Intel® Socket 478
Intel® 865PE + ICH5
ATX Motherboard

User's Guide

Declaration of Conformity

According to 47 CFR, Parts 2 and 15 of the FCC Rules

The following designated product:

EQUIPMENT: MAINBOARD

is a Class B digital device that complies with 47 CFR Parts 2 and 15 of the FCC Rules. Operation is subject to the following two conditions:

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

This declaration is given to the manufacturer:

CHAINTECH-EXCEL COMPUTER INC.

4427 Enterprise St. Fremont, CA 94538, U.S.A.

http://www.chaintechusa.com

Chaintech President: Simon Ho

Signature:

Federal Communications Commission Statement

This device complies with FCC Rules Part 15. Operation is subject to the following two conditions:

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

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy. If this equipment is not installed and used in accordance with the manufacturer's instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

* Reorient or relocate the receiving antenna.
* Increase the separation between the equipment and receiver.
* Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
* Consult the dealer or an experienced radio/TV technician for help.

The use of shielded cables for connection of the monitor to the graphics card is required to assure compliance with FCC regulations. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Canadian Department of Communications Statement

This digital apparatus does not exceed the Class B limits for audio noise emissions from digital apparatuses set out in the Radio Interference Regulations of the Canadian Department of Communications.

Manufacturer's Disclaimer Statement

The information in this document is subject to change without notice and does not represent a commitment on the part of the vendor. No warranty or representation, either expressed or implied, is made with respect to the quality, accuracy or fitness for any particular purpose of this document. The manufacturer reserves the right to make changes to the content of this document and/or the products associated with it at any time without obligation to notify any person or organization of such changes. In no event will the manufacturer be liable for direct, indirect, special, incidental or consequential damages arising out of the use or inability to use this product or documentation, even if advised of the possibility of such damages. This document contains materials protected by copyright. All rights are reserved. No part of this manual may be reproduced or transmitted in any form, by any means or for any purpose without expressed written consent of it's authors. Product names appearing in this document are mentioned for identification purposes only. All trademarks, product names or brand names appearing in this document are registered property of their respective owners.

Printed in Taiwan.

Feb 2004

100%

OST-CONSUMER

RECYCLED PAPER

TABLE OF CONTENTS

Chapter 1 Introduction 1

1-1 Product Specifications 1
1-2 Package Contents 2
1-3 Motherboard Layout 3

Chapter 2 Hardware Setup 4

2-1 Installing a CPU Processor for Socket 478 4
2-2 Main Memory Configuration 5
2-3 Connector and Jumper Settings 5

Chapter 3 BIOS Setup Program 10

3-1 Standard CMOS Setup 10
3-2 Advanced BIOS Features 11
3-3 Advanced Chipset Features 14
3-4 Integrated Peripherals 16
3-5 Power Management Setup 19
3-6 PNP/PCI Configurations 21
3-7 Frequency/Voltage Control 22
3-8 Load Fail-Safe Defaults 23
3-9 Load Optimized Defaults 23
3-10 Supervisor Password & User Password Setting 23
3-11 Save and Exit Setup 23
3-12 Exit Without Saving 23

Chapter 4 DRIVER Setup 24

4-1 Intel® IDE Bus Mastering Drivers Setup 24
4-2 C-Media Sound Driver Setup 24
4-3 RTL® LAN Driver Setup 24
4-4 USB 2.0 Driver 24
4-5 DirectX Setup 25

NOTE 26

Revision History

Revision	Description	P/N
V.1S_E	Original Issue	9413480110

Chapter 1 Introduction

1-1 Product Specifications

Processor

- Supports Intel® Socket 478 CPU with Hyper-Threading Technology
- Supports Intel® Pentium 4 /Celeron system bus at 400/533/800MHz
- Support Prescott CPU

Chipset

- Intel® 865PE + ICH5, supports Hyper-Threading Technology

Main Memory

- Supports Two 184 pin DDR DIMMs up to 2GB
- Supports Dual-Channel DDR266/333/400 memory

Expansion Slots

- One 1.5V AGP slot for 8X/4X AGP
- Five 32-Bit PCI slots (v2.2 compliant)

5.1-channel audio subsystem via AC-link

- With external high quality 5.1-channel AC97 Codec
- Complete software driver supports for Windows OS
- Optional S/PDIF out function

Two Ultra DMA-66/100 IDE Ports

- Supports PIO Mode 4 up to 16.6MBps, Multi-Word DMA Mode 2 and Ultra DMA mode 5 up to 100 MB/s with Bus Mastering
- Bus-Mastering software drivers for all common multi-tasking operating systems

Embedded SATA HOST Controller

- Build-in ICH5 supports 2 Serial ATA devices for the highest data transfer rates (1.5 Gbps burst)

USB 2.0/1.1 Host Controller

- One EHCI and four UHCI Controllers support total 8 USB 2.0/1.1 Ports
- Support USB 2.0 High-Speed Device @480 Mb/s Transfer Rates

Fast Ethernet Controller

- On-board LAN chip RTL8101L supports 10/100 Mb Fast Ethernet

On board ITE 8702 Super I/O Controller

- Two UARTs support two serial ports
- One SPP/ECP/EPP parallel port
- One floppy disk drive connector supports up to 2.88MB

Boot-Block Flash ROM

- Award system BIOS support PnP, APM, DMI, ACPI, & Multi-device booting features

1-2 Package Contents

This product comes with the following components:

1.	Motherboard	x 1
2.	IDE Cable	x 1
3.	Floppy Cable	x 1
4.	User's Guide	x 1
5.	Driver CD	x 1

1-3 Motherboard Layout

Chapter 2 Hardware Setup

If your motherboard has already been installed in your computer you may still need to refer to this chapter if you plan to upgrade your system's hardware.

