
EC Declaration of Conformity

We

Iwill Corporation

No. 10, Wu Chuan 3rd Rd.,

Hsin Chuang City, Taipei,

Taiwan, R.O.C.

Declare under sole responsibility that the

ZB370 motherboard

Meets the intent of Directive 89/336/ECC for Electromagnetic Compatibility. Compliance was demonstrated to the following specifications as listed in the official Journal of the European Communities:

EN 50081-1 Emissions:

EN 55022 Radiated, Class B

EN 55022 Conducted, Class B

EN 60555-2 Power Harmonics

EN 50082-1 Immunity:

IEC 801-2 Electrostatic Discharge

IEC 801-3 RF Radiate

IEC 801-4 Fast Transient

Ver 1.2A

About This Manual

This manual will introduce to the user how this product is installed. All useful information will be described in later chapters. Keep this manual for future upgrades or system configuration changes.

Chapter 0 Overview

An overview of the motherboard

Chapter 1 Features

The detailed features and specifications of the motherboard

Chapter 2 Quick Installation

The quick reference for experienced users

Chapter 3 Hardware Installation

The detailed information on jumper setting, connection, and hardware installation

Chapter 4 System BIOS Setup

The detailed information of the system BIOS setup options

Chapter 5 How to use Power Installer

The detailed information for installing software and tools

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Warning

Most of the features of this product have passed strict verification tests, and are subject to change at any time without prior notice. If any malfunction occurs due to the future technical changes made by the respective component manufacturers, Iwill assumes no responsibility or liability for it.

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Chapter 0

Overview

Thank you for purchasing the Iwill ZB370 motherboard. This operation manual will instruct you how to configure and install the system properly. It contains an overview about the engineering design and features of this product. Also, this manual provides useful information for later upgrades or configuration changes. Keep this for your future reference.

ZB370 FEATURES

The ZB370 is the newest, most exciting motherboard in the market today. A step ahead of the competition, the ZB370 provides more power, convenience, and reliability for users. The ZB370 has more speed, and is great for better, fast computer graphics. The ZB370 has our special Iwill Smart Setting—an easy way to set your CPU frequency—and also more versatile power-on functions, all for your convenience. Furthermore, the ZB370 has several power-saving modes to reduce energy waste. All of these features are compacted in a dynamic motherboard that has the stability you require in a powerful motherboard. Special features of the ZB370 include:

- AGP Booster—allows for fast graphics for games, and in some cases brings more stability to your AGP port
- Iwill Smart Setting—allows easy setting of your CPU frequency, no jumpers required!
- Versatile Power-On—you can power-on the system using a hot key, password, LAN, mouse button, or modem
- Power Management Setup—allows you to set Doze, Standby, and Suspend modes
- Power Failure Recovery—after a power failure, the system will automatically turn on again once the power returns

The ZB370 also includes some basic features, such as: 1 x PPGA 370 for Pentium® Celeron™, Intel® 443ZX chipset, 3 x DIMM slots, 3 x PCI slots, 1 x FDC floppy disk connector, 2 x IDE connectors, 2 x USB ports, 1 x PS/2 mouse, 1 x AT keyboard ports, one parallel port, two serial ports, ATX&AT power connector, one Sound Blast Link connector, and much, much more!

The ZB370 has speed, convenience, and reliability, all wrapped up in one outstanding motherboard. The ZB370 is ahead of the pack. There is no other motherboard quite like it.

Iwill: Lead the way into the 21st century!

YEAR 2000 issue

The IBM compatible PC utilizes a Motorola MC146818 compatible Real-Time Clock (RTC) chip to maintain the date and time. Unfortunately, the “century” is not manipulated by the RTC. It uses 8-bits of information to report the year, and can only hold the last two digits of a year in packed BCD format. For example, 1997 is reported solely as 97. Since the RTC also contains non-volatile memory, IBM has specified a location in the memory to hold “century” information. By combining the century data with the year data, software can obtain a full 4-digit year. When the Year 2000 arrives, the RTC reports the year as ‘00’ and the “century” in RTC memory will contain ‘19.’ Combining the full 4-digit year yields 1900, not 2000. Any application which compare dates, or uses relative dates to perform functions will see incorrect dates.

All motherboards contain BIOS, which is one of the key ingredients to check for systems designed to handle the year 2000. **All motherboards currently shipped from Iwill contain BIOS capable of handling the year 2000 date correctly.** The BIOS contains a feature that checks the least two significant digits of the year stored in the RTC during each BIOS request (INT 1Ah) to read the date and, if less than ‘80’, updates the century byte to ‘20’. This feature enables operating systems and applications using the BIOS date/time services to reliably manipulate the year as a four-digit value.

Be aware that the BIOS capability alone does not ensure that the system will handle the transition correctly. Other system components such as the operating system and application software also need to be able to handle the year 2000 date, and recognize the date format from other sources.

Peripherals and Devices

If you want to improve your system’s I/O performance, choose the latest Iwill SCSI controllers. The following are some Iwill SCSI controllers you may purchase and use with your motherboard:

- SIDE 2930C: a fast SCSI controller that provides the connectivity for MO, CD-R, CD-RW, CD-ROM, etc. It can support up to 7 devices.
- SIDE 2930U+: an Ultra SCSI controller that provides the same connectivity as the SIDE 2930C. In addition, it offers a higher transfer rate, and supports booting from HDD and CD-ROM.
- SIDE 2936UW: a full function Ultra Wide SCSI controller. It supports 40 MB/sec transfer rate and up to 15 devices.
- SIDE 2935LVD: the newest generation Ultra2 SCSI controller. With its 80MB/sec transfer rate, and 12-meter cable length, it supports up to 15 devices making it the perfect solution for enthusiasts.

Chapter 1

Features

1.1 Features

1.1.1 Processor (Socket 370)

Supports (single) Intel® Celeron™ processors

Supports all published Intel® Celeron™ processor voltages

Supports Socket370 CPU from 300 MHz up to 466 MHz or higher

Iwill Smart Setting external frequency (66/75/83/100/103/105/110/112/115/120/124/133 MHz)

Iwill Smart Setting CPU Multiplier from 2X to 8X

Iwill Smart Setting processor speed from 300 MHz to 500 MHz or higher

1.1.2 Core Logic

Intel® 82443ZX PCI/ AGP controller

- Integrated DRAM controller

- Integrated PCI bus mastering controller

- Integrated Accelerated Graphics Port (AGP) bus controller

Intel® 82371EB PCI/ISA/IDE Xcelerator (PIIX4E)

- Multifunction PCI-to-ISA bridge (PCI Rev 2.1 compliant)

- Integrated IDE controller with Ultra DMA/33 support

- USB host interface with support for two USB ports

- Enhanced DMA controller and standard Interrupt controller and Timer function

1.1.3 Main Memory

1 x 168-pin double-sided DIMM (Dual Inline Memory Module) sockets
2 x 168-pin single-sided DIMM or 1 x 168 double-sided DIMM socket
Supports up to 256MB of 3.3 V Unbuffered SDRAM or Registered DIMM
Supports up to 256MB of 3.3 V Extended Data Out (EDO) memory.
64-bit data interface with ECC support (SDRAM only)

1.1.4 Multi I/O

Winbond W83977 super I/O controller

- Supports two floppy disk drives (include 3 Mode drive) and / or QIC-80 tape drive
- Supports one multi-mode parallel port
- Supports two high speed 16550 FIFO serial ports
- Integrated keyboard controller
- Integrated PS/2 mouse controller
- Supports PS/2 mouse & AT Keyboard Power-On function
- Supports Power Failure Recovery

1.1.5 Expansion slots

- 1 x ISA slot
- 3 x PCI slots
- 1 x shared ISA/PCI slot
- 1 x AGP slot

1.1.6 Form Factor

Compliant with Baby AT specification
Supports ATX&AT power supply connector
Supports the remote on/off switch
Physical dimensions: length: 200 mm / width: 250 mm

1.1.7 Manageability

Wake on LAN header for use with add-in network interface cards (NICs)
Power failure recovery
Wake on modem

1.1.8 Other features

Award BIOS

Using 2Mbit Flash ROM to provide on-board-upgrade ability without changing components

Plug and Play compatible

Supports Advanced Power Management (APM)

Supports ACPI (Advanced Configuration Power Interface)

Supports Creative SB-LINK to deliver Sound Blaster 16 compatibility

1.2 Environment Requirements

Temperature 0-55 degrees C (operating or storage)

5% to 95% non-condensing relative humidity

At least a 250 W power supply

The power supply must comply with the following recommendations found in the specifications:

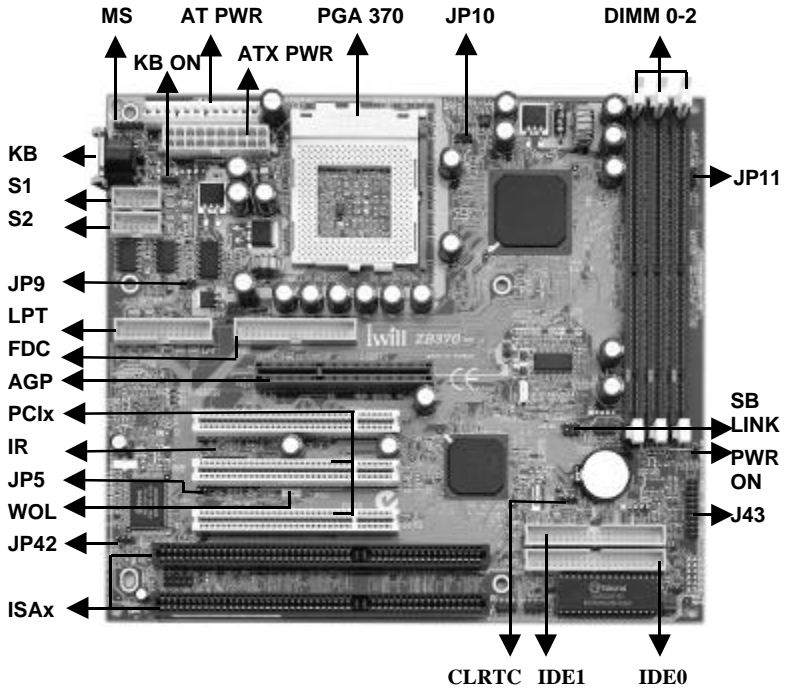
- The potential relation between 3.3 VDC and +5 VDC power rails

- The current capability of the +5VSB line

- All timing parameters

1.3 Motherboard Components Placement

The following figure shows the location of the components on the motherboard.



Location	Symbol	Description
J3	PGA 370	Processor PPGA connector
J5 –J7	DIMM0--2	Memory Module Sockets
J10	PWR	AT POWER CONNECTOR
J11	AGP	AGP connector
J12--J14	PCI1--3	PCI slots
J21--J22	ISA	ISA slots
J28	IDE 0	Primary IDE connector
J29	IDE 1	Secondary IDE connector
J30	FDC	Floppy connector
J31	S1	Serial 1 connector
J32	S2	Serial 2 connector
J33	LPT	Parallel connector
J34	USB	USB connectors (2x5)
J35	KB	AT keyboard connector
J36	MS	PS/2 mouse connector (1x5, pin4 is NC)
J37	PWR	ATX Power connector
J39	FAN1	CPU fan header
J42	PWR_ON	Power On header (1x2)
J43	J43	Front panel connector (2x10)
	ACPI LED (pins 1--2):	ACPI LED header
	ALED (pins 5--6):	IDE LED header
	RST (pins 9--10):	Reset header
	PLED (pins 11--13):	Power LED header
	KL (pins 14--15):	Keylock header
	SPKR (pins 17--20):	Speaker header
J44	SB-LINK	Creative SB-LINK connector (2x3, pin3 is NC)
J45	IR	Infrared connector (1x7)
J46	WOL	Wake-On-LAN header
J52	KB ON	Keyboard-Power-On enable/disable
JP1	CLRTC	Clear CMOS jumper (1x3)
JP5	JP5	PCI Devsel jumper (1x2)
JP9	JP9	Vcore Adjust jumper (1x3)
JP10	JP10	Vio Adjust jumper (1x3)
JP11	JP11	AGP Boost jumper (1x3)
JP42	JP42	Clear Keyboard Power-On Password (1x3)



Chapter 2

Quick Installation

Several easy installation steps will be described in this chapter to help the experienced users with quick installation. If you are a beginner, or need to know more about this product, please refer to **Chapter 3**.

Note: Please review **1.3 Motherboard Components Placement** graphic for reference.

Warning: Users must follow these guidelines to ensure the motherboard is protected during installation.

