



Declaration of Conformity

According to 47 CFR, Parts 2 and 15 of the FCC Rules

The following designated product:

EQUIPMENT: MAINBOARD

is a Class B digital device that complies with 47 CFR Parts 2 and 15 of the FCC Rules. Operation is subject to the following two conditions:

- 1. This device may not cause harmful interference.**
- 2. This device must accept any interference received, including interference that may cause undesired operation.**

This declaration is given to the manufacturer:

**CHAINTECH-EXCEL COMPUTER INC.
4427 Enterprise St. Fremont, CA 94538, U.S.A.**

<http://www.chaintechusa.com>

Chaintech President: Simon Ho

Signature:

A handwritten signature in black ink, appearing to be 'S. Ho', written over a horizontal line.

AMD® Socket A
NVIDIA nForce 2 IGP + MCPS
u-ATX Motherboard

User's Guide

Federal Communications Commission Statement

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

- * This device may not cause harmful interference.
- * This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy. If this equipment is not installed and used in accordance with the manufacturer's instructions, it may cause harmful interference to radio 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 receiver.
- * Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- * Consult the dealer or an experienced radio/TV technician for help.

The use of shielded cables for connection of the monitor to the graphics card is required to assure compliance with FCC regulations. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Canadian Department of Communications Statement

This digital apparatus does not exceed the Class B limits for audio noise emissions from digital apparatuses set out in the Radio Interference Regulations of the Canadian Department of Communications.

Manufacturer's Disclaimer Statement

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Revision History

Revision	Description	P/N
V.1S_E	Original Issue	9415230110

Chapter 1 Introduction

1-1 Product Specifications

CPU

- Supports AMD Socket-A Athlon XP/Duron/Sempron CPU
- System Clock supports 200/266/333/400MHz

Chipset

- NVIDIA nForce2 IGP + MCPS

Memory

- Three 184-pin DDR DIMMs up to 3GB
- Supports Dual-Channel DDR266/333/400 SDRAM modules (UMA DDR333)

Expansion Slots

- One AGP slot for 4X/8X AGP
- Three 32-Bit PCI slots (v2.2 compliant)

Video

- Integrated NVIDIA NV17-class (GeForce4 MX) GPU
- Embedded TV encoder supporting NTSC/PAL TV
- 256-bit 3D/2D graphics accelerator
- Full frame rate video playback of HDTV and DVD content
- Shared system memory up to 128MB

5.1-Channel Audio

- With external high quality 5.1-Channel AC'97 Codec
- Complete software driver supports for Windows OS
- Optional S/PDIF out function

IDE

- Build-in nForce2 MCPS supports 2 UltraDMA-33/66/100/133 IDE ports

SATA RAID

- Build-in nForce2 MCPS supports 2 Serial ATA devices for the highest data transfer rates (1.5Gbps burst) with RAID 0/1 solution

FDD

- One FDD connector supports up to 2.88MB

USB2.0

- Build-in nForce2 MCPS supports total 8 USB 2.0/1.1 ports
- Supports USB 2.0 High-Speed Device @480 Mb/s Transfer Rates

Fast Ethernet

- Supports 10/100Mb Fast Ethernet with external PHY

Boot-Block Flash ROM

- Award system BIOS supports PnP, APM, DMI, ACPI, & Multi-device booting features

Rear Panel I/O ports

- PS/2 Mouse and Keyboard port
- Dual-USB port and RJ45 connector
- 25-pin D-Sub female Parallel port
- S-Video port for TV output
- 15-pin D-Sub female VGA port
- Audio I/O jacks (Line-in, Line-out and Mic-in)
- 15-pin D-Sub female Game/MIDI port

Internal I/O connectors

- Two 3x1 pin fan connectors
- Three 5x2 pin USB connectors for additional 6 USB ports
- 3x2 pin SPDIF connector for additional SPDIF-out adaptor
- 3x1 pin wake on LAN connector with housing
- 3x1 pin wake on Modem connector with housing
- Two 4x1 pin CD-in connectors
- 9x2 pin front panel connector
- 5x2 pin front side audio connector
- 20 pin ATX Power connector
- 4x1 pin Aux-in connector

Form Factor

- Micro-ATX Form Factor 244mm x 244mm

1-2 Package Contents

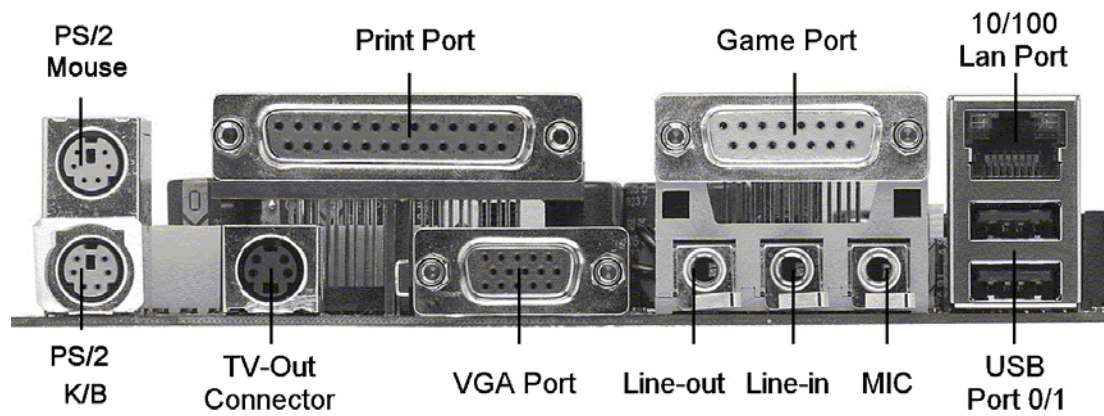
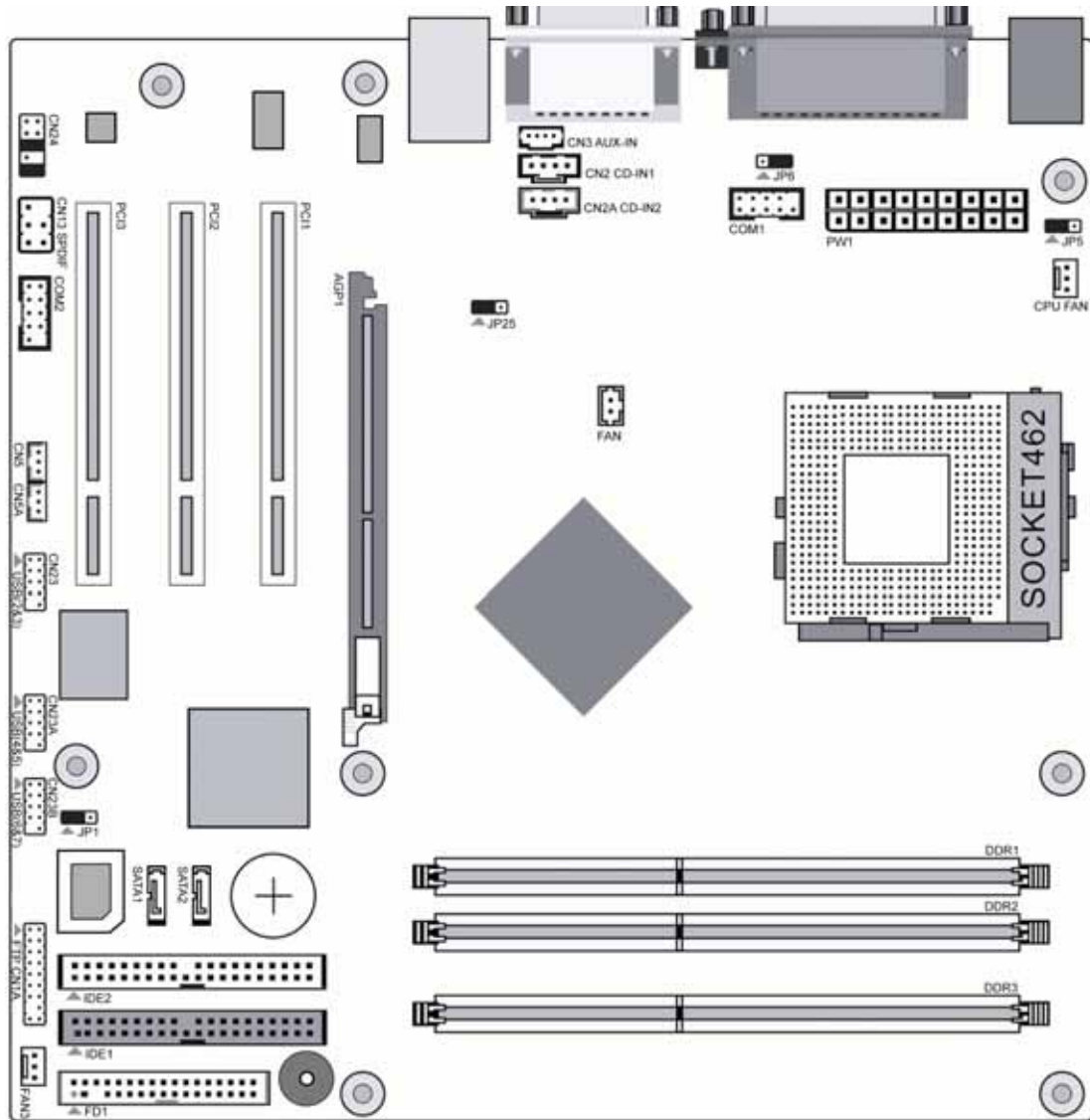
This product comes with the following components:

1. Motherboard x 1
2. I / O Panel x 1
3. 40-Pin UDMA-100 IDE Cable x 1
Blue to motherboard, **Gray** to Master and **Black** to Slave.
4. 34-Pin floppy Disk Drive Cable x 1
5. Manual x 1
6. Driver CD x 1

Includes:

- VGA Drivers
- Audio drives and utility
- LAN Drivers
- USB 2.0 Drivers
- nVidia® Chipset Software installation utility.

1-3 Motherboard Layout



Chapter 2 Hardware Setup

If your motherboard has already been installed in your computer you may still need to refer to this chapter if you plan to upgrade your system's hardware.