This motherboard is electrostatic sensitive. Do not touch without wearing proper safety gadget and make sure to disconnect the power cable from the power source before performing any work on your motherboard. Not doing so may result in electrical shock!

2-1 Installing a CPU Processor for Socket 478

The Intel® Socket 478, designed for the Pentium 4 processor, has been incorporated as a standard motherboard specification. This motherboard will support Intel® Pentium 4 CPUs with its embedded Hyper-Threading technology. To insert your CPU into Socket 478 please follow the steps below:

1. Locate the 478-pin CPU socket on the motherboard.
2. Unlock the socket by pressing the lever sideways, and then open it up to a 90-degree angle.
3. Locate a Gold Mark on the top surface of the CPU, which is close to one of the CPU corners. The same corner will also be cut off, leaving a noticeable notch in the CPU's corner. These markings indicate Pin 1 on the CPU.
4. Gently insert the CPU with Gold Mark/Pin 1 at the same corner of Socket 478, which is located close to the end of the lever. Allow the weight of the CPU to push itself into place. Do not apply extra pressure as doing so may result in damaging your CPU.
5. When the CPU is correctly inserted, close the lever with your finger on to of the CPU to make sure the CPU is properly embedded into the socket.
6. Insert an appropriate heat sink and fan for proper Heat dispatch.

Installing a standard Intel® specified heat sink with cooling fan is necessary for proper heat dissipation from your CPU. Failing to install these items may result in overheating and possible burnout of your CPU.

In order to boot up with a newly installed CPU, AC Power must be switched off before installation.

2-2 Main Memory Configuration

This motherboard provides four 184pin Double Data Rate (DDR) Dual-In-line Memory Modules (DIMM) slots, which supports PC2100/2700/3200 DDR SDRAM modules up to 2GB. Install at least one DIMM module on the slots. Memory modules can be installed on the slots in any order. You can install either single- or double-sided modules to meet your own needs.

To install your DDR Modules please follow these steps below:

1. Unlock a DIMM socket by pressing the retaining clips outward. The DDR Modules has only one notch at the center of module. The DDR module will only fit in the right position.
2. Insert the DDR Module vertically into the DIMM slot, with the correct alignment. Then push it in until the golden finger on the memory module is deeply inserted into the socket.
3. The plastic clip on each side of the DIMM slot will automatically close to hold the DDR Modules in place.

2-3 Connector and Jumper Settings

Connectors are used to link the system board with other parts of the system, including power supply, keyboard, and the various controllers on the front panel of the system case.

The power supply connector is the last connection to be made while installing a motherboard. Before connecting the power supply, please make sure it is not connected to the power source.

All cables come with a security-proof.

PW 1 / 3 (ATX Power Supply Connector):

The power cord leading from the system's power supply to the external power source must be the very last part connected when assembling a system. The ATX power supply provides a single 20-pin connector interface, which incorporates standard +/-5V, +/-12V, optional 3.3V and Soft-power signals. The Soft power signal, a 5V trickle supply is continuously supplied when AC power is available. When the system is in Soft-Off mode, this trickle supply maintains the system in its minimum power state.

The ATX 12V power supply has a new +12V (4-pin) and +5V / 3.3V (6-pin) auxiliary power connector to enable the delivery of more +12 VDC and + 5/ 3.3V VDC current to the motherboard.

Power-On By Modem:

While in Soft-Off state, if an external modem ring-up signal is detected, the system will be activated and therefore can be remotely accessed. You may enable this function in BIOS's Power Management Setup menu. (See section **3. 5**)

Blinking LED in Suspend Mode:

While in Suspend mode, the LED light on the front panel of your computer will flash. Suspend mode is entered by pressing the Green Override Power Button on your ATX case, or by enabling the Power Management and Suspend Mode options in BIOS's Power Management menu. (See section **3.5**)

Poly-fuse Over Current Protection:

The poly-fuse protects the system from dangerous voltages that the system might be exposed to via keyboards or USB connectors. In case of such an exposure, the poly-fuse will immediately be disconnected from the circuit just like a normal fuse. After being disconnected for a certain period of time, the poly-fuse will return to its normal state and the keyboard or USB connector can function properly again. Unlike conventional fuses, the poly-fuse will not need to be replaced, relieving users from such inconveniences.

CN1A (Front Panel Connector):

1. **PWR-SW** (Over-ride Power Button Connector):

   The power button on the ATX chassis can be used as a normal power switch as well as a device to activate the Advanced Power Management Suspend mode. This is a power-saving mode used for saving electricity when the computer is idle for long periods of time. The Soft-OFF by PWR-BTTN function in BIOS's Power Management Setup menu must be set to [**Delay 4 Sec.**] to activate this function. When the Soft-OFF by PWR-BTTN function is enabled, pressing the power button rapidly will switch the system to Suspend mode. Any occurrence of external activities such as pressing any keys on the keyboard or moving the mouse will bring the system back to Full-On. Pushing the button while in Full-On mode for more than [**4 seconds**] will switch the system completely off. See Over-ride Power Button Operation diagram.

