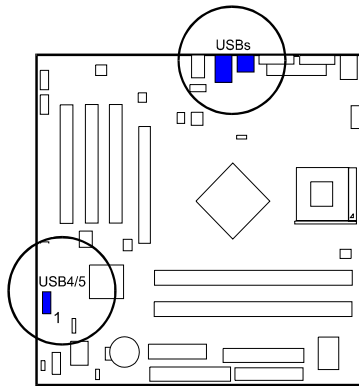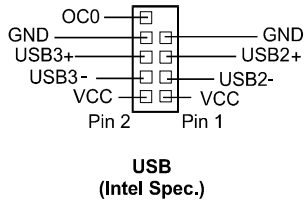
NOTE: About the USB 2.0 driver.
if you use-
Windows XP + Sevice Pack 1: it offers the driver.
Windows XP: download it from Microsoft web site.
Windows 2000/98SE/ME:
driver in **Ist Utilities** CD, please manually installed it.

Serial Port Connectors

COM1 (9-pin D-sub male connector with teal color) and COM2 (2x5 pinheader) allow you to connect with your devices that use serial ports, such as a serial mouse or an external modem.

COM1

COM1

PIN8 -	RI		PIN9 -	GND
PIN6 -	CTS		PIN7 -	DTR
PIN4 -	RTS		PIN5 -	TXD
PIN2 -	DSR	2 1	PIN3 -	RXD
			PIN1 -	DCD

COM2

COM1
COM2
1
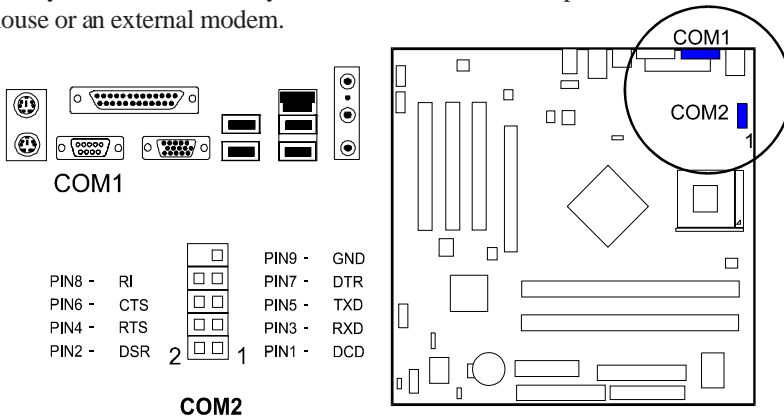
Printer Connector

This 25-pin D-Sub female burgundy-colored connector is attached to your printer.

Printer
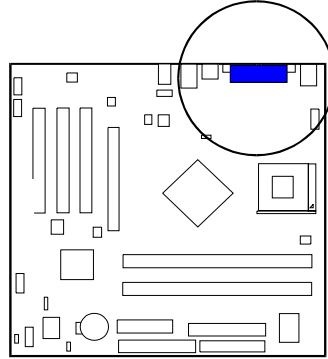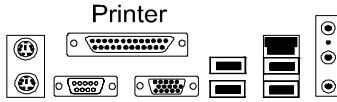
Audio I/O Jacks

LINE_OUT (lime) can be connected to headphones or preferably powered speakers. LINE_IN (light blue) allows tape players or other audio sources to be recorded by your computer or played through the LINE_OUT. MIC_IN (pink) allows microphones to be connected for voice input. The mainboard offers a front panel audio connector (Intel spec.). Its pin definitions were presented far below left.