- a. Make sure your computer is powered-off whenever working with inside components.
- b. Beware of Static electricity! Either wear anti-static wrist straps, or ensure that you touch a safely grounded object (such as a metal desk/table). Don't handle components near high static objects (i.e. carpets, wool/ acrylic sweaters, etc.).
- c. Pick up components by their bodies. Try not to touch IC chips, connectors or leads. Don't handle components any more than necessary.
- d. Keep all magnets away from both your hard and floppy disk drives, **especially** magnetic screwdrivers. Keep both floppy and hard disks apart if disassembled.
- e. Keep water and liquids away from your computer and its components.

Step 1. Install processor

Follow this quick four-step process to install the CPU processor:

1. Lift the lever of the Zero Insertion Force (ZIF) socket (pull it gently away from the small latch) to an upright position.
2. Before inserting the CPU, always make sure that "Pin1" on the CPU is placed in the corresponding "Pin 1" position on the socket.
3. Insert CPU into the socket.
4. Pull the lever back down to its original place, securing it underneath the small latch.

Note: The CPU fan must be kept on top of the CPU at all times to prevent the CPU from over-heating.

Step 2. Install processor fan

This process is executed more quickly if your CPU already has a fan attached to it. On the motherboard, there is one fan connector, J39 for FAN1 used to connect the CPU fan. Your CPU fan releases heat produced by the power supply and other components inside the computer chassis. Attach the processor fan power cable to the FAN1 connector (J39).

Step 3. Setting CPU speed

The CPU speed is setup using **Iwill Smart Setting**. This is found in the BIOS setup by pressing during the boot up process. Please refer to Chapter 4 for instructions on setting CPU speed.

Note: Ensure that all components are properly connected before powering-on your system and setting CPU speed. After entering **Iwill Smart Setting**, set the CPU speed according to your CPU specifications.

Step 4. Install the memory module

The motherboard contains three sockets for memory. At least one memory module, such as a 168-pin 3.3V unbuffered SDRAM, Registered DIMM or EDO DIMM, must be inserted into one of the DIMM sockets. If using only one memory module for your system, you may select **any** of the three DIMM sockets to insert one single DIMM. However, there are some restrictions for inserting more than one memory module into the DIMM sockets.

1. You may insert either single or double-sided DIMMs into DIMM0 at all times (In other words, there are no restrictions for DIMM0).
2. Restrictions for DIMM1 and DIMM2: You may insert **one or two single-sided** DIMMs into either DIMM1 and/or DIMM2 sockets at the same time. However, you can insert **only one double-sided** DIMM in either DIMM1 or DIMM2 at one time. **You cannot insert two double-sided DIMMs in both DIMM1 and DIMM2 at the same time, or else the system will hang. Moreover, you cannot insert 3 double-sided DIMMs into all three DIMM sockets at one time, or else the system will hang.**

Note: Be sure the edges of your memory module line-up correctly with the socket before attempting to insert the memory module.

Step 5. Connect the internal peripherals

Locate the 34-pin FDC (floppy disk connector) which is J30, and the two 40-pin IDE connectors (IDE0 and IDE1) which are J28 and J29 on your motherboard. There are two cables included in your retail package (one 34-pin flat cable to connect your floppy disk drive and one 40-pin flat cable used for connecting several different types of IDE devices.) Using these cables, connect your internal peripherals to the motherboard.

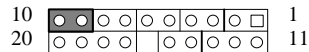
Note: The plastic lead on the middle of one side of the cable's connector acts as a key, and slides easily into the gap in the middle of the receiving connector on the motherboard when inserting the cable connector.

Step 6. Connect the Reset button

J43 is a 2x10-pin jumper used for connecting several important functions. The two upper left pins on J43 are used for connecting the RESET function. Connect the RESET button's cable connector (attached to the RESET button on the front panel of your PC case) to the two upper left pins on J43. Once connected and your computer is powered-on, you may use the RESET function whenever necessary.

Locate the RST header on J43:

Pin 9 RESET
Pin 10 Ground

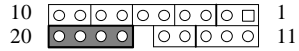


Step 7. Connect the Speaker

The four lower left pins on J43 are used to connect the speaker. Connect the speaker's cable connector (attached to the speaker on the front panel of your PC case) to the four lower left pins on J43.

Locate the SPKR header on J43:

Pin 17	VCC
Pin 18	Ground
Pin 19	NC
Pin 20	BUZZ

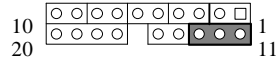


Step 8. Connect the Power LED

The three lower right pins on J43 are used to connect the Power LED. Connect the PLED connector (attached to the front panel of your PC case) to the 3-pin power LED on J43.

Locate the PLED header on J43:

Pin 11	Anode (+)
Pin 12	NC
Pin 13	Cathode (-)

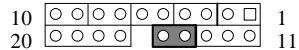


Step 9. Connect the keylock button

Pins 14 and 15 in the middle of the lower row on J43 are used to connect the keylock button. Connect the keylock cable connector (attached to the front panel of your PC case) to these pins on J43.

Locate the KL header on J43:

Pin 14	KEYLOCK
Pin 15	Ground

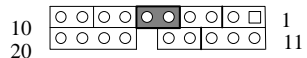


Step 10. Connect the IDE LED

Pins 5 and 6 in the middle of the upper row of J43 are used to connect the IDE LED. Connect the IDE LED cable connector (attached to the front panel of your PC case) to these pins on J43.

Locate the ALED header on J43:

Pin 5	Anode (+)
Pin 6	Cathode (-)

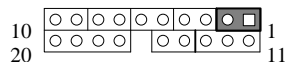


Step 11. Connect the ACPI LED

The two upper right pins on J43 are used to connect the ACPI LED. Connect the ACPI LED cable connector (attached to the front panel of your PC case) to these two pins on J43.

Locate the ACPI LED header on J43:

Pin 1	Cathode (-)
Pin 2	Anode (+)



Step 12. Connect the Power-ON button

The motherboard has a jumper to connect with the Power-On button on the front panel of your PC case. (for ATX power supply only) J42 is a 2-pin jumper (between J43 and the DIMM sockets) used to connect the Power-On button. Connect the Power-On button cable connector (attached to the front panel of your PC case) to J42.

Step 13. Install the Power Supply cord

The motherboard has two options to provide power to your system: a 20-pin ATX power connector (J37) and a 12-pin Baby AT Power connector (J10). Each works in conjunction with the Power-On button to provide remote On/Off function. Select one of the two power supply options, and connect the appropriate cord to its respective power connector on the motherboard.

Note: Use **only one** of the two power connector options to provide power to your system during normal operation--**not both**.

Step 14. Install the Keyboard

Connect the cable from the keyboard to the keyboard connector on the motherboard.

Step 15. Install the Display Card

Insert your display card into the ISA, PCI or AGP expansion slots. Then attach the VGA cable from your monitor to the display card.

Step 16. Connect the External Peripherals

The MOTHERBOARD has one multi-mode parallel port (LPT), one integrated PS/2 mouse (J36) connector and two 10-pin high-speed 16550 FIFO serial (S1, S2) connectors. Your retail package should include parallel, mouse, and serial port transfer cables, and corresponding brackets for each transfer cable. First, locate the peripheral connectors on each transfer cable, and connect each to its respective bracket. Then, connect each transfer cable (the end opposite of the one attached to the bracket) to its respective connector on the motherboard. Next, screw each bracket (with transfer cable attached) into the slots located at the back panel of the computer chassis. Finally, connect your external peripherals to their respective connectors.

Note: If using USB devices, users need to purchase the appropriate USB transfer cables to connect to the USB port connector (J34) on the motherboard.

Step 17. Power-on the system

Once the system is powered on, make sure you enter the BIOS setup program and load the manufacturer's default settings. After the system reboot, you are ready to install your operating system. Enjoy!

Chapter 3

Hardware Installation

3.1 Preparation and Inspection

The motherboard, like all other electronic equipment, is sensitive to static electricity. Please take the proper precautions when handling it. If possible, ground yourself by touching a metal table or desk. Keep the board in its conductive wrapping until it is configured and ready to be installed in your system.

Note: Please review **1.3 Motherboard Components Placement** graphic for reference.

3.2 Unpack the ZB370

You should find the following components when opening the box:

- | | |
|--------------------------|---|
| One ZB370 motherboard | One 5-pin PS/2 mouse transfer cable with bracket |
| This operation manual | Two 10-pin serial port transfer cables |
| One 40-pin IDE cable | One 26-pin parallel port transfer cable |
| One 34-pin floppy cable | Brackets for parallel and serial port transfer cables |
| USB Riser Cable (option) | |

For installation, you may need some or all of the following tools:

- Medium size flat blade screwdriver
- Medium size Phillips head screwdriver
- A 3/16 inch nut driver or wrench

Warning: Users must follow these guidelines to ensure the motherboard is protected during installation.

- Make sure your computer is powered-off whenever working with inside components.
- Beware of Static electricity! Either wear anti-static wrist straps, or ensure that you touch a safely grounded object (such as a metal desk/table). Don't handle components near high static objects (i.e. carpets, wool/ acrylic sweaters, etc.).
- Pick up components by their bodies. Try not to touch IC chips, connectors or leads. Don't handle components any more than necessary.
- Keep all magnets away from both your hard and floppy disk drives, especially magnetic screwdrivers. Keep both floppy and hard disks apart if disassembled.
- Keep water and liquids away from your computer and its components.

3.3 Installation procedure

3.3.1 Install processor and fan

Follow this quick four-step process to install the CPU processor:

1. Lift the lever of the Zero Insertion Force (ZIF) socket (pull it gently away from the small latch) to an upright position.
2. Before inserting the CPU, always make sure that “Pin1” on the CPU is placed in the corresponding “Pin 1” position on the socket.
3. Insert CPU into the socket.
4. Pull the lever back down to its original place, securing it underneath the small latch.

Note: The CPU fan must be kept on top of the CPU at all times to prevent the CPU from over-heating.

Connect processor fan:

This process is executed more quickly if your CPU already has a fan attached to it. On the motherboard, there are three fan connectors, J39 for FAN1 (for the CPU), J40 for FAN2, and J41 for FAN3. All fans release heat produced by the power supply and other components inside the computer chassis. Attach the processor fan power cable to the “FAN1” connector (J39).

Locate the FAN1 header (processor fan header) on the motherboard:

Pin 1	Ground
Pin 2	+12 V
Pin 3	SENSE

Note: The second-level cache is located on the base of the SEC cartridge. The cache size and cacheable memory size vary, depending on the processor used.

3.3.2 Setting CPU speed

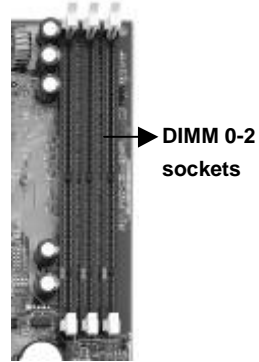
The CPU speed is setup using **iwill Smart Setting**. This is found in the BIOS setup by pressing during the boot up process. Please refer to **Chapter 4** for instructions on setting CPU speed. When adjusting frequency, select the frequency that matches your motherboard’s bus speed in order to maximize your motherboard’s performance. Enclosed is a list of possible CPU settings.

Note: Check specifications before setting CPU speed.

Intel ®			
PGA 370	External Freq.	Multiplier	Voltage
300	66	4.5	2.0
333	66	5	2.0
366	66	5.5	2.0
400	66	6	2.0
433	66	6.5	2.0
466	66	7	2.0

3.3.3 Main memory (DIMM0--3)

The motherboard contains three sockets for memory. At least one memory module, such as a 168-pin 3.3V unbuffered SDRAM, Registered DIMM or EDO DIMM, must be inserted into one of the DIMM sockets. If using **only one** memory module for your system, you may select **any** of the three DIMM sockets to insert one single DIMM. However, there are some restrictions for inserting more than one memory module into the DIMM sockets.



1. You may insert either single or double-sided DIMMs into DIMM0 at all times (In other words, there are no restrictions for DIMM0).
2. Restrictions for DIMM1 and DIMM2: You may insert **one or two, single-sided** DIMMs into either DIMM1 and/or DIMM2 sockets at the same time. However, you can insert **only one double-sided** DIMM in either DIMM1 or DIMM2 at one time. **You cannot insert two double-sided DIMMs in both DIMM1 and DIMM2 at the same time, or else the system will hang. Moreover, you cannot insert 3 double-sided DIMMs into all three sockets at one time, or else the system will hang.**

Note 1: Be sure the edges of your memory module line-up correctly with the socket before attempting to insert the memory module. The motherboard supports the following memory modules:

Note 2: 3.3 V EDO and SDRAM DIMMs cannot be installed together (at the same time) on the motherboard

Note 3: In order to reduce the loading, the total memory chip count installed on the system should not exceed 36 unless the Registered DIMMs are used.