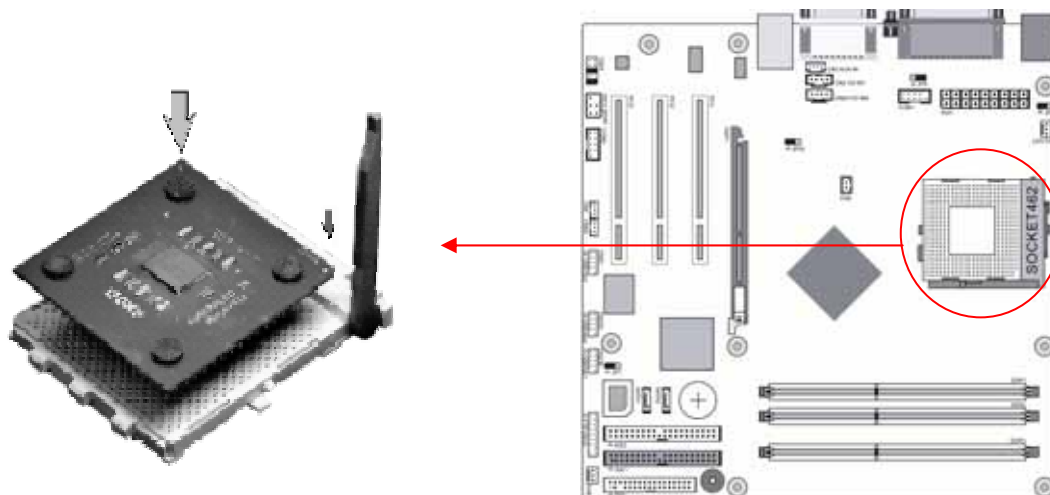


This motherboard is electrostatic sensitive. Do not touch without wearing proper safety gadget and make sure to disconnect the power cable from the power source before performing any work on your motherboard. Not doing so may result in electrical shock!

2-1 Installing a CPU Processor for Socket A

The Socket A, designed for AMD® Athlon/Duron/XP processors, has been incorporated as a standard motherboard specification. To insert your CPU into Socket A please do the following:

1. Locate a cut edge on the top surface of the CPU close to one of its corners. The same corner will also be cut off, leaving a noticeable notch in the CPU's corner. These markings indicate Pin 1 of the CPU.
2. Pull up the lever of Socket 462 so that it is perpendicular with the surface of the motherboard. Gently insert the CPU with Pin 1 at the same corner of Socket 462 that contains the end of the lever. Allow the weight of the CPU to push itself into place. Do not apply extra pressure as doing so may result in damaging your CPU. Snap the lever back into place.



Installing an AMD® approved heat sink with cooling fan is necessary for proper heat dissipation from your CPU. Failing to install these items may result in overheating and possible burnout of your CPU.



In order to boot up with a newly installed CPU, AC Power must be switched off before installation.

2-2 Setting Your CPU's Performance:

Frequency Configuration:

If you install a CPU on this motherboard, you must set the [Front Side Bus Frequency] JP25 according to your processor.

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



You do not need to make voltage settings because this board will automatically set your CPU voltage.

AMD (K7) Duron CPU

Model	CPU Speed	CPU Frequency	Multiplier	Vcore	L2 Cache	Micron process
600	600 MHz	100	6.0	1.6V	64KB	0.18
650	650 MHz	100	6.5	1.6V	64KB	0.18
700	700 MHz	100	7.0	1.6V	64KB	0.18
750	750 MHz	100	7.5	1.6V	64KB	0.18
800	800 MHz	100	8.0	1.6V	64KB	0.18
850	850 MHz	100	8.5	1.6V	64KB	0.18
900	900 MHz	100	9.0	1.6V	64KB	0.18
950	950 MHz	100	9.5	1.6V	64KB	0.18
1.0G	1.0 GHz	100	10.0	1.6V	64KB	0.18
1.1G	1.1 GHz	100	11.0	1.6V	64KB	0.18
1.2G	1.2 GHz	100	12.0	1.6V	64KB	0.18
1.3G	1.3 GHz	100	13.0	1.6V	64KB	0.18

AMD Athlon CPU (K7/Thunderbird)

Model	CPU Speed	CPU Frequency	Multiplier	Vcore	L2 Cache	Micron process
700	700MHz	100	7.0	1.70V	256KB	0.18
750	750MHz	100	7.5	1.70V	256KB	0.18
800	800MHz	100	8.0	1.70V	256KB	0.18
850	850MHz	100	8.5	1.70V	256KB	0.18
900	900MHz	100	9.0	1.75V	256KB	0.18
950	950MHz	100	9.5	1.75V	256KB	0.18

1000	1000MHz	100	10.0	1.75V	256KB	0.18
1100	1100MHz	100	11.0	1.75V	256KB	0.18
1200	1200MHz	100	12.0	1.75V	256KB	0.18
1300	1300MHz	100	13.0	1.75V	256KB	0.18
1400	1400MHz	100	14.0	1.75V	256KB	0.18
1000	1000MHz	133	7.5	1.75V	256KB	0.18
1113	1113MHz	133	8.5	1.75V	256KB	0.18
1200	1200MHz	133	9.0	1.75V	256KB	0.18
1333	1333MHz	133	10.0	1.75V	256KB	0.18
1400	1400MHz	133	10.5	1.75V	256KB	0.18

AMD Athlon XP CPU (Palomino/Thoroughbred)

Model	CPU Speed	CPU Frequency	Multiplier	Vcore	L2 Cache	Micron process
1500+	1333MHz	133	10.0	1.7V	256KB	0.18
1600+	1400MHz	133	10.5	1.7V	256KB	0.18
1700+	1466MHz	133	11.0	1.7/1.6V	256KB	0.18/0.13
1800+	1533MHz	133	11.5	1.7/1.6V	256KB	0.18/0.13
1900+	1600MHz	133	12.0	1.7/1.6V	256KB	0.18/0.13
2000+	1666MHz	133	12.5	1.7/1.6V	256KB	0.18/0.13
2100+	1733MHz	133	13.0	1.7/1.6V	256KB	0.18/0.13
2200+	1800MHz	133	13.5	1.65V	256KB	0.13
2400+	2000MHz	133	15.0	1.65V	256KB	0.13
2600+	2133MHz	133	16.0	1.65V	256KB	0.13
2600+	2075MHz	166	12.5	1.65V	256KB	0.13
2700+	2166MHz	166	13.0	1.65V	256KB	0.13

AMD Athlon XP CPU (Barton)

Model	CPU Speed	CPU Frequency	Multiplier	Vcore	L2 Cache	Micron process
2500+	1833MHz	166	11.0	1.65V	512KB	0.13
2600+	1917MHz	166	11.5	1.65V	512KB	0.13
2800+	2075MHz	166	12.5	1.65V	512KB	0.13
3000+	2167MHz	166	13.0	1.65V	512KB	0.13
3000+	2100MHz	200	10.5	1.65V	512KB	0.13
3200+	2200MHz	200	11.0	1.65V	512KB	0.13

AMD Sempron CPU

Model	CPU Speed	CPU Frequency	Multiplier	Vcore	L2 Cache	Micron process
2200+	1.5GHz	166	9.0	1.6V	256KB	0.13
2300+	1.583GHz	166	9.5	1.6V	256KB	0.13
2400+	1.667GHz	166	10.0	1.6V	256KB	0.13
2500+	1.750GHz	166	10.5	1.6V	256KB	0.13
2600+	1.833GHz	166	11.0	1.6V	256KB	0.13
2800+	2.0GHz	166	12.0	1.6V	256KB	0.13

2-3 Main Memory Configuration

This motherboard provides 3 184pin Double Data Rate (DDR) Dual Inline Memory Modules (DIMM) slots. Which supports PC 1600/DDR200, PC2100/DDR266, PC2700/DDR333 and PC3200/DDR400 DDR SDRAM modules up to 3GB.



To support Dual-Channel DDR400 please use an additional VGA card to prevent the onboard VGA to share the system memory.

Install at least one DIMM module on the slots. Memory modules can be installed on the slots in any order. You can install either single- or double-sided modules to meet your own needs. The DDR SDRAM memory system consists three banks and each bank can support up to 1GB memory size. If you only use one bank it does not matter which one you use and if you use two or more banks, it does not matter which bank you install first.

DIMM Module Combination

Install at least one DIMM module on the slots. You can install either single- or double-sided modules in any order to meet your own needs. Memory modules can be installed in any combination as follows:

Location	64 MB	128 MB	256 MB	512 MB	1.0 GB
DDR 1	V	V	V	V	V
DDR 2	V	V	V	V	V
DDR 3	V	V	V	V	V

To install your DDR Modules please follow the following steps:

1. Unlock a DIMM socket by pressing the retaining clips outward. The DDR Modules has only one notch at the center of module. The DDR module will only fit in the right position.
2. Insert the DDR Module vertically into the DIMM slot, with the correct alignment. Then push it in until the golden finger on the memory module is deeply inserted into the socket.
3. The plastic clip on each side of the DIMM slot will automatically close to hold the DDR Modules in place.



For maximized Dual-channel (128-bit) result, you must install one of your two memory modules on DDR3.

2-4 Connector and Jumper Reference Chart

Jump Connector	Function	Page
PW 1	u-ATX Power Supply Connector	10
FD1	Floppy Connector	11
IDE 1/2	IDE Hard-Disk Connector	12
SATA 1/2	SATA Hard-Disk Connector	12
FAN 1/3	CPU/ Case FAN Connector (12V)	13
FAN 4	North Bridge Cooling Fan Power Connector (12V)	13
JP1	CMOS Clear Jumper	14
JP5	Keyboard Power on Function Jumper	14
JP6	Disable/Enable USB 0/1 Device Power ON Jumper	15
JP25	Setup CPU FSB. Freq. Jumper	15
CN1A	Front Panel (Power / Rest / SPK...etc.) Connector	16
CN2 /2A	CD-ROM Audio-in Connector	17
CN3	Auxiliary Audio-in Connector	17
CN13	S/PDIF Connector	18
CN5	Wake on LAN Connector	18
CN5A	Wake on Modem Connector	19
CN23 /23A/23B	USB Connector for USB 2/3, 4/5 and 6/7	19
CN24	Front Audio Connector	20
COM1	Serial port / COM Headers	20
COM2	Serial port / COM Headers	21

2-5 Connector and Jumper Settings

Connectors are used to link the system board with other parts of the system, including the power supply, the keyboard, and the various controllers on the front panel of the system case.

