



User's Manual

**VIA P4X533 mainboard
for Intel Socket 478 processor**

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Section 1

INTRODUCTION

Package Contents

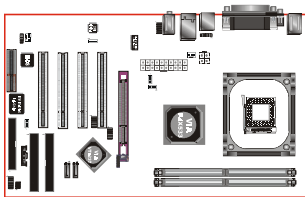
Contents

- A. Mainboard
- B. User's manual
- C. Floppy drive cable
- D. HDD drive cable
- E. CD (drivers and utilities)
- F. I/O Shield

Optional Items

- G. S-ATA data and power cable
- H. Extra USB2.0 port cable

If you need the optional item, please contact your dealer for assistance.



A



B



C



D



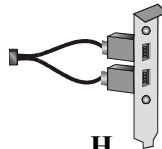
E



F



G



H

Introduction

Intel® Pentium® 4 processors

The Intel Pentium 4 processor, Intel's most advanced, most powerful processor for desktop PCs and entry-level workstations, is based on Intel NetBurst™ microarchitecture. The Pentium 4 processor is designed to deliver performance across applications and usages where end-users can truly appreciate and experience the performance. These applications include Internet audio and streaming video, image processing, video content creation, speech, 3D, CAD, games, multimedia, and multi-tasking user environments. The Pentium 4 processor delivers this world-class performance for consumer enthusiasts and business professional desktop PC users as well as for entry-level workstation users.

Intel adds support for Hyper-Threading Technology to the Pentium 4 processor family. HT Technology allows a single, physical Pentium 4 processor to function as two logical processor for next generation multi threaded application.

For more information about all the new features the Pentium 4 delivers check out the Intel website at <http://www.intel.com>

Accelerated Graphics Port (AGP)

The AGP slot on the board is compliant with the new AGP 3.0 specification. This new specification enhances the functionality of the original AGP specification by allowing 8X data transfers (8 data samples per clock) resulting in maximum bandwidth of 2.1GB/s. In addition, it defines 1.5 volt power supply operation. Complying with this specification, this board supports external AGP-8X/4X cards with Fast Write Transactions. Only 1.5V AGP cards are supported.

Ultra ATA/66/100/133

This board provides an Ultra ATA100/133 Bus Master IDE controller. This controller supports Ultra ATA100/133 protocols which are ideal to support demanding applications such as real-time video, multimedia, and a high performance operating system. A new IDE cable is required for Ultra ATA100/133; this cable is an 80-pin conductor cable which is backward compatible with ATA/33 connectors.

Hardware Monitoring

Hardware monitoring enables you to monitor various aspects of the system operation and status. The features include CPU temperature, voltage and fan speed in RPMs.

LAN

This mainboard is optionally mounted with a LAN chipset. It allows the mainboard to connect to a local area network by means of a network hub.

Serial ATA

Support Serial ATA ,an evolutionary replacement for Parallel ATA IDE storage interface .Increases the peak data transfer speed up to 150MB/sec and allows future enhancements to the computing platform.

Mainboard Form-Factor

This board is designed with ATX form factor - the latest industry standard for chassis design. The ATX form factor is essentially a Baby-AT baseboard rotated 90 degrees within the chassis enclosure and a new mounting configuration for the power supply. With these changes the processor is relocated away from the expansion slots, allowing them all to hold full length add-in cards. ATX defines a double height aperture to the rear of the chassis which can be used to host a wide range of onboard I/O. Only the size and position of this aperture is defined, allowing PC manufacturers to add new I/O features (e.g.; TV input, TV output, joystick, modem, LAN, audio, etc.) to systems. This will help systems integrators differentiate their products in the marketplace, and better meet your needs.

- By integrating more I/O down onto the board and better positioning the hard drive and floppy connectors material cost of cables and add-in cards is reduced.
- By reducing the number of cables and components in the system, manufacturing time and inventory holding costs are reduced and reliability will increase.
- By using an optimized power supply, it's possible to reduce cooling costs and lower acoustical noise. An ATX power supply, which has a side-mounted fan, allows direct cooling of the processor and add-in cards making a secondary fan or active heatsink unnecessary in most system applications.

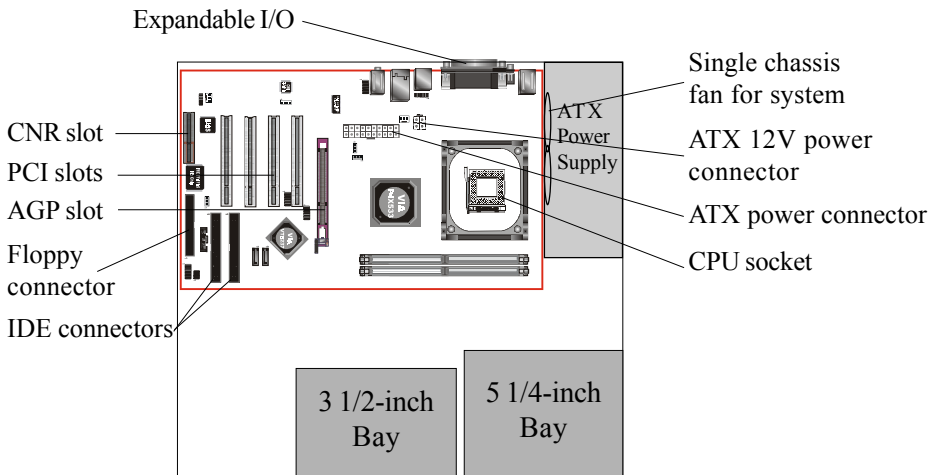


Figure 2: Summary of ATX chassis features

I/O Shield Connector

The I/O back panel for this mainboard is shown below (Figure 3). When installing the mainboard into the computer case, use the bundled I/O shield to protect this back panel.

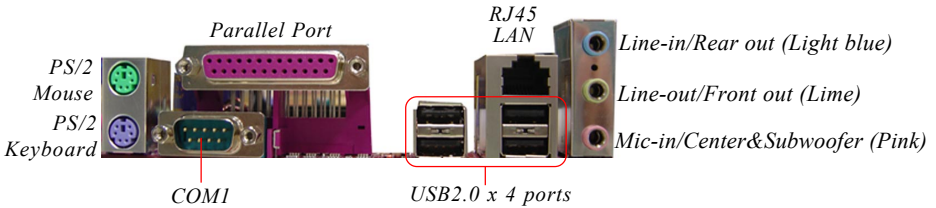


Figure 3: I/O ports

Power-On/Off (Remote)

This board has a 20-pin ATX and a 4-pin ATX12V power supply connector (Figure 4). For power supplies that support the **Remote On/Off** feature, this should be connected to the mainboard front panel PW_ON connector for the computer power On/Off button.

This board has been designed with "Soft Off" function. You can turn off the system in two ways: by pressing the front panel power On/Off button or using the "Soft Off" function that can be controlled by an operating system such as Windows®XP/ME/2000/98.

Note: For maintaining the DDR SDRAM power during STR (ACPI S3) function, it is strongly recommended to use power supplies that have a +5VSB current of (\geq) 2A. Please check the 5VSB's specification printed on the power supply's outer case.

Note: The board requires a minimum of 250 Watt power supply to operate. Your system configuration (amount of memory, add-in cards, peripherals, etc.) may exceed this minimum power requirement. To ensure that adequate power is provided, use a 300 Watt (or higher) power supply.

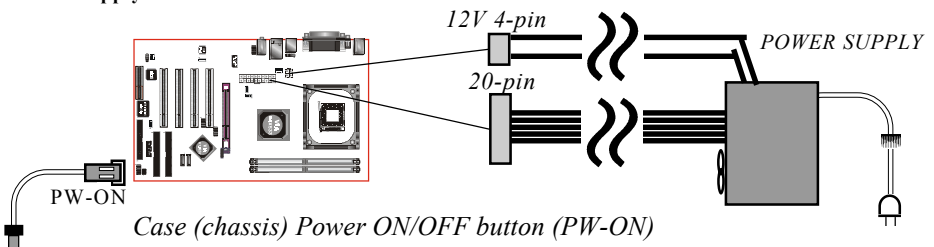


Figure 4: Simple ATX power ON/OFF controller

System Block Diagram

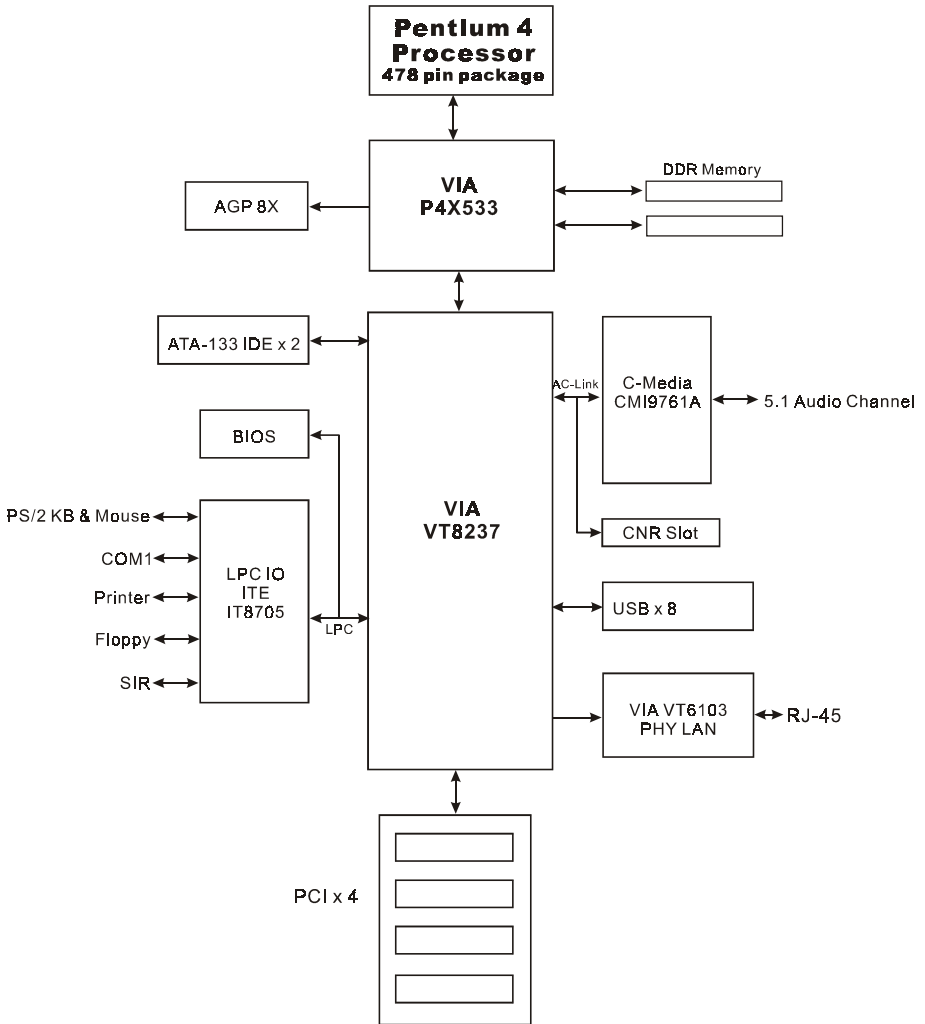


Figure 5: System Block Diagram

Section 2

FEATURES

Mainboard Features

● **Socket-478 Processor**

- ◆ Support Intel® Pentium® 4 processors Northwood/Willamette up to **3.06GHz** in mPGA478 socket with 400/**533** MHz front-side system bus
- ◆ Support Intel® Hyper-Threading Technology
- ◆ Support Intel® Celeron® processors up to **2.6GHz** in mPGA478 socket with 400 MHz front-side system bus

● **Chipset**

- ◆ VIA P4X533 + 8237 AGPset

● **System Memory**

- ◆ **Two** 184-pin DDR SDRAM DIMM sockets
- ◆ Support single or double-sided 2.5v DDR-266/**333** DIMMs in 128/256/512Mb technologies
- ◆ Support up to **2** GB system memory

● **Expansion Slots**

- ◆ **Four** PCI connectors compliant with PCI v2.2
- ◆ **One** 1.5v **AGP- 8X/4X** connector compliant with AGP v3.0
- ◆ **One** CNR slot.

