

Electronic Emission Notices

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with instructions contained in this manual, may cause harmful interference to radio and television communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- REORIENT OR RELOCATE THE RECEIVING ANTENNA
- INCREASE THE SEPARATION BETWEEN THE EQUIPMENT AND THE RECEIVER
- CONNECT THE EQUIPMENT INTO AN OUTLET ON A CIRCUIT DIFFERENT FROM THAT OF THE RECEIVER
- CONSULT THE DEALER OR AN EXPERIENCED AUDIO/TELEVISION TECHNICIAN
- **NOTE:** Connecting this device to peripheral devices that do not comply with Class B requirements, or using an unshielded peripheral data cable, could also result in harmful interference to radio or television reception.

The user is cautioned that any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

To ensure that the use of this product does not contribute to interference, it is necessary to use shielded I/O cables.

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HARDWARE CONFIGURATION

KEY FEATURES:

Chipset

• SiS® 661GX + 964L chipset.

Processor

- Supports the Intel® Pentium® 4 processor in the 478-pin package (with 0.8V~1.6V voltage)
- Supports 64-bit PSB (Processor System Bus) frequency of 400MHz (100MHz bus clock), 533MHz (133MHz bus clock)

VRM 10.0 (Voltage Regulator Modules) on Board

• Flexible motherboard design with on board VRD 10.0, easy to upgrade with future Intel® Pentium® 4 processor.

System Memory

- A total of two 184pin DDR SDRAM sockets.
- Supports up to 2GB DRAMs.
- Supports 266/333/400 DDR SDRAM memory types.

System BIOS

- PnP, APM, ATAPI and Windows® 98/2000/XP.
- Full support of ACPI & DMI.
- · Auto detects and supports LBA harddisks with capacities over 160GB.
- Easy to upgrade BIOS by end-user.

On-board I/O

- Onboard two PCI fast IDE ports supporting up to 4 ATA, ATA2, Ultra ATA33/66/100 IDE HDDs, CD-ROMs, ZIP drives and LS-120 drives as boot drive.
- One ECP/EPP parallel port.
- One 16550 Compatible UART serial port .
- One floppy port which supports two FDD of 1.44MB, 2.88MB capacity.
- Eight USB ports.
- PS/2 keyboard support.
- PS/2 mouse support.
- One Front Panel Sound Connector.
- Infrared (IrDA) is supported via a header.

Plug-and-Play

- Supports Plug and Play specification 1.1.
- Plug and Play for Windows® 2000 as well as Windows® XP.
- Fully steerable PCI interrupts.

On-board AC97 Sound (optional)

- Integrated AC97 controller with standard AC97 Codec.
- Direct Sound and Sound Blaster compatible.
- Full-Duplex 16-bit record and play back.
- PnP and APM 1.2 support.
- Windows® 2000/XP ready.
- Supports Line-in, Line-out, Mic-in.
- · Supports ALC655 AC97 Code for six sound channel output (optional).

On-board Realtek RTL8100C PCI LAN (optional)

- · Provides 32-bit performance, PCI bus master capability.
- Full compliance with IEEE 802.3u 100 Base-T specifications and IEEE 802.3X Full Duplex Flow Control.
- Supports 10 Mb/s and 100 Mb/s operation.
- Supports Wake-On-LAN function and remote wake-up.
- Supports ACPI, PCI Power management and PCI VPD.

On Board VGA

- Core Frequency of 133MHz.
- 3D Setup Render Engine.
- High Quality Texture Engine.
- 3D Graphics Rasterization Enhancements.
- Full 2D H/W Acceleration.
- Motion Video Acceleration.
- Up to 2048x1536 in 8 bit Color at 85Hz Refresh.
- H/W Motion Compensation Assistance for S/W MPEG2 Decode.
- Software DVD at 30fps.
- Integrated 24-bit 333MHz RAMDAC.

Full Featured Accelerated Graphics Port (AGP)

- Supports AGP3.0 including 4X/8X AGP card.
- AGP 1.5V connector support only.
- High priority access support.

