SBC81872

Socket 479 Full-size All-in-One CPU Card Series

User's Manual

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ESD Precautions

Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:

- Do not remove boards or integrated circuits from their anti-static packaging until you are ready to install them.

- Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This helps to discharge any static electricity on your body.

- Wear a wrist-grounding strap, available from most electronic component stores, when handling boards and components.

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T a b l e   o f   C o n t e n t s

C h a p t e r 1
Introduction

1.1   General Description

The **SBC81872** CPU card is an industrial grade CPU card incorporating the Intel® 915GM ChipSet, ensuring its compatibility with PCI bus passive backplanes. Its 8-layer structure reduces signal noise and built-in power management feature. These advanced concepts along with the PCI Local Bus architecture bring outstanding performance to Windows-based applications.

Designed for the professional embedded developers, the Socket 479 all-in-one **SBC81872** CPU card is virtually your ultimate one-step solution to various applications.

1.2   Specifications

- **Chipset:** Intel® 915GM

- **CPU Socket:** Socket 479

- **CPU:** Intel® Socket479 Pentium M FSB400/533MHz

- **L2 Cache:** Integrated in CPU

- **BIOS:** Phoenix AwardBIOS Rev.6.00

- **System Memory:**
    - 2 x 184-pin DDR DIMM sockets
    - Maximum up to 2GB DDR

- **IDE Interface:** 1 bus mastering EIDE up to two devices, Ultra DMA 100 supported

- **FDD Interface:** Supports up to 2 drives

- **Serial Ports:** Two 16550 UARTs ports with 16 byte as two RS-232.

- **Parallel Ports:** One parallel port with ECP/EPP/SPP supported

- **VGA Controller:**
    - VGA On-chip Intel® 915GM.
    - Supports up to 2048x1536 at 60 Hz resolution on non-interlaced CRT monitors
    - 18Bits or 36Bits LVDS LCD interface.

- **Ethernet:**
    - Controller:Broadcom BCM5721 (Transcation bus thru one " PCI Express interface).
    - LAN chip is replaceable with RTL8110S (Giga Lan chip) or RTL8100C (10/100Mbps)
    - Wake On LAN support

- **USB Interface:**
  - 4 USB ports; USB Spec. Rev. 2.0 compliant.

- **Hardware Monitoring:**
  - Controller: Winbond W83627HF-AW detection of CPU temperature, System temperature, Power failure and Fan speed.

- **Watchdog Timer:**
  - Generates a system reset
  - Software programmable time interval and hardware reset only.
  - 255 level, 255 seconds

- **Dimensions:**122(W) x 338(L) mm

    NOTE:Specifications are subject to change without notice.

1.3　　Utilities Supported

- Intel® 915GM Utility and Drivers
- Ethernet Utility and Drivers
- VGA Drivers

1.4   Board Dimensions
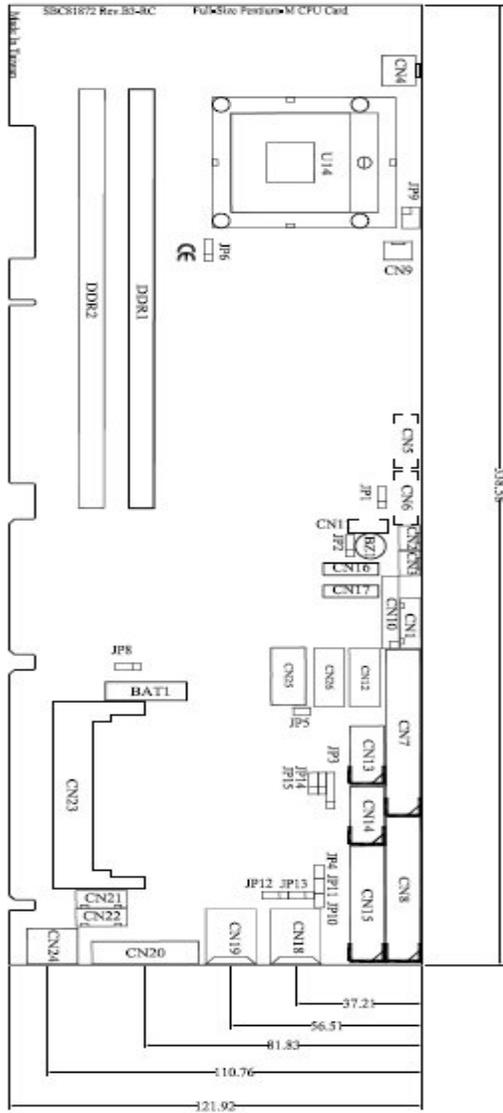
C h a p t e r   2
Jumpers and Connectors

2.1   Board Layout
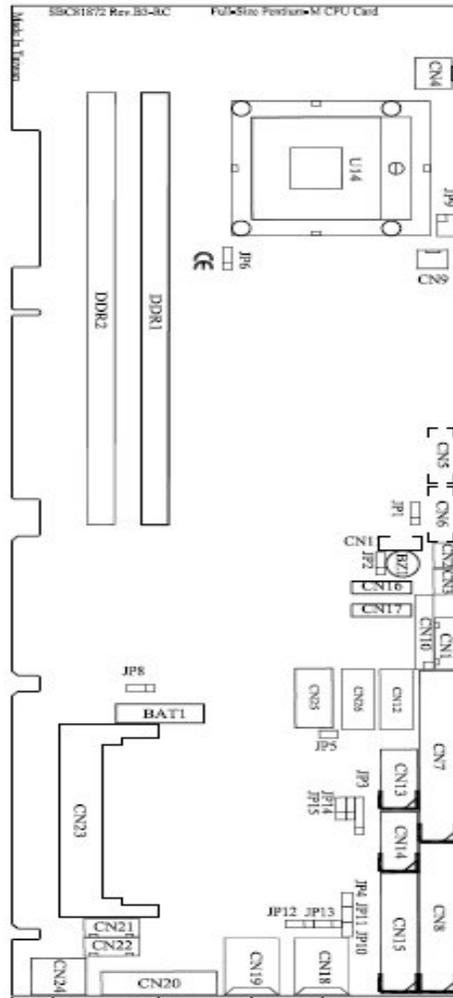
2.2   Jumper Settings

Making the proper jumper settings configures the **SBC81872** to match the needs of your application. The following summary table lists all onboard jumpers and their corresponding functions and/or default settings.

Jumper	Description	Jumper setting
JP1	LCD voltage selection	Short 1-2 : 5V, Short 2-3 : 3.3V(Default)
JP2	Reserved	
JP3	Reserved	
JP4	Reserved	
JP5	Reserved	
JP6	Reserved	
JP7	Reserved	
JP8	Clear CMOS	Short 1-2 : Normal(Default) Short 2-3 : Clear CMOS
JP9	FSB selection	Short 1-3, 2-4 : Auto **for Dothan B stepping CPU** (Default) Short 3-5 : 400MHZ **for Banias or Dothan A , Dothan B stepping CPU** Short 3-5, 4-6 : 533MHZ **For Dothan A and B stepping CPU**
JP10	LAN1Ext. Link / Active LED	#1 : 3.3V #2 : ACT / Link
JP11	LAN2 Ext. Link / Active LED	#1 : 3.3V #2 : ACT / Link
JP12	LAN1 Ext. Speed LED	#1 : 100 #3 : 1000 #2 : 3.3V
JP13	LAN1 Ext. Speed LED	#1 : 100 #3 : 1000 #2 : 3.3V

2.2.1 LCD Voltage Selection : JP1
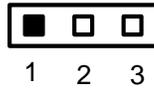
Options	Settings
5V	Short 1-2
3.3V (Default)	Short 2-3

2.2.2 Clear CMOS: JP8
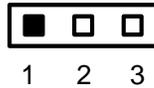
Options	Setting
Normal (Default)	Short 1-2
Clear CMOS	Short 2-3

2.2.3 FSB Clock Selection : JP9
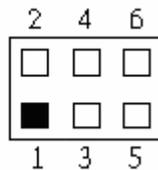
	Banias	Dothan A stepping	Dothan B Stepping
Auto (Default)	NotSuuport	NotSuuport	Short1-3, 2-4
400MHZ	Short 3-5	Short 3-5	Short 3-5
533MHZ	Not Suuport	Short3-5,4-6	Short3-5,4-6

2.3   Connectors

The connectors allow the CPU card to connect with other parts of the system. Some problems encountered by your system may be a result from loose or improper connections. Ensure that all connectors are in place and firmly attached. The following table lists the function of each connector on the **SBC81872**.