● **IDE**

- ◆ **Two** IDE interfaces (up to 4 IDE devices) with UDMA-33, ATA-66/100/**133** support from embedded IDE controller

● **USB**

- ◆ **Eight** USB connectors compliant with USB2.0 from embedded USB controller (4 connectors at rear panel)

Features

● S-ATA

- ◆ Two S-ATA ports with up to 150MBps bandwidth with RAID 0,1 Support.

● LAN

- ◆ **100Mb** Fast Ethernet from onboard **VIA VT6103 PHY**.

● Audio

- ◆ Onboard C-Media **CMI9761A** selectable 2 or 6-CH audio CODEC (AC97 v2.3 compliant)
- ◆ Support CD-In
- ◆ Rear panel audio jacks configuration;
For 2-channel mode; stereo Line-out (Lime), stereo Line-In (Light blue) and Mic-In (Pink)
For 6-channel mode; Front stereo-out(Lime), Rear stereo-out (Light blue), Center and Sub-woofer (Pink)
- ◆ Support Front panel audio for MIC-In and stereo Line-out only.
(Front panel Line-out electrically shared with rear panel Line-out).

● I/O

- ◆ Onboard ITE **IT8705F** LPC bus I/O controller
- ◆ Legacy peripheral interface for PS/2 keyboard & mouse, FDD, Parallel, One Serial, Game and IrDA (v1.0 compliant), ...
- ◆ Support Hardware Monitoring function such as fan speed monitoring and CPU temperature.

● BIOS

- ◆ 2 Mb Flash EEPROM with AMI Plug & Play BIOS

● Special Features

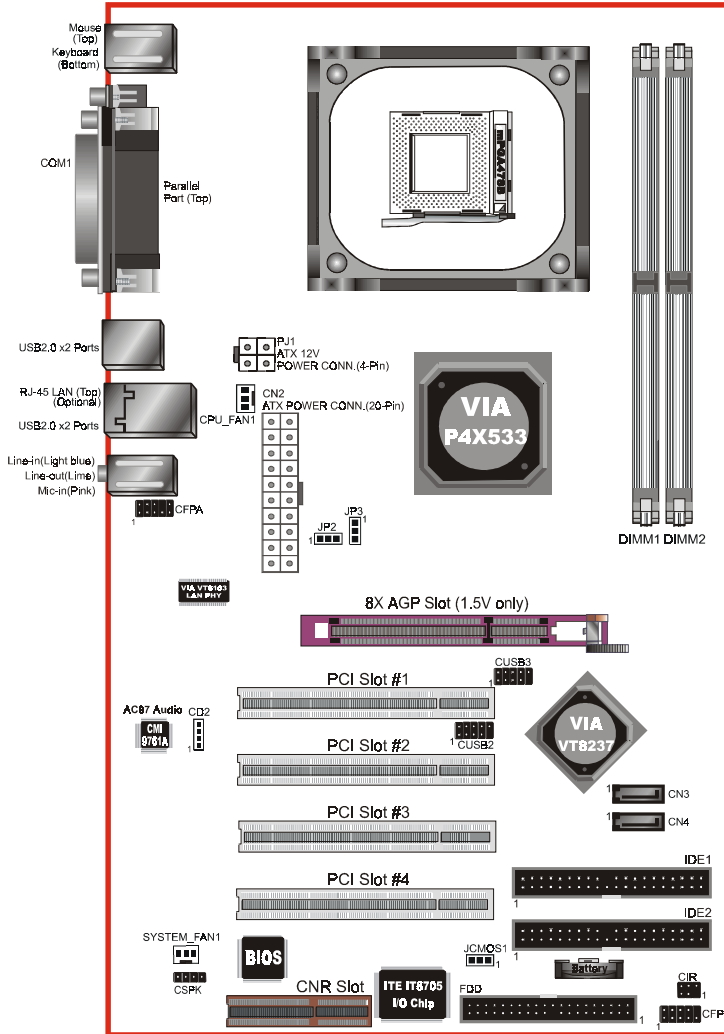
- ◆ Support **Wake-On-LAN** by PME
- ◆ Support **Asynchronous** clocking mode between FSB and AGP/PCI

● Form Factor:

- ◆ 305mm x **190mm** x 40mm, ATX Size

Section 3 INSTALLATION

Mainboard Layout



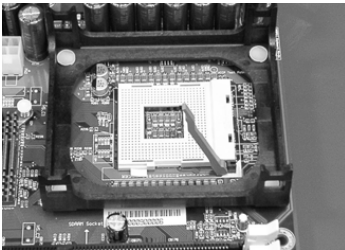
Installation

Easy Installation Procedure

The following must be completed before powering on your new system:

- 3-1. CPU Installation
- 3-2. Jumper Settings
- 3-3. System Memory Configuration
- 3-4. Expansion Slots
- 3-5. Device Connectors

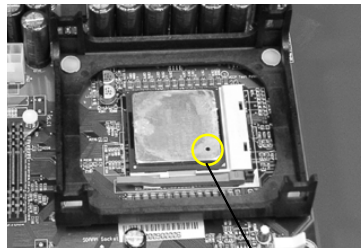
3-1 CPU Installation



<Figure 1>

Step 1

Open the socket by raising the actuation lever.



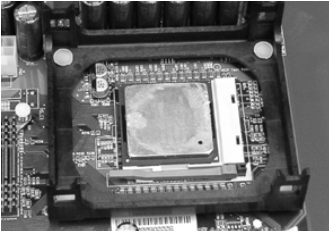
<Figure 2>

Pin 1

Step 2

Align pin 1 on the CPU with pin 1 on the CPU socket as shown in the illustration above. The CPU is keyed to prevent incorrect insertion. Don't force the processor into the socket. If it does not go in easily, check for mis-orientation and reinsert the CPU.

Make sure the processor is fully inserted into the socket.



<Figure 3>

Step 3

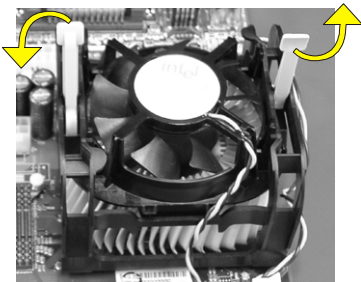
Close the socket by lowering and locking the actuation lever.



<Figure 4>

Step 4

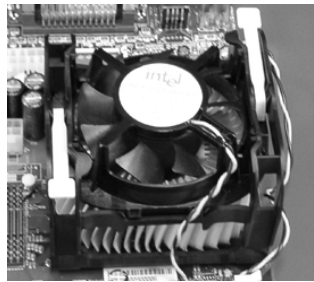
Apply thermal compound to the top of the CPU and install the heatsink as shown.



<Figure 5>

Step 5

Install the cooling fan assembly. Press the two clips in the direction of the arrows shown in Figure 5 to secure the assembly to the CPU socket.



<Figure 6>

Step 6

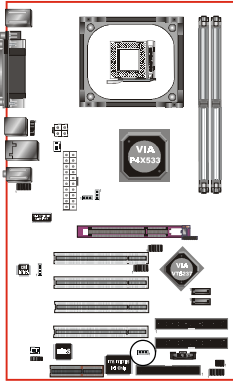
Plug the CPU fan power into the mainboard's CPU fan connector.

The installation is complete.

NOTES:

- Damage to Intel Pentium™ 4 processors might result if installed with incorrect CPU fan and heatsink assemblies. Use Intel's design thermal solution shown in the illustrations above: an active heatsink; an extruded aluminum heatsink base; and a fan attached to the top of the fin array.
- Apply heatsink thermal compound or paste to the CPU to avoid CPU overheating and damage.
- In accordance with Intel Corp. specifications, do not install a CPU over 50 times to avoid bending the pins and damaging the CPU.

3-2 Jumper Settings



JCMOS1: Clear CMOS data Jumper

If the CMOS data becomes corrupted or you forgot the supervisor or user password, clear the CMOS data to reconfigure the system back to the default values stored in the ROM BIOS.

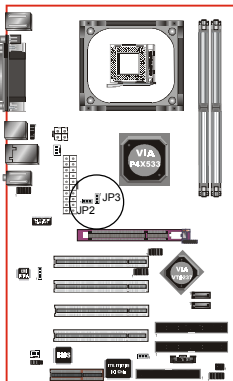


Settings:

- 1-2: Normal (Default)
- 2-3: Clear CMOS

To CMOS Clear data, please follow the steps below.

1. Turn off the system.
 2. Change the jumper from “1-2” to “2-3” position for a few seconds.
 3. Replace the jumper on to the “1-2” position.
 4. Turn on the system and hold down the key to enter BIOS setup.
-



JP2/JP3: CPU FSB Select Jumper

These jumper are used to select the front side bus of the CPU installed on the mainboard.



JP2	JP3	Settings:
2-3	2-3	100MHz (Default)
1-2	2-3	133MHz

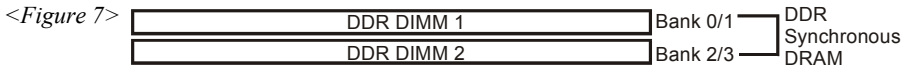
Note: Overclocking may cause system instability and are not guaranteed to provide better system performance.

3-3 System Memory Configuration

The mainboard accommodates two PC2100/PC2700 184-pin DIMMs (Dual In-line Memory Modules):

- Supports up to 2.0GB of 266/333 MHz DDR SDRAM.
- Supports up to 2 DDR DIMMs (refer to Table 1).
- Supports unbuffered non-ECC DIMMs only.
- Supports configurations defined in the JEDEC DDR DIMM specification

Figure 7 and Table 1 show two possible memory configurations.



<Table 1>

Total Memory	DDR DIMM 1 (Bank 0/1)	DDR DIMM 2 (Bank 2/3)
= 1GB Maximum	DDR SDRAM* 64MB, 128MB, 256MB, 512MB, 1GB* X 1	None
= 2GB Maximum	DDR SDRAM* 64MB, 128MB, 256MB, 512MB, 1GB* X 1	DDR SDRAM* 64MB, 128MB, 256MB, 512MB, 1GB* X 1

* DDR SDRAM supports 128, 256, 512MB and 1GB DIMM modules using 512Mb technology.