2. **P-LED** (Power LED Connector):

   The power indicator LED shows the system's power status. It is important to pay attention to the correct cable and pin orientation (i.e. Be careful not to reverse the order of these two connectors.)

   Note: The connector does not support the blue LED

3. **G-BTN / G-LED** (Green Button Switch/LED Connector):

   Some ATX cases provide a Green button switch, which is used to put the system in Suspend mode. While in Suspend mode, the power supply to the system is reduced

to a trickle, the CPU clock is stopped, and the CPU core is in its minimum power state. The system is activated whenever the keyboard or mouse is touched. The system will resume in various ways as defined by Power Management Setup screen in BIOS.

Note: The connector does not support the blue LED

4. **RESET** (System Reset Switch Connector):

   This connector should be connected to the reset switch on the front panel of the system case. The reset switch allows you to restart the system without turning the power off.

5. **SPEAKER** (Speaker Connector):

   This 4-pin connector connects to the case-mounted speakers.

6. **HD-LED** (IDE - Activity LED Connector):

   The IDE- activity LED lights up whenever the system reads/writes to the IDE devices.

FD1 (Floppy Connector)

The motherboard provides a standard floppy disk drive connector that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types. It is connected to a floppy disk drive of 34 pins.

IDE 1/2 (IDE Hard-Disk Connector)

The motherboard has a 32-bit Enhanced PCI IDE and Ultra ATA66/100 controller that provides PIO mode 0~4, Bus Master, and Ultra ATA66/100 function. This connector is used for connecting 40 pins of ATAPI devices.

IDE 1 only connects two IDE devices. (**Primary** Master/Slave)

IDE 2 only connects two IDE devices. (**Secondary** Master/Slave)

JP1 (CMOS Clear Jumper):

Pin	Definition
1-2	Normal (default)
2-3	Clear CMOS Data

There is a CMOS RAM on board that has a power supply from external battery to keep the data and system configuration. To clear the contents of the CMOS, please follow the steps below.

1. Disconnect the system power supply from the power source.
2. Set the jumper cap at location [**2-3**] for <**5 seconds**>, and then set it back to the default position.
3. Connect the system's power and then start the system.
4. Enter BIOS's CMOS Setup Utility and choose Load Optimized Defaults.Type [**Y**] and then press [**Enter**] to continue.
5. Set the system configuration in the Standard CMOS Setup menu.

JP6 (Enable/Disable USB 0/1 Device Power ON Jumper)

JP6 → USB 0/1

Pin	Definition
1-2	Disable (default)
2-3	Enable

An USB keyboard hot key or an USB mouse-click can activate this board. To use this function, select a hot key of your choice at the USB Resume from S3 option under Wake Up Events in the BIOS's Power On Management screen. You must also set this jumper's cap to pins **2-3** to use this function.

FAN1/2/3 (CPU/System/Case Fan Connectors):

The wiring and plugging may vary depending on the manufacturer. On standard fans, the red is positive (+12V), the black is ground, and the yellow wire is the rotation signal.

CN5 [WOL (Wake-on-LAN) Connector]:

Enable the Wake Up On LAN selection in BIOS's Power Management Menu to use this function. The capability to remotely manage PCs over networks is a significant factor in reducing administrative and ownership costs. Magic Packet technology is designed with WOL ability to LAN controllers. This header is used to connect an add-in NIC (Network Interface Card) that provides WOL function to the motherboard.

CN5A [WOM (Wake-on-Modem) Connector]:

Enable the Wake Up On Modem selection in BIOS's Power Management Menu to activate this function. This header is used to connect an add-in modem card, which provides WOM function to the motherboard.

CN23/CN23A/CN23B (Front USB Connector for USB2/3,4/5 and 6/7):

USB Port 2/3 → CN23, USB Port 4/5 → CN23A, USB Port 6/7 → CN23B

If you want to use a USB Keyboard, you must enable the USB keyboard support function in BIOS's Integrated Peripherals menu (See Section 3.4). This board contains a USB Host controller and a root hub with two connectors is also included for an optional USB Adaptor (USB 2/3,4/5 and 6/7).

CN24 (Front Audio Connector):

This connector gives you the option of a front-panel audio-jack cable ext. to be plugged into a special custom-designed system case.

Simply remove the two jumper caps at pins [**5-6**] and [**9-10**] then plug it into the (optional) cable ext. connector. Pins [**5-6**] and [**9-10**] are shorted (default) to enable the back-panel audio function.

SATA1/2 (Serial ATA Connector):

This can connect to new IDE device; it supports ATA 150MB/sec.

CN2/CN2A (CD-ROM Audio-in Connector)

Use the audio cable enclosed with your CD-ROM disk drive to connect the CD-ROM to your motherboard. This will enable your CD-ROM's audio function.

CN13 (S/PDIF Connector)

This connector must be connected to a **S/PDIF bracket**. This will allow you to use the S/PDIF function.

Chapter 3 BIOS Setup Program

Phoenix-Award BIOS ROM has a built-in setup program that allows users to modify the basic system configuration. This information is stored in CMOS RAM so that it can retain the setup information even when the power is turned off.

To enter the **Phoenix-Award BIOS** setup program:

- Press [**Delete**] when you Power on or Reboot the computer system. (i.e. After the Intel Pentium 4 logo appears at the center of the screen, please press [**Delete**] to enter the BIOS setup program).