Connectors	Label	Connectors	Label
ATX 5VSB power connector	CN1	COM1	CN13
System Fan1	CN2	COM2	CN14
System Fan2	CN3	Printer port	CN15
ATX +12V power	CN4	Serial ATA Channel 1	CN16
LVDS LCD Channel B	CN5	Serial ATA Channel 0	CN17
LVDS LCD Channel A	CN6	LAN2 RJ45	CN18
Pallare IDE port	CN7	LAN1 RJ45	CN19
Floppy port	CN8	VGA function	CN20
CPU Fan	CN9	Internal Mouse	CN21
General output panel	CN10	Internal Keyboard	CN22
LCD power	CN11	Mini PCI socket	CN23
USB 1,2	CN12	External KB/MS (Mini Din)	CN24
USB 3,4	CN26	AC'97 Audio Port	CN25

NOTE:

1. SBC81872VE Lan is Realtek 8100C.

2. SBC81872V2G Lan1 and Lan2 are Broadcom BCM5721.

3. SBC81872VG Lan is Realtek 8110S

C h a p t e r 3
Installation

This chapter describes the hardware installation procedures on the **SBC81872** all-in-one Socket479 CPU card. The following is a list of typical peripherals required to build a minimum system:

- Power supply and passive backplane
- IBM™ PC/AT keyboard
- Display monitor
- Floppy or hard disk with MS-DOS or Flash Disk emulator

3.1   System Memory

The **SBC81872** industrial CPU card supports two 184-pin DDR sockets for a maximum total memory up to 2GB.

3.2   CPU Installation

1. Using the method shown in Figure 1, place the new processor Into the socket. Align the processor's pin A1 with the arrow on the micro-FCPGA socket. The pin A1 of the processor is identified with an embroidered corner and pin A1of socket is turn the actuator until The processor drops completely in.

Note: You should not have to press down the processor. If the processor doesn't drop completely into the socket, turn the actuator until the processor drops completely in.

Figure 1: Aligning the Processor in the Socket
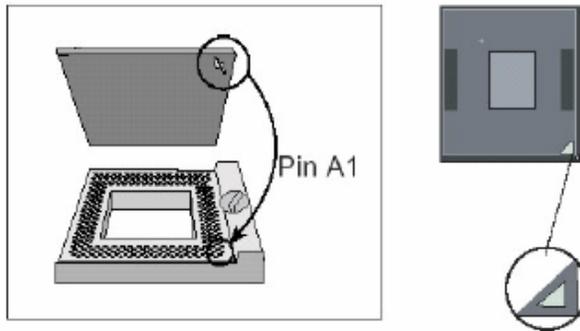
2.. While gently holding the processor down with your finger, secure the processor in the socket by closing the socket actuator with a screwdriver.

Figure 2: Disengaging or closing the Socket Actuator
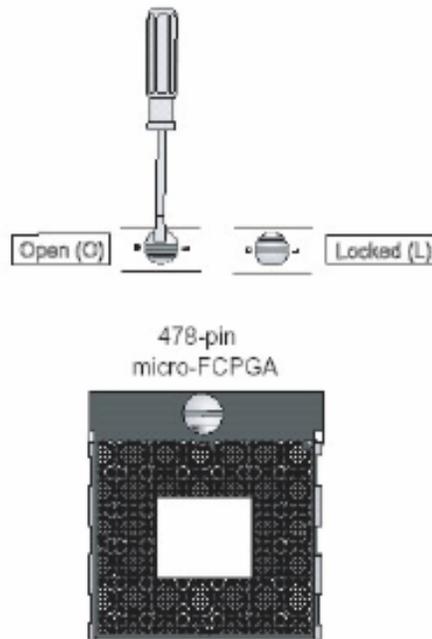
3..Reattach the cooling system and reassemblethe sytem per documentation that came with the system.

CPU Cooler Installation

1.. For the first time of installation, please do it step by step.

2.. For the second time or later installation, please start from step3.

Step1. Remove the liner on the insulator.

LINER TO BE REMOVED — INSULATOR
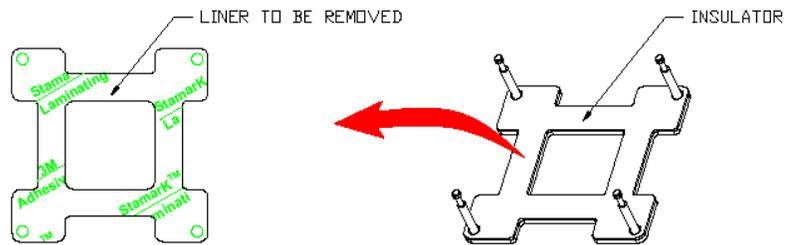
Step 2. Remove the release liner on the thermal tape. Be sure that the blue film has been removed with liner. (only left the magenta thermal interface on the base of the heat sink)

THERMAL INTERFACE

RELEASE LINER TO BE REMOVED
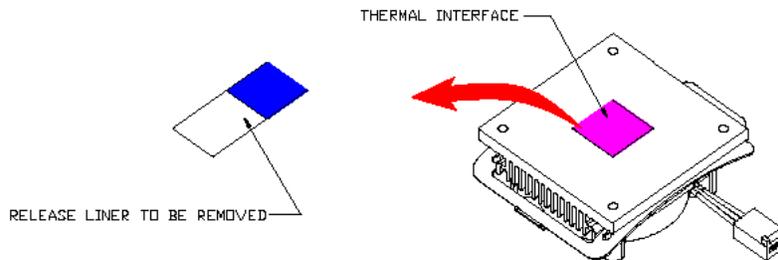
Step 3. Install the Back-Plate at the backside of the mother board. When the mother board and CPU has been installed in the system, lay the cooler on the CPU.
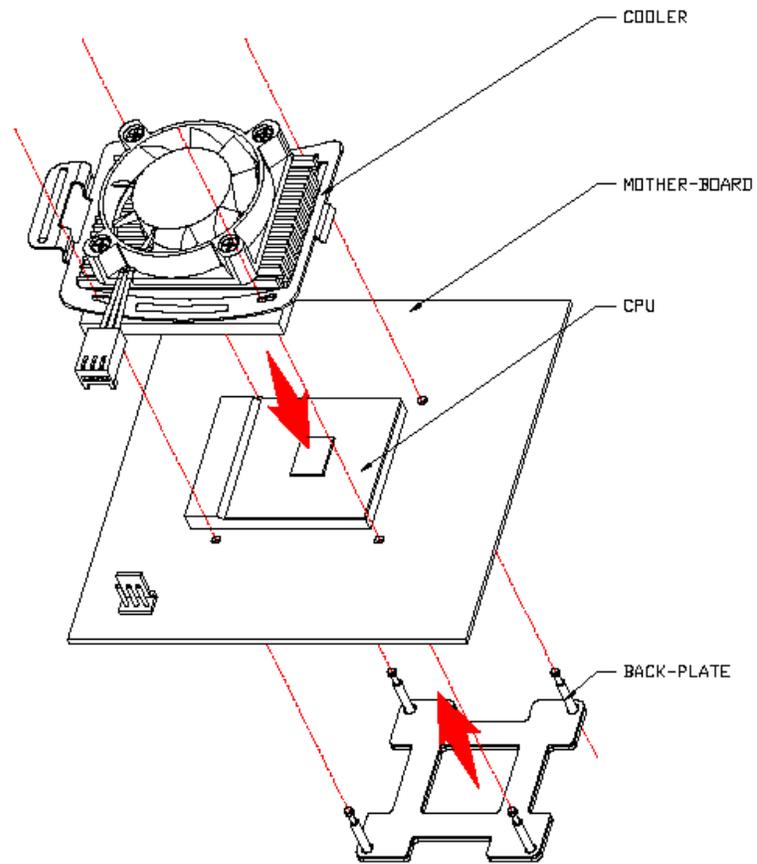
Step 4. Fasten the cooler on the CPU as follow :
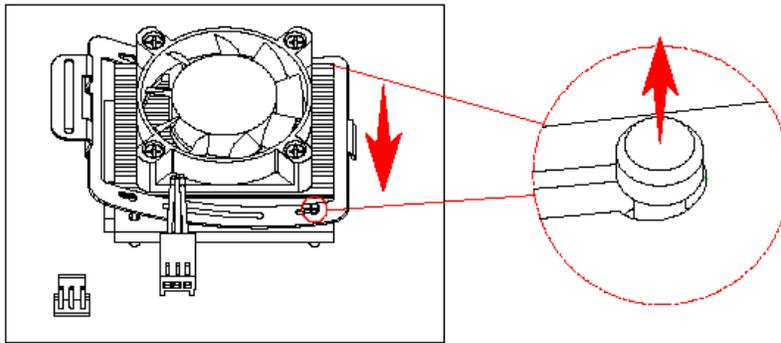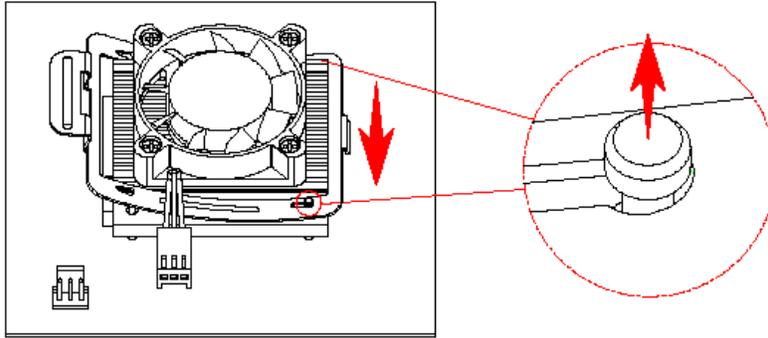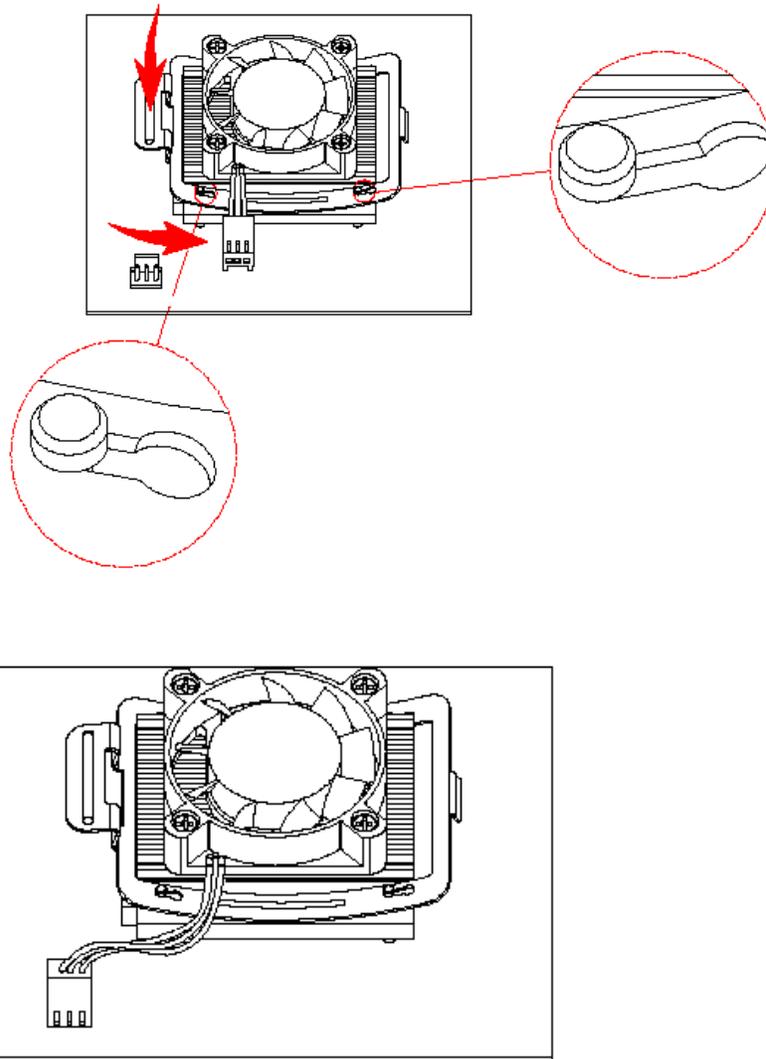
3.3　Configuring Power Supply