NOTES:

- Using non-compliant memory with higher bus speeds (overclocking) may severely compromise the integrity of the system.

DIMM Module Installation

Figure 9 displays the notch on the DDR DIMM memory module.

DIMMs have 184 pins and one notch that matches with the DDR DIMM socket. DIMM modules are installed by placing the chip firmly into the socket and pressing straight down as shown in figure 10 until the white clips close and the module fits tightly into the DIMM socket (figure 11).

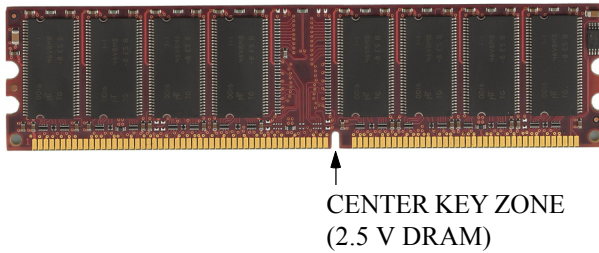


Figure 9 - DIMM notch

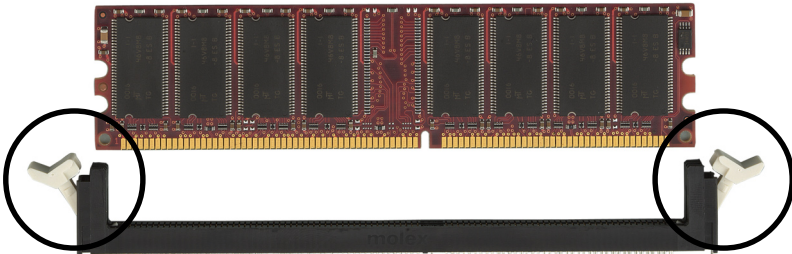


Figure 10 - DIMM module clips before installation

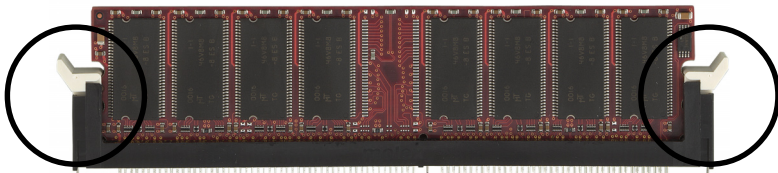
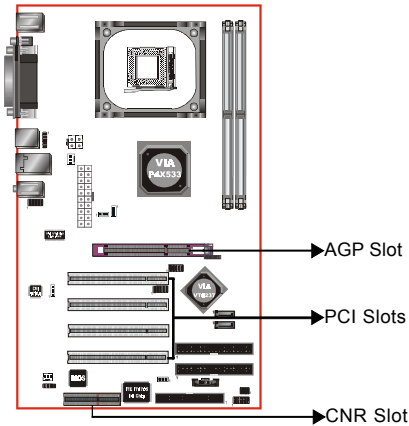


Figure 11 - DIMM module clip after installation

To remove the DIMM module press down the white clips and the module will be ejected from the socket.

3-4 Expansion Slots



AGP Slot

The mainboard is equipped with an AGP slot. Make sure you install a card that supports the 1.5V specification.

PCI Slots

The mainboard is equipped with 4 PCI slots.

CNR Slot

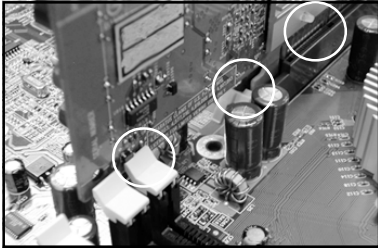
You can install the CNR (Communication and Networking Riser) cards in this slot, including LAN, Modem and audio functions.

Installing an Expansion Card

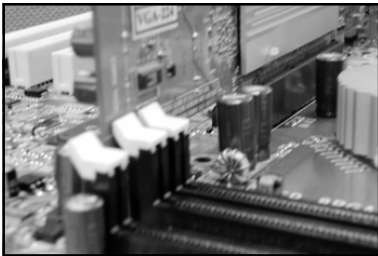
The steps below assume that the mainboard is already installed in the system chassis.

1. Make sure the PC and all other peripheral devices connected to its has been powered down.
2. Disconnect all power cords and cables.
3. Remove the system unit cover.
4. Remove the bracket of the slot that you intend to use. (You need to remove the screw in order to remove the bracket.)
5. Align the card above the slot then press it down firmly until it is completely seated in the slot.
6. Secure the card to the chassis with the screw you removed in step 4.
7. Replace the system unit cover.
8. Power on the PC.
9. Enter the BIOS step program to make the necessary settings.
10. Save the settings and restart the PC.
11. Install the software drivers of the expansion cards, if necessary.

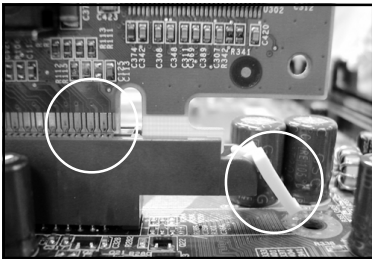
AGP Card Installation Caution



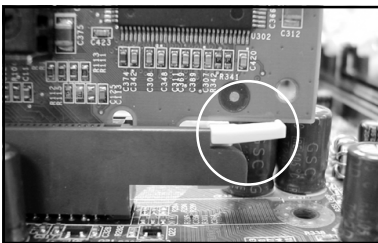
1. AGP card component is blocked by DIMM socket lock.
2. AGP slot clicker is not locked.
3. AGP card edge connector is not inserted properly.



1. AGP card component is not blocked by DIMM socket lock.
2. AGP slot clicker is locked.
3. AGP card edge connector is inserted properly.



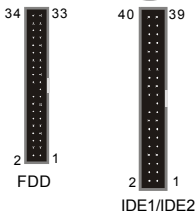
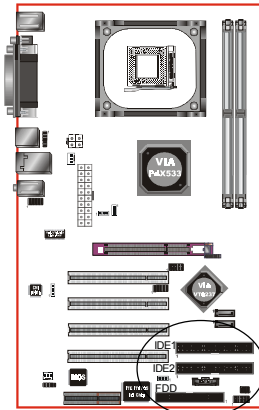
1. AGP slot clicker is not locked.
2. AGP card edge connector is not inserted properly.



1. AGP slot clicker is locked.
2. AGP card edge connector is inserted properly.



Installation



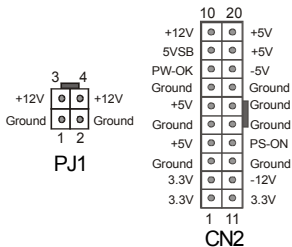
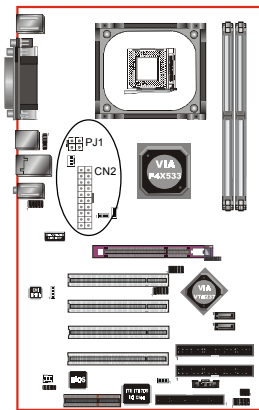
FDD: Floppy Controller Connector
This mainboard connects floppy disk drive.

IDE1/IDE2: UltraDMA-66/100/133 Primary/Secondary IDE Connector

This mainboard is equipped with 2 IDE connectors to support up to 4 ATA-133 IDE drives. It supports PIO and DMA mode operations for maximum data transfer rate of 133MB/sec per channel.



When using two IDE drives, one must be set to Master mode and the other to Slave mode. Refer to your disk drive user's manual for information about selecting the proper drive switch settings.



CN2: 20-pin ATX Power Connector

PJ1: 4-pin ATX12V Power Connector

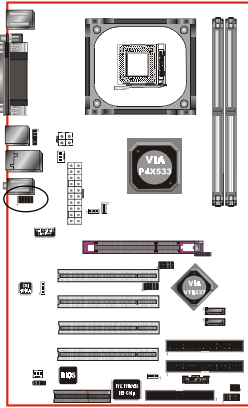
The mainboard is equipped with a standard 20-pin ATX main power connector and a 4-pin +12V power connector for connecting an ATX12V power supply. The plugs of the power cables are designed to fit in only one orientation. Insert the plugs into the connectors until they fit in place.

Caution:

The CN2 and PJ1 Power Connector must be used simultaneously or else this system will not boot-up.

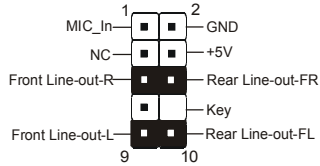


The board requires a minimum of 250 Watt power supply to operate. Your system configuration (amount of memory, add-in cards, peripherals, etc.) may exceed this minimum power requirement. To ensure that adequate power, use a 300 Watt or greater power supply.



CFPA: Front Panel Audio Connector

When the jumpers are removed this connector can be used for front panel audio. The front panel phone jack should have “normal close” switch. Without phone plug inserted, the rear panel audio is enabled. With phone plug inserted, the rear panel audio will be disabled.



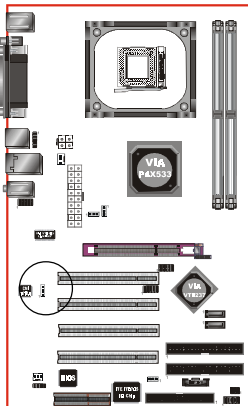
Settings:

Pins (5-6) & (9-10) Short (default): Only the onboard rear panel audio jack can be used.

Pins (5-6) & (9-10) Open: Only front panel audio jack can be used.



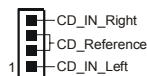
In 2-Channel audio mode, Mic-In is shared for both front panel and rear panel.
 In 6-Channel audio mode, the Mic-In is dedicated for front panel use, and rear panel Mic-In function will switch to Center and Subwoofer support.



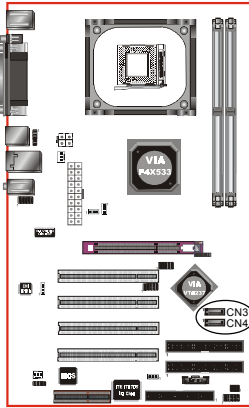
CD2: CD Audio_IN Connector

The CD2 connector is used to receive audio form a CD-ROM drive, TV tuner or MPEG card.

CD2

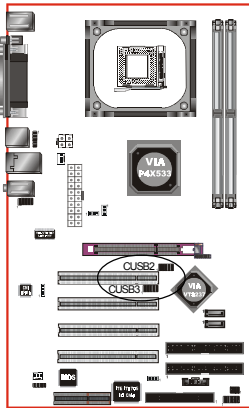
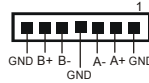


Installation



CN3 / CN4: Serial ATA Connectors

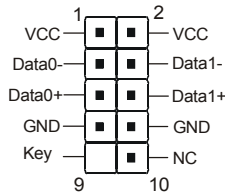
These connectors enable you to connect two Serial ATA devices that conform to the Serial ATA specification.