Expanded USB Support

- Includes 4 OHCI host controllers, increasing the number of external ports to eight.
- Includes 2 OHCI USB2.0 host controllers that support all eight ports (bandwidth is shared between eight ports).

Power Management

- Supports SMM, APM and ACPI.
- · Break switch for instant suspend/resume on system operations.
- Energy star "Green PC" compliant.
- Hardware monitoring circuit is supported, provide voltage, temperature, fan speed, etc. monitoring (optional).
- Supports suspend-to-RAM (STR) (optional).
- WOL (Wake-On-Lan) header support.
- External Modem Ring-in Wake-up support.

Note: Make sure that the current of your 5VSB power supply is over than 1.5A.

Expansion Slots

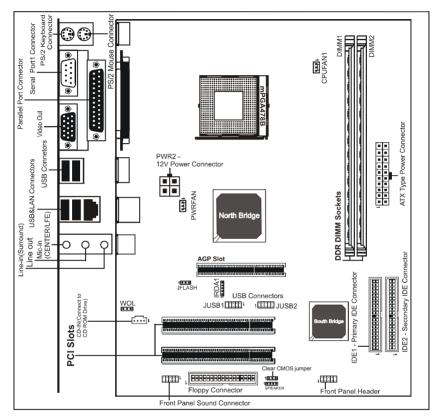
- 1 AGP slot.
- 2 PCI slots ver. 2.1 compliant.



Static electricity can harm delicate components of the motherboard. To prevent damage caused by static electricity, discharge the static electricity from your body before you touch any of the computers electronic components.

MOTHERBOARD LAYOUT

The following diagram shows the relative positions of the jumpers, connectors, major components and memory banks on the motherboard.



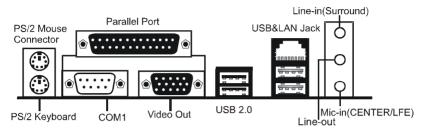
NOTE

1) Be sure to check the cable orientation in order to match the coloured strip to the pin 1 end of the connector.

When you start up the system, please wait for 5 seconds after you power on AC.
 Adding a metal spaced plate to the back of the Socket478 is not recommended as this will short motherboard components and damage the system.

REAR PANEL

The back panel provides the following connectors:



PS/2 Mouse Connector

The motherboard provides a standard PS/2[®] mouse mini DIN connector for attaching a PS/2[®] mouse. You can plug a PS/2[®] mouse directly into this connector.

PS/2 Keyboard Connector

The motherboard provides a standard PS/2[®] keyboard mini DIN connector for attaching a PS/2[®] keyboard. You can plug a PS/2[®] keyboard directly into this connector.

USB 2.0 Connector

The motherboard provides an OHCI (Open Host Controller Interface) Universal Serial Bus root for attaching USB devices such as keyboard, mouse or other USB-compatible devices. You can plug the USB device directly into the connector.

USB 2.0 Connector

1 4	
5 8	

USB 2.0 Connector Description

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

Serial Port Connector: COM1

The Port is a 16550A high speed communication port that send/receive 16 bytes FIFOs. You can attach a serial mouse or other serial devices directly to the connector.

Video Out Connector

The mainboard provides a Video out port to connect a 15-pin analog video monitor.

LAN Jack (Optional)

The mainboard provides one standard RJ-45 jack for connecting to a Local Area Network (LAN). You can connect a network cable to the LAN jack.

Parallel Port Connector: LPT1

The mainboard provides a 25-pin female centronic connector. A parallel port is a standard printer port that supports Enhanced Parallel Port (EPP) and Extended Capabilities Parallel Port (ECP) mode.

Audio Port Connector

Line_Out is a connector for speakers or headphones. Line_In is used for external CD players, tape players, or other audio devices. Mic_In is the microphone connector.

The ALC655 embeds an internal analog switch (by driver software) to select LINE input or Surround output, and to select MIC input or CENTER/LFE output.

Connectors

The mainboard provides connectors to connect to the FDD, IDE HDD, USB Ports and to the CPU/System FAN etc.

