Handling Precautions

**CAUTION**

High potential static charge can cause damage to the integrated circuits on the board. Before handling any mainboard outside of its protective packaging, ensure that there is no static electric charge on your body.

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.

- Keep the board in its anti-static bag until you are ready to install it.
- Protect your board form static electricity by well grounding of your body and the equipment during the installation, such as wearing a grounded wrist strap.
- Always handle the board by its edges.
- Do not touch with the components on the boards, add-on cards and modules, or the “gold finger” connectors going to be plugged into the expansion slot. It is best to handle system components by their mounting bracket.
- Ensure the system power is completely turn-off before doing any installation work.

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Features of the Board

Overview

Congratulations on purchasing the highest performance motherboard. With the advanced technology available today, this motherboard is designed to run Pentium®, AMD® and Cyrix® processors. The on-board system memory consists of DIMM. In addition, two unbuffered, 3.3 Volts, 168-pin SDRAM sockets are also included for 16 to 256MB synchronous Dynamic memory support. A 321-pins, Zero Insertion Force (ZIF) socket allows an easy upgrade path for the future processors.

The motherboard uses VIA VT82C585VPX PCI chipset. The VIA VT82C586B PCI/ISA Bridge provides an integrated Bus Mastering IDE controller with two high performance UltraDMA-33 EIDE interfaces for up to four IDE devices (such as hard drives or CD-ROM). The PCI/ISA Bridge also including an USB interface. The integrated I/O controller integrates the standard PC I/O functions: floppy interface, two FIFO serial ports, one EPP/ECP capable parallel port, and support for an IrDA and Consumer Infra Red compatible interface.

Four on-board 32-bit PCI local bus slots allow a higher bandwidth data path, which serves as a super highway for intensive data-movement such as video or networking. The BIOS support PCI bridge user configuration, which allows further expansion of the system with PCI peripherals. Up to two 16-bit ISA slots are provided so that the board is backward hardware compatible with the older expansion card. A total of five expansion slots can be populated with add-in cards as one PCI and ISA slots share the same chassis I/O panel. Two full lengths ISA add-in cards can be installed while the third can be half-length. All PCI cards can be full lengths.

Auto Jumper

This motherboard is one of our “Auto Jumper” series, which eliminates the necessity for the user to be bored by jumper settings on the motherboard. It is capable of detecting the CPU brand, and setting the appropriate CPU core voltage and speed according to instructions from the user through CMOS setup menu. In contrast to “Jumperless”, “Auto Jumper” allows switching to manual mode that enables physical jumpers on the mainboard, so as to prevents the potential impacts on jumperless boards from the future CPU specifications. On the other hand, pressing “F” to clear CMOS setting and “J” to re-detect CPU during power on the system, to avoid the difficulties to reset the CMOS data.

Features Summary

This motherboard comes with following features:

- Support Intel Pentium/Pentium-MMX, AMD K5/K6/K6-2/K6-III, Cyrix/IBM 6x86/6x86MX/M-II, RiSE mP6, IDT-C6 and WinChip
- VIA Apollo VPX Chipset, including a 82C585VPX PCI/Memory controller , 82C587 data bus Accelerator and 82C586B PCI ISA IDE Accelerator.
- With an On-Board Crystal™ 3D Sound Chip for Sound Version.
- WAKEUP-LINK interface header supporting Intel Wake-On-LAN
- Supports “Modems Ring On” (Requires ATX power supply and External COM2)
- Two DIMM slots Supporting up to 512MB Memory Capacity
- 4 x PCI slots, 2 x ISA slots
2 x USB ports, 1 x PS/2 mouse port, 1 x IrDA port
1 x FDD port, 1 x LPT port, 2 x COM ports
1 x Line-out, 1 x Line-in, 1 x Mic-in, 1 x CD-in, 1 x Game Port
Dual IDE Channels Supporting Four Ultra-DMA33 IDE Devices
Dual AT/ATX Power Supply Interface
Slim Baby AT, 220mm x 170mm PCB
AMI BIOS, PC98/ACPI/DMI Compliant
Flash BIOS for easy upgrade
Auto Jumper
Motherboard Installation

INSTALLATION PRECAUTIONS
During installation and initial test, use caution to avoid personal injury and damage to wiring due to sharp pins on connectors and printed circuit assemblies, rough chassis edges and corners, and hot components. Adhere to warnings and limitations regarding accessibility into areas designated only for authorized technical personnel.

A QUICK INTRODUCTION
To Install and operate your new motherboard, you must follow the steps below:

1. Install the CPU with cooling fan
2. Install RAM modules
3. Connect cables, wires and power connector
4. Install expansion cards
CPU Installation

The motherboard provides a 321-pins, type-7, ZIP socket. The CPU should have a fan attached to it to prevent overheating. If this is not the case then purchase a fan before you turn-on the system.

CAUTION

Without an effective cooling fan, the CPU can overheat and cause damage to both the CPU and the motherboard.
INSTALLING SYSTEM MEMORY (RAM)

The motherboard supports two 168-pin DIMM.

168-Pin SDRAM Module Installation Diagram
EXPANSION CARDS INSTALLATION

At the most of beginning, you must read your expansion card documentation on any hardware and software settings that may be required. The installation procedures are summarized as below:

2. If necessary, set any jumpers on your expansion card.
3. Power-off the system and then disconnected the power cord.
4. Remove your computer’s cover.
5. Remove the metal bracket from one of the empty slot, ISA or PCI, corresponding to the type of expansion card.
6. Carefully align the card’s connectors and press firmly, make sure that the connection is good.
7. Secure the card on the slot.
8. Replace the computer’s cover.
9. Setup the BIOS configuration if necessary.
10. Install the required software drivers for your expansion card.

CAUTION

Before adding or removing any expansion card or other system components, make sure that you unplug your system power supply. Failure to do so may cause damage of your motherboard and expansion cards.

