MAINBOARD

Installation Guide

Rev: 1.00H

Date: May - 99

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INTRODUCTION

Product Description

Designed as a flexible, high-performance and cost-effective solution for System Integrators and End Users alike, this mainboard provides the power and expandability to meet the requirements of the most advanced operating systems and software applications.

This mainboard is a high performance Pentium ®–based (FSB 100MHz) system board that utilizes the Intel® 810 chipset on micro-ATX Platform, providing next generation features and great graphics performance at a lower cost.

By incorporating such advanced features as AMR, AC97 audio, Super I/O, Ultra DMA/66 (*) Bus Mastering IDE, Universal Serial Bus (USB) and Hardware Monitoring onto the mainboard, optimum system performance is assured and system design and implementation is simplified.

Fully "Plug & Play" compatible via an Award BIOS, this mainboard facilitates easy system configuration and peripheral setup. Also, the Award BIOS supports ACPI Readiness and is compatible with the PC'98 specification. This mainboard is the ideal foundation for high-end computer systems.

*   For the mainboard that uses FW82810 plus FW82801AB chipsets, PCI Bus Master IDE support up to UltraDMA/33 only.

Features & Specifications

Processor	Socket 370 support Intel® Celeron processors up to 500 MHz
Chipset	Intel ® 810
BIOS	Award ® BIOS support DMI, Plug-and-Play, ACPI, Boot from CD-ROM, LS-120 120MB F.D.D., ZIP Devices Support Symbios® SCSI BIOS Anti-virus BIOS for prevention against boot-virus
System Memory	2×168-pin DIMM Sockets up to 512MB SDRAM Memory Capacity. Support 8/16/32/64/128/256 MB Memory Module
On-board I/O Features	1×Floppy Port (LS120) 2×USB ports 1×Parallel Port (EPP, ECP Port) 1×IrDA TX/RX Header 1×Serial Port (16550 Fast UART Compatible) 1×Serial Header (16550 Fast UART Compatible) 1× Digital Video Output Header 1×MIDI/game port 1×Audio Jacks: Line Out, Line In, and Mic. In 1×Video Port
Advanced Features	1. AGP 3D Graphics and AC97 Audio on board 2. Wake-up on LAN 3. Modem Ring-in/Keyboard/Mouse Power on 4. Hardware Monitoring (Fan, Temperature, Voltage) 5. SB-Link to support Sound Blaster cards for early DOS games 6. Xstore Pro IDE Bus Master Software Driver (*) 7. Anti-Virus PC-Cillin Software (*) 8. Suspend to RAM (STR) to support "Instantly Available" PC 9. Supports AMR for MC97 Modem upgrade 10. Optional daughter board to support digital video output
PCI Bus Master IDE	2×UltraDMA/66PCI Bus Master IDE Ports support up to 66MB/s (*)
Power Connector	3V, 5V and 12V 20-pin ATX 20-pin Power Connector
Expansion Slots	1 AMR Slot, 3×32-bit PCI Slots
Switching VR	Switching Voltage Regulator to support 1.3V to 3.5V
Form Factor	Micro-ATX Size (6.6" x 8.0" or 200mm x 245mm)

Remark:

The **XStore Pro IDE Driver** enhances memory management by working with the Windows 95/98 operating system, resulting in higher system performance by implementing "read-ahead caching after seeking". This is especially effective with the large block sizes of modern hard disks.

**PC-cillin anti-virus software** provides a powerful defense against viruses to protect data integrity.

* For the mainboard that uses FW82810 plus FW82801AB chipsets, PCI Bus Master IDE support up to UltraDMA/33 only.

Package Checklist

Your mainboard package should include the items listed below. Damaged or missing items should be reported to your vendor.

- ☑ The mainboard
- ☑ Floppy disk ribbon cable
- ☑ IDE ribbon cable
- ☑ RS232 9-pin COM2 serial port bracket
- ☑ This Installation Guide
- ☑ BIOS, Driver & Utility Guide
- ☑ CD-ROM containing the following support software:
  (The latest drivers can always be found at their respective web sites.)

  - ▪ Intel® IDE Bus Master driver
    http://support.intel.com/support/chipsets
  - ▪ Support software for updating the FLASH BIOS
  - ▪ HighPoint® XStore Pro IDE Bus Master
    http://www.highpoint-tech.com
  - ▪ Trend ® PC-cillin Anti-Virus software
    http://www.antivirus.com