CUSB2/CUSB3: Four USB 2.0 ports

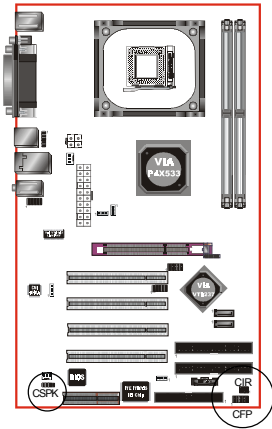
USB2.0 allows data transfer speed up to 480Mbps. This mainboard includes 4 additional USB2.0 ports, identified by two 10-pin connector.

If you wish to use the additional USB ports, install the card-edge bracket to the system chassis then insert its cables to this 10-pin connector.



CAUTION!

Please make sure the USB cable has the same pin assignment. A different pin assignment may cause damage to the system. If you need the USB cable, please contact our retailer.



CFP: Front Panel Connector

◆ **HD_LED**

This LED will light up whenever the hard drive is being accessed.

◆ **PWR_LED**

This connects to the power button of the system chassis

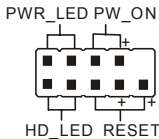
◆ **RST**

This switch allows you to reboot without having to power off the system thus prolonging the life of the power supply or system.

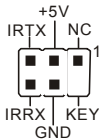
◆ **PW_ON**

This is connected to the power button on the case. To use the Soft-Off by PWR-BTTN feature, refer to the Power Management Setup in the BIOS setup section of this manual.

CFP



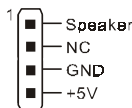
CIR



CIR: Infrared Port

The infrared port allows the wireless exchange of information between your computer and similarly equipped devices such as printers, laptops, Personal Digital Assistants (PDAs) and other computers.

CSPK



CSPK: Speaker connector

Connect to the system's speaker for beeping

Section 4

BIOS SETUP

Main Menu

The ROM BIOS contains a built-in Setup program which allows user to modify the basic system configuration and hardware parameters. The modified data is stored in a battery-backed CMOS, so that data will be retained even when the power is turned off. In general, the information saved in the CMOS RAM will stay unchanged unless there is a configuration change in the system, such as hard drive replacement or a device is added.

It is possible for the CMOS battery to fail causing CMOS data loss. If this happens you will need install a new CMOS battery and reconfigure your BIOS settings.



The BIOS setup screen and description are for reference only, and may not exactly match what you see on your screen. The contents of BIOS are subject to change without notice. Please visit our website for updates.

To enter the Setup Program :

Power on the computer and press the key during the POST (Power On Self Test). The BIOS CMOS SETUP UTILITY opens.

AMIBIOS SETUP – STANDARD CMOS SETUP	
(C) 2000 American Megatrends, Inc. All Rights Reserved	
Standard CMOS Setup Advanced Setup Power Management Setup PCI / Plug and Play Setup Load Optimal Settings Load Best Performance Settings	Features Setup CPU PnP Setup Hardware Monitor Change Password Exit
Esc : Quit ↑ ↓ ← →: Select Item (Shift)F2 : Change Color F5 : Old Values F6 : Optimal values F7 : Best performance values F10 : Save&Exit	
Standards COMOS setup for changing time, date, hard disk type, etc.	

Figure 1: CMOS Setup Utility

BIOS

The main menu displays all the major selection items. Select the item you need to reconfigure. The selection is made by moving the cursor (press any direction (arrow key)) to the item and pressing the 'Enter' key. An on-line help message is displayed at the bottom of the screen as the cursor is moved to various items which provides a better understanding of each function. When a selection is made, the menu of the selected item will appear so that the user can modify associated configuration parameters.

4-1 Standard CMOS Setup

Choose "STANDARD CMOS SETUP" in the CMOS SETUP UTILITY Menu (Figure 2). Standard CMOS Setup allows the user to configure system settings such as the current date and time, type of hard disk drive installed and floppy drive type. When a field is highlighted (use direction keys to move the cursor and the <Enter> key to select), the entries in the field can be changed by pressing the <PgDn> or the <PgUp> key.

AMIBIOS SETUP – STANDARD CMOS SETUP										
(C) 2000 American Megatrends, Inc. All Rights Reserved										
Date (mm/dd/yyyy) : Thu Jul 15, 2004										
Time (hh/mm/ss) : 15:10:49										
	Type	Size	Cyln	Head	WPcom	Sec	LBA Mode	Blk Mode	PIO Mode	32Bit Mode
Pri Master	: Auto									On
Pri Slave	: Auto									On
Sec Master	: Auto									On
Sec Slave	: Auto									On
Floppy Drive A : 1.44 MB 3 1/2										
Floppy Drive B : Not Installed										
Month : Jan – Dec							ESC : Exit			
Day : 01 – 31							↑↓ : Select Item			
Year : 1980 – 2099							PU/PD/+/- : Modify			
							(Shift)F2 : Color			
							F3 : Detect All HDD			

Figure 2: Standard CMOS Setup

Notes:

- If the hard disk Primary Master/Slave and Secondary Master/Slave are set to Auto, the hard disk size and model will be auto-detected.

4-2 Advanced Setup

Selecting the “ADVANCED SETUP” option in the CMOS SETUP UTILITY menu allows users to change system related parameters in the displayed menu. This menu shows all of the manufacturer’s default values for the board.

Pressing the [F1] key displays a help message for the selected item.

AMIBIOS SETUP – ADVANCED SETUP			
(C) 2000 American Megatrends, Inc. All Rights Reserved			
Quick Boot	Enabled	Auto Detect DIMM/PCI Clk	Enabled
1 st Boot Device	IDE-0	CLK GEN Spread Spectrum	Disabled
2 nd Boot Device	Floppy		
3 rd Boot Device	CD/DVD-0		
Try Other Boot Devices	Yes		
S.M.A.R.T. for Hard Disks	Disabled		
BootUp Num-Lock	On		
Floppy Drive Swap	Disabled		
Floppy Drive Seek	Disabled		
Password Check	Setup		
Boot To OS/2	No		
L2 Cache	Enabled		
System BIOS Cacheable	Enabled		
DRAM Timing by SPD	Disabled		
DRAM CAS# Latency	2.5	ESC : Quit	↑↓←→ : Select Item
DRAM Bank Interleave	Disabled	F1 : Help	PU/PD/+/- : Modify
AGP Comp. Driving	Auto	F5 : Old Values	(Shift)F2 : Color
Manual AGP Comp. Driving	CB	F6 : Load BIOS Defaults	
AGP Aperture Size	64MB	F7 : Load Setup Defaults	
Hyper Threading Function	Disabled		

Figure 3: Advanced Setup

Quick Boot

When Enabled, this setting will shorten or skip of the items checked during POST Power On Self Test (POST).

1st / 2nd / 3rd Boot Device

The BIOS attempts to load the operating system from the devices in the sequence selected in these items.

Try Other Boot Device

When enabled, the system searches all other possible locations for an operating system if it fails to find one in the devices specified under the first, second, and third boot devices.

BIOS

S.M.A.R.T. for Hard Disks

This allows you to activate the S.M.A.R.T. (Self-Monitoring Analysis & Reporting Technology) capability for the hard disks. S.M.A.R.T is a utility that monitors your disk status to predict hard disk failure. This gives you an opportunity to move data from a hard disk that is going to fail to a safe place before the hard disk becomes offline.

BootUp Num-Lock

This item is to set the Num Lock status when the system is powered on. Setting to On will turn on the Num Lock key when the system is powered on. Setting to Off will allow end users to use the arrow keys on the numeric keypad.

Floppy Drive Swap

This will swap your physical drive letters A & B if you are using two floppy disks.

Floppy Drive Seek

If this item is enabled, it checks the size of the floppy disk drives at start-up time. You don't need to enable this item unless you have a legacy diskette drive with 360K capacity.

Password Check

This specifies the BIOS password protection that is implemented.

Always: A password prompt appears every time when the computer is powered on or when end users try to run Setup.

Setup: The password prompt appears only when end users try to run Setup.

Boot To OS/2

This allows you to run the OS/2® operating system with DRAM larger than 64MB.

L2 Cache

This controls the status of the internal cache area.

System BIOS Cacheable

This item allows the system to be cached in memory for faster execution.

DRAM Timing By SPD

This item allows you to enable or disable the DRAM timing defined by the Serial Presence Detect electrical.

DRAM CAS# Latency

This item determines the operation of SDRAM memory CAS (column address strobe). It is recommended that you leave this item at the default value. The 2T setting requires faster memory that specifically supports this mode.

DRAM Bank Interleave

Enable this item to increase SDRAM memory speed. When enabled, separate memory banks are set for odd and even addresses and the next byte of memory can be accessed while the current byte is being refreshed.

AGP Comp. Driving

Use this item to signal driving current on AGP cards to auto or manual. Some AGP cards need stronger than normal driving current in order to operate. We recommend that you set this item to the default.

Manual AGP Comp. Driving

When AGP Driving is set to Manual, use this item to set the AGP current driving value.

AGP Aperture Size

This item defines an AGP for the graphics. Leave this item at the default value 64MB.

Hyper Threading Function

If your P4 CPU is not HT CPU, this item will be hidden. If your P4 CPU is HT CPU, BIOS will show this item. You can set "Disabled" or "Enabled" to control HT CPU support in O.S. Set "Enabled" to test HT CPU function.

Auto detect DIMM/PCI Clock

When this item is enabled, BIOS will disable the clock signal of free DIMM/PCI slots.

CLK GEN Spread Spectrum

Use this itme to set the system bus spread spectrum for the installed processor.

4-3 Power Management Setup

Choose the “POWER MANAGEMENT SETUP” in the CMOS SETUP UTILITY to display the following screen. This menu allows the user to modify the power management parameters and IRQ signals. In general, these parameters should not be changed unless it’s absolutely necessary.

AMIBIOS SETUP – POWER MANAGEMENT SETUP (C) 2000 American Megatrends, Inc. All Rights Reserved		
ACPI Aware O/S Management	Yes Power Enabled	
Suspend Time Out (Minute)	Disabled	
Resume On RTC Alarm	Disabled	
RTC Alarm Date	15	
RTC Alarm Hour	12	
RTC Alarm Minute	30	
RTC Alarm Second	30	
LAN/Ring Power On	Disabled	
Keyboard Power On	Disabled	
Wake-Up Key	Any key	
Wake-Up Password	N/A	
		ESC : Quit ↑↓←→ : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift)F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults

Figure 4: Power Management Setup

ACPI Aware O/S

This item supports ACPI (Advanced Configuration and Power management Interface). Use this item to enable or disable the ACPI feature.

Power Management

Use this item to enable or disable a power management scheme. If you enable power management, you can use the items below to set the power management operation. Both APM and ACPI are supported.

Suspend Time Out (Minute)

This item sets up the timeout for Suspend mode in minutes. If the time selected passes without any system activity, the computer will enter power-saving Suspend mode.

Resume On RTC Alarm / Date / Hour / Minute / Second

The system can be turned off with a software command. If you enable this item, the system can automatically resume at a fixed time based on the system’s RTC (realtime clock). Use the items below this one to set the date and time of the wake-up alarm. You must use an ATX power supply in order to use this feature.