Note 4: The Serial Presence Detect (SPD) information is highly recommended on all 100 MHz DIMMs for the motherboard. This function is implemented using an EEPROM component on the memory module. The nonvolatile storage device contains data programmed by the DIMM manufacturer that identifies the module type and various SDRAM organization and timing parameters. A warning message will be displayed if any DIMMs installed on this motherboard have no SPD EEPROM. If this is the case, the system might become unstable without correct timing parameters.

3.3.4 Accelerated Graphics Port (AGP)

The Accelerated Graphics Port (AGP) is a high-performance bus, especially for graphic-intensive 3D applications. AGP is independent of the PCI bus, and is intended for exclusive use with graphics devices. The AGP supports 133 MHz data transfer rates, allowing data throughput of 533 MB/sec. Insert your AGP graphics card (if any) into your AGP.

The most important feature of AGP is DIME (Direct Memory Execute). DIME needs to allocate some system memory via the OS to access large textures outside the local graphic memory of the card. In order to take advantage of the DIME feature, some software components should be installed or upgraded within your system.

For Windows NT 4.0: Upgrade to "Windows NT 4.0 Service Pack 3" or later versions

For Windows 95: Upgrade to Windows 95 OSR 2.1 or later versions

Install DirectX 5 or later versions from Microsoft

3.3.5 Primary/Secondary IDE connectors (IDE0 and IDE1)

The motherboard has two bus-mastering IDE connectors (IDE0 and IDE1) on, which support up to two devices each, including PIO Mode 3 / 4 and Ultra DMA 33 mode transfer devices. These connectors also support IDE hard disks, ATAPI devices (ex: CD-ROM), ZIP and LS-120 devices. If two devices are connected to one channel, one should be set to "Master" and the other one to "Slave" (Refer to your device operation guide for more details).

Locate the two 40-pin IDE connectors IDE0 and IDE1 (see graphic). There is one 40-pin flat cable included in your retail package used for connecting several different types of IDE devices. Using this cable, connect your internal peripherals to the motherboard.

Note 1: The plastic lead on the middle of one side of the cable's connector acts as a key, and slides easily into the gap in the middle of the receiving connector on the motherboard when inserting the cable connector.

Note 2: The IDE connectors are fully compatible with ATA66 HDD.



3.3.6 Clear CMOS jumper block (JP1)

TO reset the RTC (Real Time Clock) CMOS data, take the JP1 jumper cap off pins 1-2, place onto pins 2-3, and then place back onto pins 1-2 again. This will return the RTC to the default setting. Then, you will need to get into the BIOS setup program (see **Chapter 4**) choose LOAD SETUP DEFAULTS, and select the original manufacturer default settings in your CMOS.

3.3.7 Front panel connector (J43)

J43 is a 2x10-pin jumper used for connecting several important functions (see graphic on previous page). It contains several headers, which are used to identify connectors for various functions on the front panel of your PC case.

Note: These functions are optional for the user.

3.3.7.1 IDE LED header (ALED)

If connected, the LED will light up whenever IDE devices are working. Pins 5 and 6 in the middle of the upper row of J43 are used to connect the IDE LED. Connect the IDE LED cable connector (attached to the front panel of your PC case) to these pins on J43.

Locate the ALED header on J43:

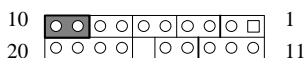


3.3.7.2 RESET header (RST)

The two upper left pins on J43 are used to connect the RESET function. Connect the RESET button's cable connector (attached to the RESET button on the front panel of your PC case) to the two upper left pins on J43. Once connected and your computer is powered-on, you may use the RESET function whenever necessary.

Locate the RST header on J43:

Pin 9 RESET
Pin 10 Ground

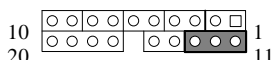


3.3.7.3 Power LED header (PLED)

If connected, the LED will light up each time you power-on the PC. The three lower right pins on J43 are used to connect the Power LED. Connect the PLED connector (attached to the front panel of your PC case) to the 3-pin power LED on J43.

Locate the PLED header on J43:

Pin 11 Anode (+)
Pin 12 NC
Pin 13 Cathode (-)

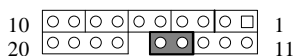


3.3.7.4 KEYLOCK header (KL)

If connected, the user is able to temporarily disable the keyboard (often used as security when the user steps away momentarily from the PC). The function is activated by pressing the keylock button on the front panel of the PC case. Pins 14 and 15 in the middle of the lower row on J43 are used to connect the keylock button. Connect the keylock cable connector (attached to the speaker on the front panel of your PC case) to these pins on J43.

Locate the KL header on J43:

Pin 14 KEYLOCK
Pin 15 Ground

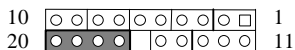


3.3.7.5 SPEAKER header (SPKR)

If connected, during POST the speaker sounds an error “beep” code/information, prior to displaying an error message (there is a moment delay), in the event that the computer can not use the video interface. The four lower left pins on J43 are used to connect the speaker. Connect the speaker’s cable connector (attached to the speaker on the front panel of your PC case) to the four lower left pins on J43.

Locate the SPKR header on J43:

Pin 17 VCC
Pin 18 Ground
Pin 19 NC
Pin 20 BUZZ

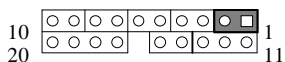


3.3.7.6 Connect the ACPI LED

If connected, the ACPI LED will light up each time your PC is in suspend or power-saving mode. The two upper right pins on J43 are used to connect the ACPI LED. Connect the ACPI LED cable connector (attached to the front panel of your PC case) to these two pins on J43.

Locate the ACPI LED header on J43:

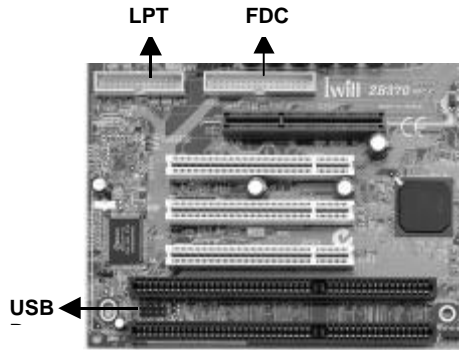
Pin 1 Cathode (-)
Pin 2 Anode (+)



3.3.8 Floppy Disk connector (FDC)

The motherboard has one floppy interface, which supports 360K, 720K, 1.2M, 1.44M, 2.88M, 3 Mode floppy drives and QIC-80 floppy tape drive. It supports up to two devices in any capacity using the same connector.

Locate the 34-pin FDC or J30 on your motherboard (see graphic). There is one 34-pin flat cable included in your retail package used for connecting your floppy disk drive. Using this cable, connect your floppy disk drive to the motherboard.



3.3.9 Parallel port connector (LPT)

One multi-mode parallel port (LPT) is used to install parallel devices, such as a parallel port printer. Locate the parallel port connector (LPT), which is J33 on the motherboard (see graphic). Your retail package should include one parallel port transfer cable, and a corresponding bracket. First, locate the peripheral connectors on the transfer cable, and connect it to its respective bracket. Then, connect the transfer cable (the end opposite of the one attached to the bracket) to the LPT connector on the motherboard. Next, screw the bracket (with transfer cable attached) into any slot located at the back panel of the computer chassis. Finally, connect your parallel port peripheral to the parallel port connector.

3.3.10 Universal Serial Bus (J34)

The Universal Serial Bus (USB) port was developed to provide one single type of port to connect all low speed devices (i.e. the mouse, keyboard, joystick, etc.). More USB devices can be connected if your system is equipped with a USB hub.

J34 is a 2 x 5-pin jumper that provides two USB port signals from the motherboard (see graphic). You need a transfer cable from this jumper header to a standard 4-pin USB connector that can be connected to your USB device(s). Connect your USB transfer cable(s) to J34 (if any). Then, connect your USB device(s) to the USB.

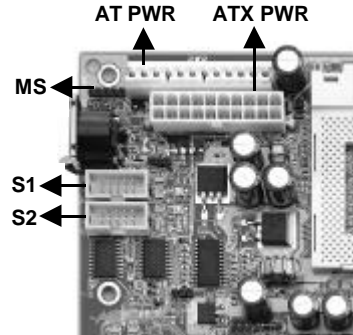
Note: If using USB devices, users need to purchase the appropriate USB transfer cables to connect to the USB port connector (J34) on the motherboard.

The motherboard supports the following USB features:

- Self-identifying, hot pluggable peripherals
- Support of isochronous and asynchronous transfer type
- Supports a maximum of 127 physical devices
- Supports data transfer rate up to 12 Mbit/sec

3.3.11 Serial port connectors (S1 and S2)

The motherboard has two 10-pin high-speed 16550 FIFO serial port connectors (S1, S2) which are used for connecting your serial devices. Your retail package should include two serial port transfer cables, and a corresponding bracket. First, locate the peripheral connectors on each transfer cable, and connect them to its respective bracket. Then, connect each transfer cable (the end opposite of the one attached to the bracket) to its respective connector on the motherboard. Next, screw each bracket (with transfer cable attached) into any slot located at the back panel of the computer chassis. Finally, connect your external peripherals to their respective connectors.



3.3.12 Mouse connector (MS)

J36 is a 1 x 5-pin (pin 4 is NC) jumper used to connect the integrated PS/2 mouse transfer cable. Locate the PS/2 mouse transfer cable included in your retail package (with bracket already attached) and connect it to the integrated PS/2 mouse connector on the motherboard (see graphic). Next, screw the bracket into any slot located at the back panel of the computer chassis. Finally, connect your mouse to the mouse transfer cable.

3.3.13 Install the Power Supply cord

The motherboard has two options that work in conjunction with the Power-On button to provide remote Power On function for your system (see graphic). Select one of the two power supply options, and connect the appropriate cord to its respective power connector on the motherboard.

Note: Use **only one** of the two power connector options to provide power to your system during normal operation--**not both**.

3.3.13.1 ATX power connector (J37)

J37 is a 20-pin ATX power connector. If you intend to use an ATX power supply, connect your ATX power cord to J37 on the motherboard.

3.3.13.2 Baby AT Power connector (J10)

J10 is a 12-pin Baby AT power connector. If you intend to use Baby AT power supply, connect your Baby AT power cord to J10 on the motherboard.

Warning: AT power pins 5-8 are for connecting the black ground (Gnd) wires. You must ensure that the black AT power cord is connected to these pins to avoid permanent damage to your motherboard.

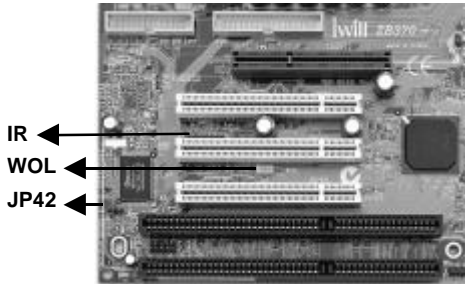
3.3.14 Power-On header (PWR ON)

The Power-On button, available for ATX Power only, provides the basic function to turn your system on or off. At least two seconds must pass before the power supply will recognize another on/off signal. J42 is a 2-pin jumper (between J43 and the DIMM sockets) used for connecting the Power-On button. Connect the Power-On button cable connector (attached to the speaker on the front panel of your PC case) to J42.

Note: To forcibly execute the shutdown procedure immediately, press the Power-On button, or hold it in for four seconds (depending on the BIOS option selected).

3.3.15 Infrared connector (IR)

The Infrared connector supports infrared wireless transmitting and receiving of data between devices when using the appropriate application software. You must configure Serial Port 2 to support an IrDA module prior to using this feature. The 7-pin Infrared header (identified as IR) is located in between the PCI1 and PCI2 slots. Connect the cable from the IrDA module to the IR header.



Locate the IR header:

Pin 1	VCC	Pin 5	IRTX	1	2	3	4	5	6	7
Pin 2	NC	Pin 6	NC							
Pin 3	IRRX	Pin 7	CIRRX							
Pin 4	GND									

3.3.16 WOL header (WOL)

The WOL (“Wake On LAN;”) is a feature which allows you to power-on or “wake up” the computer through a network LAN. This feature can only be used if your system has a network interface card (NIC) that supports WOL technology, and your system has an ATX power supply more than of at least 800mA on the 5V standby. Locate WOL header (see graphic). Connect the cable from a network interface card (NIC) to the WOL connector.

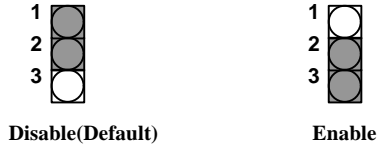
Note: When operating WOL, ensure the power cord is still plugged into the socket, and that the computer has been turned off.

3.3.17 Keyboard Power-On (J52)

This is essential for the Keyboard Power-On to function properly. Your system requires an ATX power supply of at least 300mA on the +5VSB lead (This standby current depends on your keyboard’s power consumption). Please refer to **Chapter 4** for instructions on setting Keyboard Power-On mode. If you DO NOT want to use this function, place the jumper cap over pins 1-2, and the function will be disabled. If you want this function, place the jumper cap over pins 2-3 to set 5V_SB, and enable the function.