CONNECTING EXTERNAL CONNECTOR

AT Power Supply Connector

A 12-Pin power supply provides two plugs incorporates standard ±5V and ±12V, each containing six wires, two of which are black. Orient the connectors so that the black wires are together.

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal Name</th>
<th>Pin</th>
<th>Signal Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Power Good Signal</td>
<td>7</td>
<td>Ground</td>
</tr>
<tr>
<td>2</td>
<td>+5V</td>
<td>8</td>
<td>Ground</td>
</tr>
<tr>
<td>3</td>
<td>+12V</td>
<td>9</td>
<td>-5V</td>
</tr>
<tr>
<td>4</td>
<td>-12V</td>
<td>10</td>
<td>+5V</td>
</tr>
<tr>
<td>5</td>
<td>Ground</td>
<td>11</td>
<td>+5V</td>
</tr>
<tr>
<td>6</td>
<td>Ground</td>
<td>12</td>
<td>+5V</td>
</tr>
</tbody>
</table>
**ATX Power Supply Connector**

A single 20-pin connector incorporates standard ±5V and ±12V, optional 3.3V and soft-power signals. With a power supply supports remote power on/off, the motherboard can turn off the system power through software control, such as the shutdown in Windows 95 Start menu. The system BIOS will turn the system power off when it receives the proper APM command from the OS. APM must be enabled in the system BIOS and OS in order for the soft-off feature to work correctly.

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal Name</th>
<th>Pin</th>
<th>Signal Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>+3.3V</td>
<td>11</td>
<td>+3.3V</td>
</tr>
<tr>
<td>2</td>
<td>+3.3V</td>
<td>12</td>
<td>-12V</td>
</tr>
<tr>
<td>3</td>
<td>Ground</td>
<td>13</td>
<td>Ground</td>
</tr>
<tr>
<td>4</td>
<td>+5V</td>
<td>14</td>
<td>PW ON</td>
</tr>
<tr>
<td>5</td>
<td>Ground</td>
<td>15</td>
<td>Ground</td>
</tr>
<tr>
<td>6</td>
<td>+5V</td>
<td>16</td>
<td>Ground</td>
</tr>
<tr>
<td>7</td>
<td>Ground</td>
<td>17</td>
<td>Ground</td>
</tr>
<tr>
<td>8</td>
<td>PWRGOOD</td>
<td>18</td>
<td>-5V</td>
</tr>
<tr>
<td>9</td>
<td>+5VSB</td>
<td>19</td>
<td>+5V</td>
</tr>
<tr>
<td>10</td>
<td>+12V</td>
<td>20</td>
<td>+5V</td>
</tr>
</tbody>
</table>

**ATX Power Connector Installation**

**Floppy Drive Connector**

This 34-pin connector supports the provided floppy drive ribbon cable. After connecting the single end to the on-board “FLOPPY” connector, connect the remaining plugs on the other end to the floppy drives correspondingly.

**IDE Connectors**

The two on-board IDE connectors support the provided 40-pin IDE hard disk ribbon cable. After connecting the single end to the board, connect the two remaining plugs at the other end of your hard disk(s). If you install two hard disks, you must configure the two drives by setting its jumpers according to the documentation of your hard disk. Also, you may connect the two hard disks to be both Masters using one ribbon cable on the primary IDE connector and one on the secondary IDE connector.
Ribbon cable Installation Example

**NOTICE**

For the flat ribbon cable connection, please make sure that the pin 1 of the ribbon cable (the red wire side of the cable) is correctly connected to the on-board connector’s pin 1 as shown on the “Map of the Motherboard”.

**Front Panel Function Connectors**

All the front panel indicator, speaker, and switch functions are grouped into an on-board 26-pin connector, J5. Front panel features supported include:

- System Reset, RESET
- Power LED, form KEYLOCK
- Hard Drive activity LED, IDE LED
- System Speaker, SPEAKER
- Soft-touch button power on/off, SW ON
- External power saving control, EXTSMI (optional)

The connector pin out are described as the figure below:
**Integrated USB, Infra-Red and PS/2 Mouse connector**

The total of two USB device connectors, a PS/2 mouse, and Infrared devices are all allocated at this connector (JP15).

- Pin1 to Pin5 for USB1 connector
- Pin11 to Pin15 for USB2 connector
- Pin6 to Pin10 for PS/2 connector
- Pin16 to Pin20 InfraRed connector

The connector pin out signal definitions are described as the table below:

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal Name</th>
<th>Pin</th>
<th>Signal Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (USB1)</td>
<td>USB +5 Volt</td>
<td>11 (USB2)</td>
<td>USB +5 Volt</td>
</tr>
<tr>
<td>2</td>
<td>USB Port 1-</td>
<td>12</td>
<td>USB Port 2-</td>
</tr>
<tr>
<td>3</td>
<td>USB Port 1+</td>
<td>13</td>
<td>USB Port 2+</td>
</tr>
<tr>
<td>4</td>
<td>Ground</td>
<td>14</td>
<td>Ground</td>
</tr>
<tr>
<td>5</td>
<td>No Connect</td>
<td>15</td>
<td>No Connect</td>
</tr>
<tr>
<td>6 (PS/2 Mouse)</td>
<td>PS/2 Data</td>
<td>16 (IR)</td>
<td>+5V</td>
</tr>
<tr>
<td>7</td>
<td>PS/2 Clock</td>
<td>17</td>
<td>No Connect</td>
</tr>
<tr>
<td>8</td>
<td>Ground</td>
<td>18</td>
<td>Infrared Receive</td>
</tr>
<tr>
<td>9</td>
<td>No Connect</td>
<td>19</td>
<td>Ground</td>
</tr>
<tr>
<td>10</td>
<td>+5V</td>
<td>20</td>
<td>Infrared Transmit</td>
</tr>
</tbody>
</table>

