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Contents

Chapter 1
Introduction

This mainboard is a high-performance mainboard based on the advanced Pentium™ microprocessor and featuring PCI Local Bus and the **Intel i430TX**. The mainboard offers a high degree of flexibility in configuration and is fully IBM PC/AT compatible.

Key Features

The advanced features of this mainboard include:

- Intel **i430TX** PCI chipset

- Supports Pentium™ 75 ~ **300** MHz CPUs with ZIF socket, including Pentium™ P54C and P55C (MMX™), Cyrix/IBM 6x86/6x86L/6x86MX (M2), IDT C6, and AMD K5/K6 CPUs

- **Provides CPU Plug & Play (Auto Voltage/ Frequency/Bus Frequency Ratio) techniques for faster and easier CPU installation**

- Provides auto switching power 2.0V to 3.5V for CPU core voltage

- Supports 64M-bit (16Mx4, 8Mx8, 4Mx16) DRAM/SDRAM technology

- Provides 4 x 72-pin SIMM modules auto banking in multiple configuration up to 256MB and also, 2 x 168-pin DIMM to support SDRAM/EDO DRAM/Page Mode DRAM up to 256MB

- Supports onboard 512KB Pipelined Burst synchronous L2 cache

- Supports Ultra DMA/33 and ACPI

- Provides dual ATX (20-pin) and AT (12-pin) power connectors and **ATX power supports Suspend Switch**, **Power Button, Wake On LAN,** and **Alarm Wake Up**

- 4 PCI Local Bus slots and 3 x 16 bits ISA Bus slots

- Onboard PCI Bus Master IDE interface supports 4 IDE devices with 2 channels; BIOS supports 4 IDE harddisk drives which do not need device driver for S/W application and the capacity of each harddisk can be larger than 528MB and up to 8.4 GB

- PCI IDE Controller supports PIO Mode 0 to Mode 4, Ultra DMA/33 at maximum transfer rate of 33 MB/s, and Bus Master IDE DMA Mode 2

- Supports 2.88MB, Iomega ZIP-100M, and IDE LS-120 FDD; bootable from floppy, HDD, CD-ROM, SCSI, NetWork, LS-120, ZIP, or others

- Onboard super Multi-I/O chip supports 2 serial ports with 16550 fast UART compatible, 1 parallel port with EPP and ECP capabilities, and one **floppy disk drive interface with 1MB/s data transfer rate**

- Supports PS/2 Mouse connector and pin header

- **Supports ATX FORM CARD containing PS/2 mouse, 2 USB interface, and Infrared connectors (optional)**

- BIOS supports Green feature function, and "Plug & Play" Flash ROM

- **Onboard Sound Pro has the following features**:
  — Sound Blaster 16/PRO compatible with stereo voice up to 48KHz sampling rates
  — **HRTF 3D Position Audio** Technology
  — Windows Sound System v2.0 compatible
  — Windows 95/31 and DOS drivers supported
  — Accelerates Direct Sound 3D in Win95
  — Device supports: SB16, WSS, Game
  — HSP-23 Wavetable synthesizer
  — Full Duplex 16-bits CODEC with filters
  — High quality 3D sound (On/Off controllable)
  — Auto switch the hardware between Windows Sound System and Sound Blaster 16
  — Stereo Mixer supports analog mixing from CD-Audio, Line-In; digital mixing from Voice, FM/Wave-table, and digital CD-Audio
  — Supports 44.1K **digital audio (SPDIF)IN/OUT**.

Unpacking the Mainboard & Static Electricity Precautions

This mainboard package contains the following items:

1. The **i430TX** Mainboard
2. The Device Driver for this mainboard
3. This User's Guide
4. Sound & Game ribbon cables/bracket
5. ATX FORM CARD (optional)

This mainboard is easily damaged by static electricity. Follow the precautions below while unpacking or installing the mainboard.

1. Do not remove the mainboard from its original package until you are ready to install it.
2. Before handling the mainboard, ground yourself by grasping an unpainted portion of the system's metal chassis.
3. Frequently ground yourself to discharge any static electric charge that may build up in your body while working on installation and/or configuration.
4. Remove the mainboard from its anti-static packaging and place it on a grounded surface, component side up.
5. Handle the mainboard by its edges or by the mounting bracket to avoid touching its components.
6. Check the mainboard for damage. If any integrated circuit appears loose, press carefully to seat it firmly in its socket.
7. Do not apply power if the mainboard appears damaged. If there is damage to the board contact your dealer immediately.