Board Level Feature
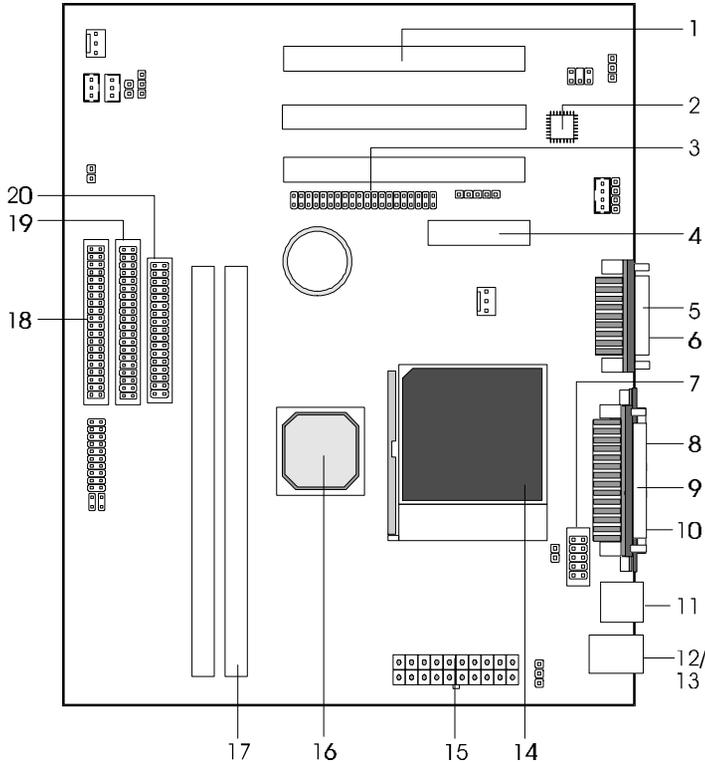
1. **PCI slots**	11. **USB connectors**
2. **AC97 codec chip**	12. **PS/2 mouse connector (top)**
3. **Digital Video Out**	13. **PS/2 keyboard connector (bottom)**
4. **AMR Slot**	14. **CPU socket (Socket 370)**
5. **MIDI/Game port**	15. **Power connector**
6. **Audio port**	16. **Intel® 810 chipset**
7. **COM2 connector**	17. **DIMM sockets**
8. **VGA port**	18. **Primary IDE connector**
9. **Printer port**	19. **Secondary IDE connector**
10. **COM1 connector**	20. **Floppy connector**

* Board Size: Micro-ATX 245 mm x 200 mm (8" x 6.6")

INTRODUCTION

1. **PCI Slots:** (3) 32-bit PCI slots are provided.

2. **AC97 Codec Chip**: AC97 Audio Codec chip.

3. **Digital Video Out**: A manufacturer's proprietary bus that connects to the optional TV-Out or Panel-Link daughter board.

4. **AMR Slot:** The **A**udio **M**odem **R**iser is a new standard interface for cost-effective AMR AC97/MC97 audio/modem cards.

5. **MIDI/Game Port**: 15-pin female MIDI/Joystick connector.

6. **Audio Port**: Three 1/8" female jacks for Line Out, Line In and MIC.

7. **COM2 Connector:** Connects to supplied high-speed UART compatible serial port bracket. COM2 can be directed to the Infrared Module for wireless connection capability.

8. **VGA Port:** 15-pin VGA connector.

9. **Printer Port:** EPP and ECP compatible 25-pin D-Sub parallel port.

10. **COM1 Connector:** High-speed UART compatible serial port.

11. **USB Connectors:** These connectors permit the connection of two USB peripheral devices directly to the port without an external hub. USB is a new technology supporting printers, fax modems and other telephony device.

12. **PS/2 Mouse Connector:** Supports PS/2 style mice.

13. **PS/2 Keyboard Connector:** Supports PS/2 style keyboards.

14. **CPU Socket:** ZIF Socket 370 for Intel® Celeron processors up to 500 MHz.

15. **Power Connector:** 20-Pin ATX Power Connector.

16. **Intel® 810 Chipset:** Supports Intel Celeron CPUs, AC97, AGP and Digital Video Out.

17. **DIMM Sockets:** (2) 168-pin DIMM sockets are provided to support a maximum RAM memory capacity of 512 MB. DIMM types of 3.3 Volt true SDRAM is supported and automatically detected by the BIOS.

18. **Primary IDE Connector:** Connector for first IDE channel. The on-board PCI Bus Mastering IDE controller features support for DMA Mode 2 and PIO Modes 3 and 4 for faster data transfer rates. (2) Connectors are provided for support of up to (4) IDE devices on two channels. ATAPI Tape Drives and CD-ROMs are also supported.

19. **Secondary IDE Connector:** Connector for second IDE channel.

20. **Floppy Connector:** Built-in floppy controller supports (2) 5.25" or 3.5" (1.44MB or 2.88MB) floppy drives.