Floppy Disk Drive Connector - FDD1

The mainboard provides a standard floppy disk drive connector that supports 1.44M, 2.88M floppy disk types.

Hard Disk Connectors - IDE1, IDE2

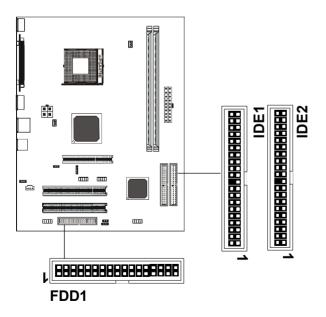
The mainboard has a 32-bit Enhanced PCI IDE and Ultra DMA 33/66/100/133 controller that provides PIO mode 0~4, Bus Master, and Ultra DMA 33/66/100/ 133 function. You can connect up to four hard disk drives, CD-ROMs, 120MB Floppy (reserved for future BIOS) and other devices.

IDE1 (Primary IDE Connector)

The first hard drive should always be connected to IDE1. IDE1 can connect a Master and a Slave drive. You must configure the second hard drive to Slave mode by setting the jumper accordingly.

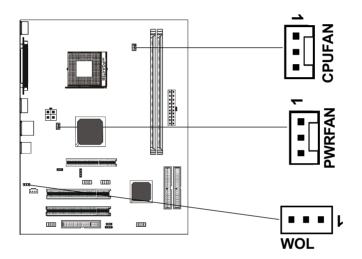
IDE2 (Secondary IDE Connector)

IDE2 can also connect a Master and a Slave drive.



Fan Power Connectors - CPUFAN, PWRFAN

The CPUFAN (processor fan), PWRFAN (system fan) supports a system cooling fan using +12V via a three-pin head connector. When connecting the wire to the connecteds, always take note that the red wire is the positive and should be connected to the +12V, the black wire is Ground and should be connected to GND. If the mainboard has a System Hardware Monitor chipset onboard, you must use a specially designed fan with speed sensor to take advantage of the CPU fan control.



CPUFAN and PWRFAN

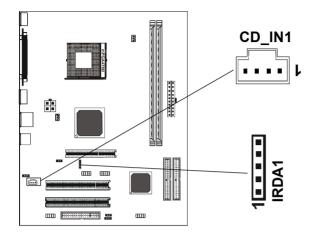
PIN	Assignment	
1	FAN speed detect	
2	+12V	
3	GND	

Wake On LAN - WOL

If you have installed a LAN card, use the cable provied with the card to plug into the mainboard WOL connector. This enables ables the Wake On LAN (WOL) feature. When your system is in a power-saving mode, any LAN signal automatically resumes the system. You must enable this item using the Power Mannagement page of the Setup Utility.

CD-IN Connector - CD_IN1

The connector is for CD-ROM Drive.



CD_IN1

_	
PIN	Assignment
1	CD-L
2	GND
3	GND
4	CD-R

IRDA1

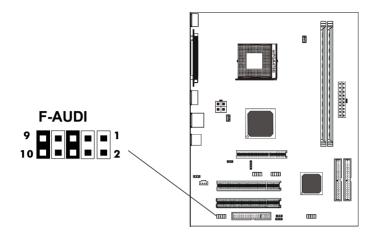
PIN	Assignment
1	5V
2	NC
3	IRRX
4	GND
5	IRTX

IRDA Connector - IRDA1

This connector supports wireless transmitting and receiving device, before using this function configure the settings of IR address, IR Mode and IR IRQ from the "Integrated Peripherals" section of the CMOS setup.

Front Panel Audio Header - F-AUDI

This mainboard supports front panel microphone and speaker out ports. If your computer case has these ports, connect them to F-AUDI.