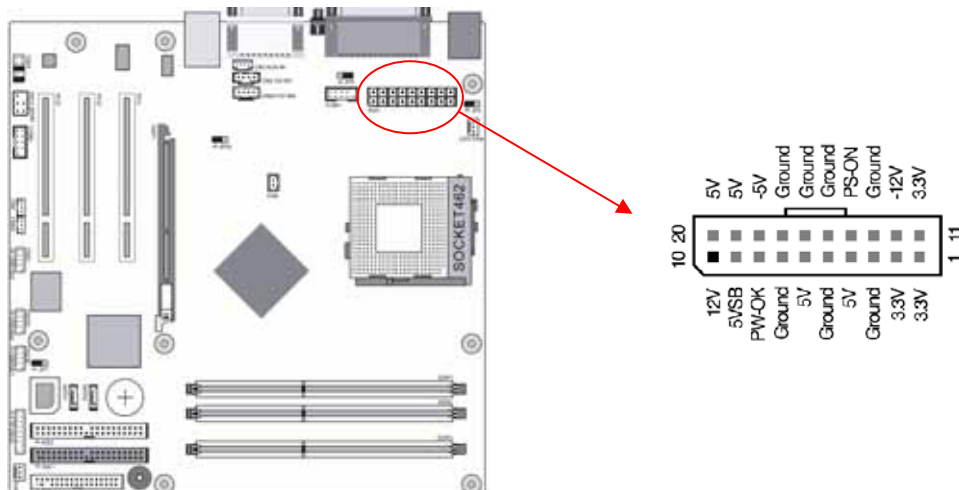


The power supply connector is the last connection to be made while installing a motherboard. Before connecting the power supply, please make sure it is not connected to the power source.



All cables are security-proof

PW 1 (u-ATX Power Supply Connector):



The power cord leading from the system's power supply to the external power source must be the very last part connected when assembling a system. The u-ATX power supply provides a single 20-pin connector interface, which incorporates standard +/-5V, +/-12V, optional 3.3V and Soft-power signals. The soft-power signal, a 5V trickle supply is continuously supplied when AC power is available. When the system is in the Soft-Off mode, this trickle supply maintains the system in its minimum power state.

Software Power-Off Control

This motherboard can be powered down using Windows® 9x Software Power-Off function. To power down your computer, click the START button on the Windows® 9x task bar. Select “Shut down the computer” and the system turns off. The message “It is now safe to turn off your computer” will not be shown when using this function.

Power-On By Modem:

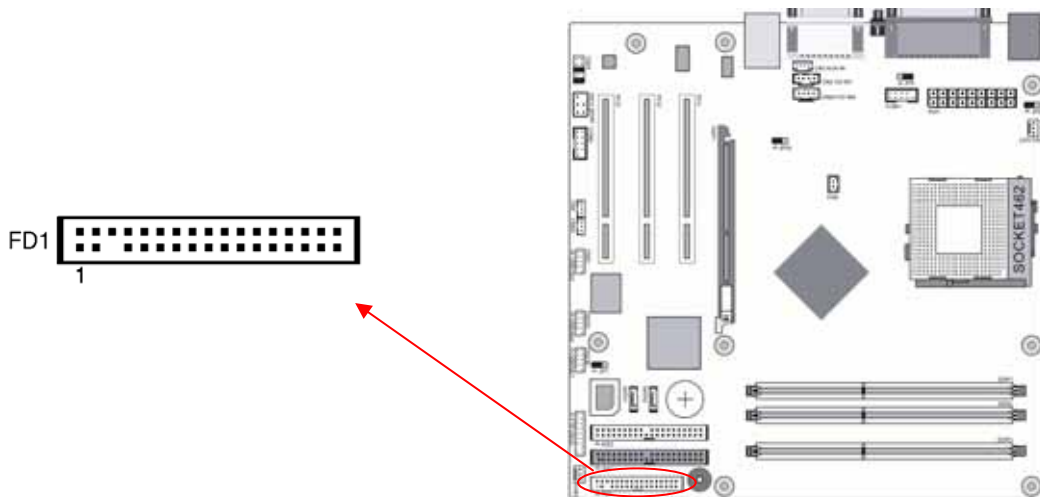
While in Soft-Off state, if an external modem ring-up signal occurs, the system wakes up and can be remotely accessed. You may enable this function in BIOS's Power Management Setup menu. (See section 3).

Blinking LED in Suspend Mode:

While in Suspend mode, the LED light on the front panel of your computer will flash. Suspend mode is entered by pressing the Override Power Button, pushing the Green button on your ATX case, or enabling the Power Management and Suspend Mode options in BIOS's Power Management menu. (See section 3).

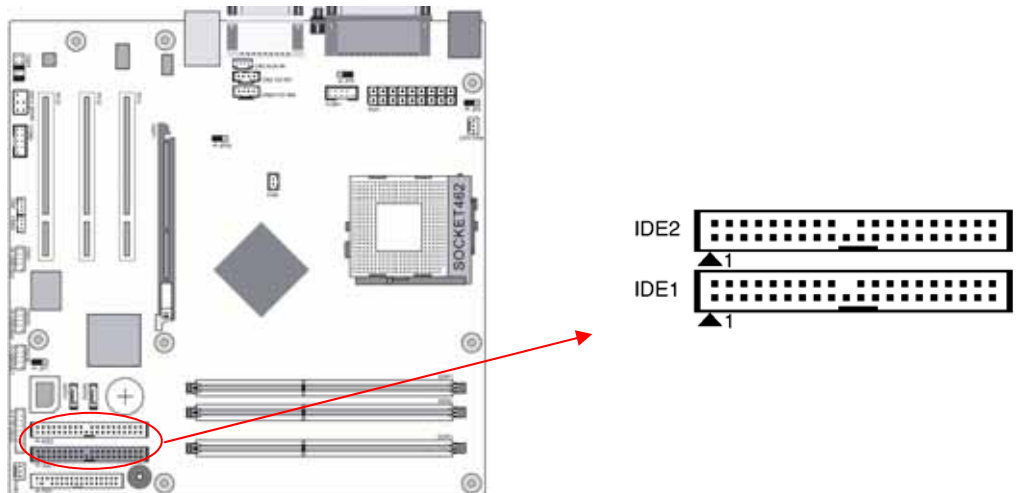
Poly-fuse Over Current Protection:

The poly-fuse protects the system from dangerous voltages that the system might be exposed to via the keyboard or USB connector. In case of such exposure, the poly-fuse will immediately be disconnected from the circuit, just like a normal fuse. After being disconnected for a certain period of time, the poly-fuse will return to its normal state. Then the keyboard or USB connector can function properly again. Unlike conventional fuses, the poly-fuse does not have to be replaced, relieving the user wasted time and inconvenience.

FD1 (Floppy Connector)

This motherboard provides a standard floppy disk drive connector that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types. This connector is used to connect 34 pins of Floppy drive cable.

IDE 1/2 (IDE Hard-Disk Connector)

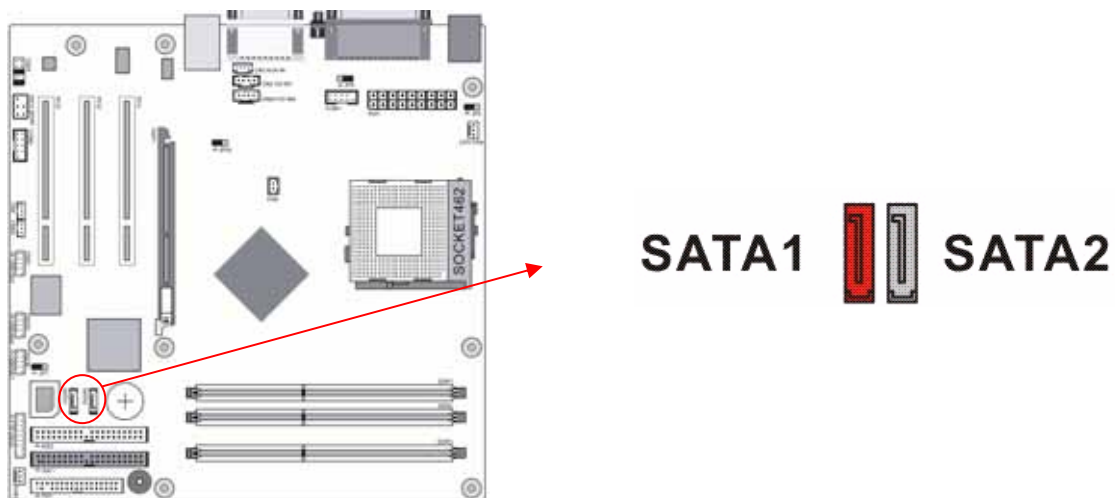


This connector is used for connecting 40 pins of ATAPI devices.

IDE 1 only connects two IDE devices. (**Primary** Master/Slave)

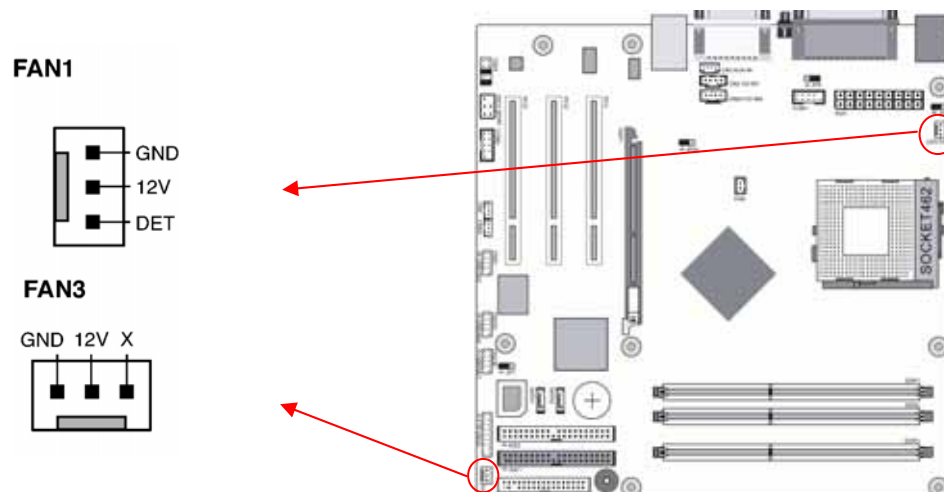
IDE 2 only connects two IDE devices. (**Secondary** Master/Slave)

SATA1/2

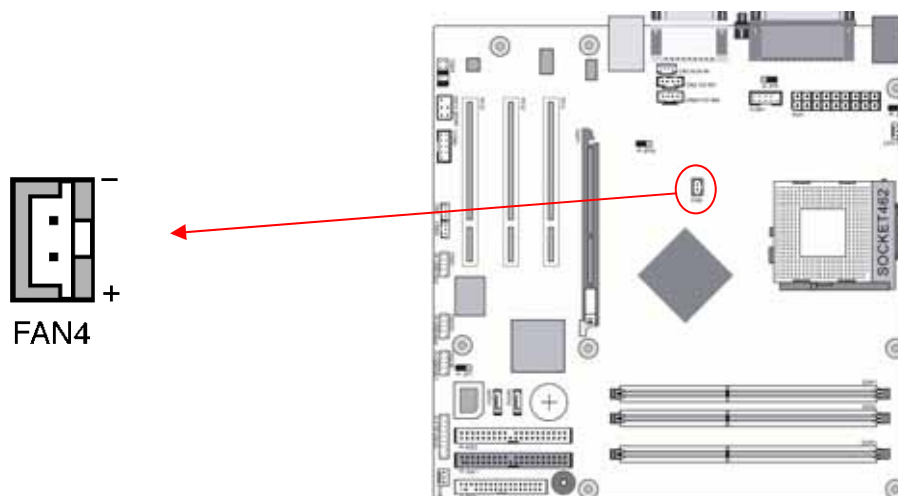


These SATA connectors (SATA1 – SATA2) support Serial ATA 150. Each SATA connector can only support one serial ATA device.