Comprehensive Mainboard View
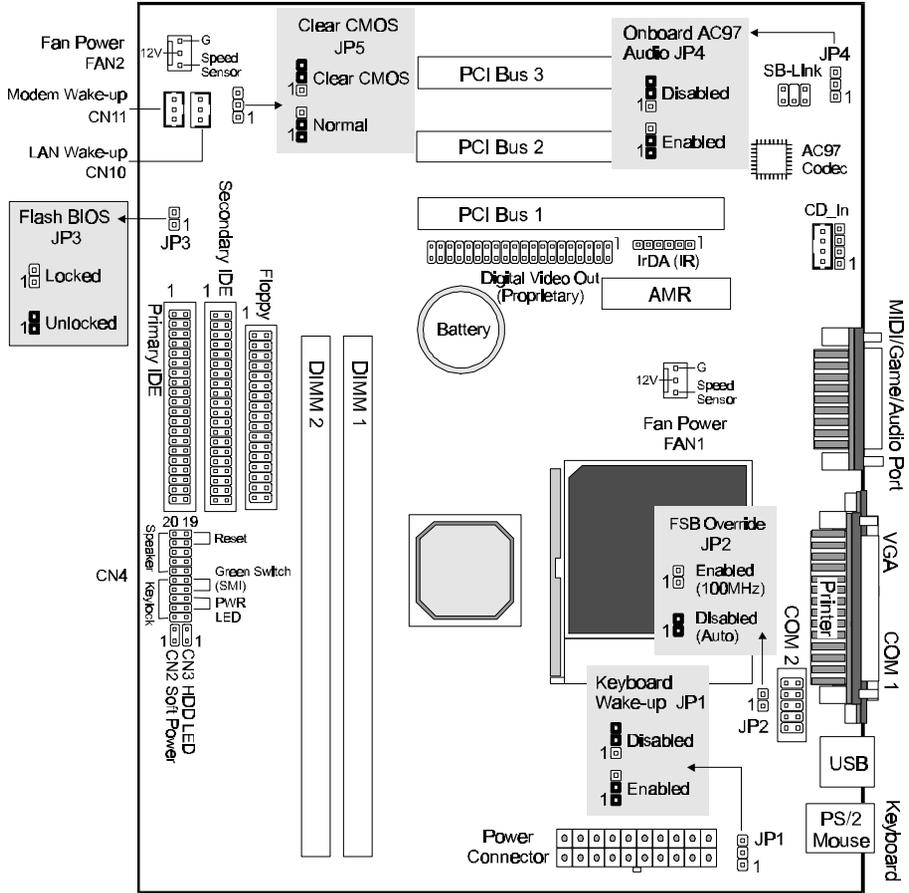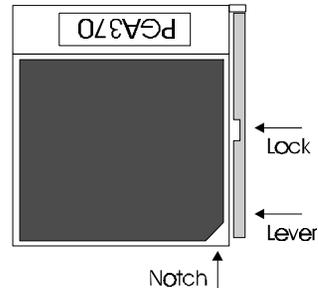
INSTALLATION

Static Precautions

Static electricity can be a serious danger to the electronic components on this mainboard. To avoid damage caused by electrostatic discharge, observe the following precautions:

✓ Don't remove the mainboard from its anti-static packaging until you are ready to install it into a computer case. Also, handle add-in cards and modules by the edges or mounting bracket.

✓ Before you handle the mainboard in any way, touch a grounded, anti-static surface, such as an unpainted portion of the system chassis, for a few seconds to discharge any built-up static electricity.

Installing the CPU

✓ **WARNING**: Use of a CPU Cooling Fan is required to prevent CPU from overheating. The Fan should be installed first before inserting the CPU into its socket.

1. Locate the ZIF (Zero Insertion Force) Socket 370.

2. First open the socket by pulling the lever sideways, then upwards. Notice how the lever locks in place when pressed all the way down.

3. The CPU must be inserted with the correct orientation. One corner of the CPU has a "Notch" and looks different that the other three. This corner is also missing a pin unlike the other three. Align this corner towards the end of the lever as shown in the figure at right. Insert the CPU, press it down.

4. Close the lever until it locks into place.

The CPU speed will be automatically detected by the mainboard BIOS. Manual setting is also possible. Refer to the BIOS, Driver & Utility Guide for details.
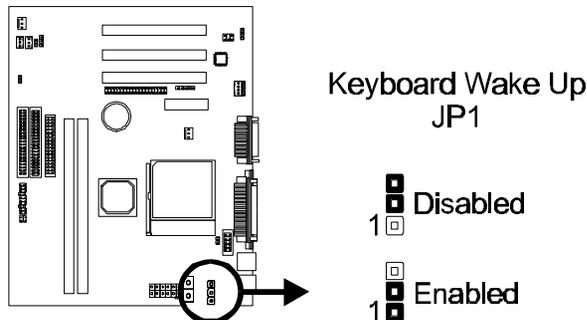

Setting the Jumpers

Jumpers are used on this mainboard to select various settings and features. A 2-pin jumper has two settings: Open and Short (or Closed). The jumper is closed by placing the Jumper Cap across the two pins, thereby connecting them. 3-pin jumpers can be set to pins 1-2 or 2-3 connected. Pin-1 is labeled on the circuit board.

3-pin Jumper   **2-pin Jumper**

Pin 1-2   Open

Pin 2-3   Short
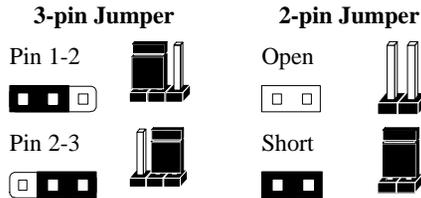
Keyboard Power-on Jumper (JP1)

This mainboard features the Keyboard Power-on function. For example, you may press any key on the keyboard to power on the system, or you may choose to type a password to power on the system. These options are set in the **Integrated Peripherals** of the BIOS. (Please refer to the BIOS, Driver & Utility Guide.)

Note: If you choose to use a password to power on the system, it is recommended to keep a written record of your password. If you forget the password, you must remove the battery AND disconnect the mainboard's power supply for a couple of seconds then re-install them back. This is the only way you can power on your system again.