3.3.1　ATX Power Supply

Follow these instructions if the system has an ATX power supply installed.

Install the ATX Power Control Connector cable to the designated ATX power control connector on your backplane. The ATX Power Control Connector cable is a 6-pin cable that comes with the **AXIOMTEK BACKPLANE** packaging.

3.3.2　AT Power Supply

When using an AT power supply in your system, don't need the ATX Power Control Connector cable.

3.4　Ultra DMA/66/100 Drive Installation

To accommodate the fast transfer rate of Ultra DMA/66/100, an 80-conductor cable (with 40 pin connectors on both ends) is necessary when installing Ultra DMA/66/100 drives. The **SBC81872**, on this aspect, can support a total of 2 Ultra DMA/66/100 drives. It is through the IDE Connector (**CN7**) where the 80-conductor cable is connected. The diagram below illustrates the proper installation procedure, including color coding of connectors, of the 80-conductor cable.

Blue ATAS™ for
system board's
40-pin IDE
connector

Black ATAS™
for Master Drive

80-pin Ultra DMA/66/100 cable

Red stripe
represents pin 1 of
cable

Grey ATAS™ for
Slave Drive

ATA/33
Cable with
40 conductors

ATA/66/100
Cable with
80 conductors
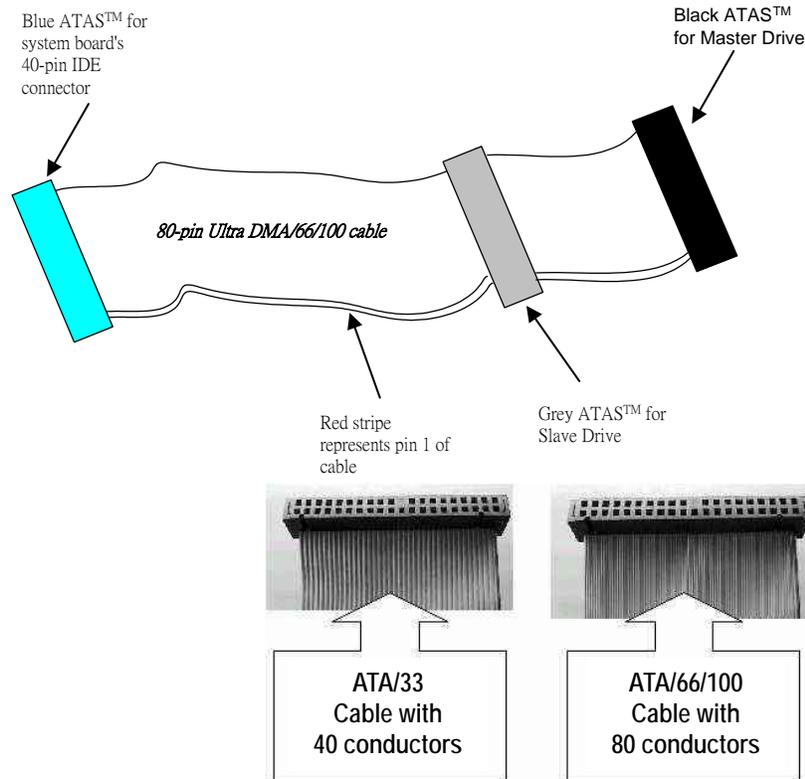
3.5   Completing Installation

To complete the installation, follow the steps listed below.

1.Make sure the power is OFF.

2.Set the configuration jumpers according to the jumper settings on Chapter 2.

3.Install the **SBC81872** CPU card into one of the slots on the passive backplane. You may allow the **SBC81872** to stand alone as a single board computer.

4.Connect the I/O cables and peripherals, i.e. floppy disk, hard disk, monitor, keyboard, power supply and etc. to the CPU

board.

NOTE: *The color of pin one is usually red or blue, while others are gray.*

5. Turn ON the system power.

C h a p t e r 4

Hardware Description

This chapter gives a detailed explanation of the hardware features onboard the **SBC81872** all-in-one Socket479 CPU card.

4.1   Microprocessors

The **SBC81872** supports Intel® Pentium M CPUs. Systems based on these CPUs can be operated under UNIX, OS/2, Linux, Windows NT/2000/XP and MS-DOS environments. The system's performance depends on the installed CPU on the board.

4.2   BIOS

The system BIOS used in **SBC81872** is Award Plug and Play BIOS. The **SBC81872** contains a single 4MB Flash EPROM. For more detailed information, refer to Chapter 7 for a complete description of the BIOS setup utility and the available features accompanying it.

4.3   General Output Connector: CN10

CN10
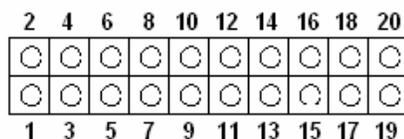
Power LED

This 2-pin connector, designated at **Pins 1, 5** and of **CN10**, connects the system power LED indicator to its respective switch on the case. **Pin 1** is +, and **pin 5** is assigned as -. The Power LED lights up when the system is powered ON.

External Speaker and Internal Buzzer Connector

Pins 2, 4, 6, and **8 of CN10** connect to the case-mounted speaker unit or internal buzzer. **Short pins 4-6** when connecting the CPU card to an internal buzzer. When connecting an external speaker, set these jumpers to **Open** and install the speaker cable on **pin 8** (+) and **pin 2** (-).

System Reset Switch

Pins 17 & **18** of **CN10** connect to the case-mounted reset switch and allow rebooting of your computer instead of turning OFF the power switch. This is a preferred method of rebooting in order to prolong the life of the system's power supply.

HDD Activity LED

This connector extends to the hard drive activity LED on the control panel. This LED will flash when the HDD is being accessed. **Pins 19** & **20 of CN10** connect the hard disk drive and the front panel HDD LED. **Pins 19** is -, and **pin 20** is assigned as +.