LINE_IN
LINE_OUT
MICROPHONE

LINE_IN (Top)/
LINE_OUT (Middle)/
MICROPHONE (Bottom)

Front Audio

LINEOF L
Reserved
MIC VREF
LINEOF R
MIC FNT

Pin 1

Default:
Short

LORET L
LORET R
AGND
AGND

**Front Panel
Audio Pinheader
(Intel Spec.)**
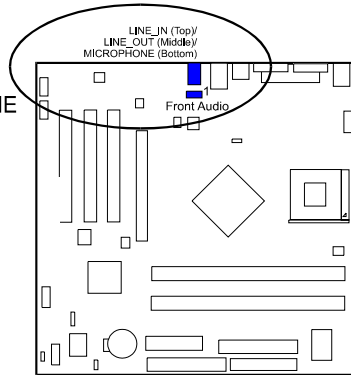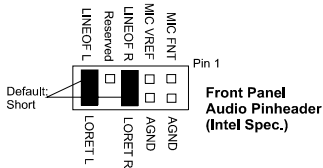
NOTE: If you do not use front audio pinheader, please keep the pinpair 5-6, 9-10 short as default; also, when the front headphone is plugged in, the rear audio output will be disabled.

Video Graphics Accelerator Connector

This 15-pin female D-sub blue connector is connected to your display monitor.

VGA
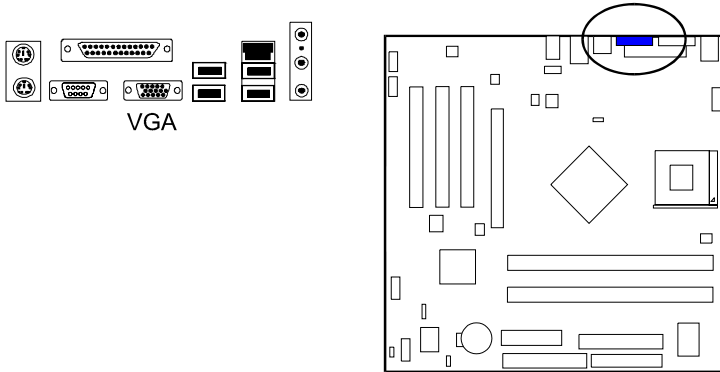
PS/2 Keyboard and Mouse Connector

These two 6-pin female (PS/2 keyboard is purple color and PS/2 mouse is green color) connectors are used for your PS/2 keyboard and PS/2 mouse.

PS/2 Mouse

PS/2 Keyboard

Reserved — Clock
Vcc — GND
Reserved — Data
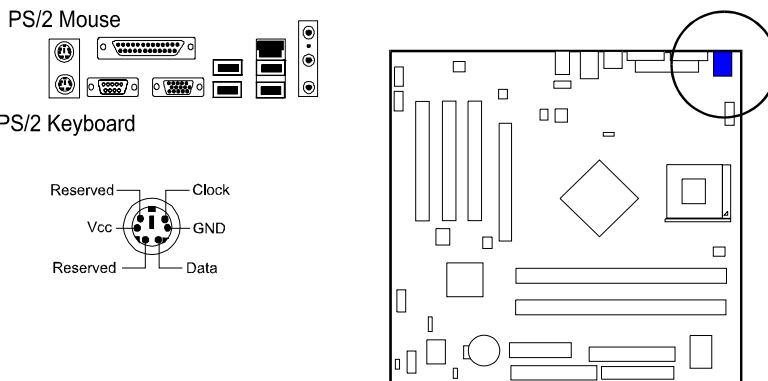
LAN Connector (mfg. optional)

The optional RJ45 LAN jack is used for the LAN cable plug.
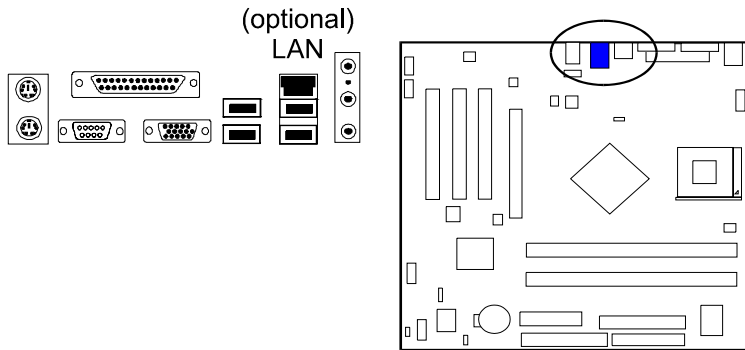
BIOS Setup

The mainboard comes with the chip that BIOS that contains the ROM Setup information of your system. (This chip serves as an interface between the processor and the rest of the mainboard components.) This section explains the information contained in the Setup program and tells you how to modify the settings according to your system configuration.