**On-board Sound Connector ( For Sound Version )**

The total of three connectors are using to support the On-board sound features. JP18 including the Line-In, Mic-In, Line-Out and MIDI/JOYSTICK. J6 and J7 are the CD-Audio input headers, and there pin out signal definitions are described as the table below:

<table>
<thead>
<tr>
<th>Header</th>
<th>Pin1</th>
<th>Pin2</th>
<th>Pin3</th>
<th>Pin4</th>
</tr>
</thead>
<tbody>
<tr>
<td>J6, J7</td>
<td>Ground</td>
<td>Right</td>
<td>Ground</td>
<td>Left</td>
</tr>
</tbody>
</table>

**REPLACING BATTERY**

A 3V, CR-2030, Lithium battery is installed on the on-board battery socket. This battery is used to supply the CMOS RAM backup power during system powered-off. Danger of explosion if battery is incorrectly replaced. Therefore, if you have any difficulties, please consult to the technical personnel.
Quick Installation Guide

TX100-3D / TX100
TX100-3D
• Crystal 3D Audio Onboard

TX100
• No Crystal 3D Audio Onboard

A. AT Power Supply Connector
B. ATX Power Supply Connector
C. AT Keyboard Connector
D. Serial (COM1 and 2) Headers
E. Parallel (Printer) Port Header
F. Integrated Functions Connector
G. 3.3v DIMM Sockets
H. CPU Fa Connector
I. Floppy Drive Connector
J. Audio Connector
K. Audio CD Connectors
  - J7 (Left, Ground, Ground, Right)
  - J6 (Ground, Right, Ground, Left)
L. PCI Bus Connectors
M. ISA Bus Connectors
O. Front Panel Connector
Q. WAKEUP-LINK Header
S. IDE Connectors
T. Socket 7
Quick Reference of Your Motherboard

[A] AT Power Supply Connector
Based on the AT specification, one 12-pin power connector covers all the required power sources, ±5V and ±12V.

[B] ATX Power Supply Connector
Based on the ATX specifications, one 20-pin power connector covers all the required power sources, ±5V, ±12V, and ±3.3V, with soft-touch button power on/off features. This connector reduces the installation time and minimizes the chance of defects caused by incorrect connection.

[C] AT Keyboard Connector
This connection is used for a standard IBM-compatible keyboard, such as 101 enhanced keyboard.

[D] Serial (COM 1 and 2) Port Headers
This motherboard provides two high-speed UART compatible serial ports.

[E] Parallel (Printer) Port Connector
One Parallel port with SPP, EPP and ECP capabilities.

[F] Integrated Functions Connector
I) From Pin1 to Pin5 is the first USB device “USB1” and Pin11 to Pin15 is the second USB device “USB2” connector. Universal Serial Bus (USB) is new interface standard for any I/O device “Outside the Box”. USB makes your peripherals have a real plug and play (PnP) capabilities with up to 12MB/sec data speed. In the coming soon, any external device connected to your computer will be standardized into USB standard which are all have a special 4-pin rectangle shape connector. Therefore, with the Intel chipset, this motherboard builds two USB headers on-board for you future investment. If you are using an USB device, you must purchase an optional USB connector.

II) From Pin6-10 is the PS/2 device, likes some PS/2 keyboard and mouse, are all have a standard 6-pin round shape connector. However, it does not have a unique onboard standard. Therefore, please refer to the Chapter “Motherboard Installation”, in order to purchase an suitable PS/2 Mouse Connector.

III) From Pin16-20 is a 5-pin interface on the front panel I/O connector is provided to allow connection to a Hewlett Packard HSDSL-1000 compatible Infra-red (IrDA) transmitter/receiver. Once the module is connected to the front panel I/O header, Serial port 2 can be re-directed to the IrDA module. When configured for IrDA, the user can transfer files to or from portable devices such as laptops, PDA’s and printers using application software such as LapLink. The IrDA specification provides for data transfers at 115kbps from a distance of 1 meter. Support for Consumer Infra Red (ASK-IR) is also included, please refer to your IR equipment for more detailed information.

[G] SDRAM Sockets
There are two unbuffered, 3.3 Volts, SDRAM socket on-board provides more flexibility for your system memory upgrade.

[H] CPU FAN CONNECTOR
A 3-pin CPU fan connector.
Floppy Drive Connector
A 34-pin connector on-board allows connection to two 360K, 720K, 1.2M, 1.44, 2.88M floppy disk drives.

Audio Connector
All the Line-In, MIC In, Line-Out and MIDI/JOYSTICK for the On-Board Sound are located here.

Audio CD Connectors
J6, J7 are the Audio CD input connector for the On-Board Sound.

PCI Add-in Board Connectors
This motherboard provides four full-length 32-bits PCI slots with up to 133MB/sec burst data transfer rate.

ISA Add-in Board Connectors
This motherboard provides two 16-bits ISA slot which allows backward hardware compatibility.

Front Panel Function Connector
For your convenience, all the front panel functions are integrated into a single connector, which included
power LED and keyboard lock, turbo switch, reset switch, SMI switch and speaker.

WAKEUP-LINK Interface
This header is used to connect an add-in NIC (Network Interface Card) which has WOL capability to a
motherboard.

IDE Connectors
This motherboard have two independent high performance bus-mastering PCI IDE interfaces capable of
supporting up to UltraDMA-33 devices. The system BIOS supports automatic detection of the IDE device
data transfer rate and translation between different kinds of device mode such as Logical Block Addressing
(LBA) and Extended Cylinder Sector Head (ECSH) translation modes and ATAPI (e.g., CD-ROM) devices
on both IDE interfaces.
In a true multi-tasking operating systems like Windows® 95 and Windows® NT, the IDE interface can
operate as a PCI bus master capable of supporting Ultra DMA-33 devices with transfer rates of up to
33MB/sec.

Pentium® Type-7 Socket
The type-7 socket is a 321-pins, zero insertion force (ZIF) socket. It provides users with a performance
upgrade path to Pentium® OverDrive technology.