F-AUDI

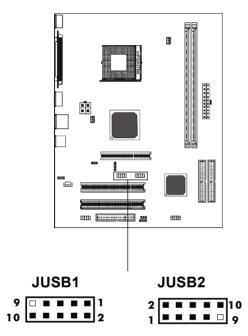
PIN	Assignment
1	MIC
2	GND
3	REF
4	POWER
5	Front Audio(R)
6	Rear Audio(R)
7	Reserved
8	Key (No pin)
9	Front Audio (L)
10	Rear Audio (L)

Note:

If you want to use the "Front Audio" connector, you must remove the 5-6, 9-10 pin jumpers. In order to utilize the front audio header, your chassis must have front audio connector. Also please make sure the pin assignment on the cable is the same as the pin assignment on the MB header. To find out if the chassis you are buying supports a front audio connector, please contact your dealer.

USB Connectors - JUSB1, JUSB2

This mainboard has USB ports. Some computer cases have a special module that mounts USB ports at the front of the case. If you have this kind of case, use the auxiliary USB connector JUSB1/JUSB2 to connect the front mounted ports to the mainboard.

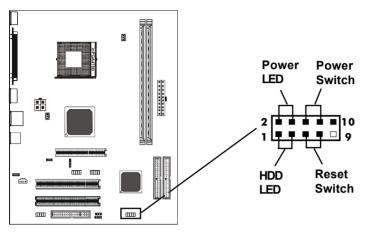


USB Connector

PIN	Assignment
1	VCC
2	VCC
3	USBP0-
4	USBP1-
5	USBP0+
6	USBP1+
7	GND
8	GND
9	KEY
10	OC#

Front Panel Header - FPANEL

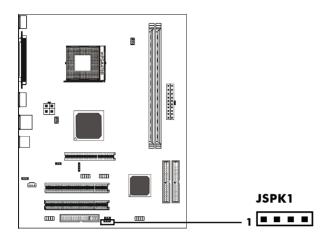
This motherboard provides a front panel connection to the front panel switches and LEDs. FPANEL is compliant with the Front Panel I/O Connectivity Design Guide.



FPANEL - Pin Definition

PIN SIGNAL DESCRIPTION	
1 HD_LED_P Hard disk LED pull-up 2 FP PWER/SLP MSG LED + 3 HD_LED_N Hard disk active LED 4 FP PWER/SLP MSG LED - 5 RST_SW_N Reset Switch low reference pull-down to 6 PWR_SW_P Reset Switch high reference pull-up 7 RST_SW_N Reset Switch high reference pull-up 8 PWR_SW_N Reset Switch low reference pull-down to 9 RSVD DNU Reserved. Do not use.	

Speaker Header - JSPK1 This motherboard provides a speaker connection to the external PC speaker.

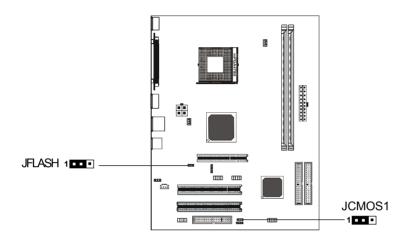


JSPK1 - Pin Definition

PIN	SIGNAL
1	VCC
2	GND
3	GND
4	SPEAKER

JUMPER SETTING

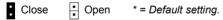
This chapter explains how to configure the motherboard's hardware. Before using your computer, make sure all jumpers and DRAM modules are set correctly. Refer to this chapter whenever in doubt.



Clear CMOS Jumper - JCMOS1

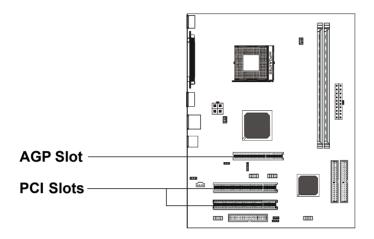
If you want to clear the system configuration, use the JCMOS1 (Clear CMOS Jumper) to clear data.

JCMOS1	Selection
1 1-2*	Normal*
1 2-3	CMOS Clear



SLOTS

The motherboard provides one AGP slot and two 32-bit PCI slots.



AGP (Accelerated Graphics Port) Slot

The AGP slot allows you to insert the AGP graphics card. AGP is an inter-face specification designed for the throughput demands of 3D graphics. It introduces a 66MHz, 32-bit channel for the graphics controller.