The Setup utility program allows updates to the mainboard configuration settings. The BIOS setup values will be saved in the CMOS. It is executed when the user changes system configuration; user changes system backup battery; or the system detects a configuration error and asks the user to run the Setup program. Use the arrow keys to select and press **Enter** to run the selected program.

> **WARNING:** While booting, press *Delete* key will allows users to enter setting menus that for end users. Press *F9* key will enter menus that for manufacturer use only. End users are not encouraged to configure attributes under this mode.

Main Features Setup

```
             Pheonix - AwardBIOS CMOS Setup Utility
  Main   Advanced   Power   Boot   Exit
  ┌──────────────────────────────────────────┬─────────────────────┐
  │  Date (mm:dd:yy)        Mon, Oct. 14 2002 │      Item Help      │
  │  Time (hh:mm:ss)        12: 24: 15        │                     │
  │  Floppy Diskette A      [ 1.44M, 3.5 IN.] │  Menu Level    ►    │
  │  Floppy 3 Mode Support  [ Disabled ]      │                     │
  │                                           │  <TAB> , or <Enter> │
  │  ► Primary Master                         │  Select field.      │
  │  ► Primary Slave                          │                     │
  │  ► Secondary Master                       │                     │
  │  ► Secondary Slave                        │                     │
  │                                           │                     │
  │  Installed Memory                         │                     │
  │  Memory Bank 0                            │                     │
  │  Memory Bank 1                            │                     │
  │                                           │                     │
  │  BIOS Version                             │                     │
  │  BIOS Release Date                        │                     │
  │  BIOS Implement Guide                     │                     │
  └──────────────────────────────────────────┴─────────────────────┘
  F1:Help   F5:Reload default   F10:Save and Exit   ESC:Exit without Saving
```

19

The CMOS Setup screen is displayed above. Each item may have one or more option settings. The system BIOS automatically detects memory size, thus no changes are necessary. Use the arrow keys to highlight the item and then press Enter key to select the value you want in each item.

Date

To set the date, highlight the *Date* field and then press TAB keys to select items and +/- keys to set the current date. Follow the month, day and year format.

Time

To set the time, highlight the *Time* field and then press TAB keys to select items and +/- keys to set the current time. Follow the hour, minute, and second format.

Hard Disks

This field records the specifications for all non-SCSI hard drives installed in the system. The onboard PCI IDE connectors provide Primary and Secondary channels for connecting up to four IDE hard disks or other IDE devices. Each channel can support up to two hard disks, the first of which is the *Master* and the second is the *Slave*.

Hard Disk Configurations

Capacity:	The hard disk size. The unit is Bytes.
Cylinder:	The cylinder number of the hard disk.
Head:	The read/write head number of hard disk.
Precomp:	The cylinder number at which the disk drive changes the write current.
Landing Zone:	The cylinder number that the disk drive heads (read/write) are seated when the disk drive is parked.
Sector:	The sector number of each track defined on the hard disk.

Floppy Diskette A

This field records the types of floppy drives installed in the system. To enter the configuration value for a particular drive, highlight its corresponding field and then select the drive type using the **+/-** key.

Floppy 3 Mode Support

This is a Japanese standard floppy type drive. The standard stores 1.44MB in a 3.5 inch diskette.

Installed Memory/Memory Bank

These three items tell users the information about the installed memory modules, type, and sizes.

BIOS Version/BIOS Relese Date/BIOS Implement Guide

These three items tell users the information about the BIOS of the computer system.