LAN/Ring Power On

Your system can enter the software power down. If you enable this item, the system can automatically resume if there is traffic on the network adapter.

Keyboard Power On / Wake-Up Key / Wake-Up Password

If you enable this item, system can automatically resume by pressing hot keys on the keyboard or typing in the password. You must enable the Keyboard Power On jumper and use an ATX power supply in order to use this feature.

4-4 PCI / Plug and Play Setup

This page sets up some parameters for devices installed on the PCI bus and those utilizing the system plug and play capability.

AMIBIOS SETUP – PCI / PLUG AND PLAY SETUP	
(C) 2000 American Megatrends, Inc. All Rights Reserved	
Primary Graphics Adapter	AGP
Allocate IRQ to PCI VGA	Yes
PCI IDE BusMaster	Disabled
ESC : Quit ↑↓←→ : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift)F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults	

Figure 5: PCI/Plug and Play Setup

Primary Graphics Adapter

This item indicates if the primary graphics adapter uses the PCI or the AGP bus. The default AGP setting still lets the onboard display work and allows the use of a second display card installed in an AGP slot.

Allocate IRQ to PCI VGA

If this item is enabled, an IRQ will be assigned to the PCI VGA graphics system. You set this value to No to free up an IRQ.

PCI IDE BusMaster

This item enables or disables the DMA under DOS mode. We recommend you to leave this item at the default value.

4-5 Load Optimal Settings

If you select this item and press **Enter** a dialog box appears. If you press **Y**, and then **Enter**, the Setup Utility loads a set of fail-safe default values. These default values are not very demanding and they should allow your system to function with most kinds of hardware and memory chips.

Note: It is highly recommend that users enter this option to load optimal values for accessing the best performance.

4-6 Load Best Performance Settings

If you select this item and press **Enter** a dialog box appears. If you press **Y**, and then **Enter**, the Setup Utility loads a set of best-performance default values. These default values are quite demanding and your system might not function properly if you are using slower memory chips or other low-performance components.

4-7 Features Setup

This page sets up some parameters for peripheral devices connected to the system

AMIBIOS SETUP – FEATURES SETUP		
(C) 2000 American Megatrends, Inc. All Rights Reserved		
OnBoard FDC	Enabled	
OnBoard Serial PortA	3F8h/COM1	
OnBoard IR Port	Disabled	
OnBoard Parallel Port	378h	
Parallel Port Mode	ECP	
Parallel Port IRQ	7	
Parallel Port DMA	3	
OnBoard PATA-IDE	Enabled	
OnBoard SATA-IDE	Enabled	
Audio Device	Enabled	
Modem Device	Auto	
Ethernet Device	Enabled	
Onboard USB Function	Enabled	
USB Function For DOS	Disabled	
ThumbDrive Support for DOS	Disabled	

Figure 6: Features Setup

BIOS

OnBoard FDC

Use this item to enable or disable the onboard floppy disk drive interface.

OnBoard Serial PortA

Use this item to enable or disable the onboard COM1/2 serial port, and to assign a port address.

OnBoard IR Port

Use this item to enable or disable the onboard infrared port, and to assign a port address.

Parallel Port Mode

Use this item to set the parallel port mode. You can select SPP (Standard Parallel Port), ECP (Extended Capabilities Port), EPP (Enhanced Parallel Port), or ECP + EPP.

Parallel Port IRQ

Use this item to assign IRQ to the parallel port.

Parallel Port DMA

Use this item to assign a DMA channel to the parallel port.

OnBoard PATA-IDE

Use this item to enable or disable the onboard PATA-IDE channel.

OnBoard SATA-IDE

Use this item to enable or disable the onboard SATA-IDE channel.

Audio Device

This item enables or disables the AC'97 audio chip.

Modem Device

This item enables or disables the MC'97 modem chip.

Ethernet Device

This item enables or disables the onboard Ethernet LAN.

Onboard USB Function

Enable this item if you plan to use the USB ports on this mainboard.

USB Function For DOS

Enable this item if you plan to use the USB ports on this mainboard in a DOS environment.

ThumbDrive Support For DOS

Enable this item to make a small portion of memory storage device for the USB ports.

4-8 CPU PnP Setup

This page lets you adjust various parameters to obtain improved performance for overclocking.

Warning:

Overclocking requires expert knowledge and risks permanent damage to system components. We recommend you leave these parameters at their default values for proper operation.

AMIBIOS SETUP – CPU PnP SETUP	
(C) 2000 American Megatrends, Inc. All Rights Reserved	
CPU Ratio	8.0x
CPU Over-clocking Func.	Disabled
CPU Frequency	166 MHz
CPU Over-clocking Freq.	N/A
DRAM Frequency	Auto
ESC : Quit ↑↓←→ : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift)F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults	

Figure 7: CPU PnP Setup

CPU Ratio/ Frequency

These items show the ratio and frequency of the CPU installed in your system.

CPU Over-clocking Func./ Freq.

This item decides the CPU over-clocking function/frequency installed in your system. If the over-clocking fails, please turn off the system power. And then, hold the PageUp key (similar to the Clear CMOS function) and turn on the power, the BIOS will recover the safe default.

DRAM Frequency

This item shows the frequency of the DRAM in your system.

4-9 Hardware Monitor

This page sets up some parameters for the hardware monitoring function of this mainboard.

AMIBIOS SETUP – HARDWARE MONITOR	
(C) 2000 American Megatrends, Inc. All Rights Reserved	
*** System Hardware ***	
Vcore	1.632V
Vcc 2.5V	2.496V
Vcc 3.3V	3.392V
Vcc 5V	4.972V
SB5V	5.026V
VBAT	3.488V
SYSTEM Fan Speed	0 RPM
CPU Fan Speed	1288 RPM
Power Temperature	36°C/96°F
SYSTEM Temperature	45°C/113°F
CPU Temperature	40°C/104°F
ESC : Quit ↑↓←→ : Select Item	
F1 : Help PU/PD/+/- : Modify	
F5 : Old Values (Shift)F2 : Color	
F6 : Load BIOS Defaults	
F7 : Load Setup Defaults	

Figure 8: Hardware Monitor

CPU / System Temperature

These items display CPU and system temperature measurement.

FAN & Voltage Measurements

These items indicate cooling fan speeds in RPM and the various system voltage measurements.

4-10 Change Password

If you highlight this item and press Enter, a dialog box appears that you can enter a Supervisor password. You can enter no more than six letters or numbers. Press Enter after you have typed in the password. There will be the second dialog box asking you to retype the password for confirmation. Press Enter after you have retyped it correctly. Then, the password is required for the access to the Setup Utility or for it at start-up, depending on the setting of the Password Check item in Advanced Setup.

4-11 Exit

Highlight this item and press Enter to save the changes that you have made in the Setup Utility configuration and exit the program. When the Save and Exit dialog box appears, press Y to save and exit, or press N to exit without saving.

Section 5

S-ATA RAID CONFIGURATION

Introduction

This section gives a brief introduction on the RAID-related background knowledge and a brief introduction on S-ATA RAID Host Controller.

RAID Basics

RAID (Redundant Array of Independent Disks) is a method of combining two hard disk drives into one logical unit. The advantage of an Array is to provide better performance or data fault tolerance. Fault tolerance is achieved through data redundant operation, where if one drives fails, a mirrored copy of the data can be found on another drive. This can prevent data loss if the operating system fails or hangs. The individual disk drives in an array are called “members”. The configuration information of each member is recorded in the “reserved sector” that identifies the drive as a member. All disk members in a formed disk array are recognized as a single physical drive to the operating system.

Hard disk drives can be combined together through a few different methods. The different methods are referred to as different RAID levels. Different RAID levels represent different performance levels, security levels and implementation costs. The table below briefly introduced these RAID levels.

RAID Level	No. of Drives	Capacity	Benefits
RAID 0 (Striping)	2	Number drivers *Smallest size	Highest performance without data protection
RAID 1 (Mirroring)	2	Smallest size	Data protection
JBOD (Spanning)	2	Sum of All drivers	No data protection and performance improving, but disk capacity fully used.

RAID 0 (Striping)

RAID 0 reads and writes sectors of data interleaved between multiple drives. If any disk member fails, it affects the entire array. The disk array data capacity is equal to the number of drive members times the capacity of the smallest member. The striping block size can be set from 4KB to 64KB. RAID 0 does not support fault tolerance.

RAID 1 (Mirroring)

RAID 1 writes duplicate data onto a pair of drives and reads both sets of data in parallel. If one of the mirrored drives suffers a mechanical failure or does not respond, the remaining drive will continue to function. Due to redundancy, the drive capacity of the array is the capacity of the smallest drive. Under a RAID 1 setup, an extra drive called the “spare drive” can be attached. Such a drive will be activated to replace a failed drive that is part of a mirrored array. Due to the fault tolerance, if any RAID 1 drive fails, data access will not be affected as long as there are other working drives in the array.

JBOD (Spanning)

A spanning disk array is equal to the sum of the all drives when the drives used are having different capacities. Spanning stores data onto a drive until it is full, then proceeds to store files onto the next drive in the array. When any disk member fails, the failure affects the entire array. JBOD is not really a RAID and does not support fault tolerance.

Others

Other RAID derivatives are RAID 10 and RAID 5. These RAID levels require more than 2 drives to operate, combining the benefits of RAID 0 and RAID 1.

VIA S-ATA RAID Features

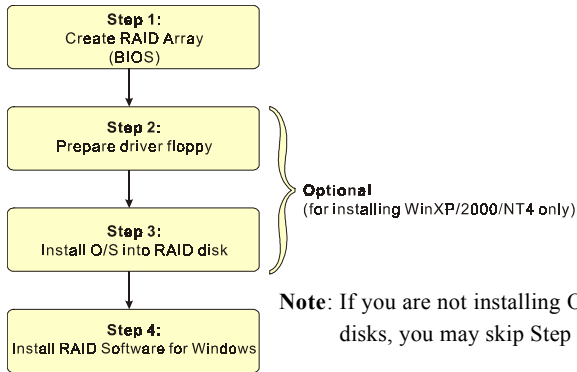
The VIA S-ATA RAID solution uses the VT8237 chip as a RAID controller, which is a 2-channel S-ATA and 1-channel ATA133 solution. Listed below are the main features and benefits of VIA S-ATA RAID:

- Support two S-ATA hard disk drives.
- Supports hard disk drive larger than 137 GB (48-bits LBA).
- Supports RAID 0, 1 and JBOD.
- 4 KB to 64 KB striping block size support.
- Bootable disk or disk array support.
- Windows-based RAID configure and management software tool. (Compatible with BIOS)
- Real-time monitoring of device status and error alarm with popup message box and beeping.
- Mirroring automatic background rebuilds support.
- ATA SMART function support.
- Microsoft Windows 98, Me, NT4.0, 2000, XP operating systems support.
- Event log for easy troubleshooting.
- On-line help for easy operation for RAID software.

S-ATA RAID Configuration

Enable RAID Function

For any RAID controller, the general procedure to enable RAID function are shown below:



Note: If you are not installing O/S into the RAID disks, you may skip Step 2 & Step 3.