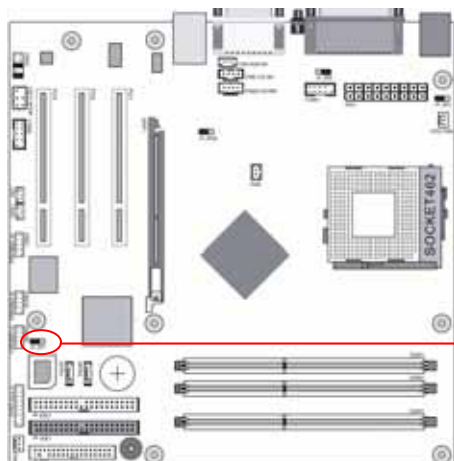
Note: With most storage devices, there is a power cable that you need attach to a power source (power supply).

FAN1 / FAN3 (CPU/Case Cooling Fan Connectors [12V]):

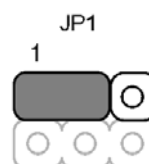
The board's management extension hardware is able to detect the CPU fan speed in rpm (revolutions per minute). The wiring and plug may vary depending on the manufacturer. On standard fans, the red is positive (+12V), the black is ground, and the yellow wire is the rotation signal.

FAN 4 (North Bridge Cooling Fan Power)

This connector is for the north bridge-cooling fan. The wiring and plug may vary depending on the manufacturer. On standard fans, the red wire is positive (+12V), the black wire is ground.

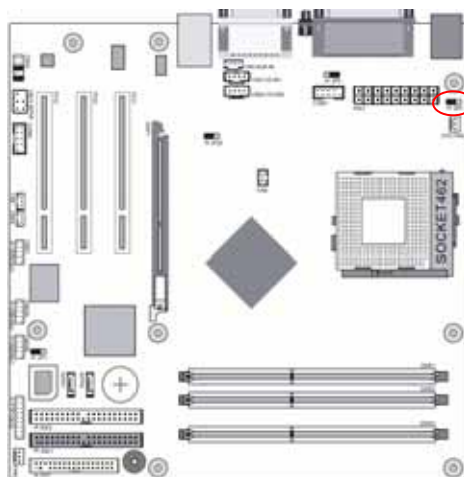
JP1 (CMOS Clear Jumper):

Pin	Definition
1-2	Normal (default)
2-3	Clear CMOS Data

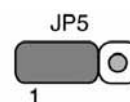


There is a CMOS RAM on board that has a power supply from external battery to keep the data and system configuration. To clear the contents of the CMOS, please follow the steps below.

1. Disconnect the system power supply from the power source.
2. Set the jumper cap at location [2-3] for <5 seconds>, and then set it back to the default position.
3. Connect the system's power and then start the system.
4. Enter BIOS's CMOS Setup Utility and choose Load Setup Defaults. Type [Y] and then press [Enter] to continue.
5. Set the system configuration in the Standard CMOS Setup menu.

JP5 (Keyboard Power On Function Jumper):

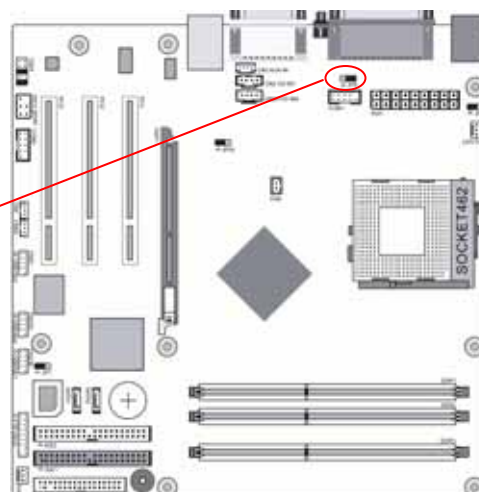
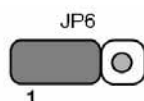
Pin	Definition
1-2	Disable (default)
2-3	Enable



This board can be turned on by the PS / 2 keyboard (hot key). To use this function, select a hot key of your choice at the Power On Function option under Wake Up Events in the BIOS's Power Management setup screen. You must also set this jumper's cap to pins 2-3 to use this function.

JP6 (Enable/Disable USB 0/1 Device Power ON Jumper)

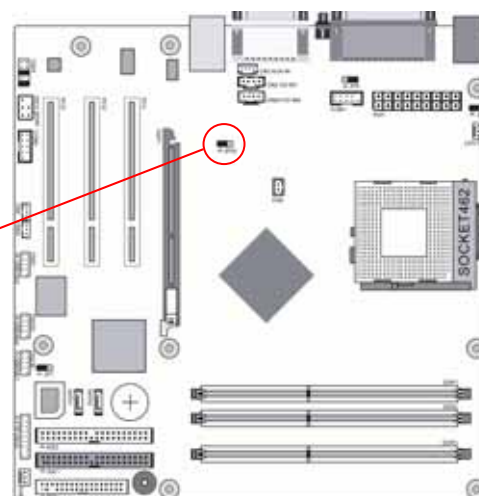
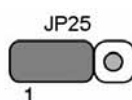
Pin	Definition
1-2	Disable (default)
2-3	Enable



A USB keyboard hot key or a USB mouse click can turn on this motherboard. To use this function, select [**Enable**] at the USB Resume from S3 under Wake Up Events in the BIOS's Power Management setup screen. You must also set this jumper's cap to pins [**2-3**] to use this function.

JP25 (Setup CPU FSB. Freq. Jumper)

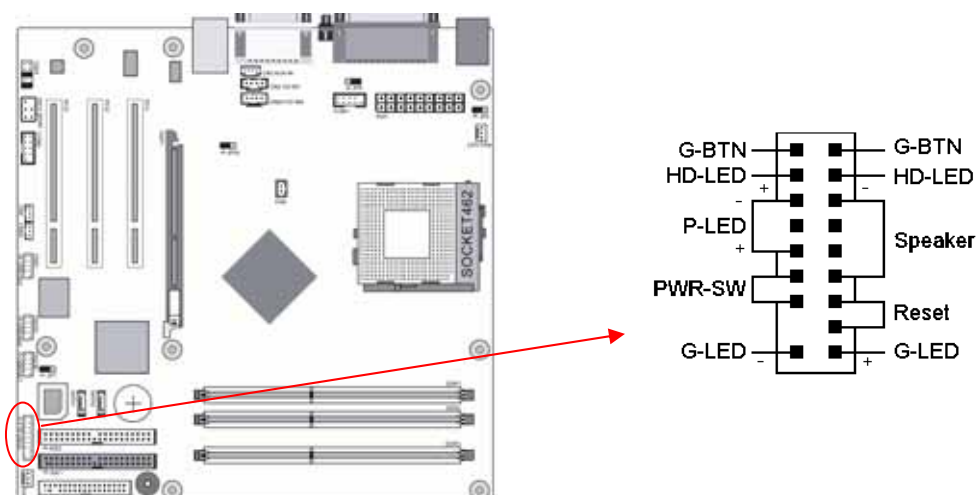
Pin	Definition
1-2	133/166/200 MHz (default)
2-3	100 MHz



This cap setups up the CPU Ext. Clock Frequency.

1-2: The default value is **133/166/200** MHz (This will allow the CPU's Ext. Frequency and memory frequency to be adjusted through the BIOS.).

2-3: Set 100 MHz at CPU Ext. frequency. (The will allow the Memory frequency to be adjusted through the BIOS.).

CN1A (Front Panel Connector):**1. PWR-SW (Over-ride Power Button Connector):**

The power button on the ATX chassis can be used as a normal power switch as well as a device to activate Advanced Power Management Suspend mode. This mode is used for saving electricity when the computer is not in use for long periods of time. The Soft-OFF by PBTN function in BIOS's Power Management Setup menu must be set to [**Delay 4 Sec.**] to activate this function.

When the Soft-OFF by PBTN function is enabled, pushing the power button rapidly will switch the system to Suspend mode. Any occurrence of external activities such as pressing a key on the keyboard or moving the mouse will bring the system back to Full-On. Pushing the button while in Full-On mode for more than [**4 seconds**] will switch the system completely off. See Over-ride Power Button Operation diagram.

2. P-LED (Power LED Connector):

The power indicator LED shows the system's power status. It is important to pay attention to the correct cables and pin orientation. (i.e., not to reverse the order of these two connectors.)

3. G-BTN/G-LED (Green Button Switch/LED Connector):

Some ATX cases provide a Green button switch, which is used to put the system in Suspend mode. In Suspend mode, the power supply to the system is reduced to a trickle, the CPU clock is stopped, and the CPU core is in its minimum power state. The system is woken up whenever the keyboard or mouse is touched. The system resumes in different ways as defined by Power Management Setup screen in BIOS.

4. RESET (System Reset Switch Connector):

This connector should be connected to the reset switch on the front panel of the system case. The reset switch allows you to restart the system without turning the power off.

5. **SPEAKER** (Speaker Connector):

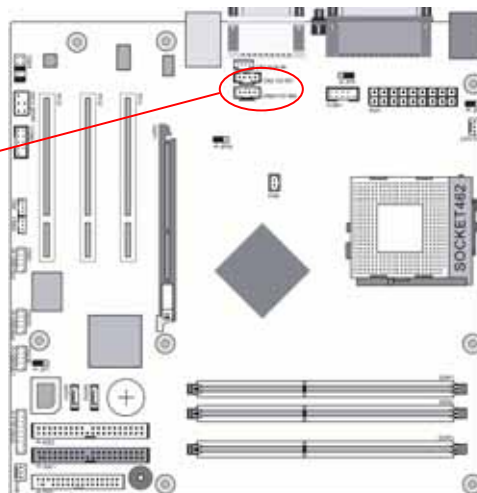
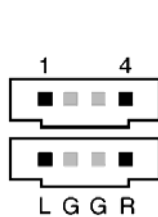
This 4-pin connector connects to the case-mounted speaker.

6. **HD-LED** (IDE Activity LED Connector):

The IDE activity LED lights up whenever the system reads/writes to the IDE devices.