Advanced Features Setup
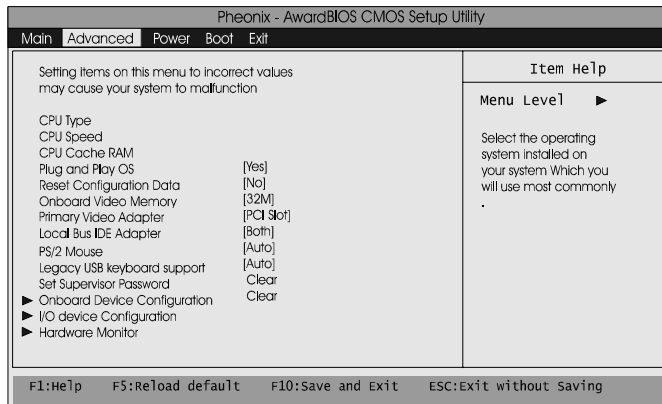
CPU Type/CPU Speed/CPU Cache RAM

The three items present the working data about the installed CPU.

Plug and Play OS

The item is set at Yes when you use Plug and Play operating system.
The options are: No, Yes.

Reset Configuration Data

Enabling it to reset the system Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on card and the system reconfiguration has caused such a serious conflict that the operating system can not boot. The options are: No, Yes.

Onboard Video Memory

The feature allows users to select the video memory size in the core chip for VGA use.
The options are: 8M, 16M, 32M, 64M, 128M.

Primary Video Adapter

The feature allows users to select which display device full on first if two display device onboard.
The options are: PCI Slot, AGP/Onboard.

PS/2 Mouse

The feature allows users to select Auto to auto detect PS/2 mouse. Select Disabled prevents any installed PS/2 mouse from functioning and free up IRQ 12. The options are: Disabled, Auto.

Local Bus IDE Adapter

The feature allows users to select or disable the IDE controller function. If disabled, the IDE device will not be detected.
The options are: Disabled, Primary, Secondary, Both.

Legacy USB keyboard support

The features allows users to decide which way that the attached USB keyboard was supported under legacy mode of operating system. When set at Auto, the BIOS will detect if a USB keyboard being connected while booting; if it is, BIOS will accept it under legacy mode, if not, the BIOS will not release the related resourece.
The options are: Auto, Enabled, Disabled.

Set Supervisor Password/Set User Password

The two features allow users to set the supervisor/user password. To set supervisor password is a must. To set user password is not allowed if supervisor password is clean. It is common to set both passwords.

Once it is set, the option will become *Set* automatically. Its default value is *Clear*. The options are: Clear, Set

Onboard device Configuration
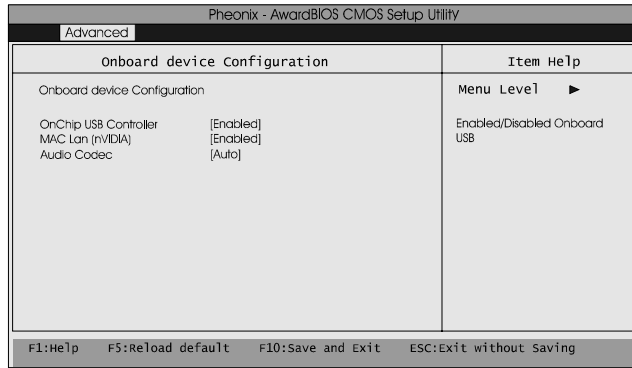
OnChip USB Controller
Disable this option if you are not using the onboard USB feature.
The options are: Disabled, Enabled.

MAC Lan (nVIDIA)
Allows you to enable or disable the optional LAN function.
The options are: Disabled, Enabled.

Audio Codec
Allows you to disable the onboard audio codec function.
The options are: Disabled, Auto.

I/O device Configuration

```
                    Pheonix - AwardBIOS CMOS Setup Utility
        Advanced

               Onboard device Configuration              Item Help

        Onboard device Configuration                    Menu Level    ►

          Serial Port A          [Enabled]              Configure Serial Port
           Base Address          [3F8]                  A using options.
          Interrupt              [IRQ4]                  [Disabled] No configuratons
                                                        [Enabled] Enable configurations
          Serial Port B          [Enabled]
           Base Address          [3F8]
          Interrupt              [IRQ3]

          Parallel Port          [Enabled]
           Base Address          [378]
           Mode                  [ECP]
          Interrupt              [IRQ7]



        F1:Help    F5:Reload default    F10:Save and Exit    ESC:Exit without Saving
```

Serial Port A / B
Allows you to disable the serial port A / B when it is needed to do so.
The options are: Enabled, Disabled.