Note 1: In case of AC power loss, the Power-On function will reset to “BUTTON ONLY.” To re-set your KB Power-On function again, you must re-enter CMOS setup utility.

Note 2: This function doesn't support USB keyboard.



3.3.18 Internal Modem (MDM)

This connection works in conjunction with your modem card. If you intend to use a modem card (inserted into the PCI slot), please connect the cable from the modem card into the Modem header (MDM).

Locate the MDM header:

Pin 1	NC
Pin 2	Ground
Pin 3	Modem Wake up indicate
Pin 4	NC
Pin 5	5VSB

3.3.19 System Management Bus (SMBUS)

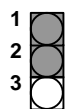
The SMBus header allows for certain devices to communicate with software using IIC protocol. This controls the hardware configuration of the motherboard, for example the clock generator, memory configuration, etc. If you intend to use this function, please connect the cable connector from the hardware device to the SMBus header (J66).

Locate the SMBus header:

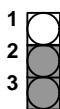
Pin 1	SMBUSCLK	Pin 4	SMBUSPATA
Pin 2	NC	Pin 5	VCC
Pin 3	Ground		

3.3.20 Clear Keyboard Power-On Password (JP42)

To enable function, place the jumper cap over pins 1-2 (see graphic on previous page). Then enter BIOS and select "Password Power-On" to set your password for the keyboard power-on function. Once you select and enter the Keyboard Password Power-On mode, you must type the correct password each time in order to turn on your system. (The remote on/off button will be disabled.) If you forget your password, place the jumper cap over pins 2-3 (pins 2-3 become ON), then immediately back to pins 1-2. Then, power-on your system again using the Power-On button on the front panel of your PC case. Enter BIOS to set up a new password again.



Normal



Clear power-on password

3.3.21 SB-LINK header (SB-LINK or J44)

Sound Blaster 16 was the standard of ISA bus sound cards. Several games have been programmed for Sound Blaster especially under the DOS environment. The SB-LINK is for users who adopt PCI sound cards but have compatibility problems playing games designed for Sound Blaster and DOS.

In these cases, you must connect your SB-LINK cable (attached to your PCI sound card) to the SB LINK connector on the motherboard.

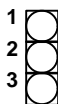
Locate the SB-LINK header on the motherboard (J44):

Pin 1	GNT#	Pin 2	Ground
Pin 3	Key	Pin 4	REQ#
Pin 5	Ground	Pin 6	SIRQ

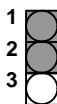
3.3.22 Adjustable Vcore (JP9)

This function offers adjustable processor Vcore. When NO jumper caps are used, the motherboard automatically generates the proper Vcore voltage that requested by the CPU. Place the jumper cap over pins 1-2 to increase 5% more voltage to the processor's Vcore. Place the jumper cap over pins 2-3 to increase 10% more voltage to the processor's Vcore.

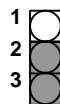
Warning: A wrong voltage setting will cause irreversible permanent damage to the CPU. DO NOT use these functions unless you are an experienced user, and are willing to take your own risk.



Auto (Default)



Increase 5%

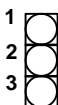


Increase 10%

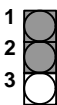
3.3.23 Adjustable VIO (JP10)

This function offers adjustable VIO. When NO jumper caps are used, the system automatically uses the VIO default setting, which is 3.5V. To set the VIO to 3.6V, place the jumper cap over pins 1-2. To set the VIO to 3.8V, place the jumper cap over pins 2-3.

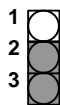
Warning: A wrong voltage setting will cause irreversible permanent damage to the CPU. DO NOT use these functions unless you are an experienced user, and are willing to take your own risk.



3.5V(Default)



3.6V

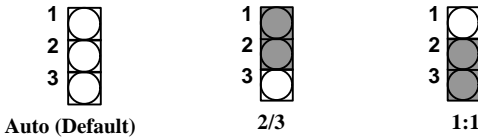


3.8V

3.3.24 AGP Booster (JP11)

This function offers AGP frequency setup. The AGP frequency normally runs at 66MHz. When no jumper caps are used, the AGP frequency adjusts to the same speed of your FSB (Front Side Bus speed or external frequency) for CPU's running above 66 MHz and below 100MHz. At this same setting, the AGP frequency adjusts automatically to two-thirds (2/3) of the FSB speed for CPU's with FSB of 100 MHz or higher.

To limit the AGP frequency to two-thirds of the processor's FSB, place the jumper cap on pins 1-2. To set the AGP frequency at the same speed as processor's external frequency, place the jumper cap on pins 2-3.



For testing and/or other purposes, here are some examples for your reference.

CPU Type	FSB	JP11	AGP Clock	Remarks
66MHz	66MHz	2-3	66MHz	Normal usage
66MHz	75MHz	2-3	75MHz	Over-clocking at CPU/AGP
66MHz	83MHz	2-3	83MHz	Over-clocking at CPU/AGP
66MHz	100MHz	2-3	100MHz	Over-clocking at CPU/AGP
100MHz	66MHz	2-3	66MHz	Downgrade at CPU
100MHz	75MHz	2-3	75MHz	Downgrade at CPU, over-clocking at AGP
100MHz	83MHz	2-3	83MHz	Downgrade at CPU, over-clocking at AGP
100MHz	100MHz	2-3	100MHz	Over-clocking at AGP
100MHz	112MHz	2-3	112MHz	Over-clocking at CPU/AGP
100MHz	133MHz	2-3	133MHz	Over-clocking at CPU/AGP

CPU Type	FSB	JP11	AGP Clock	Remarks
66MHz	66MHz	1-2	44MHz	Downgrade at AGP
66MHz	75MHz	1-2	50MHz	Over-clocking at CPU, down grade at AGP
66MHz	83MHz	1-2	55MHz	Over-clocking at CPU, down grade at AGP
66MHz	100MHz	1-2	66MHz	Over-clocking at CPU
100MHz	66MHz	1-2	44MHz	Downgrade at CPU/AGP
100MHz	75MHz	1-2	50MHz	Downgrade at CPU/AGP

100MHz	83MHz	1-2	55MHz	Downgrade at CPU/AGP
100MHz	100MHz	1-2	66MHz	Normal usage
100MHz	112MHz	1-2	75MHz	Over-clocking at CPU/AGP
100MHz	133MHz	1-2	88MHz	Over-clocking at CPU/AGP

CPU Type	FSB	JP11	AGP Clock	Remarks
66MHz	66MHz	Auto	66MHz	Normal usage
66MHz	75MHz	Auto	75MHz	Over-clocking at CPU/AGP
66MHz	83MHz	Auto	83MHz	Over-clocking at CPU/AGP
66MHz	100MHz	Auto	66MHz	Over-clocking at CPU/AGP
100MHz	66MHz	Auto	66MHz	Downgrade at CPU
100MHz	75MHz	Auto	75MHz	Downgrade at CPU, over-clocking at AGP
100MHz	83MHz	Auto	83MHz	Downgrade at CPU, over-clocking at AGP
100MHz	100MHz	Auto	66MHz	Normal usage
100MHz	112MHz	Auto	75MHz	Over-clocking at CPU/AGP
100MHz	133MHz	Auto	89MHz	Over-clocking at CPU/AGP

Chapter 4

System BIOS Setup

4.1 Introduction

The motherboard uses AWARD BIOS, which is stored in flash memory and can be upgraded using the appropriate software program. The setup program is for viewing and changing the BIOS setting for a computer. These settings are stored in battery-backed RAM so that it retains all the settings after the power has been turned off.

4.1.1 Upgrade BIOS

The BIOS can be upgraded from a diskette with the Award Flash utility -- AWDFLASH.EXE. The BIOS image file, and update utility are available from Iwill's WEB site: www.iwill.com.tw.

4.1.2 Recovering BIOS Data

Some types of conditions can destroy the BIOS. Nevertheless, the BIOS can be recovered from a diskette. To recover BIOS, you must create a bootable diskette, then copy the recovery files onto it. The recovery files are available from Iwill.

Note: No video is displayed during the recovery process.

4.1.3 Enter BIOS setup program

Power-on the system by either pressing the Power-On button, or by using any of the power-on features provided by the motherboard. Then, press the key after the Power-On Self Test (POST), and before the scanning of IDE devices. Simply look for the message "Press DEL to enter SETUP" displayed at the bottom of the screen during the boot up process. If the message disappears before you've had a chance to respond, you can restart the system by

- Turning off the system power then turn it on again, or
- Pressing the "RESET" button on the system case, or
- Pressing <Ctrl>, <Alt> and keys simultaneously.

4.1.4 Using BIOS setup program

The following table shows the function keys available for each menu screen.

↑Up	Move to the previous field
↓Down	Move to the next field
←Left	Move to the field on the left hand side
→Right	Move to the field on the right hand side
<Esc>	Quit from setup program without saving changes, or Exit from current menu page and return to main menu page
<PgUp> or <+>	Select the previous value for a field
<PgDn> or <->	Select the next value for a field
<F1>	Bring up a help screen for the current field
(Shift)<F2>	Change screen color. F2 to select color forward, (Shift) F2 to select color backward
<F10>	Save the current value and exit setup program

NOTE

Generally, the BIOS default settings have been carefully chosen by the system manufacturer to provide the absolute maximum performance and reliability. It is very dangerous to change any setting without full understanding. We strongly recommend that you

DO NOT update your BIOS if the system works perfectly.

DO NOT change any setting unless you fully understand what it means.

If the system does not work smoothly after changing the BIOS settings, follow the procedures described previously, enter the BIOS setup program, then load the original manufacturer default settings.

If the system is no longer able to boot after changing the settings, the only way to recover it is to clear the data stored in RTC CMOS. To reset the RTC CMOS data, take the JP1 jumper cap off pins 1-2, place onto pins 2-3, and then place back onto pins 1-2 again. This will return the RTC to the default setting. Then, get into the BIOS setup program (see 4.1.3 above), choose LOAD SETUP DEFAULTS, and select the original manufacturer default settings in your CMOS.

4.2 Main Menu

The main menu allows you to select from several setup pages. Use the arrow keys to select among these pages and press <Enter> key to enter the sub-menu. A brief description of each highlighted selection appears at the bottom of the screen.

Note: An asterisk (*) denotes the default setting, whenever appropriate.

The main menu includes the following setup pages.

STANDARD CMOS SETUP

Allocates resources for hardware components

BIOS FEATURES SETUP

Specifies advanced features available through the BIOS

CHIPSET FEATURES SETUP

Specifies advanced features available through the chipset

POWER MANAGEMENT SETUP

Specifies power management features

PNP /PCI CONFIGURATION

Specifies Plug and Play and PCI features

INTEGRATED PERIPHERALS

Specifies on-board controller features

LOAD SETUP DEFAULTS

Loads the manufacturer default setting into CMOS

IWILL SMART SETTING

Specifies special features

SUPERVISOR PASSWORD

Specifies passwords

USER PASSWORD

Specifies user password

IDE HDD AUTO DETECTION

Auto-detects the parameters of IDE disks

SAVE & EXIT SETUP

Saves current value to CMOS and exits setup

EXIT WITHOUT SAVING

Abandons all changes and exits setup

4.3 STANDARD CMOS SETUP

This setup page is used for allocating resources for hardware components.

4.3.1 Date

This field specifies the current date. The date format is <day>, <month>, <date>, and <year>.

4.3.2 Time

This field specifies the current time. The time format is <hour>, <minute>, and <second>. The time is calculated based on the 24-hour (military-time) clock.

4.3.3 Primary Master / Primary Slave / Secondary Master / Secondary Slave

This field specifies the geometric parameters and translation mode of IDE disk drives.

4.3.3.1 TYPE

This field specifies type of drive that corresponds to the drive installed in your system.

If you select User, please specify the correct number of Cylinders, Heads, and Sectors.

Options	Description
1 – 45	Specifies pre-defined disk drive type
User	Specifies disk drive type by user
Auto (*)	BIOS automatically fills in the values for the cylinders, heads and sectors fields
None	No disk drives are attached

4.3.3.2 Cylinders

If you select Auto, this field automatically fills in the number of cylinders for your hard disk and can not be modified. If you select User, you must type the correct number of cylinders for your hard disk.

4.3.3.3 Heads

If you select Auto, this field automatically fills in the number of heads for your hard disk and can not be modified. If you select User, you must type the correct number of heads for your hard disk.

4.3.3.4 Sectors

If you select Auto, this field automatically fills in the number of sectors for your hard disk and can not be modified. If you select User, you must type the correct number of sectors for your hard disk.

4.3.3.5 MODE

This field specifies the IDE translation mode.