PENTIUM® PROCESSOR
An approved Pentium heatsink is necessary for proper thermal dissipation in an AT compliant chassis. The processor/heatink assembly must be securely fastened to the Socket 7 ZIF socket by two clips. These clips fit over the heatsink assembly and attach to
the outer wide tabs of the Socket 7 assembly.
AMIBIOS Setup

<table>
<thead>
<tr>
<th>Types of Setup</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard CMOS Setup</td>
<td>Sets time, date, hard disk type, types of floppy drives, monitor type, and if keyboard is installed.</td>
</tr>
<tr>
<td>Advanced CMOS Setup</td>
<td>Sets Typematic Rate and Delay, Above 1 MB Memory Test, Memory Test Tick Sound, Hit &lt;Del&gt; Message Display, System Boot Up Sequence, and many others.</td>
</tr>
<tr>
<td>Advanced Chipset Setup</td>
<td>Sets chipset-specific options and features.</td>
</tr>
<tr>
<td>Power Management Setup</td>
<td>Controls power conservation options.</td>
</tr>
<tr>
<td>PCI/Plug and Play Setup</td>
<td>Sets options related to PCI bus and Plug and Play options.</td>
</tr>
<tr>
<td>Peripheral Setup</td>
<td>Controls I/O Controller-related options.</td>
</tr>
<tr>
<td>CPU Configuration Setup</td>
<td>This option selects the type of CPU install in the motherboard. The settings are Auto (AMIBIOS automatically determines the CPU type).</td>
</tr>
</tbody>
</table>
Standard CMOS Setup

Select the AMIBIOS Setup options by choosing Standard Setup from the AMIBIOS Setup main menu. Standard Setup options are described below.

Floppy Drive A: and B:
Move the cursor to these fields via ↑ and ↓ and select the floppy type. The settings are 360 KB 5¼ inch, 1.2 MB 5¼ inch, 720 KB 3½ inch, 1.44 MB 3½ inch, or 2.88 MB 3½ inch.

Primary Master
Primary Slave
Secondary Master
Secondary Slave

Select these options to configure the drive named in the option. Select Auto Detect IDE to let AMIBIOS automatically configure the drive. A screen with a list of drive parameters appears. Click on OK to configure the drive.
Type | How to Configure
---|---
SCSI | Select *Type*. Select *Not Installed* the drive parameter screen. The SCSI drivers provided by the SCSI manufacturer should allow you to configure the SCSI drive.
IDE | Select *Type*. Select *Auto* to let AMIBIOS determine the parameters. Click on OK when AMIBIOS displays the drive parameters. Select *LBA Mode*. Select *On* if the drive has a capacity greater than 540 MB. Select *Block Mode*. Select *On* to allow block mode data transfers. Select *32-Bit Mode*. Select *On* to allow 32-bit data transfers. Select the *PIO Mode*. It is best to select *Auto* to allow AMIBIOS to determine the PIO mode. If you select a PIO mode that is not supported by the IDE drive, the drive will not work properly. If you are absolutely certain that you know the drive’s PIO mode, select PIO mode 0 - 4, as appropriate.
CD-ROM | Select *Type*. Select *CDROM*. Click on *OK* when AMIBIOS displays the drive parameters.
Standard MFM | Select *Type*. You must know the drive parameters. Select the drive type that exactly matches your drive’s parameters.
Non-Standard MFM | Select *Type*. If the drive parameters do not match the drive parameters listed for drive types 1 - 46, select *User* and enter the correct hard disk drive parameters.

### Entering Drive Parameters

You can also enter the hard disk drive parameters. The drive parameters are:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>The number for a drive with certain identification parameters.</td>
</tr>
<tr>
<td>Cylinders</td>
<td>The number of cylinders in the disk drive.</td>
</tr>
<tr>
<td>Heads</td>
<td>The number of heads.</td>
</tr>
<tr>
<td>Write Precompensation</td>
<td>The actual physical size of a sector gets progressively smaller as the track diameter diminishes. Yet each sector must still hold 512 bytes. Write precompensation circuitry on the hard disk compensates for the physical difference in sector size by boosting the write current for sectors on inner tracks. This parameter is the track number on the disk surface where write precompensation begins.</td>
</tr>
<tr>
<td>Landing Zone</td>
<td>This number is the cylinder location where the heads normally park when the system is shut down.</td>
</tr>
<tr>
<td>Sectors</td>
<td>The number of sectors per track. MFM drives have 17 sectors per track. RLL drives have 26 sectors per track. ESDI drives have 34 sectors per track. SCSI and IDE drives have even more sectors per track.</td>
</tr>
<tr>
<td>Capacity</td>
<td>The formatted capacity of the drive is the number of heads times the number of cylinders times the number of sectors per track times 512 (bytes per sector).</td>
</tr>
</tbody>
</table>
CPU CONFIGURATION SETUP

This Mainboard is among our “Auto Jumper” Series that eliminates the necessity for the user to be overwhelmed by jumper settings on the Mainboard. The system BIOS is capable to detect the CPU brand and core voltage setting the appropriate CPU speed according to the instructions from the user through the CMOS setup. In addition, overclocking option is provided for advanced users who prefer to run the CPU over the specified clock frequency.

Support Intel Pentium/Pentium-MMX, AMD K5/K6/K6-2/K6-III, Cyrix/IBM 6x86/6x86MX/M-II, RiSE mP6, IDT-C6 and WinChip
**ADVANCED CMOS SETUP**

**Quick Boot**
Set this option to *Enabled* to instruct AMIBIOS to boot quickly when the computer is powered on. This option replaces the old *Above 1 MB Memory Test* Advanced Setup option. The settings are:

**1st Boot Device**
This option sets the type of device for the first boot drives that the AMIBIOS attempts to boot from after AMIBIOS POST completes. The settings are *Disabled, Network, Floppy, SCSI, CDROM, IDE-0, IDE-1, IDE-2, or IDE-3*. The Optimal and Fail-Safe default settings are *IDE-0*.