Base Address
Allows you to set disable the interrupt for serial port A / B.
The options are: 3F8, 2F8, 3E8, 2E8.

Interrupt
It allows users to select the IRQ for serial port A / B.
The options are: IRQ3, IRQ4.

Parallel Port
Allows you to disable the parallel port when it is needed to do so.
The options are: Enabled, Disabled.

Base Address
Allows you to set disable the interrupt for serial port A / B.
The options are: 378, 278, 3BC.

Mode
Allows you to connect with an advanced printer via the port mode it sup-
ports. The options are: Bi-directional, EPP, ECP, ECP+EPP.

Interrupt
>   It allows users to select the some IRQ for parallel port.
>   The options are: IRQ5, IRQ7.

Hardware Monitor

```
                    Pheonix - AwardBIOS CMOS Setup Utility
       Advanced

              Hardware Monitor                        Item Help

       CPU Temperature                           Menu Level    ▶
       CPU Fan Speed
       SYS Fan Speed




        F1:Help    F5:Reload default    F10:Save and Exit    ESC:Exit without Saving
```
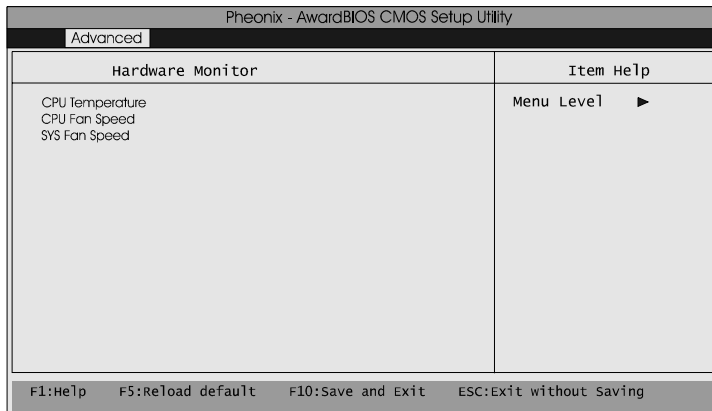
CPU Temperature / CPU FAN Speed / SYS FAN Speed
>   These items allow end users and technicians to monitor data provided by
>   the BIOS on this mainboard. It is not user-configurable.

Power Features Setup

```
                      Pheonix - AwardBIOS CMOS Setup Utility
  Main   Advanced   Power   Boot   Exit

                                                    Item Help

  After AC Power Failure      Stay Off              Menu Level    ▶

                                                    Set the mode of
                                                    Operation if an AC
                                                    Power Loss occurs.
                                                    [Stay Off] keeps the
                                                    Power off until the
                                                    Power button is
                                                    pressed. [Power On]
                                                    restores power as
                                                    soon as AC is
                                                    applied.


  F1:Help    F5:Reload default    F10:Save    ESC:Exit
```
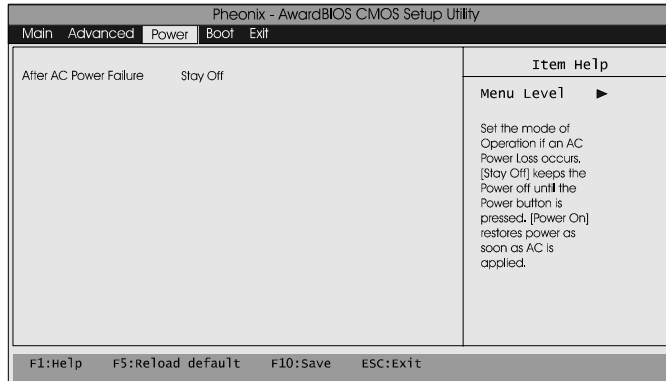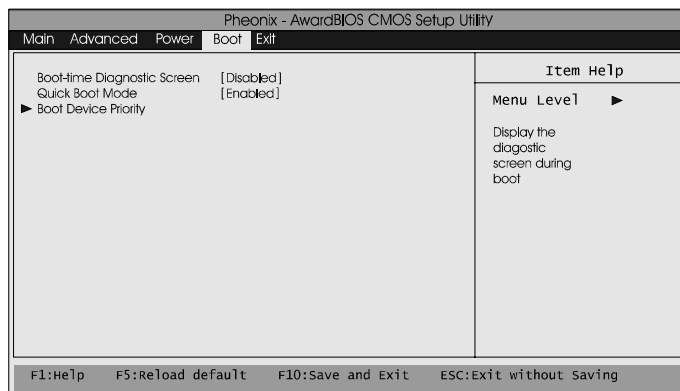
After AC Power Failure