Options	Description
NORMAL	Specifies traditional CHS addressing mode
LBA	Specifies LBA translation mode
LARGE	Specifies extended CHS translation mode
AUTO (*)	BIOS specifies translation method automatically

4.3.4 Drive A / Drive B

This field specifies the traditional type of floppy drives.

Options	Description
None	No floppy drive is connected (*Drive B default)
360K, 5.25 in.	A 360K floppy drive is connected
1.2M, 5.25 in.	A 1.2M floppy drive is connected
720K, 3.5 in.	A 720K floppy drive is connected
1.44M, 3.5 in.	A 1.44M floppy drive is connected (*Drive A default)
2.88M, 3.5 in.	A 2.88M floppy drive is connected

4.3.5 Floppy 3 Mode Support

3 Mode floppy drive is a type of 3.5-inch drive used by NEC PC98 computers. It supports both 1.2M and 1.44M formats using the same drive. This field specifies which drive supports 3 Mode. When a floppy drive is specified to support 3 Mode, the respective drive setting in "Drive A / Drive B" field will be invalid.

Options	Description
Disabled (*)	No 3 Mode drive is connected
Drive A	A 3 Mode drive is connected as drive A
Drive B	A 3 Mode drive is connected as drive B
Both	Both drive A and drive B are 3 Mode drives

4.3.6 Video

This field specifies the type of the graphics adapters used by the primary system monitor.

Options	Description
EGA/VGA (*)	Specifies EGA or VGA adapter
CGA 40	Specifies CGA adapter with 40 column mode
CGA 80	Specifies CGA adapter with 80 column
MONO	Specifies Monochrome adapter

4.3.7 Halt On

This field determines how the system reacts to errors once detected.

Options	Description
All Errors (*)	Each time the BIOS detects a non-fatal error, the system will stop and display an error message
No Errors	The system will not stop for any errors that are detected
All, But Keyboard	The system will stop for any errors except keyboard error
All, But Diskette	The system will stop for any errors except diskette error
All, But Disk/Key	The system will stop for any errors except diskette and keyboard errors

4.3.8 Base Memory

The POST (Power-On Self Test) determines the amount of base (conventional) memory installed in the system. The value of the base memory is typically 640K. This field has no options.

4.3.9 Extended Memory

The BIOS determines how much extended memory is present during the POST. This is the amount of memory located above 1MB in the processor's memory address map. This field has no options.

4.3.10 Other Memory

This refers to the memory located in the 640K to 1024K address space. This memory can be used for different applications. DOS uses this area to load device drivers in an effort to keep as much base memory free for application programs. The BIOS is the most frequent user of this RAM area since this is where it shadows RAM. This field has no options.

4.4 BIOS FEATURES SETUP

This setup page specifies advanced features available through the BIOS.

4.4.1 Virus Warning

When this function is enabled, the BIOS monitors the boot sector and partition table of the hard disk drive for any attempt at modification. If an attempt is made, the BIOS will halt the system and then display an error message. Afterwards, if necessary, you can run an anti-virus program to locate and remove the problem before any damage is done.

Many disk diagnostic programs will attempt to access the boot sector table, which can cause the above warning message. If you run such a program, we recommend that you first disable the Virus Warning function beforehand.

Options **Enabled**
 Disabled (*)

4.4.2 CPU Internal Cache

This field configures the CPU internal cache (L1 cache).

Options **Enabled (*)**
 Disabled

4.4.3 External Cache

This field configures the system's external cache (L2 cache).

Options **Enabled (*)**
 Disabled

4.4.4 CPU L2 Cache ECC Checking

This field specifies whether the CPU L2 cache supports ECC or not.

Options **Enabled**
 Disabled (*)

4.4.5 Quick Power-On Self Test

When enabled, BIOS will shorten or skip some items during the Power-On Self Test (POST).

Options **Enabled (*)**
 Disabled

4.4.6 Boot From LAN First

This field configures the boot from the network adapter. If this feature is enabled, no matter what Boot Sequence you choose (see below section 4.4.7), the system will try to boot from the network adapter first. The adapter must have a BootROM on it.

Options **Enabled**
 Disabled (*)

4.4.7 Boot Sequence

This field configures the boot sequence of drive devices.

Options	Description
A, C, SCSI (*)	System will first try to boot from floppy drive, then master IDE disk drive on primary channel, and then SCSI disk drive
C, A, SCSI	Master IDE disk drive on primary channel, floppy drive, SCSI disk driver
C, CDROM, A	Master IDE disk drive on primary channel, ATAPI CDROM drive, floppy drive
CDROM, C, A	ATAPI CDROM drive, master IDE disk drive on primary channel, floppy drive
D, A, SCSI	Slave IDE disk drive on primary channel, floppy drive, SCSI disk drive
E, A, SCSI	Master IDE disk drive on secondary channel, floppy drive, SCSI disk drive
F, A, SCSI	Slave IDE disk drive on secondary channel, floppy drive, SCSI disk drive
SCSI, A, C	SCSI disk drive, floppy drive, ATAPI CD-ROM drive
SCSI, C, A	SCSI disk drive, master IDE disk drive on primary channel, floppy drive
C only	Master IDE disk drive on primary channel only
LS/ZIP, C	LS-120 or ZIP drive, master IDE disk drive on primary channel

4.4.8 Swap Floppy Drive

When enabled, floppy drives A and B will be exchanged without the user physically changing the cable.

Options **Enabled**
 Disabled (*)

4.4.9 Boot Up Floppy Seek

When enabled, during POST the system seeks the detailed status and detects any errors in both floppy drives A and B.

Options **Enabled (*)**
 Disabled

4.4.10 Boot Up NumLock Status

This field determines the configuration of the numeric keypad after system boot up. If **On**, the keypad uses numbers keys. If **Off**, the keypad uses arrow keys.

Options	Description
On (*)	Keypad works as number keys
Off	Keypad works as arrow keys

4.4.11 Gate A20 Option

This field configures how the gate A20 is handled. The gate A20 is a device used to address memory above 1 MB. At first, the gate A20 was handled from a pin on the keyboard. While some keyboards still provide this support, it is more common, and much faster, for modern system chipsets to provide support for gate A20.

Options	Description
Fast (*)	GateA20 signal supported by core logic
Normal	GateA20 signal supported by keyboard controller

4.4.12 Typematic Rate Setting

This field determines if the typematic rate is to be used. When enabled, the BIOS will report (after a moment) that the key has been depressed repeatedly. When disabled, the BIOS will report only once if a key is held down continuously. This feature is used to accelerate cursor movements using the arrow keys.

Options	Enabled Disabled (*)
---------	---------------------------------------

4.4.13 Typematic Rate (Chars/Sec)

This field specifies how many characters will be displayed in one second when a key is held down continuously.

Options	6 (*), 8 , 10 , 12 , 15 , 20 , 24 , 30
---------	--

4.4.14 Typematic Delay (Msec)

When enabled, typematic delay allows you to select the time delay between when the key is first pressed and when the acceleration begins.

Options	250 msec (*), 500 msec , 750 msec , 1000 msec
---------	---

4.4.15 Security Option

This field configures how the system security is handled. It works conjunction with SETTING SUPERVISOR / USER PASSWORD page to control the security level of the system.

Options	Description
Setup (*)	System needs a password to enter BIOS setup program
System	System needs a password to boot

4.4.16 PS/2 mouse function control

When enabled, your system can use a PS/2 mouse.

Options	Enabled (*)
	Disabled

4.4.17 PCI / VGA Palette Snoop

This field controls the ability of a primary PCI graphics controller to share a common palette with an ISA/VESA video or MPEG cards.

Options	Description
Enabled	PCI VGA co-works with ISA MPEG card
Disabled (*)	All cases except above

4.4.18 Assign IRQ for VGA

When enabled, BIOS will assign your Video Graphics Array (VGA) an IRQ (Interrupt Request) level.

Options	Disabled
	Enabled (*)

4.4.19 OS Select for DRAM >64MB

When enabled, this field allows you to access the memory that is over 64MB under OS/2.

Options	OS/2
	Non-OS/2 (*)

4.4.20 Video BIOS Shadow

When enabled, the video BIOS will be copied to system memory and increase the video speed.

Options	Enabled (*)
	Disabled

4.4.21 C8000-CBFFF / CC000-CFFFF / D0000-D3FFF Shadow

D4000-D7FFF / D8000-DBFFF / DC000-DFFFF Shadow

When enabled, the extended ROM data located at the respective address range will be copied to system memory.

Options	Enabled
	Disabled (*)

4.4.22 Report No FDD For WIN 95

For a floppy diskless system that runs Windows 95, this field should be set to **Yes**.

Options	Yes
	No (*)

4.5 CHIPSET FEATURES SETUP

This setup page is used to specify advanced features available through the chipset. The default settings have been chosen carefully for most operating conditions. **DO NOT change the value of any field in this setup page without full understanding.**

4.5.1 Auto Configuration

When enabled, BIOS will divide all the EDO memory into two categories: 50ns DRAM and 60ns DRAM. A set of pre-defined values about DRAM timing will be used for each category. Then the user can assign the correct timing easily. When disabled, user can specify the EDO DRAM timing value.

Note: Some engineering knowledge is needed prior to handling Auto Configuration.

Options	Enabled (*)
	Disabled

4.5.2 EDO DRAM Speed Selection

This field selects pre-defined EDO DRAM timing for different speed categories. It is available only when the Auto Configuration field is enabled.

Options	Description
50ns	Pre-defined timing for 50ns EDO DRAM
60ns (*)	Pre-defined timing for 60ns EDO DRAM

4.5.3 EDO CASx# MA Wait State

This field specifies the Wait State of EDO DRAM address line. This field is available only when the Auto Configuration field is disabled. **Note:** This field is for experienced users only.

Options	Description
2 (*)	2 system clocks wait state for EDO address line
1	1 system clock wait state for EDO address line

4.5.4 EDO RASx# Wait State

This field specifies the Wait State of EDO DRAM row address line. This field is available only when the Auto Configuration field is disabled. **Note:** This field is for experienced users only.

Options	Description
2 (*)	2 system clocks wait state for EDO row address line
1	1 system clock wait state for EDO row address line

4.5.5 SDRAM CAS Latency Time

This field specifies the SDRAM CAS latency timing parameter (the time from CAS# assertion to data valid). **Note:** This field is for experienced users only.

Options	Description
2	2 system clocks
3 (*)	3 system clocks

4.5.6 System BIOS Cacheable

When enabled, accesses to the system BIOS will be cached.

Options	Enabled (*)
	Disabled

4.5.7 Video BIOS Cacheable

When enabled, access to the video BIOS will be cached.

Options	Enabled
	Disabled (*)

4.5.8 Video RAM Cacheable

When enabled, access to the video memory located at A0000H to BFFFFH will be cached.

Options	Enabled
	Disabled (*)

4.5.9 8 Bit I/O Recovery Time

This field specifies the number of clocks, which the system will delay after the completion of an 8-bit input/output request.

Options	1 (*) / 2 / 3 / 4 / 5 / 6 / 7 / NA / 8
---------	---

4.5.10 16 Bit I/O Recovery Time

This field specifies the number of clocks, which the system will delay after the completion of an 16 bit input/output request.

Options	1 (*) / 2 / 3 / NA / 4
---------	-------------------------------

4.5.11 Memory Hole At 15M-16M

Some add-in cards need to re-map its resource to a block of main memory address range. Any host cycles that match this memory hole are passed on to the add-in cards.

Options	Enabled
	Disabled (*)

4.5.12 Passive Release

When enabled, the south bridge PIIX4 will support the Passive Release mechanism when it is a PCI master. The PCI revision 2.1 compliant requires this field to be enabled. This field is for experienced users only.

Options **Enabled (*)**
 Disabled

4.5.13 Delayed Transaction

When enabled, the south bridge PIIX4 will supports the Delayed Transaction mechanism when it is the target of a PCI transaction. The PCI revision 2.1 compliant requires this field to be enabled. This field is for experienced users only.

Options **Enabled**
 Disabled (*)

4.5.14 AGP Aperture Size (MB)

This field specifies the size of system memory that can be used for AGP graphics aperture.

Options **4 / 8 / 16 / 32 / 64 (*) / 128 / 256**

4.5.15 Set SDRAM Timing By SPD

When enabled, the system BIOS will reference data of DIMM module EEPROM.

Options **Enabled (*)**
 Disabled

4.6 POWER MANAGEMENT SETUP

This setup page specifies suspend or power-saving features.

There are several modes used to save computer's energy:

Doze Mode	The CPU clock runs at slower speed, and all other devices still operate at full speed
Standby Mode	The CPU clock runs at slower speed, and the fixed disk drive will power off, and the video will power off, and all other devices still operate at full speed
Suspend Mode	All devices except the CPU will shut off

Each power-saving mode has a respective timer. The value of the timer can be assigned or reloaded and it will count down to zero. When the timer equals to zero, the system will be forced into the related power-saving mode. If any predefined signal or event is detected during the timer counting period, the timer restarts automatically.