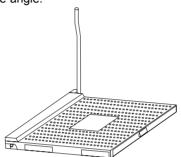
PCI (Peripheral Component Interconnect) Slots

The PCI slots allow you to insert expansion cards to meet your needs. When adding or removing expansion cards, make sure that you unplug the power supply first. Read the documentation for the expansion card and make any necessary hardware or software settings for the expansion card, such as jumpers, switches or BIOS configuration.

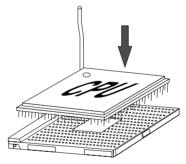
CPU Installation

Please refer to the following steps to install the CPU.

1. Please turn off the power and unplug the power cord before installing the CPU. Pull the lever sideways away from the socket. Make sure to raise the lever up to a 90 degree angle.



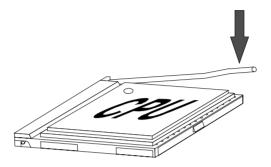
2. Look for the gold arrow. The gold arrow should point towards the lever pivot. The CPU can only fit in the correct orientation.



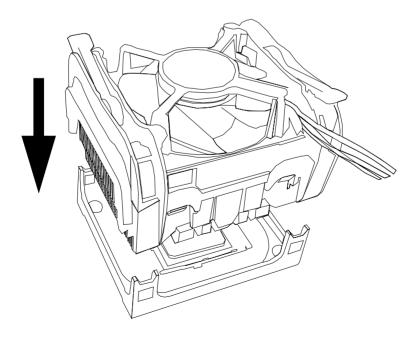
3. If the CPU is correctly installed, the pins should be completely embedded into the socket and can not be seen. Please note that any violation of the correct installation procedures may cause permanent damages to your mainboard.

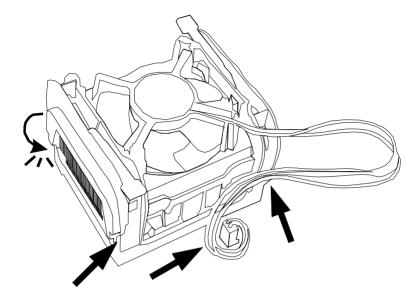


4. Press the CPU down firmly into the socket and close the lever. As the CPU is likely to move while the lever is being closed, always close the lever with your fingers pressing tightly on top of the CPU to make sure the CPU is properly and completely embedded into the socket.



5. Position the CPU cooler set onto the CPU.



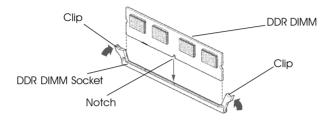


6. Use one end of the clip to hook the latch of the CPU sliding plate and then hook the other three latch to fix the cooling fan set. At last, connect the fan to the power supply connector provided on your mainboard.

Install DDR DIMMs

Please follow the steps below to install the DDR DIMMs.

- 1. Locate the DDR DIMM sockets.
- 2. Holding the DDR DIMM by the edges, remove it from its antistatic package.
- 3. Make sure the clips at either end of the socket are pushed away from the socket.



4. Position the DDR DIMM above the socket. Align the notch in the bottom edge of the DDR DIMM with the key in the socket.

5. Insert the bottom edge of the DDR DIMM into the socket.

6. When the DDR DIMM is seated, push down on the top edge of the DDR DIMM until the retaining clips at the ends of the socket snap into place.

Note: Please turn the system off before installing or removing any device, otherwise system damage can occur.

BIOS SETUP

About the Setup Utility

The motherboard uses the latest Award BIOS with support for Windows Plug and Play. The CMOS chip on the motherboard contains the ROM setup instructions for configuring the motherboard BIOS.

The BIOS (Basic Input and Output System) Setup Utility displays the system's configuration status and provides you with options to set system parameters. The parameters are stored in battery-backed-up CMOS RAM that saves this information when the power is turned off. When the system is turned back on, the system is configured with the values you stored in CMOS.