Keylock

Pin 7 & **9** of **CN10** connect to the case's keyboard lock connector. When connecting the keyboard lock connector on to **CN10**, **Pin 7** is designated as positive (+) pole and **Pin 9** as the negative(-) pole

Power switch

This 2-pin connectoris designed at **Pin13** and **Pin 14** of **CN10** connects the ATX power button of the front panel to the SBC81872 CPU board. Allow user controlling the power on/off

State of ATX power supply.

4.4   Enhanced IDE Interface Connector

The **SBC81872** includes a PCI bus enhanced IDE controller that can support master/slave mode and post write transaction mechanisms with 64-byte buffer, and master data transaction. This feature, connected via connector **CN7**, allows the **SBC81872** to handle 2 IDE drives.

CN7 : IDE Connector Pin Assignment

Pin	Description	Pin	Description	Pin	Description
1	Reset #	2	GND	3	Data 7
4	Data 8	5	Data 6	6	Data 9
7	Data 5	8	Data 10	9	Data 4
10	Data 11	11	Data 3	12	Data 12
13	Data 2	14	Data 13	15	Data 1
16	Data 14	17	Data 0	18	Data 16
19	GND	20	N/C	21	N/C
22	GND	23	IOW #	24	GND
25	IOR #	26	GND	27	IOCHRDY
28	N/C	29	N/C	30	GND-Default
31	Interrupt	32	N/C	33	SA1
34	N/C	35	SA0	36	SA2
37	HDC CS0 #	38	HDC CSI #	39	HDD Active #
40	GND				

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4.5 Display Interface

4.5.1   Flat Panel/CRT Interface Controller

Integrated Display Interface support

- Analog CRT DAC interface support

- Support max. DAC frequency up to 400MHZ

- 24-bit RAMDAC support

- DDC2B compliant

- Up to 2048x1536 mode support

- Digitial LVDS interface support

- Integrated dual channel LVDS interface supported on Display Pipe B only

- Support 25 to 112MHZ single/dual channel LVDS interface :

- Single channel LVDS interface support :1x18bpp

- Dual channel LVDS interface support : 2x18bpp

4.5.2   Features

Internal Graphics Features

- DVMT 3.0 support

- Max memory allocation support base on total system memory (Max. 128M).

- 1-MB or 8-MB of pre-allocated memory supported

- Intel Dual-Frequency Graphics Technology

- Intel Smart 2D Display Technology

- Asynchronous Display core and Render core clocks supported

- 2D Display core frequency required to be equal or greater than 3D Render Core Frequency.

- 2D Display core frequency at 133, 200 or 320MHZ

@Vcc=1.5V depending on the host/memory configurations

- 3D Render core frequency at 133, 160/166, 200 or 320MHZ @Vcc=1.5V depending on the host/memory configurations

- Dual Independent display pipes.

- 32 bit Hardware cursor supported

2D graphics engine

- Optimized 256-bit BLT engie

- 8-, 16- and 32-bit perpixel color

3D Graphics Rendering Enchantments

- 1.3 Dual Texture GigaPixel/Sec Fill Rate.

- 16- and 24-bit Z Buffering.

- 8-bit Stencil Buffering

- 16- and 32-bit Color

- Maximum 3D Resolution Supported : 1600x1200x32

4.5.3   VGA/LVDS Panel Connectors

The **SBC81872 Series** has two connectors that support CRT VGA and LVDS panel displays, individually or simultaneously. **CN20** is a D-SUB 15-pin connector commonly used for the CRT VGA display, and **CN5** and **CN6** are 20-pin and **CN11** is 5-pin Hirose connector for LVDS panel connection.

CN20: CRT/VGA Connector Pin Assignment

Pin	Signal	Pin	Signal	Pin	Signal
1	Red	2	Green	3	Blue
4	N/A	5	GND	6	AGND
7	AGND	8	AGND	9	N/A
10	GND	11	N/A	12	DDC DAT
13	Horizomtal Sync	14	Vertical Sync	15	DDC CLK

CN5: Connector for LVDS LCD Channel A

Pin	Description	Pin	Description
1	VCCM	2	VCMM
3	VCMM	4	VCMM
5	D0-	6	D3-
7	D0+	8	D3+
9	GND	10	GND
11	D1-	12	CLK-
13	D1+	14	CLK+
15	GND	16	GND
17	D2-	18	GND
19	D2+	20	GND

CN6 :Connector for LVDS LCd Channel B

Pin	Description	Pin	Description
1	VCCM	2	VCMM
3	VCMM	4	VCMM
5	D0-	6	D3-
7	D0+	8	D3+
9	GND	10	GND
11	D1-	12	CLK-
13	D1+	14	CLK+
15	GND	16	GND
17	D2-	18	GND
19	D2+	20	GND

CN11 :LCD Power

Pin	Description
1	12V
2	5V
3	12V
4	ENAB
5	GND

4.7   Floppy Disk Connector: CN8

The **SBC81872** provides a 34-pin header type connector, **CN8**,

supporting up to two floppy drives. The floppy drives may be any one of the following types: 5.25" 360KB/1.2MB and 3.5" 720KB/1.44MB/2.88MB.

CN8 : Floppy Disk Connector Pin Assignment

Pin	Description	Pin	Description	Pin	Description
1	GND	2	Reduce write Current	3	GND
4	N/C	5	GND	6	N/C
7	GND	8	Index #	9	GND
10	Motor enable A #	11	GND	12	Drive Select B #
13	GND	14	Drive select A #	15	GND
16	Motor enable B #	17	GND	18	Direction #
19	GND	20	STEP #	21	GND
22	Write data #	23	GND	24	Write gate #
25	GND	26	Track #	27	GND
28	Write protect #	29	GND	30	Read data #
31	GND	32	Side 1 select #	33	GND
34	Disk change #				

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4.8 Parallel Port Interface: CN15

The **SBC81872** onboard **CN15** is a multi-mode parallel port able to support:

● **Standard mode:** IBM PC/XT, PC/AT and PS/2TM compatible with bi-directional parallel port

- **Enhanced mode:** Enhance parallel port (EPP) compatible with EPP 1.7 and EPP 1.9 (IEEE 1284 compliant)
- **High speed mode:** Microsoft and Hewlett Packard extended capabilities port (ECP) IEEE 1284 compliant

The address select of the onboard parallel port in LPT1 (378H) or disabled is done by BIOS CMOS setup.

CN15 : Parallel Port Connector Pin Assignment

Pin	Description	Pin	Description
1	Strobe #	14	Auto Form Feed #
2	Data 0	15	Error #
3	Data 1	16	Initialize #
4	Data 2	17	Printer Select In #
5	Data 3	18	GND
6	Data 4	19	GND
7	Data 5	20	GND
8	Data 6	21	GND
9	Data 7	22	GND
10	Acknowledge #	23	GND
11	Busy	24	GND
12	Paper Empty #	25	GND
13	Printer Select	26	

4.9   Serial Port Interface

The serial interface onboard **SBC81872** consists of COM1 port (**CN13**) and COM2 (**CN14**) supports RS-232

SBC81872 uses two 10-pin connectors for COM1 **(CN13)** and COM2 **(CN14)**. Interrupt Requests on COM1 and COM2 are selected via IRQ4 and IRQ3 respectively. Additionally, both ports can be enabled or disabled via BIOS setting.

CN13,CN14 :RS-232 PIN Assignment

CN6 CN7	D-SUB 9PIN	Description
1	1	Data Carrier Delect(DCD)
2	6	Data Set Ready(DSR)
3	2	Receive Date(RXD)
4	7	Request to Send(RTS)
5	3	Transmit Data(TXD)
6	8	Clear to Send(CTS)
7	4	Data Terminal Ready(DTR)
8	9	Ring Indicator(RI)
9	5	GND
10	X	NC
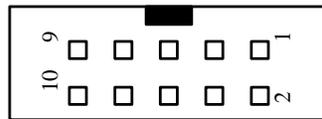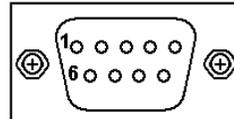
CN13/CN14   **D-SUB 9PIN**

4.10   Serial ATA Port

The serial ATA port onboard **SBC81872** consists of SATA1 port (**CN16**) and SATA0 (**CN17**) supports SATA Hard Disk.

Pin	Description
1	GND
2	SATA_TXP
3	STAT_TXN
4	GND
5	SATA_RXN
6	SATA_RXP
7	GND

4.11 Keyboard and PS/2 Mouse Connectors

The **SBC81872** provides a Mouse **(CN21)** and Keyboard **(CN22)** interface with two 5-pin connectors. **CN24** is a DIN connector for PS/2 keyboard and mouse connection.