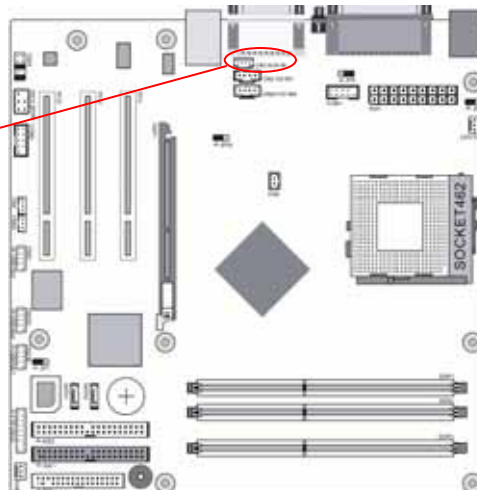
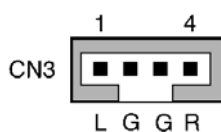
CN2/2A (CD-ROM Audio-in Connector):

CN2/CN2A

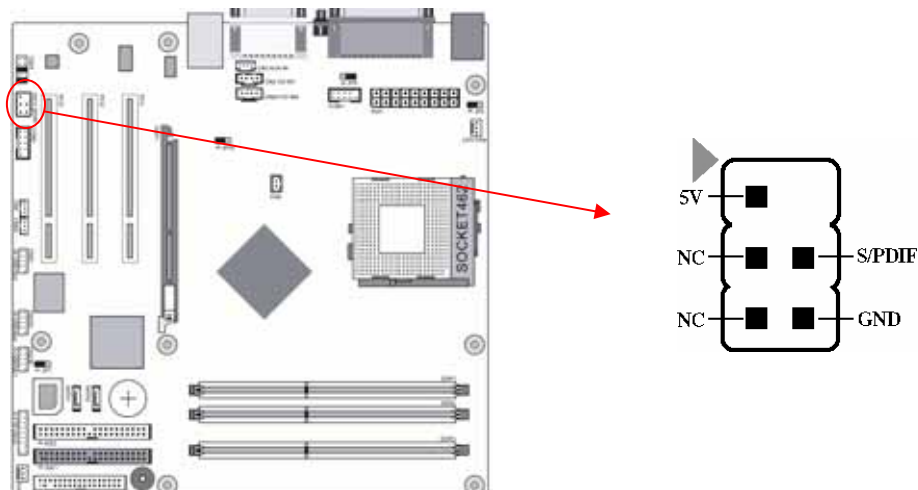


Use the audio cable enclosed with your CD-ROM disk drive to connect the CD-ROM drive onto your motherboard. This will enable your CD-ROM's audio function.

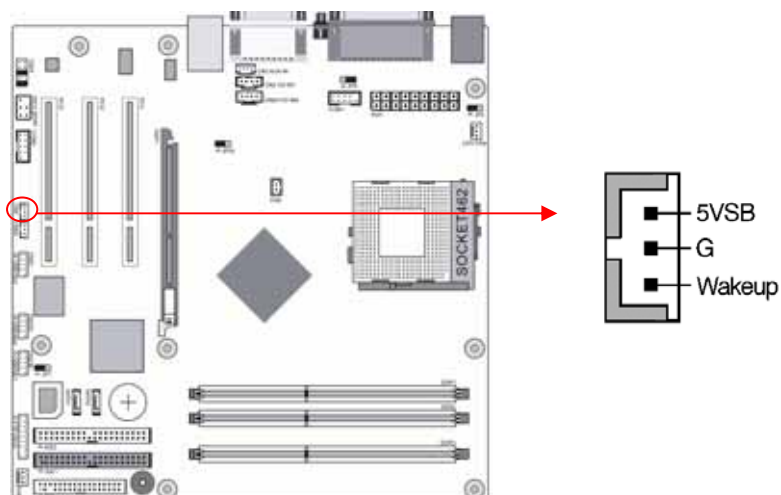
CN3 (Auxiliary Audio-in Connector):



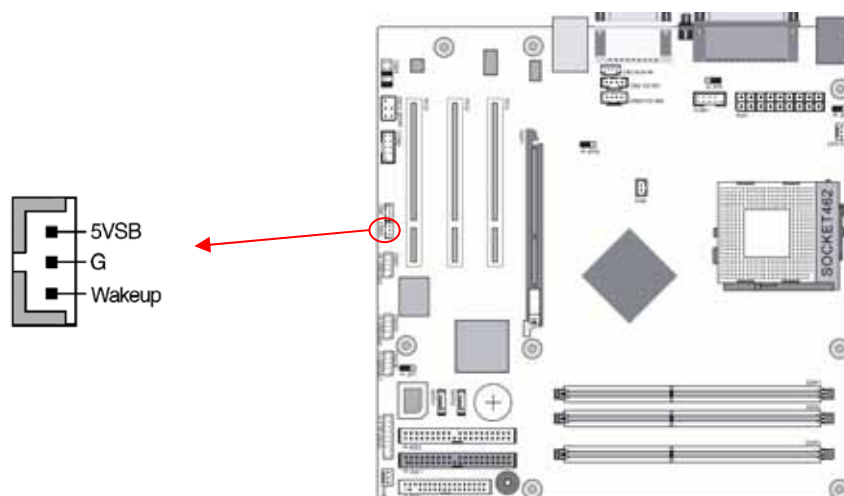
These connectors are for CD-Rom devices audio. It is for Auxiliary Audio-in Device, which will input the sounds sources into the motherboard.

CN13 (S/PDIF Connector)

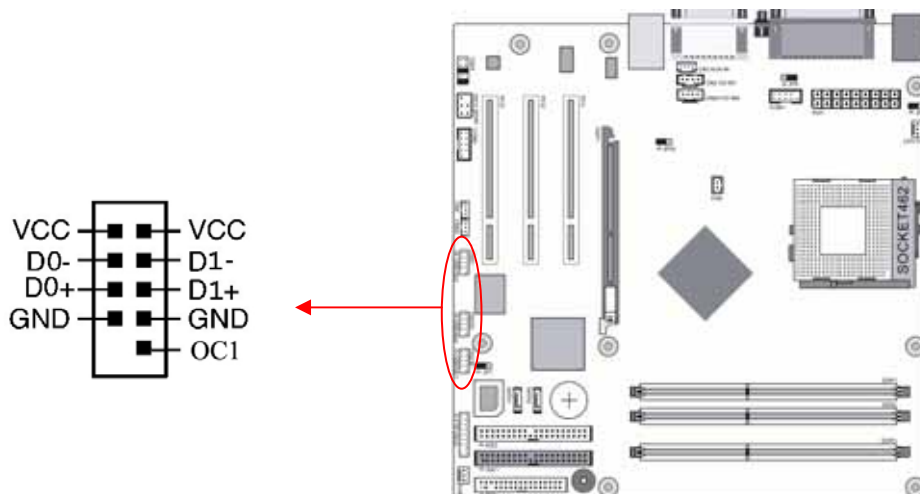
This connector must be connected to a **S/PDIF bracket**. This will allow you to use the S/PDIF function.

CN5 [WOL (Wake-on-LAN) Connector]:

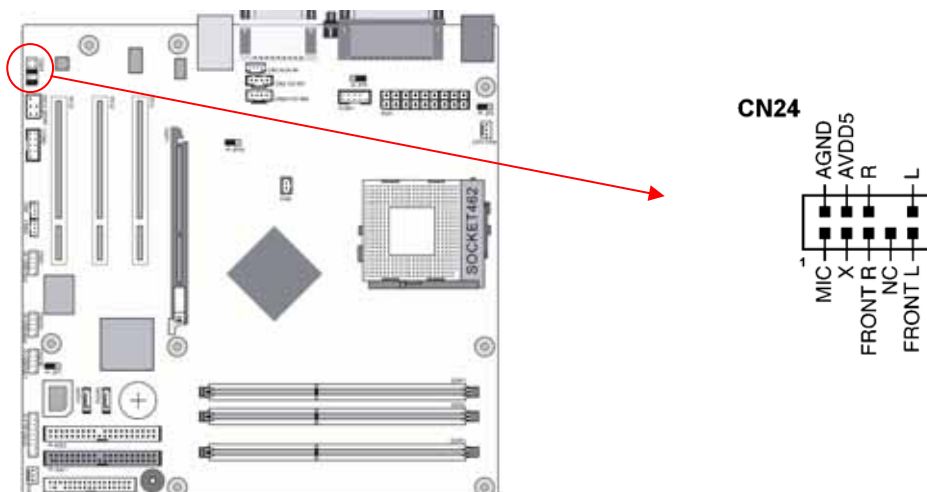
Enable the Wake Up On LAN selection in BIOS's Power Management Setup Menu to use this function. The capability to remotely manage PCs on a network is a significant factor in reducing administrative and ownership costs. Magic Packet technology is designed to give WOL capability to LAN controller. This header is used to connect an add-in NIC (Network Interface Card) that gives WOL capability to the motherboard.

CN5A [WOM (Wake-on-Modem) Connector]:

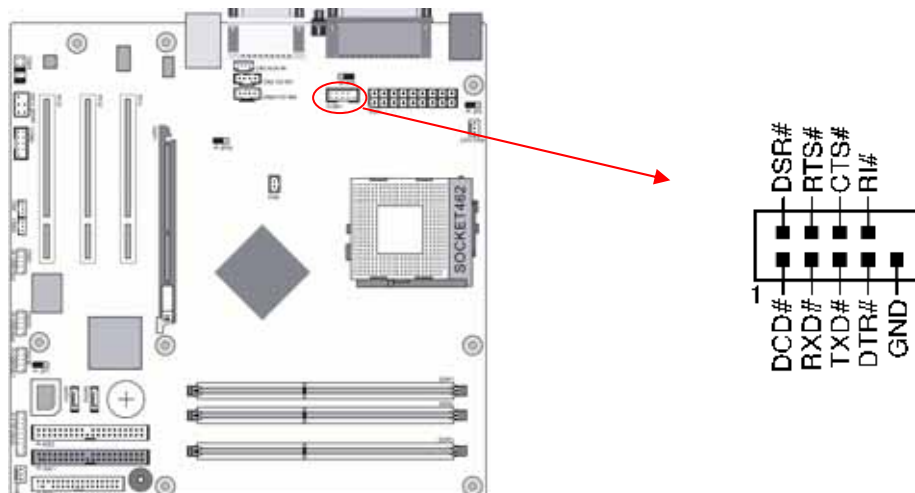
The Wake Up On Modem selection in BIOS's Power Management Setup Menu must be enabled to use this function. This header is used to connect an add-in modem card, which gives WOM capability to the motherboard.

CN23/23A/23B (USB Connector for USB 2/3, 4/5 and 6/7)

If you want to use a USB Keyboard, you must enable the USB keyboard support function in BIOS's Integrated Peripherals menu (See Section 3). This board contains a USB Host controller and includes a root hub connector for optional USB Adaptor (USB 2/3, 4/5 and 6/7).