The primary screen as shown in Figure 3-1 is a list of the menus and functions available in the setup program. Select the desired item by using arrow keys and press [**Enter**] to make the changes. Operating commands are located at the bottom of this and all other BIOS screens. When a field is highlighted, on-line help information is displayed on the right side of the screen.

Figure 3-1

3-1 Standard CMOS Setup

The Standard CMOS Setup allows users to configure system components such as hard-disk drive, floppy-disk drive and video display as well as date, time and boot up error signaling. This configuration menu should be changed when installing a motherboard for the first time, or changing hardware such as HDD, FDD, and video display in your system, or when the CMOS data was lost or corrupted. Choose the Standard CMOS Setup option from the CMOS Setup Utility menu (Figure 3-1) to display the following options:

Date / Time:

Set the date and time of the system. Do not skip this function as all of your timed events such as power management, saving files, etc are based on this timer.

IDE (Channel 0/1; Master/Slave):

This category identifies up to four IDE hard-disk drives that have been installed in the computer. This section does not show information on other IDE devices such as CD-ROM drives or other hard drive types such as SCSI drive.

Drive A/B:

Select different Floppy device Model. Available options are [None], [360K, 5-1/4 in], [1.2M, 5-1/4 in], [720k, 3-1/2 in], [1.44M, 3-1/2 in], and [2.88M, 3-1/2 in].

Video:

Select the type of video adapter present in your system. You can ignore this setting if you are using a VGA monitor; VGA BIOS will automatically configure this setting.

Halt On:

When the system is powered on, BIOS performs a series of diagnostic tests called POST (Power On Self Test). This function stops the computer if BIOS detects a hardware error. You can tell BIOS to halt on all errors, no errors, or not to halt on specific errors.

3-2 Advanced BIOS Features

By choosing the Advanced BIOS Features option from the CMOS Setup Utility menu (Figure 3-1), the screen that lists the manufacturer's default values for the motherboard is displayed.

Hard Disk Boot Priority:

Select priority of the hard disk boot device.

CPU L1 & L2 Cache:

Cache memory is much faster than conventional DRAM system memory. These fields allow you to enable or disable the CPUs Level 1 built-in cache and Level 2 external cache. Both settings are left as Enabled to significantly increase the performance of your computer.

Hyper-Threading Technology:

Available options are [**Enabled**] and [**Disabled**]. Select [**Enable**] to support Hyper-Threading Technology and vice versa.

Quick Power On Self Test:

Enable this function to reduce the amount of time required to run the POST (Power On Self Test). BIOS will save time by skipping some items during POST. It is recommended that you disable this setting. Discovering a problem during boot up is better than loosing data during your work.

First / Second / Third / Boot Other Device:

This option sets the sequence of drives BIOS attempts to boot from after POST completes. BIOS will search these drives for an operating system.

Swap Floppy Drive:

Enabling this function will swap the floppy drive assignment so that drive A will function as drive B, and drive B will function as drive A. Note that the boot sequence assignment mentioned directly above does not include booting from floppy drive B. This function is useful if floppy drives B and A are of a different format and you want to boot from floppy drive B.

Boot up Floppy Seek:

This is a set up check for floppy power-on after starting the computer system.

Boot Up NumLock Status:

This function defines the keyboard's number pad as number keys or arrow keys. If it is set at On the number keys will be activated, if it is set at Off the arrow keys will be activated.

Gate A20 Option:

This allows you to set the Gate A20 status. When set to [**Fast**], Gate A20 is cont rolled by chipset. When set to [**Normal**], Gate A20 is cont rolled by a specific pin from the keyboard controller. Available options are [**Fast**] and [**Normal**].

Keyboard Interface：

1. Typematic Rate Setting

   When enabled, you can set the following two-typematic control items. When disabled, the keyboard controller determines keystrokes arbitrarily in your system.
2. Typematic Rate (Chars/Sec)

   The typematic rate sets the rate at which characters on the screen repeat when a key is pressed and held down.
3. Typematic Delay (Msec)

   The typematic delay sets how long after you press a key that a character begins repeating.

Security Option:

The Supervisor and/or User Password functions shown in Figure 3-1 must be set to take advantage of this function. See Section 3.11 for password setting information. When the Security Option is set to System, a password must be entered to boot up the system or enter the BIOS setup program. When the Security Option is set to Setup, a password is required to enter the BIOS setup program.

APIC Mode:

In order to comply with PC2001 standard, the system is designed to run in APIC (**Advanced Programmable Interrupt Controller**) mode. Enabling APIC mode will increase the available IRQ resources for the system. Available options are [**Enabled**] and [**Disabled**].

MPS Version Control For OS:

This item allows you to select which MPS (**Multi-Processor Specification**) version is used for the operating system. You need to select the MPS version that is supported by your operating system. To find out which version to use, consult the vendor of your operating system. Available options are [**1.4**] and [**1.1**].

OS Select (For DRAM >64MB):

If your system's DRAM is larger than 64MB and you are running OS/2, select OS/2 as the item value. Otherwise, set the item value to Non-OS/2 for all other operating systems.

Small Logo (EPA) Show

This setup allows photo that is EPA. Logo.

Show POST CODE

Enabling this function can show POST error code on the screen before proceeding to operating system.