4.6.1 Power Management

This feature allows the user to select the default parameters for the power-saving mode.

Options	Description
Min Saving	When idle for one hour, the system enters suspend mode
Max Saving	When idle for fifteen minutes, the system enters suspend mode
User Define (*)	User can specify the time the system enters suspend mode

4.6.2 PM Control by APM

When enabled, an Advanced Power Management (APM) protocol will be activated to handle the power-saving mode.

Options	Yes (*)
	No

4.6.3 Video Off After

This field specifies the suspend or power-saving mode, which shuts off the video.

Options	Doze / Standby (*) / Suspend / NA
---------	--

4.6.4 Doze Mode

This field specifies the time the system enters Doze Mode. It is available only when the Power Management field set to User Define.

Options	1 Min / 2 Min / 4 Min / 8 Min / 12 Min / 20 Min
	30 Min / 40 Min / 1 Hour / Disable (*)

4.6.5 APM Standby Timer

This field specifies the time the system enters Standby Mode. It is available only when the Power Management field is set to User Define.

Options	1 Min / 2 Min / 4 Min / 8 Min / 12 Min / 20 Min
	30 Min / 40 Min / 1 Hour / Disable (*)

4.6.6 AMP Suspend Timer

This field specifies the time the system enters power-saving mode. It is available only when the Power Management field is set to User Define.

Options	1 Min / 2 Min / 4 Min / 8 Min / 12 Min / 20 Min
	30 Min / 40 Min / 1 Hour / Disable (*)

4.6.7 APM HDD Power Down

This field specifies the time the system enters HDD power down. It is available only when the Power Management field is set to User Define.

Options	1 Min / 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 / 15 Min / Disable (*)

4.6.8 Suspend Mode

This field specifies suspend mode options.

Options	Description
Power-On Suspend (*)	The traditional Green PC suspend mode. All devices except CPU will shut off.
Suspend to Disk	Saves system status, memory and screen image into hard disk, then the power turns off automatically. When you turn the power on again, the system comes back to the original status (when the screen was last on) within just few seconds, depending on the memory size of your system. Need Utility ZVHDD.EXE to reserve disk space.

4.6.9 Throttle Duty Cycle

This field specifies system performance when system is in suspend mode. The more performance required, less energy saved.

Options **12.5% / 25% / 37.5% / 50% / 62.5%(*) / 75%**

4.6.10 PCI/VGA Act-Monitor

When enabled, the system goes into power-saving mode if there's no activity on the monitor screen. When disabled, the system goes into power-saving mode, whether or not there is activity on the monitor screen.

Options **Enabled (*)**
Disabled

4.6.11 Power Supply Type

This section specifies the function of the power supply type.

Options **AT/ATX**

4.6.11.1 PWR-OFF by PWR-BTTN

This field specifies the function of power button.

Options	Description
Instant-Off (*)	When power button is pressed, the system turns off immediately.
Delay 4 Sec.	After the power button has been pressed and held for four seconds, the system turns off.

4.6.11.2 Wake Up On LAN

When enabled, the PC can power-on or "wake up" through LAN (Local Area Network). Used only when your PC is connected to a network system.

Options **Enabled**
Disabled (*)

4.6.11.3 Wake Up by Ring

When enabled, the PC can power-on through an external modem connected to your PC. For example, sending an e-mail message to your PC from another location will power-on your PC. When using this feature, you must have a modem, and your PC must be turned off.

Note: This feature alone doesn't allow you to power off your PC (see 4.6.10 Suspend Mode).

Options	Enabled
	Disabled (*)

4.6.11.4 Wake Up By PCI card

When enabled, you can "wake-up" your system using a PCI rev.2.2 card, such as a WOL card, connected in your PCI slot.

Note: This feature alone doesn't allow you to power off your PC (see 4.6.10 Suspend Mode).

Options	Enabled
	Disabled (*)

4.6.11.5 PWROn/Resume by Alarm

When enabled, you can set the date and time to automatically power-on your PC (similar to an alarm clock). The alarm from RTC (real-time clock) automatically turns on the system.

Options	Description
Disabled (*)	Disables RTC alarm function
Enabled	Sets Date (0 for everyday, 1-31) and Timer (hr, min, sec)

4.6.12 IRQ 8 Break Suspend

When disabled, this feature allows the system to go into suspend mode. When enabled, IRQ 8 (RTC) is broken, and the system cannot go into suspend mode.

Options	Enabled
	Disabled (*)

4.6.13 Reload APM Timer Events

This field enables the system to detect activity, and restart the timer of the power-saving mode.

4.6.13.1 IRQ [3-7, 9-15], NMI

If enabled, timer restarts whenever any of these interrupts occurs.

Options	Enabled
	Disabled (*)

4.6.13.2 Primary IDE 0

If enabled, timer restarts whenever the master disk of the primary IDE channel is active.

Options	Enabled
	Disabled (*)

4.6.13.3 Primary IDE 1

If enabled, timer restarts whenever the slave disk of the primary IDE channel is active.

Options **Enabled**
 Disabled (*)

4.6.13.4 Secondary IDE 0

If enabled, timer restarts whenever the master disk of the secondary IDE channel is active.

Options **Enabled**
 Disabled (*)

4.6.13.5 Secondary IDE 1

If enabled, timer restarts whenever the slave disk of the secondary IDE channel is active.

Options **Enabled**
 Disabled (*)

4.6.13.6 Floppy Disk

If enabled, timer restarts whenever the floppy disk is active.

Options **Enabled**
 Disabled (*)

4.6.13.7 Serial Port

If enabled, timer restarts whenever the serial port is active.

Options **Enabled (*)**
 Disabled

4.6.13.8 Parallel Port

If enabled, timer restarts whenever the parallel port is active.

Options **Enabled**
 Disabled (*)

4.7 PNP/ PCI CONFIGURATION

This setup page specifies Plug and Play and PCI features.

4.7.1 PNP OS Installed

The field specifies whether a Plug and Play operating system is installed.

Options **Yes**
 No (*)

4.7.2 Resources Controlled By

The BIOS has the capability to assign system resources to all Plug and Play devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows® 95/98/NT.

Options	Description
Auto	Resources controlled by BIOS automatically
Manual (*)	Resources controlled by the user

4.7.3 Reset Configuration Data

Sometimes when you install a new add-on, the system reconfiguration causes such a serious conflict that the operating system cannot boot. Only in this case, exit Setup and select enabled. The Extended System Configuration Data (ESCD) will clear every time the system boots.

Note: Leave this field disabled unless you have a conflict similar to the one mentioned above.

Options	Enabled
	Disabled (*)

4.7.4 IRQ 3 / 4 / 5 / 7 / 9 / 10 / 11 / 12 / 14 / 15 assigned to DMA 0 / 1 / 3 / 5 / 6 / 7 assigned to

If the **Resources Controlled By** field is set to **Manual**, use these fields to assign resources

Options	Description
Legacy ISA	Resources will not be assigned to any PnP device
PCI/ISA PnP (*)	Resources are available to PnP devices

4.7.5 Slots Use IRQ NO.

These fields set how IRQ use is determined for each of the three PCI Slots (Slot 1~3). The default setting for each field is Auto, which uses auto-routing to determine IRQ use.

Options	Auto (*), 3, 4, 5, 7, 9, 10, 11, 12, 14, 15
---------	---

4.7.6 Used MEM base addr

Some add-in cards ask for a specific address space in the system memory. This field specifies the memory base (start address) of the reserved memory space.

Options	N/A (*) / C800 / CC00 / D000 / D400 / D800 / DC00
---------	---

4.7.6.1 Used MEM Length

This field is available only when the Used MEM Base Addr field has been assigned a base address. It specifies the memory size for the add-in card used.

Options	8K (*) / 16K / 32K / 64K
---------	--------------------------

4.7.7 Assign IRQ For USB

When disabled, the BIOS will not assign IRQ channel to USB controller.

Options	Enabled (*)
	Disabled

4.8 INTEGRATED PERIPHERALS

4.8.1 IDE HDD Block Mode

When enabled, the IDE controller will use the faster block mode to access devices.

Options	Enabled (*)
	Disabled

4.8.2 IDE Primary Master / Slave PIO IDE Secondary Master / Slave PIO

These fields configure the PIO (Programmable Input Output) transfer mode for IDE controller. The maximum transfer rates of each PIO mode are listing as follow:

Note: Higher settings may cause problems for older IDE devices.

PIO Mode Setting	Maximum transfer rate
PIO Mode 0	3.3 MB/sec
PIO Mode 1	5.2 MB/sec
PIO Mode 2	8.3 MB/sec
PIO Mode 3	11 MB/sec
PIO Mode 4	16.6 MB/sec

Options	Description
Auto (*)	The BIOS negotiates with device automatically
Mode 0	Use Mode 0 timing to access device
Mode 1	Use Mode 1 timing to access device
Mode 2	Use Mode 2 timing to access device
Mode 3	Use Mode 3 timing to access device
Mode 4	Use Mode 4 timing to access device

4.8.3 IDE Primary Master / Slave Ultra DMA IDE Secondary Master / Slave Ultra DMA

If you select Auto, the IDE controller uses Ultra DMA 33 Mode to access UltraDMA-capable IDE devices. The maximum transfer rate of Ultra DMA 33 Mode is 33.3 MB/sec.

Options	Auto (*)
	Disabled

4.8.4 On-Chip Primary / Secondary PCI IDE

This field enables or disables the onboard IDE controller.

Options **Enabled (*)**
 Disabled

4.8.5 USB Keyboard Support

This field enables or disables the USB keyboard support. Select enable only if you intend to use the USB standard port (ATX form factor) for your keyboard.

Options **Enabled**
 Disabled (*)

4.8.6 KBC clock source

This field sets the frequency speed for the keyboard controller clock. Please ensure you know the keyboard data rate (according to the keyboard's specifications) before selecting frequency speed.

Options **6 MHz / 8 MHz (*) / 12 MHz / 16MHz**

4.8.7 Onboard FDC Controller

This field enables or disables the onboard floppy controller. Select enabled if you intend to use your floppy disk drive.

Options **Enabled (*)**
 Disabled

4.8.8 Onboard Serial Port 1 / 2

These fields configure the onboard serial ports. There are several port addresses and IRQ channels to select from.

Options	Description
3F8 / IRQ 4	Port address 3F8h, IRQ 4 (*Serial Port 1 default)
2F8 / IRQ 3	Port address 2F8h, IRQ 3 (*Serial Port 2 default)
3E8 / IRQ 4	Port address 3E8h, IRQ 4
2E8 / IRQ 3	Port address 2E8h, IRQ 3
Auto	BIOS assigns port address and IRQ channel automatically
Disabled	Disables serial port

4.8.9 Onboard Parallel Port

This field configures the onboard parallel port. There are several port addresses and IRQ channels to select from.

Options	Description
378 / IRQ 7(*)	Port address 378h, IRQ 7
278 / IRQ 5	Port address 278h, IRQ 5
3BCh / IRQ 7	Port address 3BCh, IRQ 7
Disabled	Disables parallel port

4.8.10 Parallel Port Mode

This field configures the operating mode of an onboard parallel port. Ensure you know the specifications of your parallel port devices before selecting field.

Options	SPP (*) / EPP / ECP / ECP+EPP
---------	-------------------------------

4.8.10.1 ECP Mode Use DMA

When the Parallel Port Mode field is configured as ECP, ECP+EPP mode, it needs a DMA channel for data transfer. This field specifies the DMA channel for ECP parallel port use.

Options	Description
1	Use DMA channel 1
3 (*)	Use DMA channel 3

4.8.10.2 EPP Mode Select

When the Parallel Port Mode field is configured as EPP, ECP+EPP mode, the EPP version needs to be specified. Please check the EPP specifications before selecting field.

Options	Description
EPP1.7	Use EPP 1.7 protocol
EPP1.9 (*)	Use EPP 1.9 protocol

4.8.11 Init Display First

This item allows you to decide which slot to activate first, either PCI slot or AGP slot. This function takes place during the system boot.

Options	PCI Slot
	AGP (*)

4.8.12 POWER On Function

This field configures the Power-On mode of the system. If a power outage occurs, you need to re-configure this field. To ensure proper set up, allow the system to complete its reboot process (including the Power-On Self Test) before powering off computer.

Note 1: This feature is available when using ATX Power only

Note 2: This feature only supports keyboard and PS/2 mouse. It does not work with USB keyboard or serial mouse.

Options	Description
Hot KEY	You can assign a hot key through the Hot Key Power-On field. Pressing this hot key will power-on your system.