The BIOS Setup Utility enables you to configure:

Hard drives, diskette drives and peripherals Video display type and display options Password protection to prevent unauthorized use Power Management features

The settings made in the Setup Utility affect how the computer performs. Before using the Setup Utility, ensure that you understand the Setup Utility options.

This chapter provides explanations for Setup Utility options.

The Standard Configuration

A standard configuration has already been set in the Setup Utility. However, we recommend that you read this chapter in case you need to make any changes in the future.

This Setup Utility should be used:

- when changing the system configuration
- when a configuration error is detected and you are prompted to make changes to the Setup Utility
- when trying to resolve IRQ conflicts
- when making changes to the Power Management configuration
- when changing the password or making other changes to the Security Setup

Entering the Setup Utility

When you power on the system, BIOS enters the Power-On Self Test (POST) routines. POST is a series of built-in diagnostics performed by the BIOS. After the POST routines are completed, the following message appears:

Main Menu

Once you enter the Award BIOS CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from various setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

Phoenix - Award WorkstationBIOS CMOS Setup Utility	
----------------------------------------------------	--

 Standard CMOS Features Advanced BIOS Features Advanced Chipset Features Integrated Peripherals Power Management Setup PnP/PCI Configurations PC Health Status 	 Frequency/Voltage Control Load Fail-Safe Defaults Load Optimized Defaults Set Supervisor Password Set User Password Save & Exit Setup Exit Without Saving 			
Esc : Quit ↑↓→← : Select Item F10 : Save & Exit Setup				
Time, Date, Hard Disk Type				

(Note : The sample BIOS Setup Menu included here only shows a typical case, and may not be exactly the same as the one on your unit.)

Note that a brief description of each highlighted item will appear at the bottom of the screen.

Standard This setup page includes all the items of Award[™] special **CMOS Features** standard features.

Advanced BIOS This setup page includes all the items of Award[™] special enhanced features.

Advanced This setup page includes all the items of chipset special Chipset Features features.

Integrated This section page includes all the items of IDE hard drive and Programmed Input / Output features.

PowerThis entry only appears if your system supports PowerManagementManagement "Green PC" standards.Setup

PNP/PCI This entry appears if your system supports PNP/PCI. **Configurations**

PC Health Status Display CPU and Case Fan Speed etc.

Frequency/ CPU speed setting are settings of CPU speed. You should **Voltage Control** refer to your CPU marking.

Load Fail-Safe Defaults	The BIOS defaults that have been set by the manufacturer and represent settings which provide the minimum requirements for your system to operate.
Load Optimized Defaults	These chipset defaults are settings which provide for maximum system performance. While Award has designed the custom BIOS to maximize performance, the manufacturer has the right to change these defaults to meet their needs.
Set Supervisor/ User Password	Changes, sets, or disables password. It allows you to limit access to the system and the Setup Program.
Save & Exit Setup	Saves value changes to CMOS and exits setup.
Exit Without Saving	Abandons all CMOS value changes and exits setup.

Standard CMOS Features

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes one or more setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> key to select the desired value in each item.

Phoenix - Award WorkstationBIOS CMOS Setup Utility
Standard CMOS Features

Date (mm :d d :yy)	Sat. Jan 01 2005 11:1:35	Item Help
Time (h h :mm:ss) IDE Primary Master IDE Primary Slave IDE Secondary Master	[Press Enter 4303 MB] [None] [None]	Menu Level Change the day, month, year and century
 IDE Secondary Slave Drive A Drive B 	[None] [1.44M, 3.5 in.] [None]	
Video Halt on	[EGA/VGA] [All, but keyboard]	
Base Memory Extended Memory Total Memory	640K 30720K 31744K	

★↓→€MoveEnter: Select+/-/PU/PD : ValueF10 : SaveESC : ExitF1 : General HelpF5 : Previous ValuesF6 : Fail-SafeDefaultsF7 : OptimizedDefaults

(Note : The sample BIOS Setup Menu included here only shows a typical case, and may not be exactly the same as the one on your unit.)