3-3 Advanced Chipset Features

By choosing the [**Advanced Chipset Features**] option from the CMOS Setup Utility menu (Figure 3-1), the screen that lists the manufacturer's default values for the motherboard is displayed.

All of the above settings have been determined by the motherboard manufacturer and should not be changed unless you are absolutely sure of what you are doing. Explanations of the DRAM timing and chipset features setup are lengthy, highly technical and beyond the scope of this manual. Below are some brief descriptions of the functions in the Setup menu.

DRAM Timing Selectable

The function allows you to enable or disable the DRAM timing by SPD. It is recommended to keep the default setting for a stable system operation.

CAS Latency Time

This item controls the latency between DRAM read command and the time the data actually becomes available.

Active to Precharge Delay

This item controls the number of DRAM clocks used for DRAM parameters.

DRAM RAS# to CAS# Delay

This item controls the latency between DRAM active command and read/write command.

DRAM RAS# Precharge

This item controls the idle clocks after issuing Precharge command to the DRAM.

WARNING

Overclockability:

This motherboard is designed to support overclocking ability. However, please make sure your peripherals are able to tolerate such abnormal setting, while CPU clock speed is overclocked. Any attempt to operate beyond product specifications is not recommended. We are not responsible for damages or risks caused by inadequate operation or settings beyond product specifications.

System BIOS cacheable

Enabling this function allows caching of the system BIOS ROM at F0000h-FFFFFh, which results in better system performance. However, if any program writes to this memory area, a system error may result. It is advisable to leave it in default setting. Caching the system BIOS results in better performance than shadowing the system BIOS.

Video BIOS Cacheable

Enabling this function will allows caching of the video BIOS, resulting in better system performance. However, if any programs write to this memory area, a system error may occur.

Memory Hole at 15M-16M

Enabling this function will reserve the memory address space between 15MB and 16MB for ISA expansion cards. However, it will also result in not allowing the system to have access to memory above 16MB. Please note that some expansion cards require this setting to be enabled. The default setting is Disabled. If Auto Configuration is enabled, you must set the DRAM timing function to 60ns or 70ns, depending on the type of DRAM you install.

Delay Prior to Thermal

Available options are 4, 8, 16 and 32 min.

AGP Aperture Size (MB):

This feature allows users to select the size of the AGP aperture. It also determines the maximum amount of system RAM that can be allocated to the graphics card for texture storage. The required AGP aperture size will become smaller as the graphics card's memory increases in size. But increase in size of the aperture does not correspond to increase in performance. It is recommend that the AGP aperture size is left around 64MB to 128 MB in size unless instructed otherwise by your video card manufacturer.

Init Display First

This function allows users to choose between AGP and PCI slots to initialize monitor display.

Flash BIOS Protection

The motherboard manufacturer developed BIOS protection technology that protects the System BIOS from accidental corruption by unauthorized users or computer viruses. When enabled, the BIOS data cannot be changed when attempting to update BIOS with the FLASH utility. When disabled, the BIOS data can be updated by using the FLASH utility.

3-4 Integrated Peripherals

This section provides information on setting up the peripheral devices. By choosing the Integrated Peripherals option from the CMOS Setup Utility menu (Figure 3-1), the screen that lists the manufacturer's default values for the motherboard is displayed.

OnChip IDE Device:

Press [**Enter**] to enter the sub-menu, which contains the following items for some advanced control:

1. **IDE HDD Block Mode**

   Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard-drive supports block mode, select Enabled to auto-detect the optimal number of block read/writes per sector the drive can support.

2. **On-Chip Primary/Secondary PCI IDE**

   You can set this to disable the On Chip IDE controller if you are going to add a higher performance IDE board.

3. **IDE Primary/Secondary Master/Slave PIO**

   The four IDE PIO (programmed Input/Output) fields let you set a PIO mode (0-4) for each IDE device that the internal PCI IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

4. **IDE Primary/Secondary Master/Slave UDMA**

   Ultra DMA implementation is possible only if your IDE device supports it and your operating environment contains a DMA driver. If both your hard drive and software support Ultra DMA, select [**Auto**] to enable BIOS support.

5. **On-Chip Serial ATA**

   Available options are [**Disabled**], [**Auto**], [**Combined Mode**], [**Enhanced Mode**], [**SATA Only**].

   - **Disabled:** Disabled Serial ATA controller.
   - **Auto:** Auto arrange by BIOS.
   - **Combined Mode:** Parallel ATA and serial ATA are combined. Maximum of two IDE drives are supported.
   - **Enhanced Mode:** Enable both serial ATA and parallel ATA. Max of six IDE drives is supported.
   - **SATA Only:** Serial ATA is operating in legacy mode.

6. **Serial ATA Port 0 Mode**

   Please leave the default value as [**Primary Master**] for a stable system operation.

Onboard Device:

This section provides information for setting the on-board devices. Press [**Enter**] to enter the sub-menu, which contains the following items for some advanced controls:

1. **USB controller**

   Enable the on-board Universal Serial Bus (USB V1.1 or V2.0) controller if you want to connect a USB device to your system. Note that if this setting is disabled, you can still temporarily use a USB keyboard during boot up so that you can enter BIOS and enable this setting. If you pass the boot up stage without enabling this function, your PS/2 keyboard will no longer work.