Password	You can assign a password string through KB Power-On Password field. Typing this password string will power-on your system. Note: The Power-On button will not function in this mode.
Mouse left	“Double-Clicking” the left button on your mouse will automatically power-on your system.
Mouse right	“Double-Clicking” the right button on your mouse will power-on your system.
Button only (*)	Simply power-on your system by pressing the Power-On button on the front panel of your PC case.

4.8.12.1 Hot Key Power-On

This field specifies key selection for the Keyboard-Power-On hot key.

Options **Ctrl-F1(*) / Ctrl-F2 / Ctrl-F3 / Ctrl-F4 / Ctrl-F5 / Ctrl-F6
Ctrl-F7 / Ctrl-F8 / Ctrl-F9 / Ctrl-F10 / Ctrl-F11 / Ctrl-F12**

4.8.12.2 KB Power-On Password

In you wish to use this function, bring the cursor to the field written “Enter”, then press <Enter>. The computer will display the message, “Enter Password”. Type your password and press <Enter>. After the message “Confirm Password” is displayed, re-type your password. The KB Power-On function will be in effect after you save and exit setup.

To disable a password, bring the cursor to the “Enter” field again, then press <Enter>. The computer will display the message, “Enter Password”. Press <Enter>. A message will confirm that the password is disabled. Once the password is disabled, the system will boot and you can enter setup program freely.

4.8.13 PWRON After PWR-Fail

The field configures the system status after experiencing a power failure.

Options	Description
Former-Sts	System returns to former status prior to power failure (on or off)
Off (*)	System remains off after power lost

4.8.14 UART Mode Select

The UART (Universal Asynchronous Receiver/Transmitter) converts the parallel data into serial format on the transmission side, and converts serial data to parallel format on the receiver side. This field must be configured in order to use the infrared connector, which supports infrared wireless transmitting and receiving of data between devices when using the appropriate application software.

Note: You must configure Serial Port 2 to support an IrDA module prior to using this feature.

Options Normal (*), IrDA, ASKIR

4.8.14.1 Rx/D, Tx/D Active for IrDA and ASKIR functions

When setting the field to either IrDA or ASKIR, you must select the mode of receiving and transmitting signals.

Options Hi, Lo (*) / Lo, Hi / Lo, Lo / Hi, Hi

4.8.14.2 IR Transmission delay for IrDA and ASKIR functions

When setting the field to either IrDA or ASKIR, you must select the active level of receiving and transmitting signals.

Options Enabled (*)
 Disabled

4.9 LOAD SETUP DEFAULTS

This setup page is used for loading the manufacturer default values. If you wish to use the default settings, bring to cursor to this field, press <Enter>. The message “Load SETUP Defaults” will be displayed. Confirm default setting by typing “Y” after the message, and press <Enter>.

4.10 IWILL SMART SETTING

Warning: Over-clocking is not guaranteed. Users must have substantial knowledge of proper Vcore settings prior to adjusting CPU speeds. Over-clocking should be done only by experienced engineers who conduct tests.

In general, when adjusting the CPU frequency, you should start by selecting the frequency that matches your motherboard bus speed. The reason is that your CPU can only communicate with its external components at the same speed at which the components operate. In other words, if your motherboard bus speed is 100 MHz, you should select 100 MHz (as a “base”) to set the CPU frequency. This frequency is also referred to as the “system bus frequency” or **external frequency**.

The fact remains that CPU manufacturers make CPUs much faster than the speed of the motherboard system bus frequency. This is true because most of the operations are done in a small die inside the CPU chip. This is the CPU **internal frequency**. For example, a 400 MHz CPU actually means the **internal frequency** runs at 400 MHz.

To adjust your CPU frequency, combine the **external frequency** with the appropriate **multiplier**. For example: If you purchase a 400 MHz CPU, and your motherboard runs at 100 MHz system bus speed, adjust your CPU frequency by selecting 100 MHz (system bus frequency) x 4 (**multiplier**), which equals 400 MHz (your CPU frequency). Or, to install the same 400 MHz CPU into motherboard with 66 MHz system bus speed, you may be select 66 MHz (system bus frequency) x 6 (**multiplier**), which equals 400 MHz (your CPU frequency). However, the fact is, a higher system bus frequency runs faster and has a much better performance than a slower system bus frequency.

4.10.1 CPU Speed

This field allows user to adjust CPU speed.

Options **300Mhz (66x4.5) (*) / 333 Mhz (66x5) / 366 Mhz (66x5.5) / 400 Mhz (66x6) / 433 Mhz (66x6.5) / 466 Mhz (66x7) / 500 Mhz (66x7.5)/ 533 Mhz (66x8)**
300 Mhz (100x3) / 350 Mhz (100x3.5) / 400 Mhz (100x4) / 450 Mhz (100x4.5) / 500 Mhz (100x5) / 550 Mhz (100x 5.5) / 600 Mhz (100x6) / 650 Mhz (100x6.5) / 700 Mhz (100x7) / 750 Mhz (100x7.5) / 800 Mhz (100x8) / Manual

4.10.1.1 Manual

This option sets the CPU speed.

In this field, the CPU speed is indicated as such:

CPU speed = CPU Frequency x CPU Ratio, select the CPU speed according to the type and the speed of your CPU.

CPU Frequency

Option **66(*)/75/83/100/103/105/110/115/120/112/124/133 MHz**

CPU Ratio:

Option **2(*)/2.5/3/3.5/4/4.5/5/5.5/6/6.5/7/7.5/8**

4.10.2 Auto Detect DIMM/PCI Clk

When enabled, the motherboard will automatically disable the clock source for a DIMM socket, which does not have a module on it. This is true for all PCI slots.

Options **Enabled(*)**
Disabled

4.10.3 Spread Spectrum

This item configures radiation emitted from the system. When enabled, system will release less radiation.

Options **Disable (*)**
0.25%
0.50%

4.10.4 BIOS-ROM Flash Protect

The motherboard provides solid protection at BIOS ROM. When set to **Non-Flash**, it will prevent any changes to the data in BIOS.

There are two cases that you may need to configure this field to **Flashable**:

In order to update the Extended System Configuration Data (ESCD) when you install or remove any device.

You need to update the BIOS data.

Note: Make sure to configure this field back to **Non-Flash** to avoid unexpected changes in BIOS.

Options **Non-Flash (*)**
Flashable

4.11 SUPERVISOR / USER PASSWORD SETTING

These setup pages are used for password setting. When a password has been enabled and the Security Option field is set as Setup, you will be required to enter the password every time you try to enter BIOS Setup program. This prevents an unauthorized person from changing any part of your system configuration. Additionally, if the Security Option field is set as Boot, the BIOS will request a password every time your system boot. This would prevent unauthorized use of your computer.

In you wish to use this function, bring the cursor to this field, then press <Enter>. The computer will display the message, "Enter Password". Type your password and press <Enter>. After the message "Confirm Password" is displayed, re-type your password. The Supervisor Password function will be in effect after you save and exit setup.

To disable a password, bring the cursor to this field, then press <Enter>. The computer will display the message, "Enter Password". Press <Enter>. A message will confirm that the password is disabled. Once the password is disabled, the system will boot and you can enter setup program freely.

Note: The User Password allows you to enter BIOS setup program, but you cannot change the value of any fields.

4.12 USER PASSWORD SETTING

This page is used for setting a password, allowing a user to enter BIOS, but not make any changes to the BIOS settings. Simply follow the same procedure as 4.11 Supervisor Password Setting (above).

Note: This option restricts the user from changing BIOS only if both supervisor and users passwords are set and are different.

4.13 IDE HDD AUTODETECTION

This setup page detects and configures hard disk parameters automatically.

4.14 SAVE & EXIT SETUP

Saves current CMOS value and exit BIOS setup program.

4.15 EXIT WITHOUT SAVING

Abandons all CMOS value changes and exits BIOS setup program.

Chapter 5

How to use Power Installer

5.1 Software Installation

The attached Power Installer CD contains all the necessary drivers, utilities and tools for Iwill's full range of motherboards. It provides an easy way for users to install the needed drivers without going through a complicated process. The Power Installer CD is able to auto-detect and display the drivers, utilities and tools needed for your motherboard.

Note: Not all drivers or utilities can be used on this motherboard.

5.1.1 What's inside Power Installer CD

1. Drivers

- a. Intel PIIX4 Patch Program for Windows 95
- b. Intel IDE Bus Master Driver for Windows 95

2. Utilities

- a. Make Driver Diskettes Utility
- b. Anti-Virus program
- c. Suspend to Disk Utility

3. Tools

- a. Adobe Acrobat Reader

4. Manuals

5.2 How to use the Power installer CD

The Power Installer CD supports the Auto Run program under Windows 98/95 and Windows NT operating systems. All the necessary drivers, utilities and manual for this motherboard will be shown on the screen. Select the one that needs to be installed, then simply follow the messages displayed on the screen to complete setup.

Note: Iwill Power Installer does not support a keyboard at this moment. You must use a mouse to install it.

5.2.1 How to install Bus Master driver

You may just click on the Bus Master Driver shown on screen that needs to be installed, then follow the prompts to complete setup.

5.2.2 How to install Intel PIIX4 Patch program

You may just click on the software (Intel PIIX4) shown on screen that needs to be installed, then follow the prompts to complete setup.

5.2.3 How to view manual

This Power Installer CD includes detailed information of all Iwill manuals for every motherboard manufactured by Iwill. Please insert the Iwill Power Installer CD into the CD-ROM drive; the Auto Run program will display the main manual automatically. Click the "View Manual" item, and select the product you want to view, and the manual will be displayed.

5.2.4 How to make driver diskette

5.2.4.1 Without O.S. installed

This bootable Power Installer CD also allows you to boot up your system, even when the OS has not been installed. During the boot-up process, you can perform "Iwill Diskette Creator," which will automatically make the driver diskettes you need.

Note: At least one CD-ROM drive and one 1.44M floppy drive are needed to use "Iwill Diskette Creator".

Follow the instructions below to make your own device driver floppy diskettes if you have a CD-ROM with IDE interface. If you have already installed a SCSI CD-ROM, please make sure your SCSI host adapter supports bootable CD-ROM, and then proceed directly to step h, and then complete steps h through j.

- a. First, power-on or "boot" your system.
- b. Press key during boot sequence to enter **CMOS Setup Utility**
- c. Use arrow keys to select **ADVANCED BIOS FEATURES** on the menu, then press <Enter>.
- d. Select **First Boot Device** and change the default setting from **Floppy** to **CDROM** using Page Up /Page Down key.
- e. Press <Esc> key to go back to **CMOS SETUP Utility** menu.
- f. Press <F10> to select **Save and Exit Setup**
- g. Type "Y" then <Enter> to complete. Now you are able to boot up the system from the CD-ROM.
- h. Insert the Power Installer CD into the CD-ROM drive and re-start the computer.
- i. Iwill Diskette Creator will now execute automatically for making your own driver diskettes.
- j. Make the desired driver diskettes according to the instructions displayed on screen.

5.2.4.2 Under Windows 98/95/NT

Simply click on the software **Make Driver Diskettes Utility** shown on the screen, select the driver you need, then simply follow the messages displayed on the screen to make diskettes.

5.2.4 How to use Anti-Virus program

Simply click on the Anti-Virus shown on screen, then simply follow the messages displayed on the screen to complete setup

Note: The Anti-virus Utility offers different languages.

Select the language you prefer according to the following instructions:

1. Click on "Explore
2. Select "CD-ROM"
3. Enter "antiviurs folder"

5.2.6 How to run STD (Suspend to Disk)

Suspend to Disk is an energy-saving feature that allows you to temporarily power off your system (i.e. when you step away from your computer for a meeting, errand, etc.), then return to the original screen (when the screen was last on) to resume your work the next time you power-on the system. This feature is fast and efficient, especially if your system is handling a small memory size.

Although the Suspend to Disk utility can be installed without an operating system, it is highly recommended that you first install an operating system before installing Suspend to Disk. You must first make a "Suspend to Disk" diskette to use for installation. Insert the **Power Installer CD** into your CD-ROM, select **Make Driver Diskette** from the menu, and carefully follow the instructions to make a driver diskette. Please see **Chapter 5.2.4** in this manual to create a driver diskette without an operating system.