**2nd Boot Device**
This option sets the type of device for the second boot drives that the AMIBIOS attempts to boot from after AMIBIOS POST completes. The settings are *Disabled, Floppy or IDE-0*. The Optimal and Fail-Safe default settings are *Floppy*.

**3rd Boot Device**
This option sets the type of device for the third boot drives that the AMIBIOS attempts to boot from after AMIBIOS POST completes. The settings are *Disabled, CD-ROM, or IDE-0*. The Optimal and Fail-Safe default settings are *CD-ROM*. 
Try Other Boot Devices  Set this option to Yes to instruct AMIBIOS to attempt to boot from any other drive in the system if it cannot find a boot drive among the drives specified in the 1st Boot Device, 2nd Boot Device, 3rd Boot Device options.

Floppy Access Control  This option specifies the read/write access that is set when booting from a floppy drive. The settings are Read/Write or Read-Only. The Optimal and Fail-Safe default settings are Read/Write.

Hard Disk Access Control  This option specifies the read/write access that is set when booting from a hard disk drive. The settings are Read/Write or Read-Only. The Optimal and Fail-Safe default settings are Read/Write.

S.M.A.R.T. For Hard Disks  Set this option to Enabled to permit AMIBIOS to use the SMART (System Management and Reporting Technologies) protocol for reporting server system information over a network. The settings are Enabled/Disabled. The Optimal and Fail-Safe default settings are Disabled.

Boot Up Num Lock  Set this option to Off to turn the Num Lock key off when the computer is booted so you can use the arrow keys on both the numeric keypad and the keyboard. The settings are On or Off. The default settings are On.

PS/2 Mouse Support  Set this option to Enabled to enable AMIBIOS support for a PS/2-type mouse. Pins 2-3 of the PS/2 Mouse Selector jumper on the motherboard must be shorted together to enable PS/2 mouse support. The settings are Enabled or Disabled. The Optimal and Fail-Safe default settings are Enabled.

Primary Display  This option configures the type of monitor attached to the computer. The settings are Mono, CGA40x25, CGA80x25, VGA/EGA, or Absent. The Optimal and Fail-Safe default settings are VGA/EGA.

Password Check  This option enables password checking every time the system boots or when you run AMIBIOS Setup. If Always is chosen, a user password prompt appears every time the computer is turned on. If Setup is chosen, the password prompt appears if AMIBIOS is executed. See Advanced Setup chapter for instructions on changing a password. The Optimal and Fail-Safe defaults are Setup.

Boot To OS/2  Set this option to Enabled if running OS/2 operating system and using more than 64 MB of system memory on the motherboard. The settings are Enabled or Disabled. The Optimal and Fail-Safe default settings are Disabled.
CPU Microcode Update  Set this option to *Enabled* to permit the CPU to be updated online at any time. The settings are *Enabled* or *Disabled*. The Optimal and Fail-Safe default settings are *Enabled*.

**System BIOS Cacheable**  When set to *Enabled*, the contents of the F0000h system memory segment can be read from or written to cache memory. The contents of this memory segment are always copied from the BIOS ROM to system RAM for faster execution. The settings are *Enabled* or *Disabled*. The Optimal default setting is *Enabled*. The Fail-Safe default setting is *Disabled*.

**C000, 16K Shadow**  These options specify how the 32 KB of video ROM at C0000h is treated. The settings are:

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Disabled</strong></td>
<td>The contents of the video ROM are not copied to RAM.</td>
</tr>
<tr>
<td><strong>Enabled</strong></td>
<td>The contents of the video ROM area from C0000h - C7FFFFh are copied (shadowed) from ROM to RAM for faster execution.</td>
</tr>
<tr>
<td><strong>Cached</strong></td>
<td>The contents of the video ROM area from C0000h - C7FFFFh are copied from ROM to RAM and can be written to or read from cache memory.</td>
</tr>
</tbody>
</table>

The Optimal and Fail-Safe default settings are *Cached*.

**C800, 16K Shadow**  These options enable shadowing of the contents of the ROM area named in the option. The ROM area not used by ISA adapter cards is allocated to PCI adapter cards. The settings are:

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Disabled</strong></td>
<td>The contents of the video ROM are not copied to RAM.</td>
</tr>
<tr>
<td><strong>Cached</strong></td>
<td>The contents of the video ROM area from C0000h - C7FFFFh are copied from ROM to RAM and can be written to or read from cache memory.</td>
</tr>
<tr>
<td><strong>Enabled</strong></td>
<td>The contents of the video ROM area from C0000h - C7FFFFh are copied (shadowed) from ROM to RAM for faster execution.</td>
</tr>
</tbody>
</table>

The Optimal and Fail-Safe default settings are *Cached*. 

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ADVANCED Chipset Setup

The AMIBIOS Setup options described in this section are selected by choosing Advanced Chipset Setup from the AMIBIOS Setup main menu.

Memory Holes

This option enables or disables the memory hole. Memory holes are the region in memory forwarded to ISA/PCI bus instead of memory bus. The settings are None, 15M-16M (1M) and 14M-16M(2M). This feature will be useful for some operating systems like UNIX. The optimal and fail-safe default settings are None.

Sustained 3T Write

Set this option to Enabled to enable the sustained 3T write logic for write through cache. The settings are Enabled or Disabled. The optimal and fail-safe default settings are Disabled.

Linear Burst

Set this option to Enabled to enable linear burst cache mode for Cyrix CPUs. This option is only valid for Cyrix CPU. The settings are Enabled or Disabled. The optimal and fail-safe default settings are Disabled.
CAS Latency
This option is used to set the CAS latency timing for SDRAM DRAM. This setting is valid only for SDRAM DIMM. The settings are 2CL or 3CL. The optimal and fail-safe default settings are 3CL.