2. **USB 2.0 controller**

   This entry is for disable/enable EHCI controller only. This BIOS itself may/may not have high speed USB support. If the BIOS has high speed USB support built in, the support will automatically be turned on when high speed device were attached.

3. **USB Keyboard Support**

   Select Enabled if your system uses an USB keyboard. If there is no USB keyboard, select Disabled in this field.

4. **USB Mouse Support**

   Select Enabled if your system uses an USB mouse. If there is no USB mouse, select Disabled in this field.

5. **AC97 Audio**

   This feature allows you to enable/disable the on-board AC97 audio function.

6. **Onboard Realtek LAN**

   This feature allows you to enable/disable the on-board Realtek LAN function.

Super IO Device:

This section provides information on setting the Super I/O devices. Press [**Enter**] to enter the sub-menu, which contains the following items for some advanced controls:

1. **Onboard FDC Controller**

   In order to use it select as Enabled if your system has a floppy-disk controller (FDC) installed on the system board. If you install an add-in FDC or the system has no floppy drive, choose Disabled in this field.

2. **Onboard Serial Port 1/2**

   Select an address and corresponding interrupt for the first and second serial ports. Available options are [**3F8/IRQ4**], [**2E8/IRQ3**], [**3E8/IRQ4**], [**2F8/IRQ3**], [**Disabled**], and [**Auto**].

3. **UART Mode Select**

   This function allows you to select an operating mode for the second serial port. (Normal RS-232C serial port / IRDA / SCR / ASKIR 0.57-MB/sec infrared port).

4. UR2 Duplex Mode

Available options: [**Half**] and [**Full**].

5. Onboard Parallel Port

Select a logical LPT port address and the corresponding interrupt for the physical parallel port.

6. Parallel Port Mode

Select an operating mode for the onboard parallel (printer) port. Select SPP unless you are certain that your hardware and software support one of the other available modes.

7. ECP Mode Use DMA

This item automatically specifies DMA channel **1** or **3** for the parallel port when it is set to [**EPP**] or [**ECP+EPP**] mode.

8. PwROn After PwR-Fail

This allows you to set whether you want your system to reboot after the power has been interrupted. [**Off**] leaves your system off and [**On**] reboots your system. [**Former-Sts**] sets your system back to the state it is before the power interruption. Available options include [**Disabled**], [**Enabled**], [**Former-Sts**].

9. Game Port Address

This item disables or assigns the address of the Game port. Available options are [Disable], [201] and [209].

10. Midi Port Address

This item disables or assigns the address of the Midi port. Available options are [Disable], [300] and [330].

11. Midi Port IRQ

This item specifies an IRQ for the Midi port. Available options are [5] and [10].

3-5 Power Management Setup

This section provides information on the Green PC power management functions. By choosing the Power Management Setup option from the CMOS Setup Utility menu (Figure 3-1), the screen that lists the manufacturer's default values for the motherboard is displayed .

ACPI Suspend Type:

This feature allows users to select a suspend type for the operating system to turn off unused peripheral devices such as CD-ROM player.

Run VGABIOS if S3 Resume:

Available options are [**Auto**], [**Yes**], [**No**].

Power Management:

Power management saves electricity while the system is idle by entering power-saving modes.

Video Off Method:

This function serves as both screen and power savers for the monitors. See the next function, Video Off After, for setting the video timer.

1. **Blank Screen** - BIOS will switch the monitor screen to blank. The electricity saved in this mode is negligible and this function is only used as a screen saver to prevent screen damage while the screen is idle.
2. **V/H SYNC+ Blank** - The system turns off the vertical and horizontal synchronization ports, writes blanks to the VGA buffer and the monitor's electron gun turns off. This function requires monitors with Green features in order to take advantage of the power-saving function. If you enable this function and do not have a Green monitor, the result will be the same as if you had selected Blank. This function serves as both screen and a power saver.
3. **DPMS** - Select this option if your video card supports the Display Power Management Signaling (DPMS) standard (i.e. if you have a monitor that supports Green features). Use software supplied by your video subsystem to set video power management options.

Video off in Suspend:

If it is set to [**Yes**] the monitor enters power saving mode. The Power Management function must be enabled to use this function.

Suspend Type:

Available options are [**Stop Gran**t] and [**PwrOn Suspend**].

MODEM Use IRQ:

If your computer has a built-in modem use this function to inform BIOS the IRQ value occupied by the modem card. When the system is in Green mode, the modem requires an IRQ assignment to activate the system to perform tasks. This assignment is compliant with the APM 1.2 compliant operating systems.

Suspend Mode:

The Power Management function is set as [**Enabled**] to activate this function. If the system runs in Standby mode and the Suspend timer expires, all devices regulated by power management will shut down and the CPU speed will be 0 MHz.

HDD Power Down:

It shuts down any IDE hard disk drives in the system after an idle period. This feature does not affect SCSI hard drives.

Soft-Off by PWR-BTTN:

When set to Delay 4 Sec., this function allows the power button to put the system in Suspend, a power saving mode. When set to Instant-Off the Soft-Off by PWR-BTN function is disabled and the computer turns completely off when the power button is pressed.

Primary/Secondary IDE 0/1

Available options: [**Disabled**] and [**Enabled**].

FDD, COM, LPT Port

Available options: [**Disabled**] and [**Enabled**].

PCI PIRQ [A-D]#

Available options: [**Disabled**] and [**Enabled**].