Keyboard Wake Up
JP1

Disabled

1

Enabled
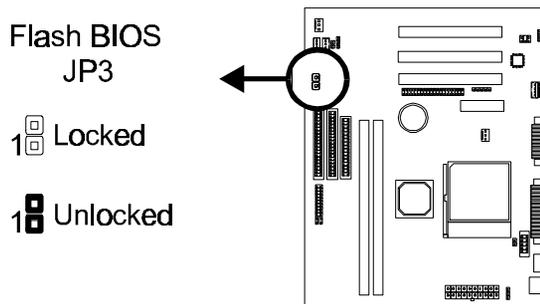
1

Setting the Bus Clock Override Jumper (JP2)

Setting the Bus Clock Override Jumper to *Enabled* overrides the CPU's default Bus Clock and set it at 100 MHz.

· *Over-clocking may cause serious system damage.*
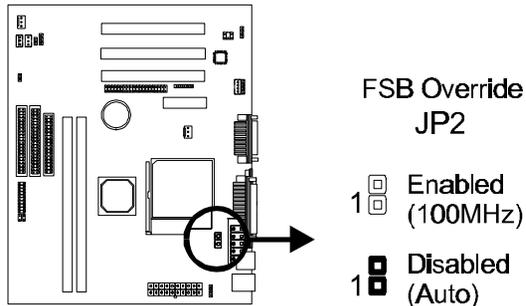

Locking/Unlocking the Flash BIOS (JP3)

To re-program the mainboard BIOS, short this jumper to unlock the flash BIOS. Lock the BIOS to prevent writing to the flash BIOS.

Onboard AC97 Audio Selection Jumper (JP4)

Set this jumper to *Enabled* if you are using the onboard AC97 audio features. Also make sure the "*AC97 Audio*" option is *Enabled* (default) in the *Integrated Peripherals* of the BIOS. (Please refer to the BIOS, Driver & Utility Guide.)
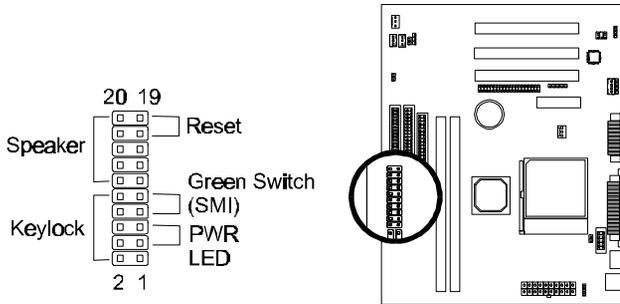

Onboard AC97 Audio
JP4

Disabled

1

Enabled

1
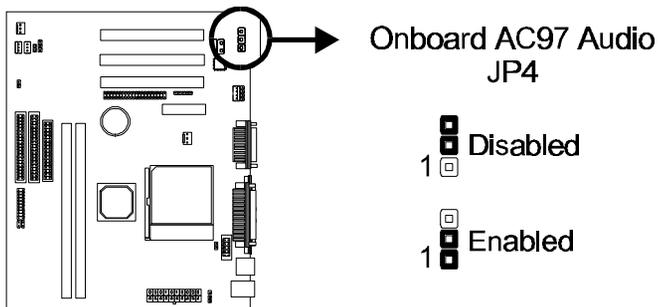
Clear CMOS (JP5)

If you have set the password, either to protect the BIOS configuration or to restrict access to the computer, the password is stored in CMOS RAM. If you forget the password, the CMOS can be cleared by setting this jumper to *Clear CMOS*.

In case there is a CMOS error or improper CPU setting through the mainboard's BIOS that causes boot failure, the CMOS must cleared by setting this jumper to *Clear CMOS* to allow the system to boot.

* Clearing the CMOS will clear all user-defined BIOS setup options.

Connections

Cooling Fans

These connectors are small 3-pin Header Connectors that provide 12-Volt power for CPU and chassis cooling fans. Plug in the fan cable to the connector. Pin-2 corresponds to the RED power lead as shown:

Power Supply Connector

This mainboard features an ATX-style Power Supply Connector. This connector is keyed to prevent connection in the wrong direction. Line up the locking mechanism on the connector from the Power Supply with the tab on the mainboard connector. Press down until the two connectors are locked.

System Function Connector Block (CN4)

Pins [3 & 5] Power LED lead – Pins 3 and 5 connect to the power LED lead from the system's case. In case you case comes with a five-pin keylock & power LED connector, use the connector block marked as Keylock.

Pins [7 & 9] SMI suspend switch lead - If your system's case has a suspend switch, hook the lead from the switch to pins 7 & 9. A suspend switch is used to save electricity by putting the system into a suspend mode when the computer is not being used. For this switch to be functional, "*Suspend Mode*" must first be enabled in the **Power Management Setup** in the BIOS Setup utility.

Pins [17 & 19] Reset switch lead - Connects to the Reset Switch lead from the system's case. The reset switch is used to "cold-boot" the system without actually turning off the power, reducing wear and tear on the power supply.

Pins [2, 6, 8 & 10] Keyboard lock switch lead – Pins 2 & 6 connect to the power LED from the system's case, Pins 8 and 10 connect to the case-mounted keylock switch.