Step 1: Create RAID Array

RAID arrays are created using the RAID controller’s BIOS utility.

▶ VIA VT8237

Power-on the system and wait for the following screen to appear. Press the “Tab” key to enter its BIOS configuration utility.

```
VIA Technologies, Inc. VIA VT6420 RAID BIOS Setting Utility V0.94
Copyright (C) VIA Technologies, Inc. All Right reserved.

Press < Tab > key into User Window!
Scan Devices, Please wait...
Channel 0 Master: Maxtor 6Y060M0
Channel 1 Master: Maxtor 6Y060M0
```

The main interface of the BIOS utility is as below:

```
VIA Tech. RAID BIOS Ver 0.94

> Create Array
> Delete Array
> Create/Delete Spare
> Select Boot Array
> Serial Number View

Create a RAID array with
the hard disks attached to
VIA IDE controller

F1 : View Array/disk Status
F1 : Move to next item
Enter: Confirm the selection
ESC : Exit

Channel Drive Name Array Name Mode Size(GB) Status
-----
Channel0 Master Maxtor 6Y060M0 ATA 133 57.26 Hdd
Channel1 Master Maxtor 6Y060M0 ATA 133 57.26 Hdd
```

Refer to Appendix A for details about creating RAID array using this utility. After the RAID array is created, press “ESC” to exit.

Step 2: Prepare driver floppy

When installing Windows XP/2000/NT4.0 into any RAID disk, the O/S setup will require a floppy disk containing the RAID driver. This step will show you how to prepare this driver floppy. There are 2 methods to prepare this floppy:

► Method 1

1. Locate another computer and insert the bundled CD into its CD-ROM drive.
2. A main menu screen will appear (Autorun feature)
3. Select the page “RAID floppy”



4. Insert a blank floppy into the A:drive
5. Click on the required driver to begin copy into the floppy

► Method 2

1. Locate another computer and insert the bundled CD into its CD-ROM drive.
2. Enter DOS mode and change directory to D:\DRIVER
3. Insert a blank floppy into the A:drive
4. Run the batch file “cbf_dos.bat” located in D:\DRIVER
5. Select the appropriate RAID controller to begin copy into the floppy

Step 3: Install O/S into RAID disk

Continue to install Windows XP/2000/NT4.0 as normal. When requested by Windows Setup for RAID driver, insert the floppy created earlier in Step 2.

Step 4: Install RAID utility for Windows

After the O/S has been installed, you may install the RAID driver and software. The RAID software is a Windows-based utility with graphical user interface that provides an easy operating tool to configure and manage RAID arrays.

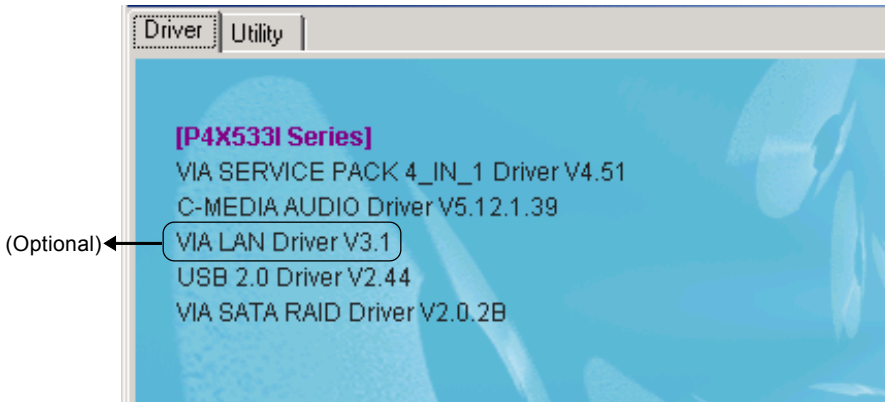
- 1) Insert the bundled CD into the CD-ROM drive.
- 2) When the main menu appears, click on the SATA RAID driver corresponding to the SATA controller you have configured in Step 1. See driver installation in section 6 for more details.

Note: For information on using the software utility, refer to the user guide in the bundled CD.

Section 6

Driver Installation

Easy Driver Installation



Insert the bundled CD-disk, the main menu screen will appear. The main menu displays buttons that link you to the supported drivers, utilities and software.

Step 1 : Click **“VIA SERIES PACK 4IN1 Driver”** to install chipset driver.

Step 2 : Click **“C-MEDIA AUDIO Driver”** to install audio driver.

Step 3 : Click **“VIA 6103 LAN Driver”** to install LAN driver. (Optional)

Step 4 : Click **“USB 2.0 Driver ”** to install USB2.0 driver.

Step 5 : Click **“VIA SATA RAID Driver”** to install VIA SATA RAID driver.

C-Media Audio Configuration Brief Guide

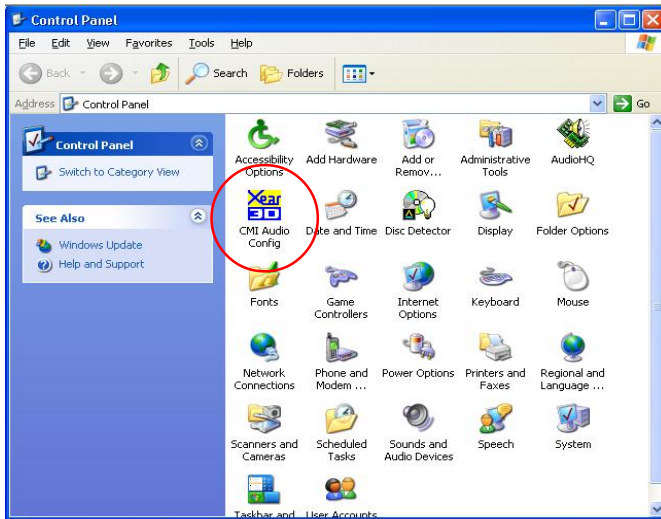
Below is list brief guide of C-Media Audio Configuration. For more detailed information, please refer to user’s manual in the attached CD.

You are able to access the control panel from two places:

- a) The system tray in the right-bottom of your screen. You can click right button of the mouse on it to get an audio-related pop-up menu as follows

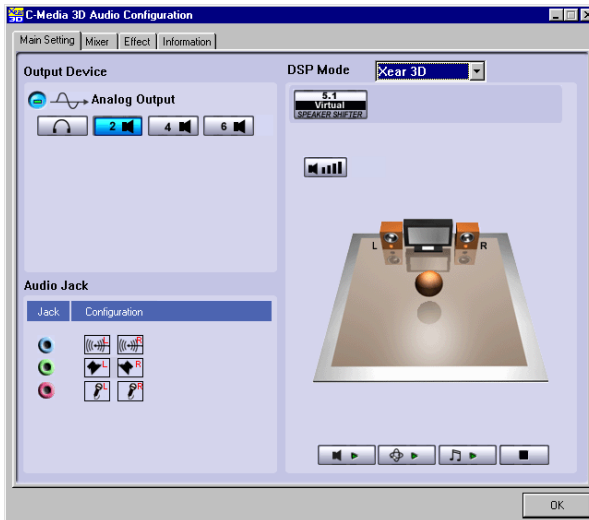


- b) In the “Control Panel” (Start=>Setting=>Control Panel), double-click “CMI Audio Config” to open it.

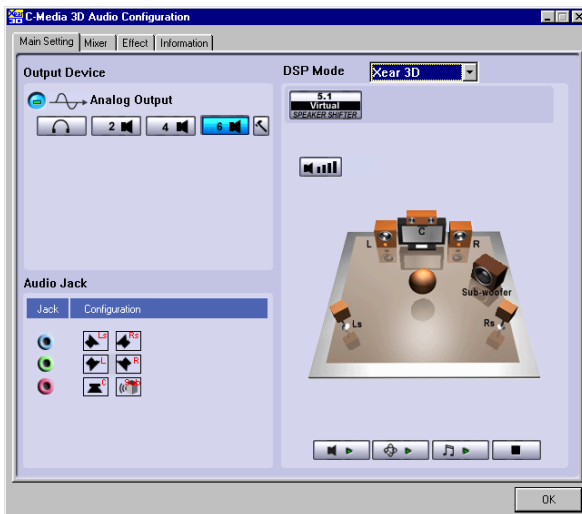


1. Main Setting:

When you open the “3D Audio Configuration”, you will see the default Output tab as the figure below. “Main Setting” tab collects main setting/options for analog output to speakers.



<2 channel mode>



<6 channel mode>

Drivers Installation

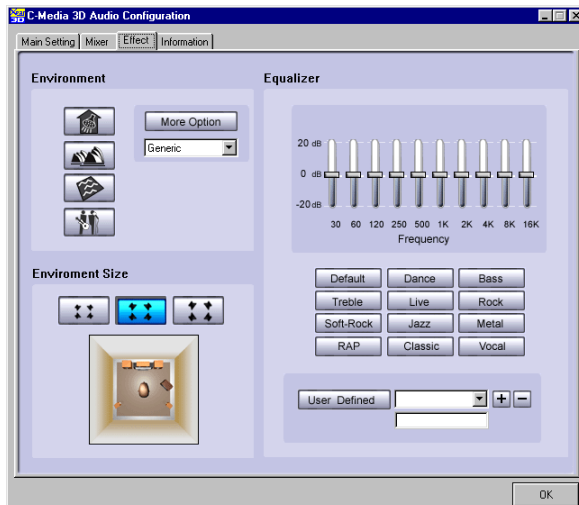
2. Mixer:

This page lets you set the Mixer Audio features.



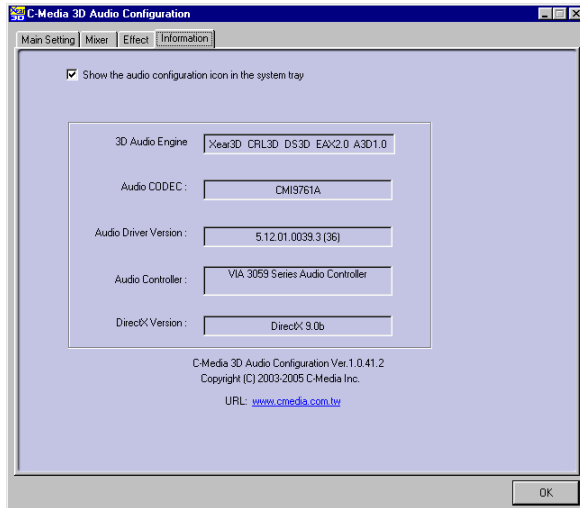
3. Effect:

Select "Effect" page to set the desired audio environment from the pull-down menu.



4. Information :

There is a C-Media audio-related Information tab in 3D Audio Configuration. You can get a whole picture about the audio chip, driver version, 3D Audio Engine, Microsoft DirectX Version, and Configuration Version itself.