Wake up Events

1. **Power On by PCI card**

   When enabled, a PCI interface that receives a signal will activate the system from soft off and green mode.

2. **Power On by Modem**

   When enabled, a Modem will be able to receive a signal and activate the system from soft off and green mode. You should connect the modem to the COM port and signal your PC to power on.

3. **Wake up on LAN**

   When enabled, a LAN that receives a signal will activate the system from soft off and green mode.

4. **USB KB Wake –up From S3**

   Allows the USB devices to activate the system from S3 power-saving modes.

Settings are [**Enabled**] and [**Disabled**].

5. Power On by Alarm

When enabled, this setting allows the system to turn back on at specified date of the month. User must designate date of month and time of day.

This function is only available when using an ATX power supply and the Software Power-Off function to turn off the computer.

6. POWER ON Function

This function gives PS/2 mouse and keyboard control to power on the system. Available settings are [**Password**], [**Hot KEY**], [**Mouse Move**], [**Mouse Click**], [**Any KEY**], [**BUTTON ONLY**] and [**Keyboard 98**].

7. KB Power ON Password

If POWER ON function is set to [Password], then you can seta password for the PS/2 keyboard to power on the system.

8. Hot Key Power ON

If POWER ON function is set to [**Hot Key**], you can assign hot key combinations from [**Ctrl –F1**] to [**Ctrl-F12]** for the PS/2 keyboard to power on the system.

3-6 PNP/PCI Configurations

This section provides IRQ and DMA setting information. By choosing the PNP/PCI Configuration option from the CMOS Setup Utility menu (Figure 3-1), the screen that lists the manufacturer's default values for the motherboard is displayed.

Reset Configuration Data:

Default is [**Disabled**]. Select Enabled to reset Extended System Configuration Data (ESCD) if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS cannot boot.

Resources Controlled By:

When set to Manual the system BIOS will not refer to ESCD for IRQ & DMA information. Instead, it will refer to the items in the setup menu for assigning IRQ & DMA. When set to Auto the system BIOS will refer to ESCD for all legacy information. ESCD (**Extended System Configuration Data**) provides a detailed format of the configuration data structures stored in flash memory. Each data structure defines the resources used by a device or a card in the system. This includes legacy and PCI/ISA PnP devices.

PCI/VGA Palette Snoop:

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

Available options are [**Enabled**] and [**Disabled**].

FDD IRQ Can Be Free:

This function allows users to choose if the FDD IRQ can be freed up. The default setting is [**Yes**].

3-7 Frequency/Voltage Control

By choosing the Frequency/Voltage Control option from the CMOS Setup Utility menu (Figure 3-1), the screen that lists the manufacturer's default values for the motherboard is displayed.

Memory Frequency For

Please leave the default system setting as [**Auto**] for a stable system operation.

Auto Detect PCI Clk

Available options are [**Enabled**] and [**Disabled**].

Spread Spectrum

Available options are [**+/- 0.35 %**], [**+/- 0.50%**], [**+/- 0.75%]**, [**+ /- 1.00%**] and [**Disabled**].

Async AGP/PCI CLK

Please leave the default setting at 66/33 MHz. Available Options: [66/33 MHz], [73/36 MHz], [80/40 MHz].

CPU Clock

This feature allows the system memory to run at specified CPU clock speed. The default setting is at 100Mhz.

Overclockability:

This motherboard is designed to support overclocking ability. However, please make sure your peripherals are able to tolerate such abnormal setting, while CPU clock speed is overclocked. Any attempt to operate beyond product specifications is not recommended. We are not responsible for damages caused by inadequate operation or settings beyond product specifications.

3-8 Load Fail-Safe Defaults

Load Fail-Safe Defaults loads the default BIOS values directly from the CMOS Setup Utility menu (Figure3-1). If user-defined BIOS settings are corrupted and therefore unusable, these defaults will be loaded automatically when you turn on the computer.

3-9 Load Optimized Defaults

Load Optimized Defaults loads the default system values directly from the CMOS Setup Utility menu (Figure3-1). If user-defined BIOS settings are corrupted and therefore unusable, these defaults will be loaded automatically when you turn on the computer.

3-10 Supervisor Password & User Password Setting

There are four different variables that control password settings. The first two are located under the Security Option function in BIOS Features Setup Menu (Figure 3-1). When the Security Option function is set to **Setup**, a password is required to enter BIOS and change BIOS settings. When the Security Option function is set to **System**, a password is required to enter both BIOS and computer's operating system (For example, Windows 98) found on the boot drive.

The third and fourth variables are user password and supervisor password selected in BIOS (Figure 3-1). The main purpose of separating users and supervisors is to allow only the supervisor to have control over the BIOS settings. The user, on the other hand, is only allowed to access computer's operating system and change the user password in BIOS.

When there is no supervisor password being set, the user password controls access to all BIOS settings.

3-11 Save and Exit Setup

If you select this and type [**Y**] followed by [**Enter**], the values entered in the setup utilities will be recorded in the CMOS memory of the BIOS chip.

3-12 Exit Without Saving

Selecting this option and pressing [**Y**] followed by [**Enter**] lets you exit the Setup program without recording any new values or changing old ones.

Chapter 4 DRIVER Setup

Insert the support CD that come with your motherboard into your CD-ROM driver or double-click the CD drive icon in [**My computer**] to enter the setup screen.