Pins [14 & 20] Speaker connector - Connects to the Speaker lead from the system's case.

Soft Power Switch (CN2)

Connects to the Power Switch featured on ATX case designs. This switch must be hooked up before the system can be powered on, unlike traditional "Baby-AT" designs where the power switch is located on the Power Supply itself.

Note: Under the following two conditions, you have to press and hold the switch for more than 4 seconds to power off your system, regardless of the *"Soft-Off by PWR-BTTN*" setting in the **Power Management Setup** of the BIOS.

- *Shortly after the system is powered on, when the BIOS message is not yet appear.*
- *When CPU hangs.*

HDD Activity LED (CN3)

Hook the IDE LED lead to this connector, with the RED lead corresponding to Pin-1.
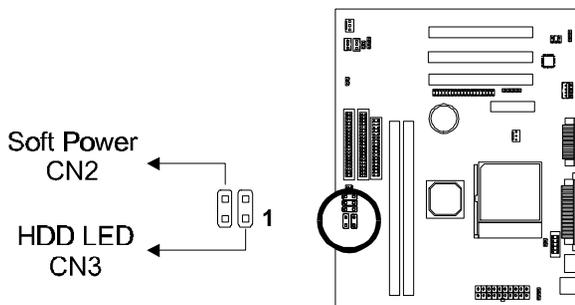
IrDA-Compliant Infrared Module Connector

The IrDA connector bracket hooks directly to this connector on the mainboard. This connector provides support for the optional wireless transmitting and receiving infrared module. You must first configure through the BIOS setup where UART2 is directed, COM2 or IrDA.
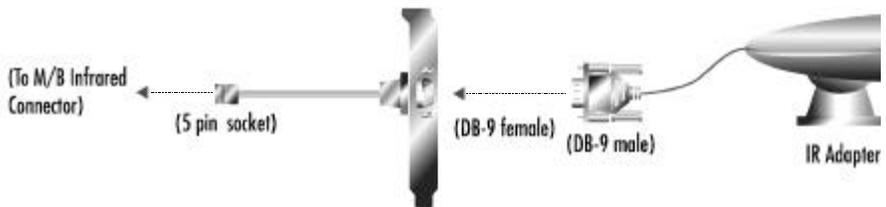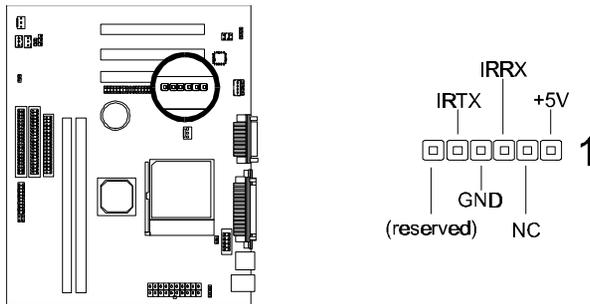
Wake-up On LAN Connector (CN10)

The Wake-up On LAN function will allow the network to wake up a Soft Power Down (Soft-Off) PC. However, if your system is in the Suspend mode, you can wake-up the system only through an IRQ or DMA interrupt. To use the Wake-up On LAN function, you may also have to enable the related option in the mainboard BIOS.

Connect the cable that comes with your LAN card to this connector on the system board. Refer to the add-in card's manual for details.

Note: Your LAN card must support Magic Packet in order to use the Wake-up On LAN function.

Wake-on-Ring Function (CN11)

The Wake-on-Ring function allows the modem to remotely power on the system. To use this function, you may also have to enable the related option in the mainboard BIOS.

For the function to work for an *internal modem card*, you must also connect the Wake-on-Ring cable on the modem card to the *Wake-on-Ring function connector* on the mainboard.
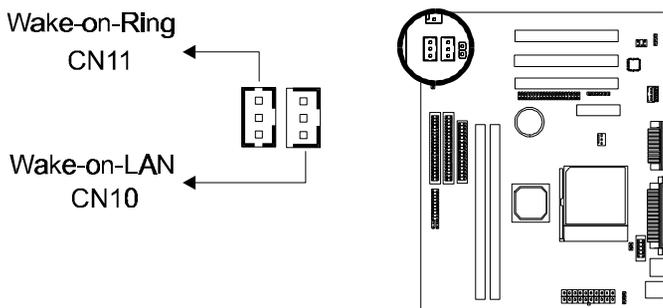
Serial and Parallel Ports

A 25-pin D-Sub header is provided on the back panel for a multi-mode bi-directional parallel port.

One 9-pin D-Sub headers are also provided on the back panel for Serial ports.

For the second serial port, plug the 10-pin cable of the serial port bracket to the COM2 connector on the mainboard.
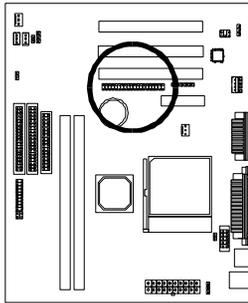
VGA Connector

This mainboard has built-in VGA features. A 15-pin connector is provided on the back panel for connecting to the VGA connector from the monitor.