CN21/CN22

CN24
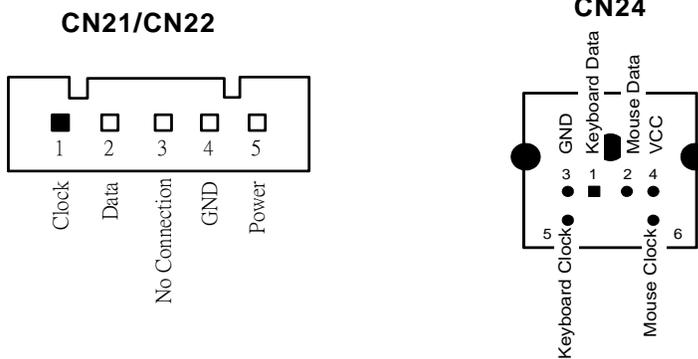
4.12   USB Connector

The Universal Serial Bus (USB) connector on the **SBC81872** is for installation of peripherals supporting the USB interface. **CN12/CN26** is the 10-pin USB connector on the **SBC81872**.

CN12/CN26

	1	2	
USB Power	■	□	USB Power
USB P0-	□	□	USB P1-
USB P0+	□	□	USB P1+
USB GND	□	□	USB GND
AGND	□	□	AGND
	9	10	
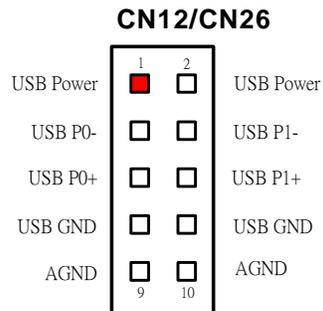
4.13 ATX SB5V Power Connector

The interface enables and supports reliable power anagement through improved hardware and operating system coordination. The specification enables new power management technology to evolve independently in operating systems and hardware while ensuring that they continue to work together.

CN1 on the **SBC81872** is a 6-pin header connector that provides **ATX SB5V Power**.

CN1

```
                          E
          P       P       X
    S     W       W       T
    B  _  G  _    G   S
    5  O  N  P    N   M
    V  N  D  N    D   I
   ┌─────────────────────┐
   │ 6  5  4  3  2  1     │
   │ ●  ●  ●  ●  ●  ■     │
   └─────────────────────┘
```
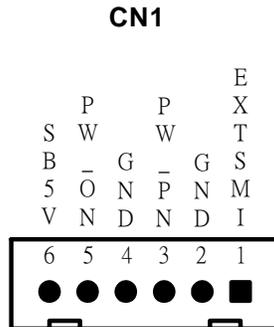
4.14 ATX12V CPU Power Connector

This connector **CN4** connected to an ATX12V power supply and used for CPU Core Voltage.

Important Note: Make sure your ATX12V power supply can provide 12A on the +12V lead and at least 1A on the +5V standby lead (+5VSB). The minimum recommended wattage is 230W or 300W for a fully configured system. The system may become unstable and may experience difficulty powering up if the power supply is inadequate.

4.15 Mini-PCI Connector

This mini-PCI connector**CN23** is designed for "on-board"

expansion. You don't need back plane to have another SCSI card, gigabit LAN card or IDE control card.

We prepare these types of mini-PCI card and them can be sold as accessories of SBC81872.

For the futher information, please refer the mini-PCI card's manual.

4.16   LAN External LED: JP10, JP11, JP12, JP13

LAN Speed LED: JP12, JP13

Pin	Description
1	100 Speed (-)
2	+3.3V
3	1000 Speed (-)

3   2   1
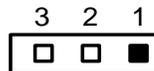
If you ues 10Mbps Ethernet, this LED is not work.

LAN Link/Active LED: JP10, JP11

Pin	Description
1	+3.3V
2	Active/Link (-)

1
2

C h a p t e r 5
Display Drivers

5.1   Introduction

The GMCH provides interfaces to a progressive scan analog monitor.

 ◼ The GMCH has an integrated 350 MHz RAMDAC that can directly drive a progressive scananalog monitor up to a resolution of 2048x1536 at 60 Hz.

5.2   Driver Disks' Contents

The driver diskettes that come with the **SBC81872 Series** package contains the following installation programs:

 ◼ Win2000 driver
 ◼ WinXP driver

5.3   Windows 2000 VGA Driver Installation

To install or upgrade the DirectX driver

Microsoft DirectX 8.0a must be installed prior to installing the video driver support on the **SBC81872 Series**.

If you've installed a retail version of Windows 2000 you'll need to install Microsoft DirectX 8.0a. This file can be download from

http://www.microsoft.com/windows/directx/default.asp

To install video support

If you have installed retail Windows you need to install the video driver. The driver is contained in the \SBC81872\Drivers\VGA subdirectory on the dirvers CD.

To install or upgrade the Intel 915GM video driver:

1.   Run SETUP.EXE from the driver directory on your drivers CD

2.   Follow the onscreen directions to complete installation.

3.   There may be messages about the driver not having a digital signature, select Yes to all these message boxes.

4.   Upon successful completion you will be asked to reboot your computer, choose "Yes, I want to restart my computer now" if you have no other drivers to install. Otherwise, choose "No, I will restart my computer later" and continue to next step.

5.4 Windows XP VGA Driver Installation

To install video support

If you have installed retail Windows you need to install the video driver. The driver is contained in the \SBC81872\Drivers\VGA subdirectory on the dirvers CD.

To install or upgrade the video driver:

1. Run SETUP.EXE from the video driver directory.

2. Follow the onscreen directions to complete the installation.

3. At the end you will be asked to reboot the PC. Choose YES and press FINISH to exit the video driver installation.

C h a p t e r   6
Ethernet

6.1   Introduction

The **SBC81872** is equipped with the high performance Plug and Play Ethernet interface which is fully compliant with the IEEE 802.3 standard, and consisting of the RJ-45 connector **(CN18 and CN19)**.

6.2   Features

- 10/100/1000BASE-T Triple-speed MAC
- PCI Express host interface
- Standards compliant WOL
- Large burst read

6.3   Drivers Supported

Bundled with popular software drivers, the **SBC81872** Ethernet interface allows great flexibility to work with all major networking operating systems including Windows 2000, XP, Linux 2.2, 2.4, Netware, Solaris x86 and UNIX.

> *NOTE:Before you begin the driver software installation, please see the detailed installation procedure from the Product Information CD-ROM and be sure to make installation and backup copies of the driver files.*

C h a p t e r 7
Award BIOS Utility

Chapter 8 describes the different settings available in the Award BIOS that comes with the **SBC81872** CPU card. Also contained here are instructions on how to set up the BIOS configuration.

7.1   BIOS Introduction

The Award BIOS (Basic Input/Output System) installed in your computer system's ROM supports Intel Celeron processors in a standard IBM-AT compatible I/O system. The BIOS provides critical low-level support for standard devices such as disk drives, serial and parallel ports. It also adds virus and password protection as well as special support for detailed fine-tuning of the chipset controlling the entire system.

7.2   BIOS Setup

The Award BIOS provides a Setup utility program for specifying the system configurations and settings. The BIOS ROM of the system stores the Setup utility. When you turn ON the computer, the Award BIOS is immediately activated. Pressing the <Del> key immediately allows you to enter the Setup utility. If you are a little bit late pressing the <Del> key, POST (Power On Self Test) will continue with its test routines, thus preventing you from invoking the Setup. If you still wish to enter Setup, restart the system by pressing the "Reset" button or simultaneously pressing the <Ctrl>, <Alt> and <Delete> keys. You can also restart by turning the system OFF and back ON again. The following message will appear on the screen:

Press <DEL> to Enter Setup

In general, you press the arrow keys to highlight items, <Enter> to select, the <PgUp> and <PgDn> keys to change

entries, <F1> for help and <Esc> to quit.

When you enter the Setup utility, the Main Menu screen will appear on the screen. The Main Menu allows you to select from various setup functions and exit choices.

```
                   Phoenix - AwardBIOS CMOS Setup Utility
+=============================================+===============================================+
|                                             |                                               |
|   * Standard CMOS Features                  |   * PC Health Status                          |
|                                             |                                               |
|   * Advanced BIOS Features                  |     Load Optimized Defaults                   |
|                                             |                                               |
|   * Advanced Chipset Features               |     Set Supervisor Password                   |
|                                             |                                               |
|   * Integrated Peripherals                  |     Set User Password                         |
|                                             |                                               |
|   * Power Management Setup                   |     Save & Exit Setup                         |
|                                             |                                               |
|   * PnP/PCI Configurations                  |     Exit Without Saving                       |
|                                             |                                               |
|                                             |                                               |
-----------------------------------------------+-----------------------------------------------
| Esc : Quit                                     ^ V > <   : Select Item                        |
| F10 : Save & Exit Setup                                                                       |
-------------------------------------------------------------------------------------------------
|                       Time, Date, Hard Disk Type...                                           |
+-----------------------------------------------------------------------------------------------+
```

The section below the setup items of the Main Menu displays the control keys for this menu. Another section located at the bottom of the Main Menu, just below the control keys section, displays information on the currently highlighted item in the list.

> NOTE: If you find that your computer cannot boot after making and saving system changes with Setup, the Award BIOS, via its built-in override feature, resets your system to the CMOS default settings.

We strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both Award and your system manufacturer to provide the absolute maximum performance and reliability.

7.3   Standard CMOS Setup

"Standard CMOS Setup" allows you to record some basic hardware configurations in your computer system and set the system clock and error handling. If the motherboard is already installed in a working system, you will not need to select this option. You will need to run the Standard CMOS option, however, if you change your system hardware configurations, the onboard battery fails, or the configuration stored in the CMOS memory was lost or damaged.

```
                  Phoenix - AwardBIOS CMOS Setup Utility
                         Standard CMOS Features
+=============================================+=====================+
|   Date (mm:dd:yy)         Mon,█Jan  5 2004  |     Item Help       |
|   Time (hh:mm:ss)         22 : 25 : 43      |---------------------|
|                                             | Menu Level    *     |
| * IDE Channel 0 Master    [ None]           |                     |
| * IDE Channel 0 Slave     [ None]           |                     |
| * IDE Channel 1 Master    [ None]           |                     |
| * IDE Channel 1 Slave     [ None]           |                     |
|                                             |                     |
|   Drive A                 [1.44M, 3.5 in.]  |                     |
|   Drive B                 [None]            |                     |
|   Halt On                 [All , But Disk/Key] |                  |
|                                             |                     |
|   Base Memory                   640K        |                     |
|   Extended Memory           1039360K        |                     |
|   Total Memory              1040384K        |                     |
|                                             |                     |
|                                             |                     |
|                                             |                     |
+=============================================+=====================+
|         F5:Previous Values          F7: Optimized Defaults        |
```

At the bottom of the menu are the control keys for use on this menu. If you need any help in each item field, you can press the <F1> key. It will display the relevant information to help you. The memory display at the lower right-hand side of the menu is read-only. It will adjust automatically according to the memory changed. The following pages describe each item of this menu.

● **Date**
The date format is <day>, <date> <month> <year>. Press <F3> to show the calendar.

day	The day of week, from Sun to Sat, determined by the BIOS, is read only
date	The date, from 1 to 31 (or the maximum allowed in the month), can key in the numerical / function key
month	The month, Jan through Dec.
year	The year, depends on the year of BIOS

● **Time**
The time format is <hour> <minute> <second> accepting either function key or numerical key. The time is calculated based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00.

● **IDE Channel 0 Master/IDE Channel 0 Slave/IDE Channel 1 Master/IDE Channel 1 Slave**
The categories identify the types of one channel that have been installed in the computer. There are 45 predefined types and 2 user definable types are for Enhanced IDE BIOS. Type 1 to Type 45 are predefined. Type User is user-definable.
Press <PgUp>/<+> or <PgDn>/<−> to select a numbered hard disk type or type the number and press <Enter>. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information within this category. If your hard disk drive type does not match or is not listed, you can use Type User to define your own drive type manually.
If you select Type User, related information is asked to be entered to the following items. Enter the information directly from the keyboard and press <Enter>. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.
If the controller of HDD interface is ESDI, select "Type 1".
If the controller of HDD interface is SCSI, select "None".
If the controller of HDD interface is CD-ROM, select "None".

CYLS.	number of cylinders	LANDZONE	landing zone
HEADS	number of heads	SECTORS	number of sectors
PRECOMP	write precom	MODE	HDD access mode

If there is no hard disk drive installed, select NONE and press <Enter>.

● **Drive A type/Drive B type**
The category identifies the types of floppy disk drive A or drive B installed in the computer.

None	No floppy drive installed
360K, 5.25 in	5.25 inch PC-type standard drive; 360Kb capacity
1.2M, 5.25 in	5.25 inch AT-type high-density drive; 1.2MB capacity
720K, 3.5 in	3.5 inch double-sided drive; 720Kb capacity
1.44M, 3.5 in	3.5 inch double-sided drive; 1.44MB capacity
2.88M, 3.5 in	3.5 inch double-sided drive; 2.88MB capacity

● **Halt On**
This field determines whether the system will halt if an error is detected during power up.

No errors	The system boot will halt on any error detected. (default)
All errors	Whenever the BIOS detects a non-fatal error, the system will stop and you will be prompted.
All, But Keyboard	The system boot will not stop for a keyboard error; it will stop for all other errors.
All, But Diskette	The system boot will not stop for a disk error; it will stop for all other errors.
All, But Disk/Key	The system boot will not stop for a keyboard or disk error; it will stop for all other errors.

7.4   Advanced BIOS Features

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.

```
                  Phoenix - AwardBIOS CMOS Setup Utility
                          Advanced BIOS Features
+=====================================================+=======================+
| * Hard Disk Boot Priority    [Press Enter]          |       Item Help       |
|   Virus Warning              [Disabled]             |-----------------------|
|   Quick Power On Self Test    [Enabled]             | Menu Level    *       |
|   First Boot Device          [CDROM]                |                       |
|   Second Boot Device         [Hard Disk]            | Select Hard Disk Boot |
|   Third Boot Device          [CDROM]                | Device Priority       |
|   Boot Other Device          [Enabled]              | ▌                     |
|   Swap Floppy Drive          [Disabled]             |                       |
|   Boot Up Floppy Seek        [Disabled]             |                       |
|   Boot Up NumLock Status     [On]                   |                       |
|   Security Option            [Setup]                |                       |
|   PS2 Mouse Function Control [Enabled]              |                       |
|   Console Redirection        [Enabled]              |                       |
|                                                     |                       |
|                                                     |                       |
|                                                     |                       |
+=====================================================+=======================+
        F5:Previous Values              F7: Optimized Defaults
```

● **Hard Disk Boot Priority :**

   Press Enter and it shows Bootable add-in card.

● **Virus Warning**
   This item protects the boot sector and partition table of your hard disk against accidental modifications. If an attempt is made, the BIOS will halt the system and display a warning message. If this occurs, you can either allow the operation to continue or run an anti-virus program to locate and remove the problem.

   NOTE:Many disk diagnostic programs, which attempt to access the boot sector table, can cause the virus warning. If you will run such a program, disable the Virus Warning feature.

● **Quick Power On Self Test**
   This option speeds up Power On Self Test (POST) after you turn
   on the system power. If set as Enabled, BIOS will shorten or skip
   some check items during POST. The default setting is *"Enabled"*.

Enabled	Enable Quick POST
Disabled	Normal POST

● **First/Second/Third Boot Device**
   These items allow the selection of the 1st, 2nd, and 3rd devices
   that the system will search for during its boot-up sequence. The
   wide range of selection includes Floppy, LS120, ZIP100, HDD0~3,
   SCSI, and CDROM.

● **Boot Other Device**
   This item allows the user to enable/disable the boot device not
   listed on the First/Second/Third boot devices option above. The
   default setting is *Enabled*.

● **Swap Floppy Drive**
This allows you to determine whether to enable Swap Floppy Drive or not. When enabled, the BIOS swaps floppy drive assignments so that Drive A becomes Drive B, and Drive B becomes Drive A. By default, this field is set to ***Disabled.***

● **Boot Up Floppy Seek**
During POST, BIOS will determine the floppy disk drive type, 40 or 80 tracks, installed in the system. 360Kb type is 40 tracks while 720Kb, 1.2MB and 1.44MB are all 80 tracks. The default value is *"Enabled"*.

Enabled	BIOS searches for floppy disk drive to determine if it is 40 or 80 tracks. Note that BIOS can not tell from 720K, 1.2M or 1.44M drive type as they are all 80 tracks.
Disabled	BIOS will not search for the type of floppy disk drive by track number. There will be no warning message displayed if the drive installed is 360K.

● **Boot Up NumLock Status**
This option enables and disables the numberlock function of the keypad. The default value is *"On"*.

On	Keypad functions confine with numbers
Off	Keypad functions convert to special functions (i.e., left/right arrow keys)

● **Security Option**
This item allows you to limit access to the system and Setup, or just to Setup. The default value is *"Setup"*.

System	The system will not boot and access to Setup will be denied if the incorrect password is entered at the prompt.
Setup	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

NOTE:To disable security, select PASSWORD SETTING at Main Menu and then you will be asked to enter password. Do not type anything, just press <Enter> and it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.

- **PS2 Mouse Function Control**
  If your system has a PS/2 mouse port and you install a serial pointing device, select Disabled.

- **Console Redirection**
  Attempt to redirect console COM port is set to Enable.
  Attempt to redirect console when keyboard absent is set to Disabled(Default value).