Bank Interleave
Set this option to Enabled to enable DRAM banks interleave logic. The settings are Enabled or Disabled. The optimal and fail-safe default settings are Enabled.

DRAM Timing Control
This option is used set DRAM timing of the chipset. For user convenience the options are specified as Normal, Medium, Fast and Turbo. The optimal and fail-safe default settings are Normal.

DRAM Pipeline
This option is used to enable or disable DRAM read and write pipeline logic. The settings are Enabled or Disabled. The optimal and fail-safe default settings are Enabled and Disabled respectively.

CPU to PCI Write Buffer
This option is used to enable or disable CPU to PCI write buffer logic. The settings are Enabled or Disabled. The optimal and fail-safe default settings are Enabled and Disabled respectively.

PCI Dynamic Bursting
This option is used to enable or disable PCI dynamic bursting logic in the chipset. The settings are Enabled or Disabled. The optimal and fail-safe default settings are Enabled and Disabled respectively.

PCI Burst
This option is used to enable or disable PCI burst logic in the chipset. The settings are Enabled or Disabled. The optimal and fail-safe default settings are Enabled and Disabled respectively.

Quick Frame Generation
This option is used to enable or disable quick frame generation logic. The settings are Enabled or Disabled. The optimal and fail-safe default settings are Enabled and Disabled respectively.

PCI Master 1 WS Write
This option is used to enable or disable PCI master 1 wait state write logic in the chipset. The settings are Enabled or Disabled. The optimal and fail-safe default settings are Disabled.

PCI Peer Concurrency
This option is used to enable or disable PCI peer concurrency logic in the chipset. The settings are Enabled or Disabled. The optimal and fail-safe default settings are Disabled.
PCI/PnP Setup

Choose PCI/Plug and Play Setup from the AMIBIOS Setup screen to display the PCI and Plug and Play Setup options, described below.

Plug and Play Aware O/S

Set this option to Yes to inform AMIBIOS that the operating system can handle plug and Play (PnP) devices. The settings are No or Yes. The Optimal and Fail-Safe default settings are No.

PCI Latency Timer (PCI Clocks)

This option specifies the latency timings (in PCI clocks) for PCI devices installed in the PCI expansion slots. The settings are 32, 64, 96, 128, 160, 192, 224, or 248. The Optimal and Fail-Safe default settings are 64.

PCI VGA Palette Snoop

When this option is set to Enabled, multiple VGA devices operating on different buses can handle data from the CPU on each set of palette registers on
Bit 5 of the command register in the PCI device configuration space is the VGA Palette Snoop bit (0 is disabled). For example:

<table>
<thead>
<tr>
<th>VGA Palette Snoop Bit</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disabled</td>
<td>Data read and written by the CPU is only directed to the PCI VGA device’s palette registers.</td>
</tr>
<tr>
<td>Enabled</td>
<td>Data read and written by the CPU is directed to both the PCI VGA device’s palette registers and the ISA VGA device palette registers, permitting the palette registers of both devices to be identical.</td>
</tr>
</tbody>
</table>

This option must be set to *Enabled* if any ISA adapter card installed in the system requires VGA palette snooping. The Optimal and Fail-Safe default settings are *Disabled*.

### Allocate IRQ To PCI VGA
Set this option to *Yes* to allocate an IRQ to the VGA device on the PCI bus. The settings are *Yes* or *No*. The Optimal and Fail-Safe default settings are *Yes*.

### PCI IDE Bus Master
Set this option to *Enabled* to specify that the IDE controller on the PCI bus has bus mastering capability. The settings are *Disabled* or *Enabled*. The Optimal and Fail-Safe default settings are *Disabled*.

### Offboard PCI IDE Card
This option specifies if an offboard PCI IDE controller adapter card is used in the computer. You must also specify the PCI expansion slot on the motherboard where the offboard PCI IDE controller card is installed. If an offboard PCI IDE controller is used, the motherboard onboard IDE controller is automatically disabled. The settings are *Disabled*, *Auto*, *Slot1*, *Slot2*, *Slot3*, *Slot4*, *Slot5*, or *Slot6*. If *Auto* is selected, AMIBIOS automatically determines the correct setting. The Optimal and Fail-Safe default settings are *Auto*. This option forces IRQ 14 and 15 to a PCI slot on the PCI local bus. This is necessary to support non-compliant PCI IDE adapter cards.

### Offboard PCI IDE Primary IRQ
This option specifies the PCI interrupt used by the primary IDE channel on the offboard PCI IDE controller. The settings are *Disabled*, *Hardwired*, *INTA*, *INTB*, *INTC*, or *INTD*. The Optimal and Fail-Safe default settings are *Disabled*.

### Offboard PCI IDE Secondary IRQ
This option specifies the PCI interrupt used by the secondary IDE channel on the offboard PCI IDE controller. The settings are *Disabled*, *Hardwired*, *INTA*, *INTB*, *INTC*, or *INTD*. The Optimal and Fail-Safe settings are *Disabled*.

### PCI Slot1 IRQ Priority
### PCI Slot2 IRQ Priority
### PCI Slot3 IRQ Priority
### PCI Slot4 IRQ Priority
These options specify the IRQ priority for PCI devices installed in the PCI expansion slots. The settings are *Auto*, *(IRQ) 3, 4, 5, 7, 9, 10, and 11*, in priority order. The Optimal and Fail-Safe default settings are *Auto*. 
DMA Channel 0
DMA Channel 1
DMA Channel 3
DMA Channel 5
DMA Channel 6
DMA Channel 7 These options allow you to specify the bus type used by each DMA channel. The settings are PnP or ISA/EISA. The Optimal and Fail-Safe default settings are PnP.