Date	The date format is <day-of-the-week>. <month> <day> <year>.</year></day></month></day-of-the-week>
Time	The time format is <hour> <minute> <second> displayed in 24-hour military-time clock. For example, 1 p. m. is displayed as 13:00:00.</second></minute></hour>
Primary Master/Primary Slave/Secondary	
-	ry If the controller of the HDD interface is SCSI, the selection shall be "None".
Drive A Type / Drive B Type	This category identifies the drive types which have been installed in the computer.
Video	The default setting is EGA/VGA.
Halt on	You can select which type of error will cause the system to halt.

Advanced BIOS Features

This section allows you to configure your system for basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.

Advanced Chipset Features

The Chipset Features Setup option is used to change the values of the chipset registers. These registers control most of the system options in the computer.

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache. It must be stated that these items should not be altered. The default settings have been chosen because they provide the best operating conditions for your system.

Integrated Peripherals

The Integrated Peripherals Setup allows the user to configure the onboard IDE controller, floppy disk controller, the printer port and the serial ports.

Power Management Setup

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

PNP/PCI Configurations

This section describes how to configure the PCI bus system. This section covers some very technical items and it is recommended that only experienced users should make any changes to the default settings.

PC Health Status

The PC Health Status displays CPU and Case Fan Speed.

Set Supervisor/User Password

When this function is selected, the following message appears at the center of the screen to assist you in creating a password.

ENTER PASSWORD

Type the password, up to eight characters, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection. To disable password, just press <Enter> when you are prompted to enter password. A message will confirm the password being disabled. Once the password is disabled, the system will boot and you can enter BIOS Setup freely.

PASSWORD DISABLED

If you have selected "**System**" in "Security Option" of "BIOS Features Setup" menu, you will be prompted for the password every time the system reboots or any time you try to enter BIOS Setup. If you have selected "**Setup**" at "Security Option" from "BIOS Features Setup" menu, you will be prompted for the password only when you enter BIOS Setup.

Supervisor Password has higher priority than User Password. You can use Supervisor Password when booting the system or entering BIOS Setup to modify all settings. Also you can use User Password when booting the system or entering BIOS Setup but can not modify any setting if Supervisor Password is enabled.

Save & Exit Setup

Navigate to this option and press <Enter> to save the changes that you have made in the Setup Utility and exit the Setup Utility. When the Save and Exit dialog box appears, press <Y> to save and exit, or press <N> to return to the main menu.

Exit Without Saving

Navigate to this option and press <Enter> to discard any changes that you have made in the Setup Utility and exit the Setup Utility. When the Exit Without Saving dialog box appears, press <Y> to discard changes and exit, or press <N> to return to the main menu.

Note: If you have made settings that you do not want to save, use the "Exit Without Saving" item and press <Y> to discard any changes you have

FLASH Update Procedure

The program AWDFLASH.EXE is included on the driver CD (D:\Utility\ AWDFLASH.EXE). Please follow the recommended procedure to update the flash BIOS, as listed below.

1. Create a DOS-bootable floppy diskette. Copy the new BIOS file (just obtained or downloaded) and the utility program AWDFLASH.EXE to the diskette.

- 2. Allow the PC system to boot from the DOS diskette.
- 3. At the DOS prompt, type

AWDFLASH<ENTER>

- 4. Enter the file name of the new BIOS.
- 5. The question: "Do you want to save BIOS (Y/N)?" is displayed.

Press "N" if there is no need to save the existing BIOS. Press "Y" if a backup copy of the existing BIOS is needed. (A file name has to be assigned to the existing BIOS binary file.)

6. The message : "Press "Y" to program or "N" to exit" is displayed. Type

"Y"<ENTER>

- 7. Wait until the flash-update is completed.
- 8. Restart the PC.

Warning: - Do not turn off or RESET the computer during the flash process.

- If you are not sure how to upgrade the BIOS, please take your computer to an Authorized Service Center and have a trained technician do the work for you.

Note to User:

The bundled driver CD contains all the drivers that the motherboard needs. Each driver will install automatically once it is selected. Please select the drivers that you want to install by clicking on the driver's button.