Appendix A

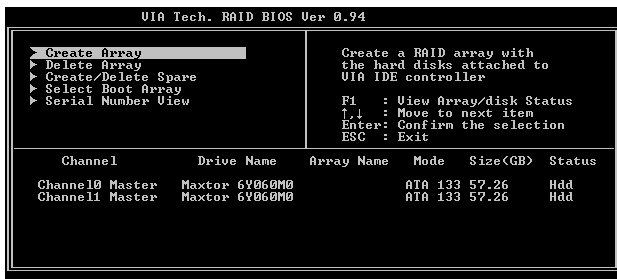
A-1 VIA RAID BIOS Utility

Power-on the system and wait for the following screen to appear. Press the "Tab" key to enter its BIOS configuration utility.

```
VIA Technologies, Inc. VIA UT6420 RAID BIOS Setting Utility 00.94
Copyright (C) VIA Technologies, Inc. All Right reserved.

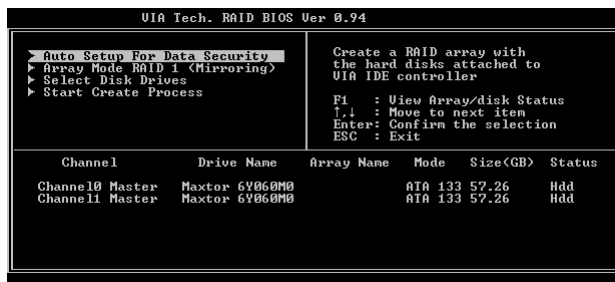
Press < Tab > key into User Window!
Scan Devices. Please wait...
Channel 0 Master: Maxtor 6Y060M0
Channel 1 Master: Maxtor 6Y060M0
```

The main interface of the BIOS utility is as below:



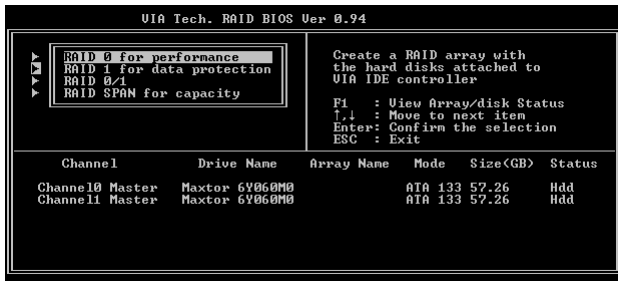
Create Disk Array

1. Use the arrow keys to navigate the main menu. Use the up and down arrow keys to select the **Create Array** command and press <Enter> to call out the list of creation steps.

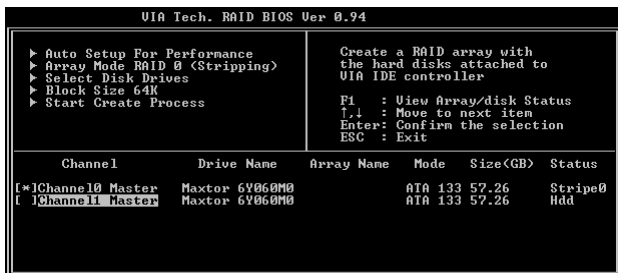


Appendix

2. Select **Array Mode** and press <Enter>, a list of array modes will appear. Highlight the target array mode that you want to create, and press <Enter> to confirm the selection. If RAID 1 is selected, an option list will popup and enable the users to select **Create only** or **Create and duplicate**. **Create only** will allow BIOS to only create an array. The data on the mirroring drive may be different from the source drive. **Create and duplicate** lets BIOS copy the data from the source to the mirroring drive.



3. After array mode is selected, there are two methods to create a disk array. One method is "**Auto Setup**" and the other one is "**Select Disk Drives**". **Auto Setup** allows BIOS to select the disk drives and create arrays automatically, but it does not duplicate the mirroring drives even if the user selected **Create and duplicate** for RAID 1. It is recommended all disk drives are new ones when wanting to create an array. **Select Disk Drives** lets the user select the array drives by their requirements. When using **Select Disk Drives**, the channel column will be activated. Highlight the target drives that you want to use and press <Enter> to select them. After all drives have been selected, press <Esc> to go back to the creation steps menu.



- If user selects a RAID 0 array in step 2, the block size of the array can also be selected. Use the arrow key to highlight **Block Size** and press <Enter>, then select a block size from the popup menu. The block size can be 4KB to 64KB.



- Use the arrow key to highlight **Start Create Process** and press <Enter>. A warning message will appear, Press **Y** to finish the creation, or press **N** to cancel the creation.
- Important note: All existing content in the hard drive will be destroyed after array creation.

Delete Disk Array

A RAID can be deleted after it has been created. To delete a RAID, use the following steps:

- Select **Delete Array** in the main menu and press <Enter>. The channel column will be activated.
- Select the member of an array that is to be deleted and press <Enter>. A warning message will show up, press **Y** to delete or press **N** to cancel.



Appendix

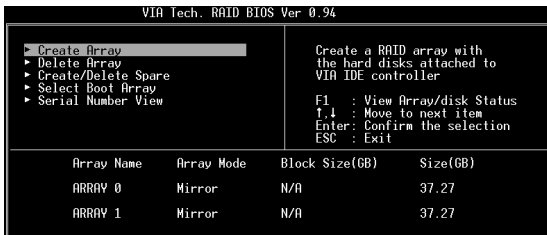
Deleting a disk array will destroy all the data on the disk array except RAID 1 arrays. When a RAID is deleted, the data on these two hard disk drives will be reserved and become two normal disk drives.

View Serial Number of Hard Drive

Highlight **Serial Number View** and press <Enter>. Use arrow key to select a drive, the selected drive's serial number can be viewed in the last column. The serial number is assigned by the disk drive manufacturer.

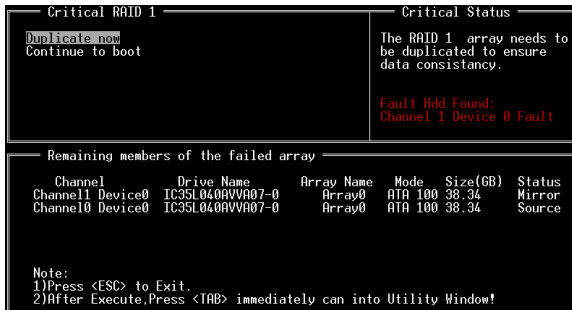
View Array Status

Press the **F1** key to show the array status on the lower screen. If there are no disk arrays then nothing will be displayed on the screen.



Duplicate Critical RAID 1 Array

When booting up the system, BIOS will detect if the RAID 1 array has any inconsistencies between user data and backup data. If BIOS detects any inconsistencies, the status of the disk array will be marked as critical, and BIOS will prompt the user to duplicate the RAID 1 in order to ensure the backup data consistency with the user data.



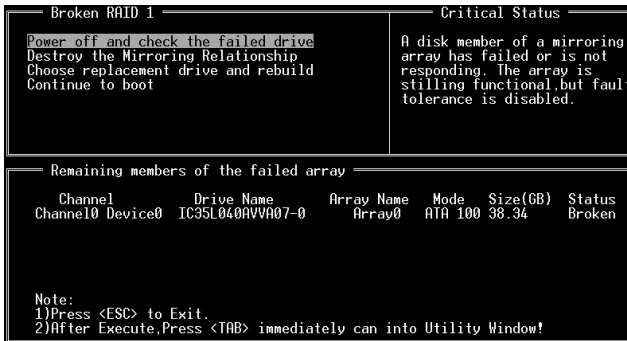
If user selects **Continue to boot**, it will enable duplicating the array after booting into OS.

Rebuild Broken RAID 1 Array

When booting up the system, BIOS will detect if any member disk drives of RAID has failed or is absent. If BIOS detects any disk drive failures or missing disk drives, the status of the array will be marked as broken.

If BIOS detects a broken RAID 1 array but there is a spare hard drive available for rebuilding the broken array, the spare hard drive will automatically become the mirroring drive. BIOS will show a main interface just like a duplicated RAID 1. Selecting **Continue to boot** enables the user to duplicate the array after booting into operating system.

If BIOS detects a broken RAID 1 array but there is no spare hard drive available for rebuilding the array, BIOS will provide several operations to solve such problem.



1. Power off and Check the Failed Drive:

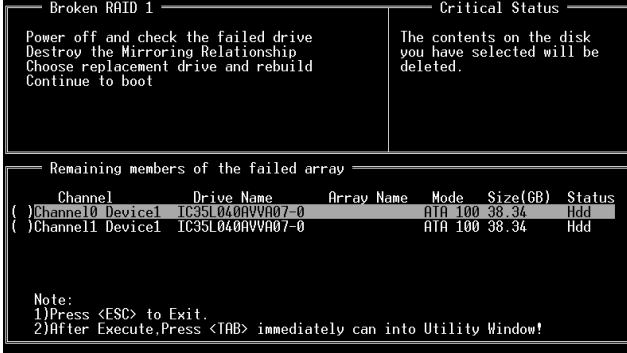
This item turns off the computer and replaces the failed hard drive with a good one. If your computer does not support APM, you must turn off your computer manually. After replacing the hard drive, boot into BIOS and select **Choose replacement drive and rebuild** to rebuild the broken array.

2. Destroy the Mirroring Relationship:

This item cancels the data mirroring relationship of the broken array. For broken RAID 1 arrays, the data on the surviving disk will remain after the destroy operation.

3. Choose Replacement Drive and Rebuild:

This item enables users to select an already-connected hard drive to rebuild the broken array. After choosing a hard drive, the channel column will be activated.



Highlight the target hard drive and press <Enter>, a warning message will appear. Press **Y** to use that hard drive to rebuild, or press **N** to cancel. Please note selecting option **Y** will destroy all the data on the selected hard drive.

4. Continue to boot:

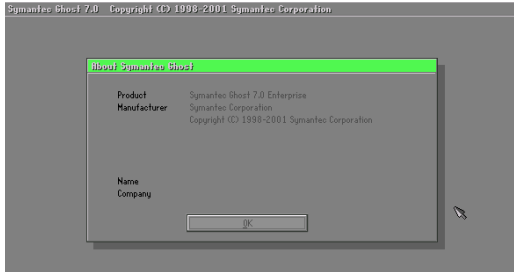
This item enables BIOS to skip the problem and continue booting into OS.

Appendix B

B-1 GHOST 7 Quick User's Guide (Optional)

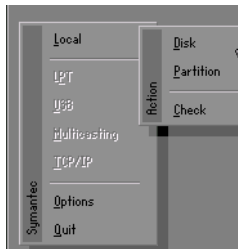
Installation is very easy. You only need to copy the **Ghost7** folder or **Ghost.exe** to your hard disk.

Main Menu



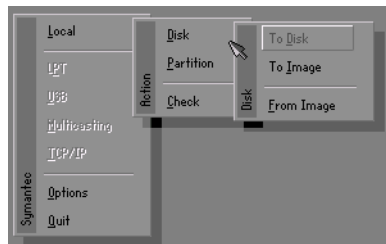
Description of Menu

Ghost clones and backs up **Disk** and **Partition**.