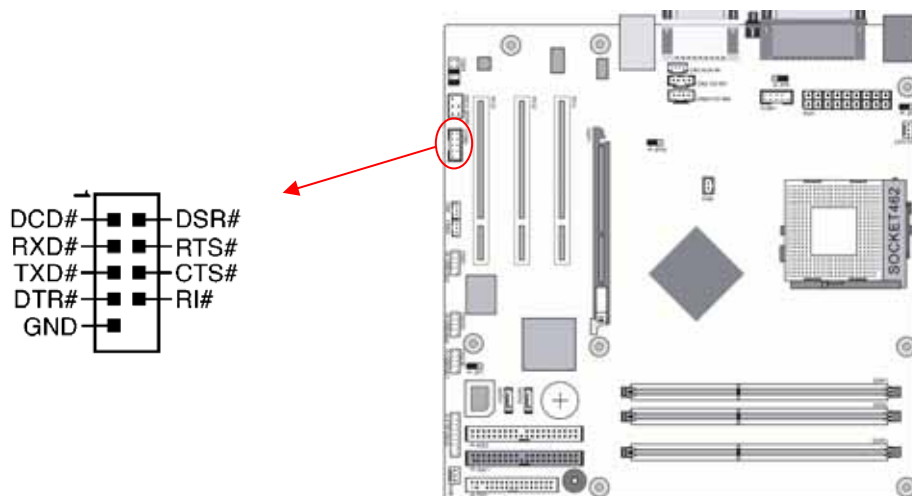
CN24 (Front Audio Connector):

This connector give you the option of a front panel audio jack cable ext. to be plug into a special custom designed system case. Simply remove the two jumper caps at pin [5-6] and [9-10] then plug it into the (optional) cable ext. connector. Pin [5-6] and [9-10] are shorted (default) to enable the back panel audio function.

COM 1 (Serial port / COM Headers)

This is an addition 9-pin connector is for a serial port ribbon cable. This will allow you to enable an additional COM Port.

COM 2 (Serial port / COM Headers)



This is an additional 9-pin connector for a serial port ribbon cable. This will allow you to enable an additional COM Port.

Chapter 3 BIOS Setup Program

Phoenix-Award BIOS ROM has a built-in setup program that allows users to modify the basic system configuration. This information is stored in CMOS RAM so that it can retain the setup information, even when the power is turned off.

To enter the **Phoenix-Award BIOS** setup program press the [**Delete key**] when you **Power on** or **reboot** the computer system. The primary screen as shown in Figure 3-1 is a list of the menus and functions available in the setup program. Select the desired item by your arrow keys and press enter to make the changes. Operating commands are located at the bottom of this and all other BIOS screens. When a field is highlighted, on-line help information is displayed on the right side of the screen.

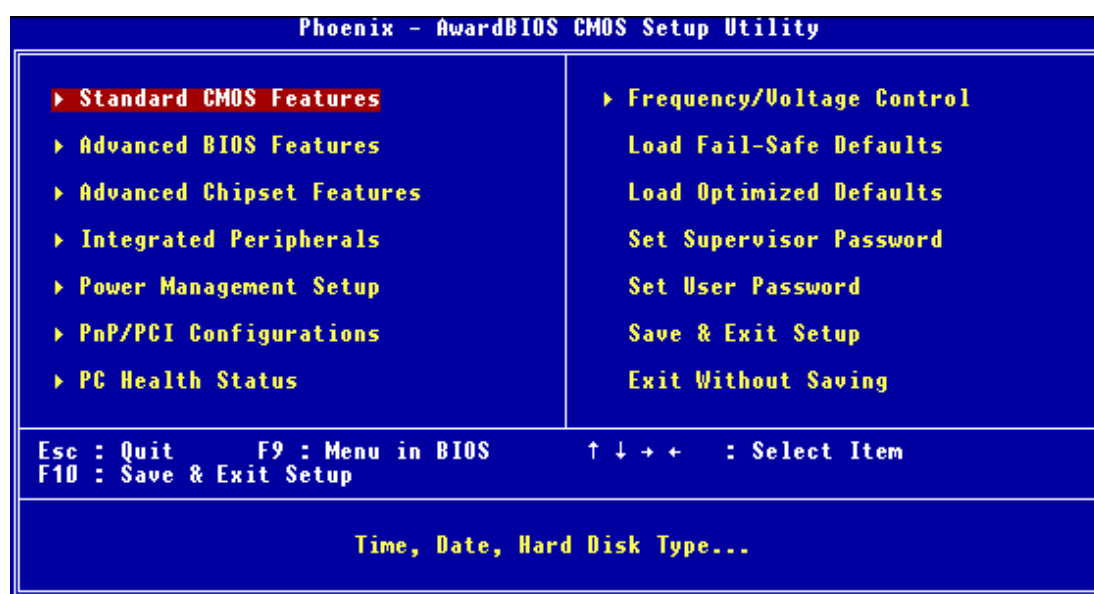


Figure 3-1 Setup Program Initial Screen

3-1 Standard CMOS Features

The Standard CMOS Features allows users to configure system components such as hard disk drive, floppy disk drive and video display as well as date, time and boot-up error signaling. This configuration menu should be changed when installing a motherboard for the first time, changing hardware in your system such as the HDD, FDD, video display, or when the CMOS data has been lost or contaminated. Choose the Standard CMOS Features option from the CMOS Setup Utility menu (Figure 3-1) to display the following screen.

Date/Time:

Set the date and time of the system. Do not skip this function as all of your timed events such as power management, saving files, etc are based on this timer.

IDE (Primary/Secondary; Master/Slave):

This category identifies up to four IDE hard disk drives that have been installed in the computer. This section does not show information on other IDE devices such as CD-ROM drives or other hard drive type such as SCSI drives.

Drive A/B:

Select different Floppy device Model. Available options are [None], [360K, 5-1/4 in], [1.2M, 5-1/4 in], [720k, 3-1/2 in], [1.44M, 3-1/2 in], and [2.88M, 3-1/2 in].

Video:

Select the type of video adapter present in your system. You can ignore this setting if you are using a VGA monitor; VGA BIOS will automatically configure this setting.

Halt On:

When the system is powered on, BIOS performs a series of diagnostic tests called POST (Power On Self Test). This function stops the computer if BIOS detects a hardware error. You can tell BIOS to halt on all errors, no errors, or not to halt on specific errors.

3-2 Advanced BIOS Features

By choosing the Advanced BIOS Features option from the CMOS Setup Utility menu (Figure 3-1), the screen below is displayed. This sample screen contains the manufacturer's default values for the motherboard.

Removable Device Priority:

Select removable device priority, such like floppy, LS120, ZIP-100, USB-FDD and USB-ZIP.

Hard Disk Boot Priority:

Select hard disk boot priority.

CD-ROM Boot Priority:

Select CD-ROM boot priority.

CPU Internal/External Cache:

Cache memory is much faster than conventional DRAM system memory. These fields allow you to enable or disable the CPUs Level 1 built-in cache and Level 2 external cache. Both settings are left enabled to significantly increase the performance of your computer.

Quick Power On Self Test (POST):

Enable this function to reduce the amount of time required to run the POST (Power

On Self Test). BIOS will save time by skipping some items during POST. It is recommended that you disable this setting. Discovering a problem during boot up is better than losing data during your work.

First/Second/Third/Boot Other Device:

This option sets the sequence of drives BIOS attempts to boot from after POST completes. BIOS will search these drives for an operating system.

Swap Floppy Drive

Enabling this function will swap the floppy drive assignment so that drive A will function as drive B, and drive B will function as drive A. Note that the boot sequence assignment mentioned directly above does not include booting from floppy drive B. This function is useful if floppy drives B and A are of a different format and you want to boot from floppy drive B.

Boot up Floppy Seek:

This is a set up check for floppy power-on after starting the computer system.

Boot Up NumLock Status:

This function defines the keyboard's number pad as number keys or arrow keys. If it is set at **[on]** the number keys will be activated, if it is set at **[off]** the arrow keys will be activated.

Gate A20 Option

Enabling Gate A20 will allow access pathway to HMA (High Memory Area). Please leave the default setting at **[Fast]** for better system performance. Available options are **[Fast]** and **[Normal]**.

Keyboard Interface :

1. Typematic Rate Setting

When enabled, you can set the following two-typematic control items. When disabled, the keyboard controller determines keystrokes arbitrarily in your system.

2. Typematic Rate (Chars/Sec)

The typematic rate sets the rate at which characters on the screen repeat when a key is pressed and held down.

3. Typematic Delay (Msec)

The typematic delay sets how long after you press a key that a character begins repeating.

Security Option:

The Supervisor and/or User Password functions shown in Figure 3-1 must be set to

take advantage of this function. See Section 3.11 for password setting information. When the Security Option is set to System, a password must be entered to boot the system or enter the BIOS setup program. When the Security Option is set to Setup, a password is required to enter the BIOS setup program.

APIC Mode

This item can enable or disable the APIC (**Advanced Programmable Interrupt Controller**). Due to compliance to PC2001 design guide, the system is able to run in APIC mode. Enabling APIC mode will expand available IRQs resources for the system. Available options are [**Enabled**] and [**Disabled**].

MPS Version Control For OS:

This item allows you to select which MPS (**Multi-Processor Specification**) version to be used for the operating system. You need to select the MPS version that supports your operating system. To find out which version to use, consult the vendor of your operating system. Available options are [**1.4**] and [**1.1**].

OS Select For DRAM >64MB:

If your system's DRAM is larger than 64MB and you are running OS/2, select OS/2 as the item value. Otherwise, set the item value to Non-OS/2 for all other operating

Small Logo (EPA) Show:

Enabling or Disabling this function will allow the EPA logo to display or not.

Show POST CODE

Enabling or Disabling this function will allow the POST CODE to display or not.

3-3 Advanced Chipset Features

By choosing the [**Advanced Chipset Features**] option from the CMOS Setup Utility menu (Figure 3-1), the screen below is displayed. This sample screen contains the manufacturer's default values for the motherboard.



All of the above settings have been determined by the motherboard manufacturer and should not be changed unless you are absolutely sure of what you are doing. Explanation of the DRAM timing and chipset features setup is lengthy, highly technical and beyond the scope of this manual. Below are some abbreviated descriptions of the functions in this setup menu.

Frame Buffer Size

This function determines the amount of system memory that is allocated to the on board VGA. Options range from **8MB** to **128MB**.

AGP Aperture Size (MB)

This function determines the amount of system memory that is given to the AGP card. Options range from **32MB** to **512MB**. This is a dynamic memory allotment in that the AGP card will only use the amount of memory that it needs. The remaining memory, which is not in use, will be available for the system. For example, if 16MB is allotted to the AGP card and the card only needs 8MB, the remaining 8MB will be available for system use.