IRQ3
IRQ4
IRQ5
IRQ7
IRQ9
IRQ10
IRQ11
IRQ12
IRQ14
IRQ15

These options specify the bus that the specified IRQ line is used on. These options allow you to reserve IRQs for legacy ISA adapter cards. These options determine if AMIBIOS should remove an IRQ from the pool of available IRQs passed to devices that are configurable by the system BIOS. The available IRQ pool is determined by reading the ESCDNVRAM. If more IRQs must be removed from the pool, the end user can use these options to reserve the IRQ by assigning an ISA/EISA setting to it. Onboard I/O is configured by AMIBIOS. All IRQs used by onboard I/O are configured as PCI/PnP. IRQ12 only appears if the Mouse Support option in Advanced Setup is set to Disabled. IRQ14 and 15 will not be available if the onboard PCI IDE is enabled. If all IRQs are set to ISA/EISA and IRQ14 and 15 are allocated to the onboard PCI IDE, IRQ9 will still be available for PCI and PnP devices, because at least one IRQ must be available for PCI and PnP devices. The settings are ISA/EISA or PCI/PnP. The Optimal and Fail-Safe default settings are PCI/PnP.

Reserved Memory Size This option specifies the size of the memory area reserved for legacy ISA adapter cards. The settings are Disabled, 16K, 32K, or 64K. The Optimal and Fail-Safe default settings are Disabled.

Reserved Memory Address This option specifies the beginning address (in hex) of the reserved memory area. The specified ROM memory area is reserved for use by legacy ISA adapter cards. This option does not appear if the Reserved Memory Size option is set to Disabled. The settings are C0000, C4000, C8000, CC000, D0000, D4000, D8000, DC000 or N/A. The Optimal and Fail-Safe default settings are N/A.
The AMIBIOS Setup options described in this section are selected by choosing Power Management Setup from the AMIBIOS Setup main menu.

**Power Management/APM**
Set this option to *Enabled* to enable the chipset power management and APM (Advanced Power Management) features. The settings are *Enabled* or *Disabled*. The Optimal and Fail-Safe default settings are *Disabled*.

**Wake-On-LAN Feature**
Set this option to *Enabled* to enable the Wake-On-LAN features. The settings are *Enabled* or *Disabled*. The Optimal and Fail-Safe default settings are *Disabled*.

**External Modem Wake-Up**
Set this option to *Enabled* to enable External Modem Wake-Up. The settings are *Enabled* or *Disabled*. The Optimal and Fail-Safe default settings are *Disabled*.
Green PC Monitor Power State  This option specifies the power state that the green PC-compliant video monitor enters when AMIBIOS places it in a power saving state after the specified period of display inactivity has expired. The settings are Off, Standby, Suspend, or Disabled. The Optimal and Fail-Safe default settings are Disabled.

Video Power Down Mode  This option specifies the power state that the video subsystem enters when AMIBIOS places it in a power saving state after the specified period of display inactivity has expired. The settings are Standby, Suspend or Disabled. The Optimal and Fail-Safe default settings are Disabled.

Hard Disk Power Down Mode  This option specifies the power conserving state that the hard disk drive enters after the specified period of hard drive inactivity has expired. The settings are Disabled, Standby, or Suspend. The Optimal and Fail-Safe default settings are Disabled.

Hard Disk Timeout  This option specifies the length of a period of hard disk drive inactivity. When this length of time expires, the computer enters power-conserving state specified in the Hard Disk Power Down Mode option (see the previous page). The settings are Disabled, 1 min. (minute), 2 min, 3 min., 4 min., 5 min., 6 min, 7 min., 8 min., 9 min., 10 min., 11 min., 12 min., 13 min., 14 min, and 15 min. The Optimal and Fail-Safe default settings are Disabled.

Standby/Suspend Timer Unit  This option specifies the unit of time used for the Standby and Suspend timeout periods. The settings are 4 msec, 4 sec, 32 sec, or 4 min. The Optimal and Fail-Safe default settings are 4 min.

Standby Timeout  This option specifies the length of a period of system inactivity while in Full power on state. When this length of time expires, the computer enters Standby power state. The settings are Disabled, 4 msec, 8 msec, 12 msec, 16 msec, up to 508 msec, in increments of 4 msec. The Optimal and Fail-Safe default settings are Disabled.

Suspend Timeout  This option specifies the length of a period of system inactivity while in Standby state. When this length of time expires, the computer enters Suspend power state. The settings are Disabled, 4 msec, 8 msec, 12 msec, 16 msec, up to 508 msec, in increments of 4 msec. The Optimal and Fail-Safe default settings are Disabled.

Slow Clock Ratio  This option specifies the speed at which the system clock runs in the Standby Mode power saving state. The settings are expressed as a percentage between the normal CPU clock speed and the CPU clock speed when the computer is in the power-saving state. The settings are 0-12.5%, 12.5-25%, 25-37.5%, 37.5-50%, 50-62.5%, 62.5-75%, or 75-87.5%. The Optimal and Fail-Safe default settings are 50-62.5%.
Display Activity  When set to Monitor, this option enables event monitoring on the video display. If set to Monitor and the computer is in a power saving state, AMIBIOS watches for display activity. The computer enters the Full On state if any activity occurs. AMIBIOS reloads the Standby and Suspend timeout timers if display activity occurs. The settings are Monitor or Ignore. The Optimal and Fail-Safe default settings are Ignore.

Device 6 (Serial Port 1)
Device 7 (Serial Port 2)
Device 8 (Parallel Port)
Device 5 (Floppy Disk)
Device 0 (Primary Master IDE)
Device 1 (Primary Slave IDE)
Device 2 (Secondary Master IDE)
Device 3 (Secondary Slave IDE)  When set to Monitor, these options enable event monitoring on the specified hardware interrupt request line. If set to Monitor and the computer is in a power saving state, AMIBIOS watches for activity on the specified IRQ line. The computer enters the Full On state if any activity occurs. AMIBIOS reloads the Standby and Suspend timeout timers if activity occurs on the specified IRQ line.