7.5 Advanced Chipset Features

Since the features in this section are related to the chipset on the CPU board and are completely optimized, you are not recommended to change the default settings in this setup table unless you are well oriented with the chipset features.

```
              Phoenix - AwardBIOS CMOS Setup Utility
                   Advanced Chipset Features
+=============================================+======================+
    DRAM Timing Selectable      [By SPD]       |      Item Help
  x CAS Latency Time            2.5            |----------------------
  x DRAM RAS# to CAS# Delay     3             | Menu Level    *
  x DRAM RAS# Precharge         3             |
  x Precharge dealy (tRAS)      7             |
    SLP_S4# Assertion Width    [4 to 5 Sec.]  |
    Memory Hole At 15M-16M     [Disabled]     |
  * PCI Express Root Port Func [Press Enter]  |
                                              |
    ** VGA Setting **                         |
    Onchip VGA Enable/Dis      [Enable]       |
    On-Chip Frame Buffer Size  [ 8MB]         |
    FIXED Memory Size          [ 64MB]        |
    DVMT Memory Size           [ 64MB]        |
    Boot Display               [Both]         |
    Panel Scaling              [Auto]         |
    Panel Number               [800*600]      |
    Spread Spectrum            [Disabled]     |
                                              |
+=============================================+======================+
        F5:Previous Values          F7: Optimized Defaults
```

● **DARM Timing Selectable**

   Select the operating system that is selecting DRAM timing, so select SPD for setting SDRAM timing by SPD

● **CAS Latency Time**
   When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing.
   The Choice: 1.5, 2, 2.5, 3.

- **DRAM RAS# to CAS# Delay**
  This field let's you insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed. Fast gives faster performance; and Slow gives more stable performance. This field applies only when synchronous DRAM is installed in the system.
  The Choice: 3, 2.

- **DRAM RAS# Precharge**
  If an insufficient number of cycles is allowed for the RAS to accumulate its charge before DRAM refresh, the refresh may be incomplete and the DRAM may fail to retain data. Fast gives faster performance; and Slow gives more stable performance. This field applies only when synchronous DRAM is installed in the system.
  The Choice: 2, 3.

- **Precharge Delay**
  This item controls the number of DRAM clocks for TRAS.
  The Choice: 7, 6, 5.

- **SLP_S4# Assertion Width**
  The options are 1 to 2 Sec., 2 to 3 Sec., 3 to 4 Sec. and 4 to 5 Sec

- **Memory Hole At 15M-16M**
  You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it can't be
  Cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements.

- **PCI Express Root Port Func**
  Move the cursor to this filed and press <Enter>. The screen will appear**.**

```
              Phoenix - AwardBIOS CMOS Setup Utility
                      PCI Express Root Port Func
  ┌────────────────────────────────────────┬───────────────────────────┐
  │ PCI Express Port 1        [Auto]        │       Item Help           │
  │ PCI Express Port 2        [Auto]        ├───────────────────────────┤
  │ PCI Express Port 3        [Auto]        │ Menu Level    ▶▶          │
  │ PCI Express Port 4        [Auto]        │                           │
  │ PCI-E Compliancy Mode     [v1.0a]       │                           │
  │                                         │                           │
  │                                         │                           │
  │                                         │                           │
  │                                         │                           │
  │                                         │                           │
  │                                         │                           │
  │                                         │                           │
  │                                         │                           │
  │                                         │                           │
  ├─────────────────────────────────────────┴──────────────────────────┤
  │ ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help │
  │     F5: Previous Values     F6: Fail-Safe Defaults  F7: Optimized Defaults │
  └─────────────────────────────────────────────────────────────────────┘
```
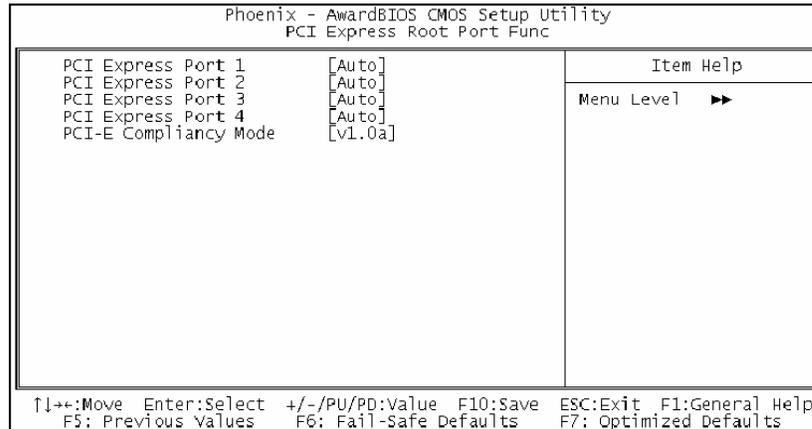
PCI Express Port 1 to PCI Express Port 4 : These Filed are used to enable or disable the PCI Express function.

- **Onchip VGA Enable/Dis**

  You can use this item to select onchip VGA for the main system VGA.

- **On-chip Frame Buffer Size**
  On-chip Frame buffer size can be set to1MB or 8MB.

- **FIXED Memory Size**
  This item is used to set the fixed memory size for onboard VGA used. The available setting values are 32MB, 64MB, 128MB.

- **DVMT Memory Size**
  This item is used to set DVMT memory size. DVMT ensures the most efficient use of available system memory resource for maximum 2D/3D graphics performance. The available settinbg values are : 32MB, 64MB, 128MB.

- **Boot Display**
  This feature allows user to select which type of the display device are going to be used for system. This feature is set to " Auto ".

- **Panel Scaling**
  Use this feature to auto or force scaling the connected panel accordingly. Most of the retail sold panels are equipped with scalar already. It is recommended to set this feature as " Auto ".

● **Panel Number**
  This feature allows user to select the type of the panel which is going to be used on the system.

● **Spread Spectrum**
  If you enable spread spectrum, it can significantly reduce the EMI generated by the system.

7.6   Integrated Peripherals

This option sets your hard disk configuration, mode and port.

```
                Phoenix - AwardBIOS CMOS Setup Utility
                        Integrated Peripherals
+=========================================================+=======================+
    On-Chip Primary   PCI IDE [Enabled]                   |     Item Help         |
    On-Chip Secondary PCI IDE [Enabled]                   |-----------------------|
                                                          | Menu Level   *        |
    *** On-Chip Serial ATA Setting ***                    |                       |
    On-Chip Serial ATA        [Auto]                      |                       |
  x PATA IDE Mode             Primary                     |                       |
    SATA Port                 P1,P3 is Secondary          |                       |
    USB Controller            [Enabled]                   |                       |
    USB 2.0 Controller        [Enabled]                   |                       |
    USB Keyboard Support      [Disabled]                  |                       |
    USB Mouse Support         [Disabled]                  |                       |
    Onboard FDC Controller    [Enabled]                   |                       |
    Onboard Serial Port 1     [3F8/IRQ4]                  |                       |
    Onboard Serial Port 2     [2F8/IRQ3]                  |                       |
    UART Mode Select          [Normal]                    |                       |
  x UR2 Duplex Mode           Half                        |                       |
    Onboard Parallel Port     [378/IRQ7]                  |                       |
    Parallel Port Mode        [SPP]                       |                       |
  x ECP Mode Use DMA          3                           |                       |
+=========================================================+=======================+
          F5:Previous Values              F7: Optimized Defaults
```

● **On-Chip Primary/Secondary PCI IDE**
The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select *Enabled* to activate each channel separately.
The choice: Enabled, Disabled.

● **On-Chip Serial ATA**
Select Disabled to disable the onboard SATA.
Select Auto that the system will detect the existing SATA and IDE drives then automatically set them to the available master/slave mode.
Select Comnined Mode, this option allows you to use both IDE and SATA drives; allowing a maximum of 4 drives – 1IDE mastere, 1IDE slave and 2 SATA. You must manually set the SATA and PATA drives Mode in the PATA IDE Mode and SATA Port fields.
Select Enhanced Mode, this option allows you to use one IDE and SATA drives; allowing a maximum of 4 drives-1IDE master;1IDE Slave and 2 SATA.
Select SATA Only, this option automatically sets the SATA drives to Primary Master Mode. Since the SATA drives are in Master

Mode, you can't set the IDE drive to Master Mode.

● **PATA IDE Mode**
When on chip serial ATA is set as " Combined Mode " , this option will be modified. It is used to set the PATA IDE Mode. The available setting values are Primary, Secondary.

● **SATA Port**
This option is used to set the serial ATA port.

● **USB Controller**
Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have USB peripherals.
The choice: Enabled, Disabled.

● **USB 2.0 Controller**
Select Enabled if your system contains a Universal Serial Bus V2.0 (USB2.0) controller and you have USB2.0 peripherals.
The choice: Enabled, Disabled.

● **USB Keyboard Support**
Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.
The choice: Enabled, Disabled.

● **USB Mouse Support**
Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB Mouse.
The choice: Enabled, Disabled.

● **Onboard FDC controller**
Select Enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install and-in FDC or the system has no floppy drive, select Disabled in this field.
The choice: Enabled, Disabled.

● **Onboard Serial Port 1/Port 2**
  Select an address and corresponding interrupt for the first and second serial ports.
  The choice: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.

● **UART Mode Select**
  This item allows you to select UART mode.
  The choice: IrDA, ASKIR, Normal.