Chapter 2
Hardware Configuration

Before installing the mainboard into the system chassis, you may find it convenient to first configure the mainboard's hardware. This chapter describes how to set jumpers and install memory modules, and where to attach components.

Mainboard Component Locations

Figure 2–1. Mainboard Component Locations

Connectors

Attach system components and case devices to the mainboard via the mainboard connectors. A description of each connector follows. See Figure 2–1 for the location of the connectors on the mainboard.

Note: Make sure that the power is turned off before making any connection to the board.

PW1 – AT Power Supply Connectors

COM1/2 – Serial Port #1/#2

PRN1 – Parallel Port

FDC1 – Floppy Disk Port

IDE1/IDE2 – Primary/Secondary IDE Ports

KBD – Keyboard Connector

PS2 – PS/2 Mouse Head Connector

J3 – PS/2 Mouse Pin Connector

J2 – ATX FORM CARD Connector:
(1-8) – 2 sets of Universal Serial Bus (USB)

Pin	Description	Pin	Description
1	+5 VDC	2	+5 VDC
3	Data –	4	Data –
5	Data +	6	Data +
7	Ground	8	Ground

J2 (9, 11, 12, 14) – PS/2 Mouse

Pin	Description
9	+5 VDC
11	Mouse CLK
12	Mouse Data
14	Ground

J2 (13, 15-18) – Infrared

Pin	Description
13	Ground
15	IR Hi
16	IR In
17	+5 VDC
18	IR Out

J7 (2, 4, 6, 8, 10) (KEY/LOCK) – Keylock & Power LED Connector

Pin	Description
2	LED Output
4	N.C.
6	Ground
8	Keylock
10	Ground

J7 (1, 3, 5, 7) (SPK) – Speaker Connector

Pin	Description
1	Data Out
3	N.C.
5	Ground
7	+5V

J7 (13, 14) (SUS-LED) – Suspend LED Connector

Pin	Description
13 (+)	+5V
14 (−)	Active Low

J7 (15, 16) (HDD-LED) – HDD LED Connector

Pin	Description
+	+5V
−	Active Low

J7 (17, 18) (RST) – Reset Switch Connector

Setting	Description
Open	Normal Mode
Close	Reset System

FAN1 – Fan Power Connector

Pin	Description
1	N.C.
2	+12V
3	Ground

Sound Pro Connectors:

CD1/CD2 – Analog Audio for Sony/Panasonic

Connect to "AUDIO" on the CD-ROM drive.

J1 – Sound and Game Connectors

Sound contains Line-in/MIC (Microphone), and Line-out (Speaker). Game connector is also the Joystic connector. Connect J1 to the Sound & Game ribbon cable/bracket as the following drawing:
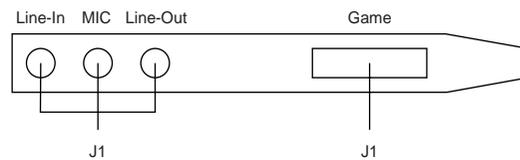
JP3 – Digital Audio IN

Depending on the type of your CD-ROM drive to connect this connector to "DIGITAL AUDIO" on the CD-ROM drive.

JP8 – Digital Audio OUT

Connect to the Digital Speaker.

Jumper Settings

J6 – CMOS RAM Clear Selector

Description	Setting
Normal Mode	☐ ☐
Clear CMOS	▣▣
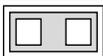
JP5 – DIMM Voltage Selectors

Voltage	Settings
5V	1 3
3.3V	1 3

JP2 – Microphone Type Jumper

Description	Setting
Special Type	▣▣
Normal Type	☐ ☐
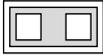
Memory Installation

The mainboard lets you add up to 256MB of system memory through SIMM and DIMM sockets on the board. Four SIMM sockets on the mainboard are divided into two banks: Bank 1 and Bank 2. Each bank consists of two 72-pin SIMM modules, and two 168-pin DIMM sockets are divided into three banks: Bank 0 and Bank 1. The mainboard supports the following memory configurations.