AGP 8X Support

Enable this setting to utilize the 8X mode (twice as fast as 4X) offered by advanced AGP cards. Your VGA card must support 8X mode in order to take advantage of the faster speed.

AGP Fast Write Capability

Selecting [**Enabled**] to allow Fast Write Protocol for 8x/4x AGP to function.



Not all AGP cards support fast write.

System BIOS Cacheable

Enabling this function allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result. Caching the system BIOS results in better performance than shadowing the system BIOS.

Video RAM Cacheable

Enabling this function will allow caching of the video RAM, resulting in better system performance. However, if any programs write to this memory area, a system error may occur.

Special I/O for PCI Card

Options: Enabled/Disabled

Base I/O Address

I/O Length

Options: 2/4/8/16 Bytes

USB Park Mode

Options: Enabled/Disabled

USB Perf Mode

Options: Compatible/Moderate/Optimal/High

USB Read Requests From

Options: non-ISO Queue/ISO Queue

Flash BIOS Protection

The motherboard manufacturer developed BIOS protection technology that protects the System BIOS from accidental corruption by unauthorized users or computer viruses. When enabled, the BIOS data cannot be changed when attempting to update BIOS with the FLASH utility. When disabled, the BIOS data can be updated by using the FLASH utility.

3-4 Integrated Peripherals

This section provides information on setting peripheral devices. By choosing the Integrated Peripherals option from the CMOS Setup Utility menu (Figure 3-1), the screen below is displayed. This sample screen contains the manufacturer's default values for the motherboard.

IDE Function Setup

Press **[Enter]** to enter the sub-menu, which contains the following items for advanced control:

1. **RAID Config**

2. **On-Chip Primary IDE Channel 0/1:**

You can set this to disable the On Chip IDE controller if you are going to add an extra higher performance IDE board.

3. **IDE Primary/Secondary Master/Slave PIO:**

The four IDE PIO (programmed Input/Output) fields let you set a PIO mode (0-4) for each IDE device that the internal PCI IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

4. **IDE Primary/Secondary Master/Slave UDMA:**

Ultra DMA implementation is possible only if your IDE device supports it and your operating environment contains a DMA driver. If both your hard drive and software support Ultra DMA, select **[Auto]** to enable BIOS support.

5. **IDE Prefetch Mode:**

The onboard IDE drive interfaces supports prefetching, for faster drive accesses. Set to **[Disabled]** if this primary or secondary.

6. **IDE DMA transfer access**

7. **Serial-ATA**

Options: Enabled/Disabled

8. SATA DMA transfer

Options: Enabled/Disabled

9. SATA Spread Spectrum

Options: Enabled/Disabled

10. IDE HDD Block Mode:

Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode, select Enabled to auto-detect the optimal number of block read/writes per sector the drive can support.

Onboard Device:

This section provides information for setting onboard device. By choosing the Integrated Peripherals option from the CMOS Setup Utility menu (Figure 3-1) the following options will appear. Press **[Enter]** to enter the sub-menu, which contains the following items for advanced control:

1. OnChip USB

Options: Disabled/V1.1+V2.0/V1.1

2. USB KB/ Storage Support

Options: Enabled/Disabled

3. USB Mouse Support

Options: Enabled/Disabled

4. AC 97 Audio:

This feature allows you to disable the on-board AC97 audio function.

5. MAC LAN (nVIDIA)

This feature allows you to enable the OnChip LAN function.

Super IO Device:

This section provides information on setting Super I/O device. By choosing the Integrated Peripherals option from the CMOS Setup Utility menu (Figure 3-1), the following options will appear. Press **[Enter]** to enter the sub-menu, which contains the following items for advanced control:

1. Onboard FDC Controller:

Select Enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install an add-in FDC or the system has no floppy drive, select Disabled in this field.

2. Onboard Serial Port 1/2:

Select an address and corresponding interrupt for the first and second serial ports. Available options are **[3F8/IRQ4]**, **[2E8/IRQ3]**, **[3E8/IRQ4]**, **[2F8/IRQ3]**, **[Disabled]**, and **[Auto]**.

3. **UART Mode Select:**

This function allows you to select an operating mode for the second serial port. Available options are [**Normal**], [**IRDA**], [**ASKIR**] and [**SCR**].

4. **UR2 Duplex Mode:**

This allows you to adjust the way of InfraRed transmitting. Available options are [**Half**] which will only receive/send then it will send/receive and [**Full**] which will receive and send at the same time.

5. **Onboard Parallel Port:**

Select a logical LPT port address and corresponding interrupt for the physical parallel port.

6. **Parallel Port Mode:**

Select an operating mode for the onboard parallel (printer) port. Select SPP unless you are certain your hardware and software support one of the other available modes.

7. **ECP Mode Use DMA:**

This item automatically specifies a DMA channel **1** or **3** for the parallel port when it is set to [**EPP**] or [**ECP+EPP**] mode.

8. **Game Port Address:**

This item disables or assigns the address of the Game port. Available options are [**Disable**], [**201**] and [**209**].

9. **Midi Port Address:**

This item disables or assigns the address of the Midi port. Available options are [**Disable**], [**300**] and [**330**].

10. **Midi Port IRQ:**

This item specifies an IRQ for the Midi port. Available options are [**5**] and [**10**].

Init Display First:

This function allows users to choose between [**Onboard/AGP**] or [**PCI slot**] to initialize display.

3-5 Power Management Setup

This section provides information on the Green PC power management functions. By choosing the Power Management Setup option from the CMOS Setup Utility menu (Figure 3-1), the screen below is displayed. This sample screen contains the manufacturer's default values for the motherboard.

ACPI Suspend Type:

This item specifies the power saving modes for ACPI function. Available options are:

1. **S1 (POS)** - The S1 state is low power state. In this state, no system context (CPU or Chipset) is lost and the hardware maintains all system contexts.
2. **S3 (STR)** - The S3 state is a lower power state, where the information of system configuration and opened applications / files are saved to main memory. The remaining power of other hardware components are turn off to save energy.
3. **S1&S3** – The S1&S3 state will allow the BIOS to auto detect the motherboard's power saving mode between S1 and S3. The information stored in memory will be used to restore the system when a [**wake up**] event occurs

Power Management:

Power management allows the computer to save electricity when it is not in use by entering increasingly deep power saving modes.

Video Off Method:

This function serves as both a screen saver and power saver for monitors. See the next function, Video Off After, for setting the video timer.

1. **Blank Screen** - BIOS will only blank the monitor's screen. The electricity saved in this mode is negligible and this function is only used as a screen saver to prevent screen damage while the screen is on but not in use.
2. **V/H SYNC+Blank** - The system turns off the vertical and horizontal synchronization ports, writes blanks to the VGA buffer and the monitor's electron gun turns off. This function requires a monitor with Green features in order to take advantage of the power saving function. If you enable this function and do not have a Green monitor, the result will be the same as if you had selected Blank. This function serves as both a screen saver and a power saver.
3. **DPMS Support** - Select this option if your video card supports the Display Power Management Signaling (DPMS) standard (i.e., you have a monitor that supports Green features). Use software supplied by your video subsystem to set video power management options.

HDD Power Down:

Shuts down any IDE hard disk drives in the system after a period of inactivity as set in this user configurable field. This feature does not affect SCSI hard drives.

HDD Down In Suspend

In Suspend any IDE hard disk drives in the system after a period of inactivity as set in this user configurable field. This feature does not affect SCSI hard drives.

Soft-Off by PBTN

When set to Delay 4 Sec., this function allows the power button to put the system in Suspend, a power saving mode. When set to Instant-Off the Soft-Off by PWR-BTN function is disabled and the computer turns completely off when the power button is pressed.

PwROn After PwR-Fail

This allows you to set whether you want your system to reboot after the power has been interrupted. **[Off]** leaves your system off and **[On]** reboots your system. **[Former-Sts]** sets your system back to the state it is before the power interruption. Available options include **[Disabled]**, **[Enabled]**, **[Former-Sts]**.

Wake up Events

1. Power On by PME/OnBoard LAN:

When enabled, the nVidia LAN, which is on Board, will be able to receive a signal and wake up the system from soft off and suspend mode. You should connect the LAN to the RJ45 port and turn on the resume event in suspend mode.

2. Power On by Ring/WOL/WOM:

When enabled, a Modem (**PCI Card or Ext. Modem**) will be able to receive a signal and wake up the system from soft off and green mode. You should connect the modem to the COM port and call your PC to power on.

3. USB Resume from S3

The option will allow the activity of USB device to wake up the system from S3 power saving modes. Settings are **[Enabled]** and **[Disabled]**.

4. Power On by Alarm:

When enabled, this setting allows the system to turn back on at a designated time of the month. User must designate date of month and time of day.

This function is only available when using an ATX power supply and the Software Power-Off function to turn off the computer.

5. Day of Month Alarm

6. Time Alarm

7. POWER ON Function:

This control show the PS/2 mouse or keyboard can power on the system. Available settings are [**Password**], [**Hot KEY**], [**Mouse Move**], [**Mouse Click**], [**Any Key**], [**BUTTON ONLY**] and [**Keyboard 98**].

8. KB Power ON Password:

If POWER ON Function is set to [**Password**], then you can set a password in the field for the PS/2 keyboard to power on the system.

9. Hot Key Power ON:

If POWER ON Function is set to [**Hot KEY**], you can assign a hot key combination in the field for the PS/2 keyboard to power on the system.

Settings:[**Ctrl-F1**] through [**Ctrl-F12**].

3-6 PNP/PCI Configurations

This section provides IRQ and DMA setting information. By choosing the PNP/PCI Configuration option from the CMOS Setup Utility menu (Figure 3-1), the screen below is displayed. This screen contains the manufacturer's default values for the motherboard.

Reset Configuration Data:

If you want to reset CMOS IRQ divide hardware device, please selected to [**Enabled**].

Resources Controlled By:

When set to Manual the system BIOS will not refer to the ESCD for IRQ & DMA information. Instead, it will refer to the items in the setup menu for assigning IRQ & DMA. When set to Auto the system BIOS will refer to the ESCD for all legacy information. ESCD (**Extended System Configuration Data**) provides a detailed format of the configuration data structures stored in flash memory. Each data structure defines the resources used by a device or a card in the system. This includes legacy and PCI/ISA PnP devices.

PCI/VGA Palette Snoop:

When set to [**Enabled**], multiple VGA devices operating on different buses can handle data from the CPU on each set of palette registers on every video device. Bit 5 of the command register in the PCI device configuration space is the VGA Palette Snoop bit (0 is disabled). Available options are [**Enabled**] and [**Disabled**].