COM 2

Parallel Port

COM 1   VGA
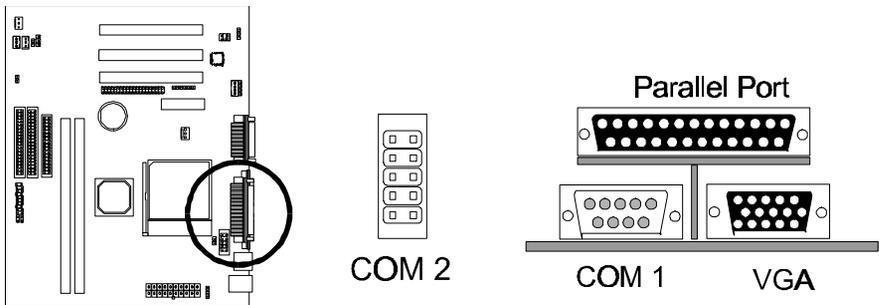
Digital Video Out

This is a manufacturer's proprietary bus that connects to the cable from optional TV-Out or Panel-Link daughter board. This bus support traditional TVs as well as the new digital flat panel displays.
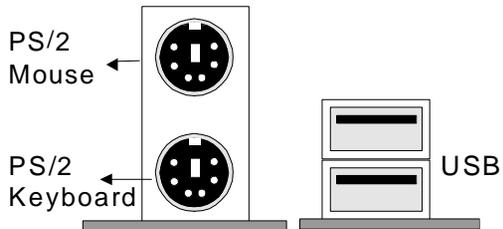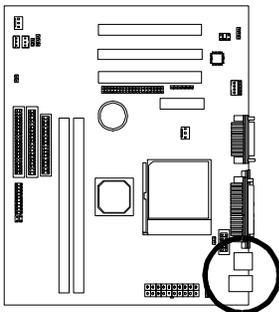
Digital Video Out
(Proprietary)

USB Connectors

These two connectors permit connection of two USB peripheral devices directly to the system without an external hub.
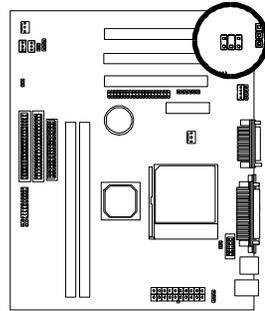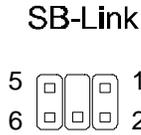
PS/2 Keyboard and Mouse Connectors

These two connectors are located on the back panel of the mainboard.

PS/2
Mouse

PS/2
Keyboard

USB

SB-Link

Connect SB-Link cable on the Creative Sound Blaster Card to this connector. This PC to PCI bridge provides backward compatibility between PCI and ISA audio chips for earlier DOS games.

Floppy Drives

The on-board floppy controller supports (2) floppy disk drives with the floppy ribbon cable provided. Make sure the RED stripe on the ribbon cable is oriented towards Pin-1. Notice the "twist" between the sets of connectors on the floppy cable. The floppy drive "A" position is at the END of the cable, whereas floppy drive "B" is hooked to one of the connectors on the other side of the twist. The cable provides both "Edge" and "Pin" connectors for both the A and B positions to match the connector on your floppy drives.
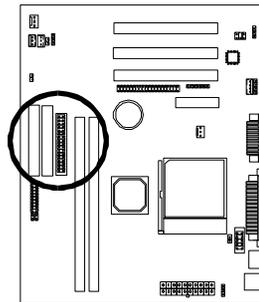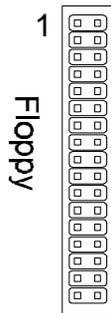
IDE Hard Drives and CD-ROMs

The on-board Enhanced IDE controller can support up to (4) IDE hard drives or other ATAPI devices, such as CD-ROMs. This controller, as with all Enhanced IDE controllers, consists of both Primary and Secondary ports. Each port has an associated connector and cable which can support up to (2) ATAPI devices each.

All IDE devices have jumpers which allow the user to configure the device as either "Master" or "Slave". A Master device is one that is ALONE on the IDE cable, whereas a Slave device is installed as a SECOND device on the same cable. Keep in mind that the Master device will appear before the Slave device in the CMOS Setup, as well as the Operating System software. *Refer to the device documentation for jumper settings.

The Secondary IDE port can be used for up to (2) additional ATAPI devices. Normally it's recommended that you connect your first hard drive to the Primary port, and the first CD-ROM to the Secondary.

Make sure to align the RED stripe on the ribbon cable with Pin-1 on the mainboard IDE connector. On most hard drives and CD-ROMs, the RED stripe should be oriented towards the power connector of the device.
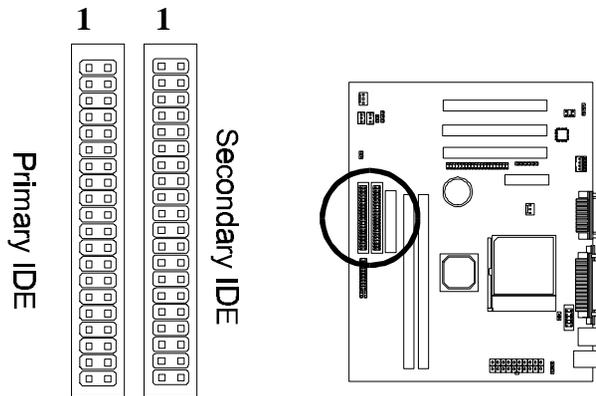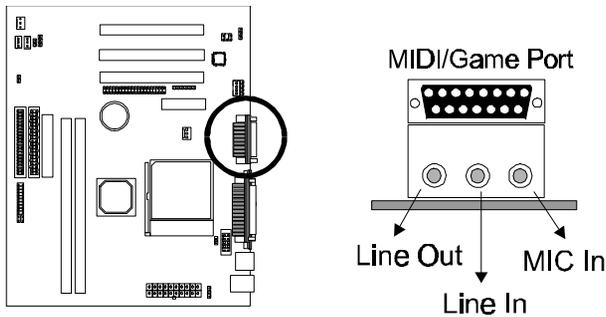
MIDI/Game Port