Bank	Memory Module
Bank 0 DIMM1 (168-pin DIMM)	4MB, 8MB, 16MB, 32MB, 64MB, 128MB
Bank 1 SIMM1 & SIMM2 (72-pin SIMM) DIMM2 (168-pin DIMM)	2 x 4MB / 8MB / 16MB / 32MB / 64MB or 4MB, 8MB, 16MB, 32MB, 64MB, 128MB
Bank 2 SIMM3 & SIMM4 (72-pin SIMM)	2 x 4MB / 8MB / 16MB / 32MB / 64MB
Total System Memory = Bank 0 + Bank 1 + Bank 2	

Notes: 1. *SIMM1 & 2 and DIMM2, these two types of DRAM module can not be used at the same time.*
2. *The speed of all SIMMs and DIMM modules have to be faster than 70ns.*
3. *Use 2 DRAM types: Fast Page Mode or Extend DATA Out (EDO) for SIMM socket.*
4. *Use 3 DRAM types: Fast Page Mode, Extend Data Out (EDO), or synchronous DRAM (SDRAM) for DIMM socket.*

Chapter 3
ACPI Functions & Connectors with ATX Power

PW2 – ATX Power Connector

The ATX power supply provides a single 20-pin connector and supports the ACPI specification.

Pin	Description	Pin	Description
1	3.3V	11	3.3V
2	3.3V	12	–12V
3	Ground	13	Ground
4	+5V	14	PS-ON
5	Ground	15	Ground
6	+5V	16	Ground
7	Ground	17	Ground
8	Power OK	18	–5V
9	5VSB	19	+5V
10	+12V	20	+5V

The functions and connectors described below work with the ATX power supply.

Software Power-Off

Follow the steps below to use the "Software Power-Off Control" function in Windows 95 with ATX power supply.

1. Click the **START** button on the Windows 95 task bar.
2. Select **Shut Down The Computer** to turn off the computer. The message **"It is now safe to turn off your computer."** will not be shown when using this function.

Modem Ring Power-On

While in Soft-off/Suspend state, if an external modem ring-up signal occurs, the system wakes up and can be remotely accessed. Make sure that the Ring Resume From Soft Off option is set to Enabled in the BIOS setup section (Refer to the Power Management section in Chapter 4.)

Alarm Wake Up

If you want to autoboot the system at a certain time, set the function of RTC Alarm time properly and the function of RTC Alarm Resume From Soft Off option in the BIOS Setup section will be set to Enabled.

J7 (21, 22) (PWRBT) – ATX Power Button and Suspend Switch Connector

Attach the ATX Power Button or Suspend Switch cable to this connector.

In the AT power system, this connector will act as a suspend switch; and in the ATX power system, this connector will be not only an ATX power button but a Suspend switch as well. Details are described below:

When the system is off, push the power button to turn the system on. When the system is on, push the power button rapidly to switch the system to the Suspend mode, and, by pushing and holding the button for more than 4 seconds, it will turn the system completely off. When the system is in the Suspend mode, push the power button rapidly to turn the system on.

J4 – Wake On LAN Connector

While in Soft-off/Suspend state, if an external LAN signal occurs, the system wakes up and can be accessed with the LAN card.

Pin	Description
1	5V Stand By
2	Ground
3	Active Low

Chapter 4
BIOS Setup

This chapter explains how to configure the mainboard's BIOS setup program. The setup program provided with the mainboard is the BIOS from AMI.

After you have configured the mainboard and have assembled the components, turn on the computer and run the software setup to ensure that the system information is correct.

The software setup of the system board is achieved through Basic Input-Output System (BIOS) programming. You use the BIOS setup program to tell the operating system what type of devices are connected to your system board.

The system setup is also called CMOS setup. Normally, you need to run system setup if either the hardware is not identical with information contained in the CMOS RAM, or if the CMOS RAM has lost power.

Note: When installing newer BIOS into this mainboard, J1 must be set to clear CMOS position for a moment then set back to Normal Mode or hold down the <End> key then power on to reboot the system.