FDD IRQ Can Be Free:

This function allows user to choose if the FDD IRQ can be freed up. The default setting is [**Yes**] and this does not allow the IRQ to be free.

3-7 PC Health Status

By choosing the PC Health Status option from the CMOS Setup Utility menu (Figure 3-1), the screen below is displayed. This field shows you the current CPU temperature/external voltages input and the current CPU FAN operating speed.

Shutdown Temperature:

This item allows you to set the shutdown temperature level for the processor. When the processor reaches the temperature you set, the system will shutdown. This function only works in ACPI-aware OS (such as Windows® 98 / ME / 2000).

Available options are [85°C/185°F], [90°C/194°F], [95°C/203°C], [100°C/210°F], [105°C/221°F], [110°C/230°F], [115°/239°F], [120°C/248°F] and [125°C/257°F].

3-8 Frequency/Voltage Control

By choosing the Frequency/Voltage Control option from the CMOS Setup Utility menu (Figure 3-1), the screen below is displayed. This sample screen contains the manufacturer's default values for the motherboard.

System Performance

Options: Optimal/Aggressive/Turbo/Expert

FSB Frequency

Options: 100~300MHz

CPU Interface

Options: Optimal/Aggressive

Memory Frequency

Options: By SPD/50~200%/Auto

Resulting Frequency

Memory Timing

Options: Optimal/Aggressive/Turbo/Expert

T(RAS)/(RCD)/(RP)

Options: 1-15, 1-7, 1-7

CAS Latency

Options: 2.0/2.5/3.0

FSB/AGP Spread Spectrum:

This item is used to enable or disable the clock generator's Spread Spectrum feature. When over clocking the processor, always set it to *Disabled*. Setting options: [0.5%], [1.00%], and [Disabled]

OVERCLOCKING



This motherboard is designed to support overclocking. However, please make sure your components are able to tolerate such abnormal setting, while doing overclocking. Any attempt to operate beyond product specifications is not recommended. We do not guarantee the damages or risks caused by inadequate operation or beyond product specifications.

3-9 Load Fail-Safe Defaults

Load Fail-Safe Defaults loads the default BIOS values directly from the CMOS Setup Utility menu (Figure 3-1). If the stored record created by the setup program becomes corrupted and therefore unusable, these defaults will be loaded automatically when you turn on the computer.

3-10 Load Optimized Defaults

Load Optimized Defaults loads the default system values directly from the CMOS Setup Utility menu (Figure 3-1). If the stored record created by the setup program becomes corrupted and therefore unusable, these defaults will be loaded automatically when you turn on the computer.

3-11 Supervisor Password & User Password Setting

There are four different variables that control password settings. The first two are located under the Security Option function in BIOS Features Setup Menu (Figure 3-1). When the Security Option function is set to **Setup**, a password is required to enter BIOS and change BIOS settings. When the Security Option function is set to **System**, a password is required to enter both BIOS and the computer's operating system (for example Windows® 98) found on the boot drive.

The third and fourth variables are user password and supervisor password selected in BIOS (Figure 3-1). The main purpose of separating user and supervisor is to allow only the supervisor to have control over the settings in BIOS. The user, on the other hand, is only allowed to access the computer's operating system and change the user password in BIOS.



When there is no supervisor password set, the user password controls access to all BIOS settings.

3-12 Save and Exit Setup

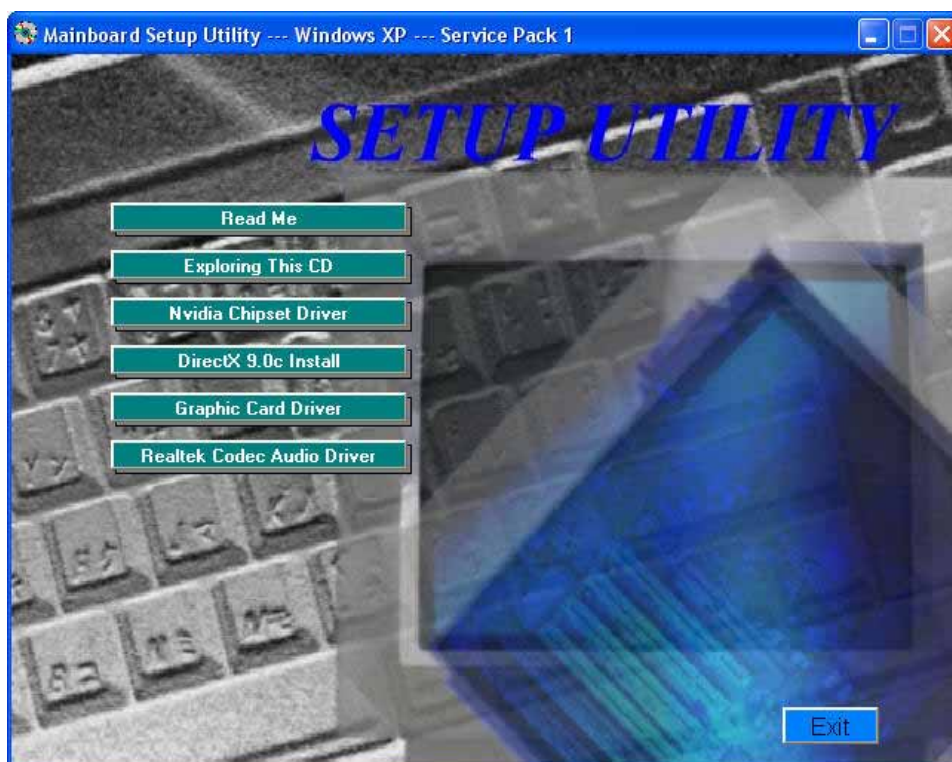
If you select this and type **[Y]** (for Yes) followed by the **[Enter]** key, the values entered in the setup utilities will be recorded in the CMOS memory of the BIOS chip.

3-13 Exit Without Saving

Selecting this option and pressing **Y** followed by the **[Enter]** key lets you exit the Setup program without recording any new values or changing old ones.

Chapter 4 DRIVER Setup

Please insert NVIDIA Series driver CD into the CD-ROM.



4-1 Nvidia Chipset Driver

1. Please select [**Nvidia Chipset Driver**] to begin installation.
2. Please, click [**Next**] to continue.
3. Please, click [**OK**] to continue.
4. To restart you computer now, select [**Yes, I want to restart my computer now.**] then Please Click [**OK**] to restart you computer. If you do not want to restart your computer select [**No, I will restart my computer later.**] then click [**OK**] to continue.

4-2 Graphic Card Driver

1. Click **Install Graphic Card Driver>Next> Continue>Select Yes>Finish**
2. Restart the system

4-3 DirectX 9.0b Install

1. Click DirectX 9.0b Istall
2. Click [**Next**]
3. Select [**Yes I want to restart my computer now**] then click [**Finish**]

Chapter 5 How to update your BIOS?



Updating BIOS may result an unstable system. All the data of the old BIOS will be replaced by the new BIOS. Should anything go wrong during the updating process, your system would end up crashed. Please refer to your supplier or manufacture for more support. **PLEASE DO NOT UPDATE YOUR BIOS UNTIL YOU HAVE CAREFULLY READ THE FOLLOWING INSTRUCTIONS.**

Update Your System BIOS

1. Find out the exact model name of your motherboard

There are different updates for different versions of your motherboard. For example, the 9LIF0 uses different BIOS than the 9LIF1. You will need to know whether your motherboard is a `0` or `1` version (or higher). You can find the model name on the motherboard, which is written between or around one of the PCI slots.

2. Obtain the latest BIOS update.

Obtain the latest BIOS update from supplier or form the manufacture. You can refer to there website for the latest version of BIOS.

3. Use the correct FLASH utility

The FLASH utility has many versions. It is recommended to use the version that came with your motherboard. Only when you experience problems updating the BIOS or if you do not have the FLASH utility, then you can download one of the versions available on the Internet.

4. Disable the FLASH BIOS Protection in the BIOS

Some motherboards have [Flash BIOS Protection] option in the BIOS [CHIPSET SETUP]. Please [**Disable**] the option before attempting to update the BIOS.

5. Unpack the BIOS Update file

The file you downloaded in step 2. is most likely to be an executable file. (*.EXE) You can only update your BIOS using a binary file (*.BIN). Unpack the file by clicking its name. The file should automatically unpack into the binary file.

6. Startup your system under DOS without any TSR's installed

The FLASH utility can only work well when there are no memory drivers or other TSR's installed. It is recommended to start up your system from a floppy disk, (run `FORMAT A: /S` under DOS to create a start up disk which only has the system `COMMAND.COM`); or press F8 to bypass the `AUTOEXEC.BAT` and `CONFIG.SYS` startup files.

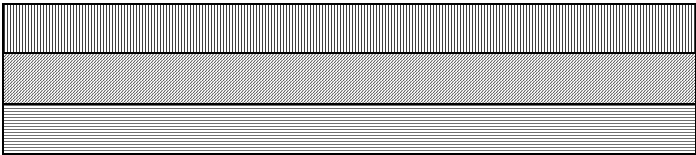



7. Run the FLASH utility

Make sure the BIOS update binary file is in the same directory as the FLASH utility. Remember the exact name of the BIOS update file. (Please pay attention to `0` (zero) and o (letter `O`)). Then run the flash utility.

On the screen the program will ask for the [File Name to Program]. Type in the exact name of the BIOS update binary file, including the *.BIN, and press [ENTER]. The program will now ask you if you want to save your current BIOS version. Choose [ENTER] and type a filename for your current BIOS version, for example OLDBIOS.BIN.

Press [ENTER] and the program will save the current BIOS data to your current path. Now the program will ask you to confirm your wish to update the BIOS using the file you mentioned earlier. Press [Y] to confirm.

The updating process will now start. Screens bellow will appear which indicates the progress of the updating process.

Award BIOS Flash Utility V X.XX		
(C) Phoenix Technologies Ltd. All Right Reserved		
For XXXX-XXXXXX-XXXXXXXXXX-X	DATE: XX/XX/2002	
Flash Type- XXXXXX XXXXXXXXX / 3.xV (1MB)		
File Name to Program:	XXXXXXXXX.BIN	
Programming Flash Memory		
		
	Write OK	
		No Update
	Write Fail	
Warning : Don't Turn Off Power Or Rest System !		

8. Wait until the system finishes the updating process and the message: *[Please Power Off Or Reset System!]* appears.

Now you can power off your system. Wait for a few seconds and turn on your system again. You should now be able to see the new BIOS date code appearing in the left upper corner of the screen.

NOTE

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How To Contact CHAINTECH

Please do not hesitate to contact us if you have any problem about our products. Any opinion will be appreciated.

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