The settings for each of these options are Monitor or Ignore. The Optimal and Fail-Safe default settings are Ignore.
### Peripheral Setup

Peripheral Setup options are displayed by choosing Peripheral Setup from the AMIBIOS Setup main menu. All Peripheral Setup options are described here.

<table>
<thead>
<tr>
<th>Onboard Crystal 3D Audio</th>
<th>Enabled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onboard USB Controller</td>
<td>Enabled</td>
</tr>
<tr>
<td>USB Legacy Support</td>
<td>Enabled</td>
</tr>
<tr>
<td>OnBoard FDC</td>
<td>Auto</td>
</tr>
<tr>
<td>Serial Port1</td>
<td>Auto</td>
</tr>
<tr>
<td>Serial Port2</td>
<td>Auto</td>
</tr>
<tr>
<td>OnBoard Ir Port</td>
<td>Disabled</td>
</tr>
<tr>
<td>Ir Mode</td>
<td>HS/IR</td>
</tr>
<tr>
<td>Ir Duplex</td>
<td>Half</td>
</tr>
<tr>
<td>OnBoard Parallel Port</td>
<td>378</td>
</tr>
<tr>
<td>Parallel Port Mode</td>
<td>Normal</td>
</tr>
<tr>
<td>Parallel Port IRQ</td>
<td>7</td>
</tr>
<tr>
<td>Parallel Port DMA Channel</td>
<td>N/A</td>
</tr>
<tr>
<td>VIA OnBoard PCI IDE</td>
<td>Both</td>
</tr>
</tbody>
</table>

### Onboard Crystal 3D Audio

Set this option to **Enabled** to enable the onboard Crystal 3D Audio for mainboard with Crystal 3D sound chip.

### USB Function

Set this option to **Enabled** to enable USB (Universal Serial Bus) support. The settings are **Enabled** or **Disabled**.

### USB Keyboard/Mouse Legacy Support

Set this option to **Enabled** to enable support for older keyboards and mouse devices if the **USB Function** option is set to **Enabled**. The settings are **Enabled** or **Disabled**.

### Onboard IDE

This option specifies the IDE channel used by the onboard IDE controller. The settings are **Disabled**, **Primary**, or **Secondary**.

### Onboard Floppy Controller

Set this option to **Enabled** to enable the floppy drive controller on the motherboard. The settings are **Auto** (**AMIBIOS automatically determines if the floppy controller should be enabled**), **Enabled**, or **Disabled**.
Onboard Serial Port1  This option specifies the base I/O port address of serial port 1. The settings are Auto (AMI BIOS automatically determines the correct base I/O port address), Disabled, 3F8h, 2F8h, 2E8h, or 3E8h. The Optimal and Fail-Safe default settings are Auto.

Onboard Serial Port2  This option specifies the base I/O port address of serial port 2. The settings are Auto (AMI BIOS automatically determines the correct base I/O port address), Disabled, 3F8h, 2F8h, 2E8h, or 3E8h. The Optimal and Fail-Safe default settings are Auto.

Serial Port2 Mode  This option specifies the operating mode for serial port 2. This option only appears if the Onboard Serial Port2 option is not set to Auto or Disabled. The settings are IR (infrared) or Normal. The Optimal and Fail-Safe default settings are Normal.

IR Mode  This option specifies type of infrared devices supported by the system. This option only appears if the Onboard Serial Port2 option is not set to Auto or Disabled. The settings are Encoded or Non-Encoded. There are no default settings.

IR Duplex Mode  This option specifies the type of duplexing used for infrared on serial port 2. This option only appears if the Onboard Serial Port2 option is not set to Auto or Disabled. The settings are Half or Full. There are no default settings.

IR Transmitter  This option specifies the type of transmission used by the infrared devices attached to serial port 2. This option only appears if the Onboard Serial Port2 option is not set to Auto or Disabled. The settings are 1.6 uS or 3/16 Baud. There are no default settings.

Onboard Parallel Port  This option specifies the base I/O port address of the parallel port on the motherboard. The settings are Disabled, 378h, 278h, or 3BC h. The Optimal default setting is 378h.

Parallel Port Mode  This option specifies the parallel port mode. The Optimal default setting is Normal. The Fail-Safe default setting is Disabled. The settings are:

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>The normal parallel port mode is used.</td>
</tr>
<tr>
<td>Bi-Dir</td>
<td>Use this setting to support bidirectional transfers on the parallel port.</td>
</tr>
<tr>
<td>EPP</td>
<td>The parallel port can be used with devices that adhere to the Enhanced Parallel Port (EPP) specification. EPP uses the existing parallel port signals to provide asymmetric bidirectional data transfer driven by the host device.</td>
</tr>
<tr>
<td>ECP</td>
<td>The parallel port can be used with devices that adhere to the Extended Capabilities Port (ECP) specification. ECP uses the DMA protocol to achieve data transfer rates up to 2.5 Megabits per second. ECP provides symmetric bidirectional communication.</td>
</tr>
</tbody>
</table>
EPP Version  This option specifies the Enhanced Parallel Port specification version number that is used in the system. This option only appears if the Parallel Port Mode option is set to EPP. The settings are 1.7 or 1.9. There are no Optimal and Fail-Safe default settings because the default setting for the Parallel Port Mode option is not EPP.

Parallel Port DMA Channel  This option is only available if the setting for the Parallel Port Mode option is ECP. This option sets the DMA channel used by the parallel port. The settings are (DMA Channel0, 1, or 3. The Optimal and Fail-Safe default settings are not provided.

Parallel Port IRQ  This option specifies the IRQ used by the parallel port. The settings are Auto, (IRQ) 5, or (IRQ) 7. The Optimal and Fail-Safe default settings are Auto.

SAVE AND EXIT SETUP
Select this option when you finished setup the CMOS and it will save the change you made and reboot the system after you press “YES”.

EXIT WITHOUT SAVING
If you decided not to save any change you had made, you can select this option to exit the CMOS setup and all the change you made will be ignored.