Entering WinBIOS Setup

To enter the WinBIOS Setup program:

1. Turn on or reboot the system. A screen appears with a series of diagnostic checks.

2. When "Hit <DEL> if you want to run SETUP" appears, press the <DEL> key to enter the BIOS setup program. The following screen appears:
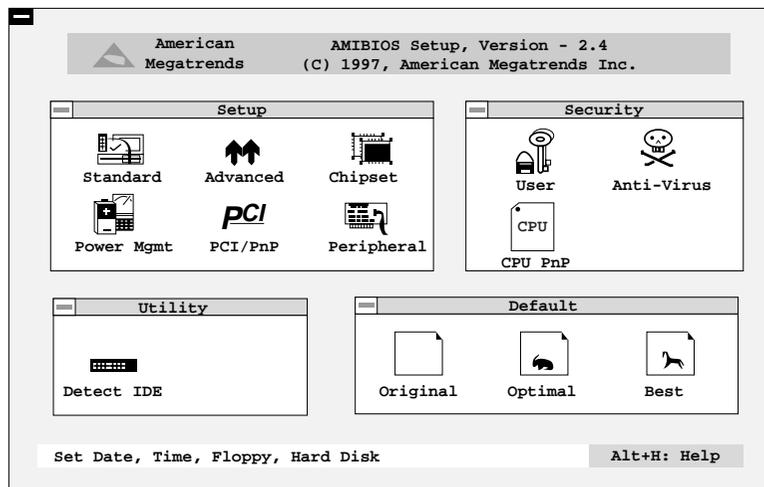
3. Use your keyboard or mouse to choose options. Modify system parameters to reflect system options. Press Alt-H for Help.

Default

Every option in BIOS Setup contains three default values: Original default, Best default, and the Optimal default value.

Original: The original default values recover the modified settings to the original values.

Optimal: The Optimal default values provide optimum system settings for all devices and system features.

Best: The Best default values provide best performance settings for all devices and system features, but dependent used devices and we aren't guaranty that system run overnight on these settings.

Setup Window

The Setup section has six icons that allow you to set system configuration options.
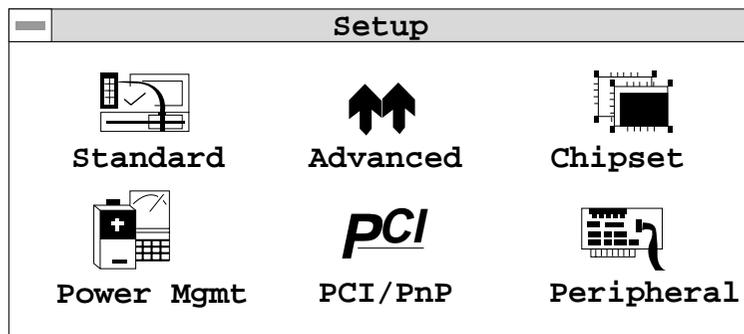
Standard Setup

Choose the Standard icon from the Setup section on the BIOS Setup main menu. All Standard Setup options are described in this section.

Pri Master Choose these icons to configure the hard disk
Pri Slave drive named in the option. When you click on
Sec Master an icon, the following parameters are listed:
Sec Slave Type, LBA/Large Mode, Block Mode, 32Bit Mode, and PIO Mode. All parameters relate to IDE drives except **Type**.

Date/Time Select the Date/Time option to change the date or time. The current date and time are displayed. Enter new values through the displayed window.

Floppy Drive Choose the Floppy Drive A or B icon to specify
A, B the floppy drive type. The settings are 360KB $5^1/_4$", 1.2MB $5^1/_4$", 720KB $3^1/_2$", 1.44MB $3^1/_2$", or 2.88MB $3^1/_2$".

Advanced Setup

Choose the Advanced icon from the Setup section on the BIOS Setup main menu. All Advanced Setup options are described in this section.

1st Boot Device
2nd Boot Device
3rd Boot Device
4th Boot Device

Set these options to select the boot sequence from different booting devices.

Try Other Boot Devices

Set this option to enable other booting devices.

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

Select this option to enable or disable the S.M.A.R.T. function of HDDs.

Quick Boot

Set this option to *Enabled* to permit BIOS to boot within 5 seconds.

Boot Up Num-Lock

When this option is set to *On*, BIOS turns off the *Num Lock* key when the system is powered on so the end user can use the arrow keys on both the numeric keypad and the keyboard.

Floppy Drive Swap

Set this option to *Enabled* to specify that floppy drives A: and B: are swapped.

PS/2 Mouse Support

When this option is set to *Enabled*, BIOS supports a PS/2-type mouse.