You may plug a joystick or game pad to this 15-pin female connector for game playing, or connect a MIDI device for playing or editing audio.

Audio Port

You can connect powered speakers or headphones to Line Out jack. Cassette players or other external audio sources can be connected to Line In jack. Plug in your microphones to MIC jack.
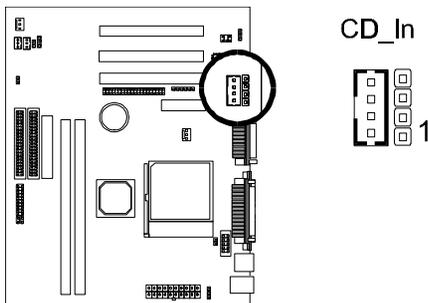

Note:

To use the on-board direct sound AC97 audio features, set jumper JP4 to *Enabled*. Also make sure to enable (default) the "*AC97 Audio*" option in **Integrated Peripherals** of the BIOS.
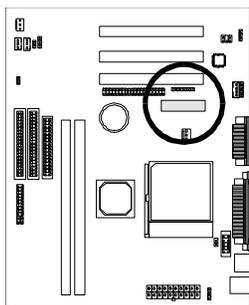
Audio Connectors

Two types of CD Audio connectors are available for connecting the CD-ROM drive using CD audio cables. Make sure red lead is oriented toward pin 1.


Installing an AMR Card

One AMR (**A**udio/**M**odem **R**iser) standard interface connector is provided for Audio Codec 97 (AC97) and/or Modem Codec 97 (MC97) cards.

Installing the Memory Modules (DIMM)

- This mainboard has **two** sockets available for **168-pin DIMMs**. They can be 3.3 volt Unbuffered Synchronous DRAMs (SDRAM), 3.3 volt FPG or EDO DRAMs.

    - *To ensure reliability, it is recommended to use **PC100** SDRAM for your 100MHz clocked SDRAM performance requirement.*

- DIMM Sizes supported: **8MB, 16MB, 32MB, 64MB, 128MB** and **256MB**

- A total of **(2)** DIMMs can be installed for a maximum RAM capacity of **512MB**.

To insert the DIMMs, the modules must be oriented in the correct way. Notice the notches of the DIMM. Align these notches as shown in the diagram below. Gently push the DIMM until the retainers on both sides of the socket lock the module in place. To remove a DIMM, push the retainers outwards to release the module then pull the module out of the socket.
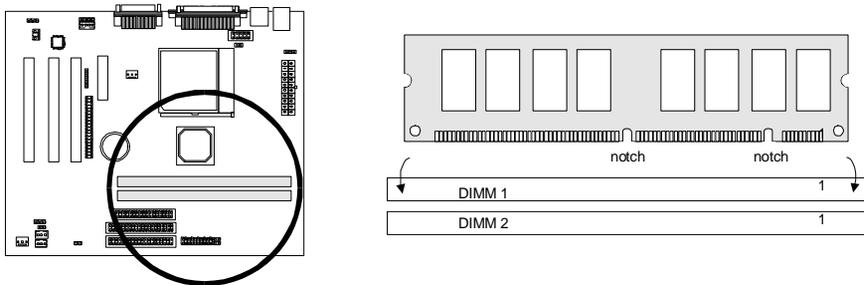
Installing the Support Drivers and Utilities

Included in your mainboard package you can find a CD-ROM containing support drivers and utilities. Just insert the CD-ROM, and from the Autorun screen, click the driver/utility that you want to install. Follow the on-screen instructions to complete the installation.

* The screen will look different under different color mode.

More utilities can be found under the "Utilities" folder of the CD-ROM.

For Windows 95/98/NT4.0 Users

Before beginning driver installation, you must first install the **Intel 81x Chipset Driver** in order for your operating system to recognize the Intel 81x chipset. Following is the driver's installation procedure.

Installing Intel 81x Chipset Driver for Windows

Windows 95/NT4.0

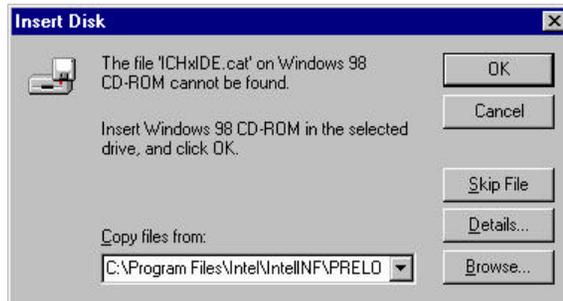Just click **Install Intel 81x Chipset** from the Autorun screen and follow the on-screen instructions.