This feature allows you to set the mode of the operation if an AC power loss occurs.

The option *Stay Off* keeps the power off until the power button is pressed.

The option *Power On* restores power as soon as AC is applied.

The options are Stay Off, Power On.

Boot Features Setup

```
                      Pheonix - AwardBIOS CMOS Setup Utility
  Main   Advanced   Power   Boot   Exit

    Boot-time Diagnostic Screen    [Disabled]       Item Help
    Quick Boot Mode                [Enabled]
  ▶ Boot Device Priority                            Menu Level    ▶

                                                    Display the
                                                    diagostic
                                                    screen during
                                                    boot





  F1:Help    F5:Reload default    F10:Save and Exit    ESC:Exit without Saving
```

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Boot-time Diagnostic Screen

This feature is activated to display the diagnostic screen during boot.
The options are Disabled, Enabled.

Quick Boot Mode

This feature is enabled to allow the system skips certain tests while boot-
ing. It will save the booting time.The options are Disabled, Enabled.

Boot Device Priority

This feature allows users to set the search order for the type of boot
devices.

First/Second/Third/Fourth Boot Device

This feature allows user to select the boot device priority. The options are:
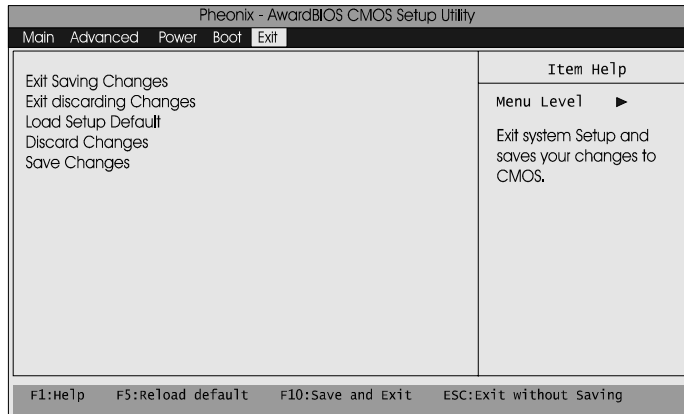Removable, Hard Disk, CDROM, LAN, Disabled.

Removable Device Priority

This feature allows user to select the removable device boot priority. The
options are: Floppy, ZIP100, LS120, USB-Floppy, USB-ZIP, USB-CDROM,
USB-HDD.

Hard Disk Boot Priority

This feature allows user to select the hard disk boot priority.

Exit Features Setup

Exit Saving Changes

After you have made changes under Setup, press Esc to return to the main menu. Move highlight bar to this item and press Enter key, then press Y to change the CMOS Setup.

Exit discarding Changes

Select this feature to allow you to exit the setup utility without saving CMOS modifications.

Load Setup Defaults

This item is selected to place all manufacturing default settings. These settings do not give optimal performance.

Discarding Changes

This feature allows you to discard the current CMOS modifications.

Save Changes

This feature allows you to save the current CMOS modifications.