Password Check This option specifies the type of BIOS password protection that is implemented. The settings are:

Setup: The password prompt appears only when an end user attempts to run BIOS Setup.

Always: A password prompt appears every time the computer is powered on or rebooted.

The BIOS password does not have to be enabled. The end user sets the password by choosing the Password icon on the BIOS Setup screen.

Boot to OS/2 Select this option to boot to OS/2 system.

Internal Cache Select this option to enable the internal cache.

External Cache Select this option to enable External Cache.

System BIOS Cacheable BIOS always copies the system BIOS from ROM to RAM for faster execution. Set this option to *Enabled* to permit the contents of the F0000h RAM memory segment to be written to and read from cache memory.

C000, 16K Shadow;
C400, 16K Shadow;
C800, 16K Shadow;
CC00, 16K Shadow;
D000, 16K Shadow;
D400, 16K Shadow;
D800, 16K Shadow;
DC00, 16K Shadow

Disabled: The specified ROM is not copied to RAM.

Enabled: The contents of the ROM area are not only copied from ROM to RAM for faster execution, the contents of the RAM area can be written to or read from cache memory.

Cached: The contents of the ROM area are copied from ROM to RAM for faster execution.

Chipset Setup

Choose the Chipset icon from the Setup section on the BIOS Setup main menu. All Chipset Setup options are then displayed and are described in the following section:

DRAM Auto Configuration Set this option to enable the Auto Configuration of DRAM Timing and Refresh Cycle Time.

DRAM Read Burst Timing Set this option to select the proper DRAM Read Burst Timing.

DRAM Write Burst Timing Set this option to select the proper DRAM Write Burst Timing.

DRAM Lead Off Timing Select to adjust the DRAM Lead Off Timing.

Fast EDO Read Cycle Timing Set this option to enable the Fast EDO Read Cycle Timing function. This option is only available if all of the system memory are EDO DRAM.

8-Bit I/O Recovery Time This option specifies the length of a delay inserted between consecutive 8-bit I/O operations.

16-Bit I/O Recovery Time This option specifies the length of a delay inserted between consecutive 16-bit I/O operations.

USB Function Set this option to *Enabled* to enable the system BIOS USB (Universal Serial Bus) functions.

USB Keyboard/mouse Support   Set this option to *Enabled* to enable passive release on the universal serial bus.

Power Management Setup

The BIOS Setup options described in this section are selected by choosing the Power Mgmt icon from the Setup section on the BIOS Setup main menu.

Power Management/ APM   Set this option to enable power management features and APM (Advanced Power Management).

Green PC Monitor Power State   This option specifies the power state that the green PC-compliant video monitor enters when BIOS places it in a power savings state after the specified period of display inactivity has expired.

Video Power Down Mode   This option specifies the power conserving state that the VESA VGA video subsystem enters after the specified period of display inactivity has expired.

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.

Standby Time out (Minute) This option specified the length of system inactivity while in Full power on state. When this length of time expires, the computer enters Standby power state.

Suspend Time out (Minute) This option specified the length of a period of system inactivity while in Standby state. When this length of time expires, the computer enters Suspend power state.

Slow Clock Ratio This option specified the speed at which the system clock runs in power saving states. The settings are expressed as a ratio between the normal CPU clock speed and the CPU clock speed when the computer is in the power-conserving state.

Display Activity; Serial Port1; Serial Port2; Parallel Port; Floppy Disk; Primary IDE0; Primary IDE1; Secondary IDE0; Secondary IDE1 When set to *Yes*, these options enable event monitoring on the specified hardware interrupt request line and the computer is in a power saving state, BIOS watches for activity on the specified IRQ line. The system enters the full power on state if any activity occurs.

RTC Alarm Resume From Soft Off Set this option to enable the RTC Alarm to wake up the system which is Soft Off.

RTC Alarm Date; RTC Alarm Hour; RTC Alarm Minute; RTC Alarm Second Set these options to specify the RTC Alarm time on Date/Hour/Minute/Second.

PCI/PnP Setup

Choose the PCI/PnP icon from the Setup section on the BIOS Setup main menu.

Plug and Play Aware OS Set this option to *Yes* if the operation system in this computer is aware of and follows the Plug and Play specification. Currently, only Windows 95 is PnP-aware.