Windows 98

Click **Install Intel 81x Chipset** from the Autorun screen and follow the on-screen instructions. When the following dialog box appears, specify the path:
C:\Program Files\Intel\IntelINF\PRELOAD
Click **OK** and follow the on-screen instructions to complete the installation.

SOFTWARE SUPPORT

For detailed information, please refer to the **BIOS, Driver & Utility Guide** included in your mainboard package.

Mainboard BIOS

Shortly after the system is powered on, provided that the system is properly setup, you will see the message:

Press DEL to enter SETUP

- Press the **DEL** key to enter the Award BIOS Setup program.

The Main Menu will appear on the screen. Use the **arrow keys** to select among the items and press **<Enter>** to accept and enter the sub-menu.

CMOS Setup Utility – Copyright (C) 1984-1999 Award Software

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

Select **Load Optimized Defaults** for optimum system performance.

Flash BIOS Programming Utility

Since this mainboard features FLASH BIOS, the user can simply re-program the old BIOS using the AWDFLASH Utility (found under "Utilities" folder of the supplied CD-ROM) as follows:

1. First, boot the system with DOS or to "Safe Mode" under Windows 95. *This is the only correct way to run the AWDFLASH Utility program.*

2. Make sure the files "AWDFLASH.EXE" and the updated "BIN" file (which contains the actual BIOS code) are in the same directory.

3. Changing to the directory where the two required files exist, type: AWDFLASH and press [ENTER]. The AWDFLASH Utility Screen appears:

```
        FLASH   MEMORY   WRITER v5.2C
     Copyright (C) 1993, Award Software, Inc.,

     For SIS-85C471-I486SU2G          DATE: 04/26/94
         Flash Type -
     File Name to Program : [                    ]




     Error Message:
```
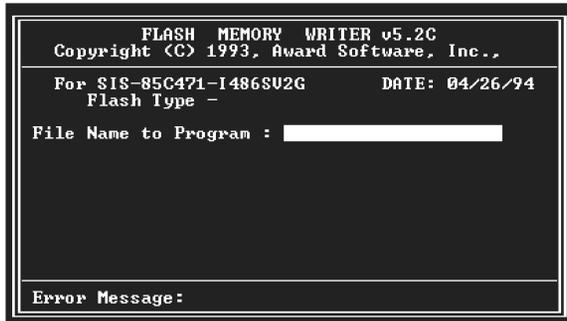
4. Type in the name of the new BIOS (.bin) file and hit [ENTER].

5. Backup the old BIOS by entering the name of the new backup file (such as "backup.bin") and press [ENTER].

6. To begin programming, hit "y". The Utility can be aborted at this time by hitting "n".

7. A bar indicator will show the progress of the programming operation. After successful completion, hit the reset button or power off the computer.

Be sure to perform "**Load Optimized Defaults**" for your new BIOS to synchronize the previous BIOS with the updated BIOS.

Symbios SCSI Configuration Utility

This mainboard features built-in Symbios SCSI BIOS. The **Symbios SCSI Configuration Utility** is a menu driven utility that allows you to view and change the default configuration settings for host adapters using Symbios 53C8XX chips.

In most cases you should not need to change the default configuration of your host adapter. You may decide to alter these default values if there is a conflict between device settings, or if you need to optimize system performance. A message appears on your computer monitor (for about 5 seconds) during boot that looks like this:

Press Crtl-C to start Symbios Configuration Utility

If you decide to press Ctrl-C during boot, the following message appears:

Please wait, invoking Symbios Configuration Utility …

After a brief pause, your computer will display the Main Menu of the utility.

Note: Pressing **Ctrl-A** after memory count during re-boot allows you to recover the default settings and reconfigure.

DMI Utility

This mainboard supports the **Desktop Management Interface (DMI)**, which is a new method of providing enterprise management for personal computers. The main component of DMI is the Management Information Format Database (MIF), which contains information about the computer system and its components, such as BIOS version/vendor, CPU speed/type, memory size/type, L1/L2 cache, port connectors (IDE, floppy, 2S/1P, USB, keyboard, mouse,), slots … etc. Using DMI, remote PC management software is able to obtain various information about the system, including hardware profiles, capabilities, operational status, installation dates, and other information about the system and its components.

This DMI utility, DMICFG.EXE (found under "Utilities" folder of the supplied CD-ROM), allows you to add additional information, such as serial numbers, vendor information, and enclosure/chassis configurations, into the MIF.

FCC & DoC Compliance Statement

This device complies with Part 15 of the FCC rules, operation is subject to the following two conditions.

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

This equipment has been tested and found to comply with 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 residential installations. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interface to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television equipment 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.
- Move the equipment away from the receiver.
- Plug the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for additional suggestions.

The FCC requires the user to be notified that any change or modifications to the equipment by the user not expressly approved by the grantee or manufacturer could void the user's authority to operate such equipment. The use of shielded cables for connection of the monitor to the graphics card is required to assure compliance with FCC regulations.

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