In which **Disk** indicates hard disk options
Partition indicates partition options
Check indicates check options

Disk



Appendix

There are 3 hard disk functions:

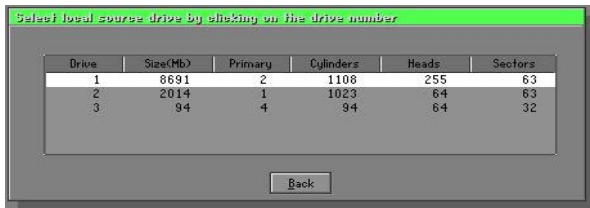
1. Disk To Disk (disk cloning)
2. Disk To Image (disk backup)
3. Disk From Image (restore backup)

Important!

1. To use this function, the system must have at least 2 disks. Press the **Tab** key to move the cursor.
2. When restoring to a destination disk, all data in that disk will be completely destroyed.

Disk To Disk (Disk Cloning)

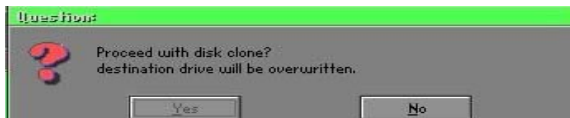
1. Select the location of the **Source drive**.
2. Select the location of the **Destination drive**.



3. When cloning a disk or restoring the backup, set the required partition size as shown in the following figure.

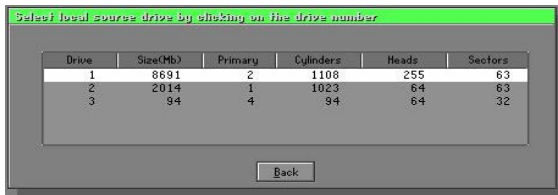


4. Click OK to display the following confirmation screen. Select **Yes** to start.

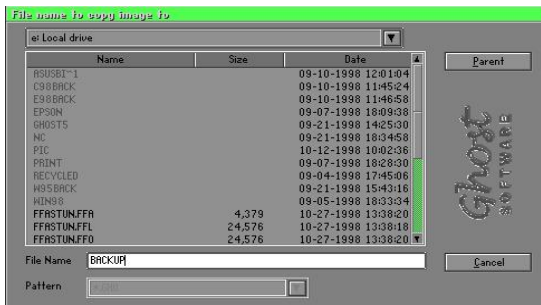


Disk To Image (Disk Backup)

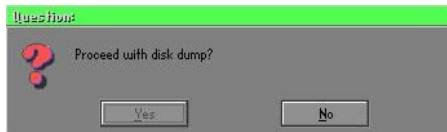
1. Select the location of the Source drive.



2. Select the location for storing the backup file.

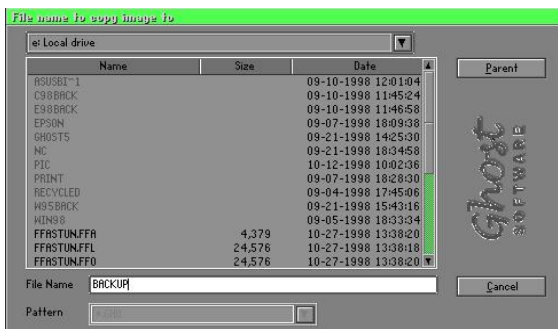


3. Click **OK** to display the following confirmation screen. Select **Yes** to start.



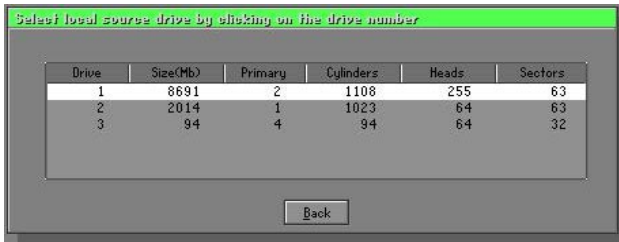
Disk From Image (Restore Backup)

1. Select the Restoring file.



Appendix

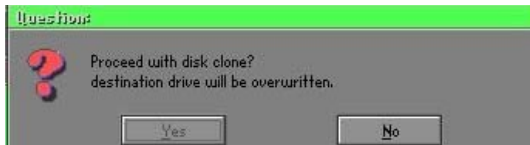
2. Select the **Destination drive** of the disk to be restored.



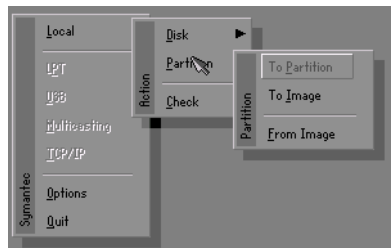
3. When restoring disk backup, set the required partition size as shown in the following figure.



4. Click **OK** to display the following confirmation screen. Select **Yes** to start.



Partition



There are 3 partition functions:

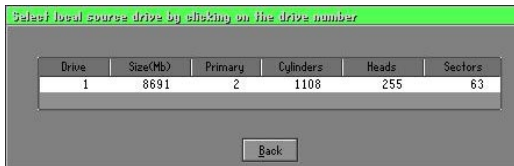
1. **Partition To Partition** (partition cloning)
2. **Partition To Image** (partition backup)
3. **Partition From Image** (restore partition)

Partition To Partition (Partition Cloning)

The basic unit for partition cloning is a “partition”. Refer to “disk cloning” for the operating method.

Partition To Image (Partition Backup)

1. Select the disk to be backed up.



2. Select the first partition to be backed up. This is usually where the operating system and programs are stored.

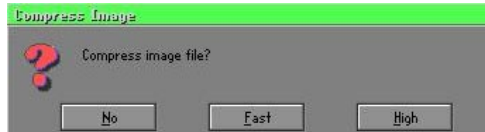


3. Select the path and file name to store the backup file.

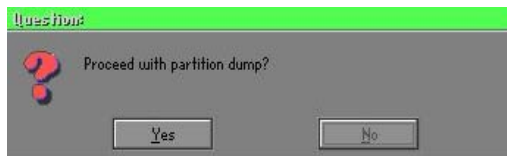


Appendix

- Is the file compressed? There are 3 options:
 - No: do not compress data during backup
 - Fast: Small volume compression
 - High: high ratio compression. File can be compressed to its minimum, but requiring longer execution time.

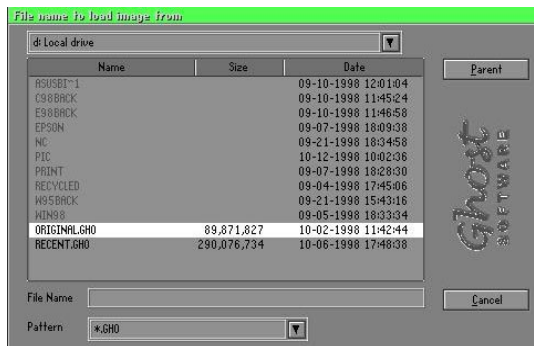


- Select Yes to start performing backup.

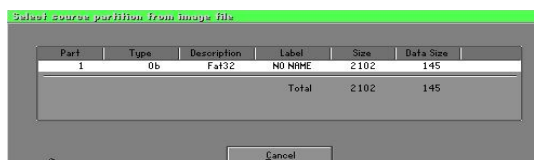


Partition From Image (Restore Partition)

- Select the backup file to be restored.



- Select the source partition.



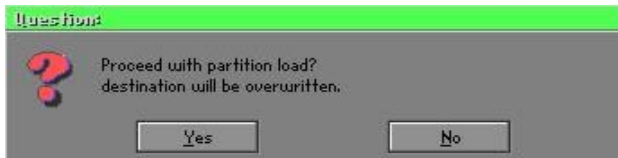
3. Select the disk to be restored.



4. Select the partition to be restored.



5. Select Yes to start restoring.



Check

This function is to check possible error caused by defective FAT or track during backup or restoring.

How to Reinstall Windows in 2 Minutes

This chapter guides you how to setup your computer properly and, if necessary, reinstall Windows in 2 minutes. Ghost provides different methods to complete this task. The following two sections explain how to create an emergency Recover Floppy and Recover CD:

Emergency Recover Floppy

Divide a hard disk into two partitions. The first partition is to store the operating system and application programs. The second partition is to back up the operating system and data. The size of the partition can be determined according to the backup requirements. For example, the **Windows** operating system needs 200MB of hard disk space, Plus complete **Office** programs require 360MB. The remaining space can be used to store data.

After installing **Windows**, use **Ghost** to create a backup area for the system and to store the file (Image file) in drive D. The file is named **Original.gho**. Then, create a recover floppy disk containing:

- ◆ Bootable files (Command.com, Io.sys, and MSDOS.SYS)
- ◆ Config.sys (configuration setup file)
- ◆ Autoexec.bat (auto-execution batch file)
- ◆ Ghost.exe (Ghost execution file)

There are two ways to create the content of the recover floppy for restoring:

- (1) To load **Windows** automatically after booting, store the **Autoexec.bat** file with a command line:

```
Ghost.exe clone, mode=pload, src=d:\original.gho:2,dst=1:1 -fx -sure -rb
```

Command Description: Runs the restore function automatically with the Image File. Stored in drive D. After execution, it will exit Ghost and boots the system.

Refer to the [Introducing Ghosts Functions] for details.

- (2) After booting, the screen displays the Menu. Select Backup or Restore: Since the user may install other applications in the future, he/she may alter **Autoexec.bat** file to back up or restore the user-defined Image file as follows:

 **Backup**

Back up Windows and application programs as a file (Recent.gho). Command is:

```
Ghost -clone,mode=pdump,src=1:1,dst=d:\Recent.gho -fx -sure -rb
```

 **Restore**

Restore types include [**General Windows**] and [**Windows and Application Programs**]. If you select [**General Windows**], the system is restored to the general **Windows** operation condition. The command is:

```
Ghost.exe -clone,mode=pload,src=d:\Original.gho,dst=1:1 -fx -sure -rb
```

If you select [**Windows and Application Programs**], the latest backup file (Recent.gho) is restored, skipping the installation and setup of application programs.

For description of related parameters, refer to [**Introducing Ghosts Functions**].

For more information about menu design, refer to Config.sys and Autoexec.bat under /Menu in the CD. You can also create a backup CD containing Ghost.exe and these two files.

Recover CD

The following is a simple guide to create a recover CD:

1. First, create a recover floppy disk contains the following with any copy program such as “Easy CD Create” (Note 2) :

Bootable files (Command.com and Io.sys and MSDOS.SYS)

Config.sys (Configuration setup file)

Autoexec.bat (Auto-execution batch file)

Mscdex.exe (CD-Rom execution file)

Ghost.exe (Ghost execution file)

Oakcdrom.sys (ATAPI CD-ROM compatible driver)

The content of Config.sys is:

```
DEVICE=Oakcdrom.sys/d:idecd001
```

The content of Autoexec.bat includes:

```
MSCDEX.EXE /D:IDECD001 /L:Z
```

```
Ghost.exe clone,mode=load,src=z:\original.gho,dst=1 -sure -rb
```

2. Write the backup image file (original.gho) of the entire hard disk or partition into the recover CD. Use the Recover CD to boot up the system and restore the backup files automatically.

For description of related parameters, refer to **[Introducing Ghosts Functions]**.

Note: For more details about copy the creation program and method to create a recover CD, please refer to the related software and its associated operating manual.

Note: Ghost may be executed in interactive or in batch mode. Most of the Ghost switches are used to assist in batch mode operation. To list switches, type ghost.exe -h.