4-1 Intel® IDE Bus Mastering Drivers Setup

1. Click [**Intel® IDE Bus Mastering Drivers**]
2. Click [**Next**] to start software installation.
3. Click [**Yes**] to accept the license agreement
4. Select [**Next**] to continue.
5. Please select [**Yes**] to restart computer now or [**No**] to restart later, and then click on [**Finish**] to complete the installation.

4-2 C-Media Sound Driver Setup

This section provides information on installing audio devices by choosing [**Audio Driver**] from the Setup Driver menu.

1. Select [**Audio driver**]
2. Select [**Audio Drivers**] to begin the software installation
3. Select [**Install Device Driver and Applications**].
4. Select the setup language and click [**OK**] to continue.
5. Click [**Next**] to proceed.
6. Please select a folder where the program will be installed and click on [**Next**] to proceed.
7. Please select one folder from existing list of folders and click on [**Next**] to proceed.
8. Please select [**Yes**] to restart computer now or [**No**] to restart later, and then click [**OK**] to complete the installation.

4-3 RTL® LAN Driver Setup

1. Click [**LAN Driver**]
2. Click [**Next**] to continue.
3. Click [**Finish**] to complete setup

4-4 USB 2.0 Driver

Open Device Manager and open the properties for the USB 2.0 host controller. Select 'Update Driver'. Point the installer to the folder with the USB 2.0 drivers. It should select the *CD-ROM:\intel\usb2\win2k_XP\ich5usb2_win2k* (for Win 2000 /XP or *CD-ROM:\intel\usb2\win98&me* (for 98se / ME) and then install the system files. The host controller should be installed correctly when Device Manager is updated after the install.

4-5 DirectX Setup

This section provides information on installed DirectX devices by choosing [**DirectX**] from the Setup Driver menu.

1. Please select [**I accept the agreement**].
2. Please select [**Next**].
3. Please select [**Next**].
4. Please select [**Finish**] to complete.

NOTE

All rights are reserved for the products and corporate names/logos that appear in this manual to their original owners.

We reserve all rights to change this manual. All information is subject to change without notice.

How To Contact CHAINTECH

Please do not hesitate to contact us if you have any problem about our products. Any opinion will be appreciated.

For Asia, Africa, Australia and Pacific Island: **CHAINTECH COMPUTER CO., LTD** 4F., No.16, Jian 8th Rd., Zhonghe City, Taipei County 235, Taiwan (R.O.C.) **Tel:** +886-2-8226-9999 **Fax:** +886-2-8228-0303 **URL:** http://www.chaintech.com.tw **E-mail:** sales@chaintech.com.tw	**For Europe:** **CHAINTECH EUROPE B.V.** Coenecoop 620 2741 PV WADDINXVEEN, THE NETHERLANDS **Tel:** +31-182-623-960 **Fax:** +31-182-623-969 **URL:** http://www.chaintech.nl **Technical support** **E-mail:** support@chaintech.nl
For France: **AELT COMPUTER** 5 rue de Rome 93561 Rosny Sous Bois Cedex France **Tel:** 33-1-4855-5940 **Fax:** 33-1-4855-5942 **URL**: http://www.chaintech-france.com **E-mail:** infos@chaintech-france.com	**For America:** **CHAINTECH AMERICA CORP.** 4427 Enterprise St. Fremont CA 94538, U.S.A. **Tel:** +1-510-656-3648 **Fax:** +1-510-656-2297 **URL:** http://www.chaintechusa.com **E-mail (Sales):** sales@chaintechusa.com **Technical Support:** **Tel:** +1-510-656-3607 **E-mail**:support@chaintechusa.com
For Australia: (VGA only) **Protac International Computers Australia** **Sydney Headquarters:** 95 Derby St. Silverwater, NSW 2128 **Tel:** 61- 2-8748-8888 **Fax:** 61-2-8748-8801 http://www.protac.com.au **Melbourne:** Unit 7, 2 Sarton Rd, Clayton VIC 3168 **Tel:** 61-3-9560-7188 **Fax:** 61-3-9560-7288	**For China** **CHAINTECH, SHENZHEN** Room 301, Nanguang Building, No.1004, Huafu Rd, Futian District,Shenzhen, China 518041 **Tel**: +86-755-8368-9072 **Fax**: +86-755-8368-9053 **CHAINTECH, BEIJING** Room 3A05, 4 Floor, Unit No. B1, Longrange World Office Building 2, No.18 Suzhou Street, Haidian District, Beijing, China 100080 **Tel:** +86-10-6265-0087 **Fax:** +86-10-6262-0267 **URL:** http://www.chaintech.com.cn; http://www.chaintech.cn **E-MAIL:** service@chaintech.com.cn
For Italy and Greece: **CELT Computer s.r.l.** Via Private Mulino N.3-20090 Buccinasco, Milano,Italy **Tel:** +39-02-4510-1355 **Fax:** +39-02-4510-1354 **URL:** http://www.chaintech.com.tw **E-MAIL**: celt@libero.it	**For Korea:** **CHAINTECH KOREA CO., LTD.** 14F, Mi-Won B/D, Yeouido-Dong 43, Youngdeunpo-Gu, Seoul, Korea **Tel:** +82-2-6332-3377 **Fax:** +82-2-6332-3379 **URL**: http:// www.chaintechkorea.com **E-Mail:** sales@chaintechkorea.com