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 every video device. Bit 5 of the command register in the PCI device configuration space is the VGA Palette Snoop bit (0 is disabled).

OffBoard PCI IDE Card This option specifies if an offboard PCI IDE controller adapter card is installed in the computer. You must specify the PCI expansion slot on the motherboard where the offboard PCI IDE controller is installed. If an offboard PCI IDE controller is used, the onboard IDE controller is automatically disabled. If an offboard PCI IDE controller adapter card is installed in the computer, you must also set the **Offboard PCI IDE Primary IRQ** and **Offboard PCI IDE Secondary IRQ** options.

OffBoard PCI IDE Primary IRQ; OffBoard PCI IDE Secondary IRQ These options specify the PCI interrupt used by the Primary (or secondary) IDE channel on the offboard PCI IDE controller.

Assign IRQ to PCI VGA Card Set this option to *Enabled* to assign IRQ to PCI VGA Card.

PCI Slot 1/2/3/4 IRQ Priority	These options specify the priority IRQ to be used for any PCI devices installed in PCI expansion slots 1 through 4.
DMA Channel 0, 1, 3, 5, 6, 7	These options specify the bus that the specified DMA channel is used on.
IRQ3, 4, 5, 7, 9, 10, 11, 12, 14, 15	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.

Peripheral Setup

Choose the Peripheral icon from the Setup section on the BIOS Setup main menu.

Onboard FDC	This option enables the FDC (Floppy Drive Controller) on the motherboard.
Onboard Serial Port1	This option specifies the base I/O port address of serial port 1.
Onboard Serial Port2	This option specifies the base I/O port address of serial port 2.
Serial Port2 Mode	This option specifies the serial port2 mode. Normal: The normal serial port mode is being used. IrDA/ASKIR: The serial port2 will be redirected to support IR function when this option is set to IrDA or ASKIR.
IR Duplex Mode	This option shows up only when either IrDA or ASKIR is chosen in the previous option (Serial Port2 Mode).

OnBoard Parallel Port   This option specifies the base I/O port address of the parallel port on the motherboard.

Parallel Port Mode   Depends on the type of your external device which connects to this port to choose Normal, EPP, or ECP mode.

Parallel Port IRQ   This option specifies IRQ to parallel port.

Parallel Port DMA Channel   This option is only available if the setting of the Parallel Port Mode option is EPP/ECP.

OnBoard IDE   This option specifies the channel used by the IDE controller on the motherboard.

OnBoard Sound PRO   Set this option to enable the Sound Pro functions.

Security

User

This item lets you configure the system password which is required every time when the system boots up or an attempt is made to enter the Setup program. The password cannot be longer than six characters.

Note: Keep a safe record of the new password. If you forget or lose the password, the only way to access the system is to clear CMOS memory .

Anti-Virus

This item protects the boot sectors and partitions table of your hard disk against accidental modifications. Any attempt to write to boot sectors and partitions will

cause the system to halt and you need to use a bootable none virus floppy disk to reboot the system and then run the virus checking program to make sure that your system is OK.

The default setting is "Disabled." This setting is recommended due to the conflicts within new operating systems.

CPU Plug & Play

CPU Brand;   The CPU Brand & VC Core Voltage are
VC Core Voltage selected by BIOS so that these two options
                     can't be changed by the user.

CPU Speed   Select a correct CPU Speed to match your
                     CPU.

CPU Base   This option can't be changed by the user.
Frequency   Display this option to show the Base
                     Frequency.

Note: If a wrong CPU Speed is selected and the system can not run in a normal way, turn the power off and then press and hold on the <PageUp> key for more than 3 seconds while turning the system back on again. Go to the CMOS Setup section to select a proper CPU Speed.

Utility

Detect IDE

If your system has an IDE hard drive, you can use this utility to detect its parameters and automatically enter them into the Standard CMOS Setup. This utility will autodetect up to four IDE devices.

Exit WinBIOS Setup

Press the <ESC> key to exit the BIOS setup program
while in the main menu of the BIOS Setup and the
following three options will be displayed on the screen.

Save Changes and Exit

Select this item to save the values entered during the
current session and then exit the BIOS setup program.

Do Not Save Changes and Exit

Select this item to exit the BIOS setup program without
saving the values which has been entered during the
current session.

Continue

Select this item to return to the BIOS setup program.