System Requirements for installing Suspend to Disk:

1. Suspend to Disk utility only works with IDE hard disk drives. You cannot use this utility with any SCSI device because the system BIOS controls IDE devices, but cannot control SCSI devices.
2. This feature works fine with Windows 95/98, and Windows NT FAT file systems, but does not work with Windows NT NTFS file system. This utility also does not support ACPI modes.
3. This feature works fine with APM compatible PCI/AGP VGA and Sound Blaster compatible cards and drivers.
4. The Intel® Bus Master IDE driver is not fully compatible with Suspend to Disk. If this causes some problems, please uninstall the drivers, or do not use Suspend to Disk.
5. Whether you select file or partition method, please make sure that you have enough free HDD space for creating this hidden file or partition. Ex: if you have 64MB system memory and 4MB of VGA memory, you need at least 68MB (64MB + 4MB) of HDD space. You also have to reserve some free space for your future memory expansion. For example, if you plan to upgrade you system memory to 128MB in the near future, then you may reserve a 132MB (128MB+4MB) space.
6. The following are just some of the many AGP cards that have been tested and approved to work satisfactorily with Suspend to Disk:

Manufacturer/model	Chipset
Iwill Adventure II	3Dlabs Permedia 2
Matrox G200	
GainWard	3Dfx Banshee
View Top Vulcan B	3Dfx Banshee
View Top Titan 4000	S3 Trio 3D
Prolink	3Dfx Banshee

ATI	3D Rage Pro
ATI	Rage IIC
ASUS	Sis 6326

5.2.6.1 Installing Suspend to Disk

Before installing Suspend to Disk utility, please make sure your system is running normally. Then, enter BIOS to setup Suspend to Disk.

Warning: Before installing new devices, or upgrading your system memory, you must ensure the Suspend to Disk feature is disabled.

Enter BIOS setup

Power-on the system by either pressing the Power-On button, or by using any of the power-on features provided by this motherboard. Then, press the key after the Power-On Self Test (POST), and before the scanning of IDE devices. Simply look for the message "Press DEL to enter SETUP" which is displayed at the bottom of the screen during the boot up process. If the message disappears before you've had a chance to respond, you can restart the system by

Turning off the system power then turn it on again, or

Pressing the "RESET" button on the system case, or

Pressing <Ctrl>, <Alt> and keys simultaneously.

Set-Up Suspend to Disk in BIOS

Select Power Management Setup, move cursor to "Suspend Mode Option", select "Suspend to Disk". Move cursor to "Soft-Off by PWR-BTTN", then select "Delay 4 Sec".

Select PNP/PCI Configuration Setup. Then, for "PnP OS Installed" select "NO".

Press <F10> to save your setup into BIOS. The system will then automatically re-boot.

5.2.6.1.1 Enter DOS mode From Windows 95/98/NT

Open your "Programs" file, and select "MS DOS Prompt."

Once you've entered DOS from Windows

- Type the following:
C:\WINDOWS>lock
Press <Enter>
- The system will ask, "Are you Ready?" Press "y" for "yes." Press <Enter>.
- Insert your **Suspend to Disk diskette** into your floppy disk drive. (See above).
- Type the following:

C:\>A:

Press <Enter>

- Create a **file** or **partition**

There are two ways to store the data into HDD: Create a **file** or **partition**. You must make sure you have enough disk space before selecting either option (Please refer to **System Requirements for installing Suspend to Disk** above). Creating a **file** stores all the necessary information (you may be working on) into a hidden read-only file within the system hard disk. Creating a **partition** allows further protection for you by storing all the necessary information into partition separate from other files.

Create a file

You may select the **file** size, or allow the system to automatically select for you.

Automatic Selection

Type the following:

```
A:\>zvhdd /c /file
```

(**Note** one space is between “zvhdd and “/c”, and one space is between “/c” and “/file”)

Press <Enter>

The system will then automatically select **file** size.

Then, the system will display the following message: “The C:\SAVE2DSK.BIN has been executed”. The Suspend to Disk utility has been set up.

Enter File Size (Example: You select 100 MB file size)

Type the following:

```
A:\>zvhdd /c /file /m:100
```

(**Note** one space is between “zvhdd and “/c”, between “/c” and “/file”, and between “/file” and “/m:100”)

Press <Enter>

In this case, the system will use 100 MB file size that you’ve selected.

Then, the system will display the following message: “The C:\SAVE2DSK.BIN has been executed”. The Suspend to Disk utility has been set up.

Create a partition

Type the following:

```
A:\>zvhdd /c /partition
```

(**Note** one space is between “zvhdd and “/c”, and one space is between “/c” and “/partition”)

The system will start to create and format a **partition**.

Whether you have selected **file** or **partition** options, once the Suspend to Disk utility has been set up, press any key, and you will automatically return to Windows. Then, you **must** restart your system in order to enable the Suspend to Disk feature.

Whether you have selected **file** or **partition** options, once the Suspend to Disk utility has been set up, press any key, and you will automatically return to Windows. Then, you **must** restart your system in order to enable the Suspend to Disk feature.

5.2.6.1.2 Enter DOS command Directly

You may also enter DOS during the re-boot process by pressing the <F8> key after powering on the system, and selecting “Command prompt only.” If your system normally runs from

DOS, or you have a DOS diskette, simply boot from DOS.

Then, simply follow procedures “c” through “e” (above). Since the system is not controlled by Windows, it will automatically re-boot.

5.2.6.2 Using Suspend to Disk

There are two ways to use Suspend to Disk:

1. Simply press the power-on button located on the front panel of your computer chassis.
Note: Do not hold the power-on button in for more than four seconds, because the system will shutdown immediately, and the Suspend to Disk function will not work.
2. For Windows 95/98/NT, you may use your mouse, “click” on the “Start” icon (located on the lower left-hand corner of your screen). Then, “click” the “Shut Down” option. Finally, select the “Standby” option.

After selecting either method, the system will automatically enter the Suspend to Disk mode. The screen will become black for several seconds. Then, the screen will display the percentage of memory as it is being saved into the hard disk. Once the percentage reaches 100%, the system will shut down automatically.

To return to the original screen (last used when the system was last on), press the power-on button. The screen will display the percentage of memory as it is being restored from the hard disk. Once the percentage reaches 100%, the system will return to the original screen.

5.2.6.3 Removing Suspend to Disk utility

This process helps disable the Suspend to Disk utility.

5.2.6.3.1 Delete Suspend to Disk From Windows 95/98/NT

Open your “Programs” file, and select “MS DOS Prompt.”

1. Type the following:

```
C:\WINDOWS>lock
```

Press <Enter>
2. The system will ask, “Are you Ready?” Press “Y” for “yes.” Press <Enter>.
3. Insert your **Suspend to Disk diskette** into your floppy disk drive. (See above).
4. Type the following:

```
C:\>A:
```

Press <Enter>
5. To delete **file**, type the following:

```
A:\>zvhdd /d /file
```

(**Note** one space is between “zvhdd and “/d”, and one space is between “/d” and “/file”)
6. To delete **partition**, type the following:

```
A:\>zvhdd /d /partition
```

(**Note** one space is between “zvhdd and “/d”, and one space is between “/d” and “/partition”)

7. Press any key to return to Windows. Then restart your system.

5.2.6.3.2 Delete Suspend to Disk From DOS Directly

Enter DOS during the re-boot process by pressing the <F8> key after powering on the system, and selecting “Command prompt only.” Or, if your system normally runs from DOS, or you have a DOS diskette, simply boot from DOS.

1. Insert your Suspend to Disk diskette into your floppy disk drive. (See above).
2. Type the following:

C:\>A:

Press <Enter>

3. Then, follow procedures “5” through “7” in 5.2.6.3.1 (above).
4. Since the system is not controlled by Windows, it will automatically re-boot.

5.3 Installing Operating Systems

This section briefly demonstrates how to install a few popular software operating systems. Use this section only as a guide. It is highly recommended that users first refer to the installation manual of their operating system for a more thorough, detailed description on how to install the operating system.

5.3.1 Windows 98

Whenever installing Windows 98, please remember that Setup creates a new folder for Windows 98, and won't transfer any existing system settings. Windows 98 will become your default operating system, and will use standard system settings. There are two ways to install Windows 98. Each method depends on your current computer setup. During Setup, your computer will automatically restart several times using the Windows 98 Setup wizard.

Note: This procedure represents an entirely new installation of Windows, therefore you'll need to reinstall any existing programs you may want to use.

5.3.1.1 Installing the CD-ROM version of Windows 98

1. Place a Windows 98 Startup Disk into the floppy disk drive. This disk must contain the CD-ROM driver and a CD-ROM installation batch file. If not, you cannot install Windows 98 using this procedure.
2. Restart your computer.
3. The Microsoft Windows 98 Startup menu will appear.
4. Place the Windows 98 CD into your CD-ROM drive.
5. Run the batch file to install CD-ROM. A series of scans is performed, and then the MS-DOS prompt is displayed.
6. Type the word **setup** next at DOS prompt (next to “D:\>”), and press <ENTER>.
7. Setup performs a check (A message will be displayed). This message won't appear if your computer can't locate your CD-ROM drive. If you haven't installed the correct

CD-ROM driver, please consult your drive's documentation or contact your hardware manufacturer.

8. Press **<ENTER>**. Microsoft ScanDisk will check your disk drives for errors.
9. When ScanDisk finishes, press the **X** key. Setup will initialize. Then, Windows 98 Setup will begin.
10. Please follow the instructions that are displayed.

Note: Setup may ask you to insert your original Windows 95 or Windows 3.1 disks if you're using the upgrade version of Windows 98.

5.3.2 Windows NT

5.3.2.1 Installing the CD-ROM version of Windows NT using SCSI controller

1. Boot from SCSI (SCSI controller with BIOS installed) CD-ROM
2. Place the Windows NT 4.0 CD-ROM in the drive.
3. Press **<F6>** when the screen show following messages: Setup is inspecting your computer's hardware configuration ...
4. Press **<S>** to specify additional SCSI adapters.
5. Select **<Other>** to load manufacturer supplied software driver.
6. Place the **SCSI driver diskette for Windows NT 4.0** into the floppy drive.
7. Press **<ENTER>** when SCSI driver is ready.
8. From list select the proper SCSI controller driver:

Example: Adaptec @ AHA-294xU2/295xU2/395xU2/AIC-789xPCI SCSI Controller (NT 4.0)

9. Press **<ENTER>** to continue if you have no other SCSI controller to install. Or, repeat from steps 4-8 to install all drivers as needed.
10. Follow all instruction to finish Windows NT installation.

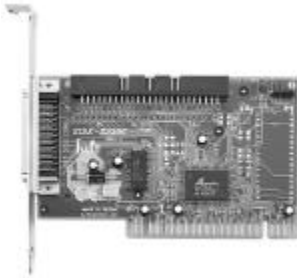
5.3.2.2 Installing the CD-ROM version of Windows NT on an IDE system

1. First, power-on or "boot" your system.
2. Press **** key during boot sequence to enter "**CMOS Setup Utility**"
3. Use arrow keys to select "**BIOS FEATURES SETUP**" on the menu, then press **<Enter>**."
4. Select "**Boot Sequence**" and change the default setting from **A, C, SCSI** to "**CD-ROM, C, A**" using Page Up /Page Down key.
5. Place the Windows NT 4.0 CD-ROM in the drive.
6. Follow all instructions to finish Windows NT installation.

5.4 Iwill SCSI series

If you want to improve I/O performance of your motherboard, choose the latest Iwill SCSI controllers. The following are some Iwill SCSI controllers you may purchase, and use with your motherboard:

SIDE 2930C: an economical SCSI card, and connects up to 7 devices



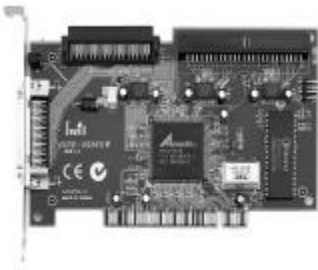
- Supports SCSI-1, SCSI-2 protocol
- 10 MB/sec. data transfer rate
- The best choice for CD-ROM, CD-R, CD-R/W, MO, Scanner .etc.
- Connects maximum 7 narrow SCSI devices
- Automatic active termination control for easy plug & play installation.
- Both Mac / PC Compatible

SIDE 2930U+: a 20MB/sec. transfer rate, this card also connects up to 7 devices



- Supports SCSI-1, SCSI-2 and Ultra SCSI protocol
- Up to 20 MB/sec synchronous data transfer rate
- Connects maximum 7 narrow SCSI devices
- Automatic active termination control for easy plug & play installation
- Supports Multi-tasking, Multi-threaded, scatter/gather, tagged queuing
- Both Mac / PC Compatible

SIDE 2936UW: this doubles the 2930U+; a 40 MB/sec transfer rate, connects up to 15 devices



- Supports both Ultra Narrow (50-pin) and Ultra Wide (68-pin) SCSI
- Data transfer rate up to 20 MB/sec and 40 MB/sec respectively
- Able to connect up to 15 Ultra Wide SCSI devices
- Active terminator
- Able to boot from CD-ROM
- Both Mac / PC Compatible

SIDE 2935LVD: 80MB/sec data transfer rate, maximum cable length 12-meter connects up to 15 devices



- Double the data transfer rate of Ultra Wide SCSI to 80 MB/sec
- Up to 12 meters cable length for Ultra 2 devices
- Able to connect up to 15 devices
- Able to boot from any SCSI ID
- Able to boot from CD-ROM

Please contact IWILL today for more information regarding our SCSI cards.