● **UR2 Duplex Mode**
  This item allows you to select the IR half/full duplex funcion.
  The choice: Half, Full.

● **Onboard Parallel Port**
  This item allows you to determine access onboard parallel port controller with which I/O address.
  The choice: 3BC/IRQ7, 378/IRQ7, 278/IRQ5, Disabled.

● **Parallel Port Mode**
  Select an operating mode for the onboard parallel (printer) port. Select *Normal, Compatible,* or *SPP* unless you are certain your hardware and software both support one of the other available modes.
  The choice: SPP, EPP, ECP, ECP+EPP.

● **ECP Mode Use DMA**
  Select a DMA channel for the parallel port for use during ECP mode.
  The choice: 3, 1.

7.7　　Power Management Setup

The Power Management Setup allows you to save energy of your system effectively. It will shut down the hard disk and turn OFF video display after a period of inactivity.

```
                Phoenix - AwardBIOS CMOS Setup Utility
                       Power Management Setup
+==================================================+=======================+
| ACPI Function            [Enabled]            ^ |     Item Help         |
| Power Management         [User Define]          |-----------------------|
| Video Off Method         [DPMS]                 | Menu Level    *       |
| Video Off In Suspend     [No]                   |                       |
| HDD Power Down           [Disabled]             |                       |
| Soft-Off by PWR-BTTN     [Instant-Off]          |                       |
|                                                 |                       |
| ***** Power On Function *****                   |                       |
| ACPI Suspend Type        [S1(POS)]              |                       |
| Suspend Mode             [Disabled]             |                       |
|  Wake-Up by PCI card     [Enabled]              |                       |
|  Power On by Ring        [Enabled]              |                       |
|  Resume by Alarm         [Disabled]             |                       |
| x  Date(of Month) Alarm       0                 |                       |
| x  Time(hh:mm:ss) Alarm       0 :  0 :  0       |                       |
| FDD,COM,LPT Port         [Disabled]             |                       |
| POWER ON Function        [BUTTON ONLY]          |                       |
| x KB Power ON Password       Enter              |                       |
| x Hot Key Power ON           Ctrl-F1          V |                       |
+==================================================+=======================+
         F5:Previous Values           F7: Optimized Defaults
```

● **ACPI Function**
   This item allows you to enable/disable the Advanced Configuration and Power Management (ACPI). The choice: Enabled, Disabled.

● **Power Management**
   This item allows you to select the Power Management mode. The choice: User Define, Min Saving, Max Saving.

● **Video Off Method**
   In suspending, this item allows you to select the CRT closed method under APM mode.
   The choice: Blank Screen, V/H SYNC+Blank, DPMS

● **Video Off In Suspend**
   This option is used to determine whether the video is turned off when the system enters sleep mode. The seeting values are " No " and " Yes ".

● **HDD Power Down**
When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.
The choice: Enabled, Disabled.

● **Soft-Off by PWR-BTTN**
Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has "hung."
The choice: Delay 4 Sec, Instant-Off.

● **ACPI Suspend Type**
This item allows you to select the suspend type. Stop Grant means wake up by IRQ, and PowerOn Suspend means wake up by ACPI wake up event.
The choice: Stop Grant, PwrOn Suspend.

● **Suspend Mode**
When enabled and after the set time of system inactivity, all devices except the CPU will be shut off.
The choice: Enabled, Disabled.

- **Wake-Up By PCI card**
  If this item is enable, it allows the system to resume from a software power down or power saving mode whenever there is an Incoming call to an installed fax/modem. This function needs to be supported by the relevant hardware and software. The setting values are Disable and Enabled.

- **Power On by Ring**
  An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) awakens the system from a soft off state.
  The choice: Enabled, Disabled.

- **Resume by Alarm**
  When *Enabled,* your can set the date and time at which the RTC (real-time clock) alarm awakens the system from Suspend mode.
  The choice: Enabled, Disabled.

- **FDD, COM, LPT Port**
  The default value is "Disabled".

- **POWER ON Function**
  This field allows you to use the keyboard or PS/2 mouse to power-on the system

- **KB Power On Password**
  Move the cursor to this field and press <Enter>.Enter your password. You con enter up to 5 characters. Type in exactly the same password to confirm, then press<Enter>

- **Hot Key Power On**
  This field is used to select a function key that you would like to use to power-on the system

- **PWRON After PWR-Fail**
  This item allows you to select if you want to power on the system after power failure.The choice: Off, On, Former-Sts.

7.8   PNP/PCI Configuration

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

```
              Phoenix - AwardBIOS CMOS Setup Utility
                       PnP/PCI Configurations
+==============================================+=======================+
|   Reset Configuration Data  [Disabled]       |      Item Help        |
|                                              |-----------------------|
|   Resources Controlled By   [Manual]         | Menu Level    *       |
| * IRQ Resources             [Press Enter]    |                       |
|                                              | Default is Disabled.  |
|   PCI/VGA Palette Snoop      [Disabled]      | Select Enabled to     |
|                                              | reset Extended System |
|   ** PCI Express relative items **           | Configuration Data    |
|   Maximum Payload Size       [4096]          | ESCD) when you exit   |
|                                              | Setup if you have     |
|                                              | installed a new add-on|
|                                              | and the system        |
|                                              | reconfiguration has   |
|                                              | caused such a serious |
|                                              | conflict that the OS  |
|                                              | cannot boot           |
|                                              | █                     |
|                                              |                       |
|                                              |                       |
+==============================================+=======================+
|        F5:Previous Values         F7: Optimized Defaults            |
```

● **Reset Configuration Data**
   Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup or if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system can not boot. The options available are Enabled and Disabled.

● **Resource controlled by**
The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows®98. The options available are Auto and Manual.

● **IRQ Resources**
When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.

● **PCI/VGA Palette Snoop**
Leave this field at *Disabled*.
The choice: Enabled, Disabled.

● **Maximum Payload Size**
This option is used to set maximum TLP payload size for PCI express devices. The unit is byte. The available setting value Are : 128, 256, 512, 1024, 2048, 4096

7.9   PC Health Status

This option configures the PCI bus system. All PCI bus systems on the system use INT#, thus all installed PCI cards must be set to this value.

```
                 Phoenix - AwardBIOS CMOS Setup Utility
                           PC Health Status
+===============================================+=======================+
| Current CPU Temp.           50 C/122 F        |       Item Help       |
| Current System1 Temp.       44 C/111 F        |-----------------------|
| Current System2 Temp.       37 C/ 98 F        | Menu Level    *       |
| Current CPUFAN Speed.       5625 RPM          |                       |
| Current System1 Speed.         0 RPM          |                       |
| Current System2 Speed.         0 RPM          |                       |
| VCore                       1.32 V            |                       |
| VTT                         1.04 V            |                       |
| 3.3V                        3.31 V            |                       |
| + 5 V                       4.91 V            |                       |
| +12 V                      11.91 V            |                       |
| -12 V                      12.19 V            |                       |
| - 5 V                       5.04 V            |                       |
| VBAT(V)                     3.21 V            |                       |
| 5VSB(V)                     5.40 V            |                       |
|                                               |                       |
|                                               |                       |
|                                               |                       |
+===============================================+=======================+
          F5:Previous Values           F7: Optimized Defaults
```

● **Current CPU Temp.**
  The current system CPU temperature will be automatically detected by the system.

● **Current System1 Temp.**
  Show you the current system1 temperature.

● **Current System2 Temp.**
  Show you the current system2 temperature.

● **Current CPUFAN Speed**
  These optional and read-only fields show the current speeds in RPM (revolution per minute) for the CPU fan and chassis fan as monitored by the hardware monitoring IC.

● **Current System1 Speed**
  These fields will show the fan speed of the cooling fans in RPM(Revolutions Per Minute)

● **Current System2 Speed.**
  These fields will show the fan speed of the cooling fans in

RPM(Revolutions Per Minute)

● **+3.3V/+5V/+12V/-12V/-5V/VBAT(V)/5VSB**
Show you the voltage of +3.3V/+5V/+12V/-12V/-5V.

7.10 Load Optimized Defaults

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N)? N

Pressing "Y" loads the default values that are factory settings for optimal performance system operations

7.11 Supervisor/User Password Setting

You can set either supervisor or user password, or both of then. The differences between are:

Set Supervisor Password: can enter and change the options of the setup menus.

Set User Password: just can only enter but do not have the right to change the options of the setup menus. When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:

Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

PASSWORD DISABLED.

When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option (see Section 3). If the Security option is set to "System", the password will be required both at boot and at entry to Setup. If set to "Setup",

prompting only occurs when trying to enter Setup.

7.12 Exit Setting

Save & Exit Setup

Pressing <Enter> on this item asks for confirmation:

Save to CMOS and EXIT (Y/N)? Y

Pressing "Y" stores the selections made in the menus in CMOS – a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values the system is restarted again.

Exit Without Saving

Pressing <Enter> on this item asks for confirmation:

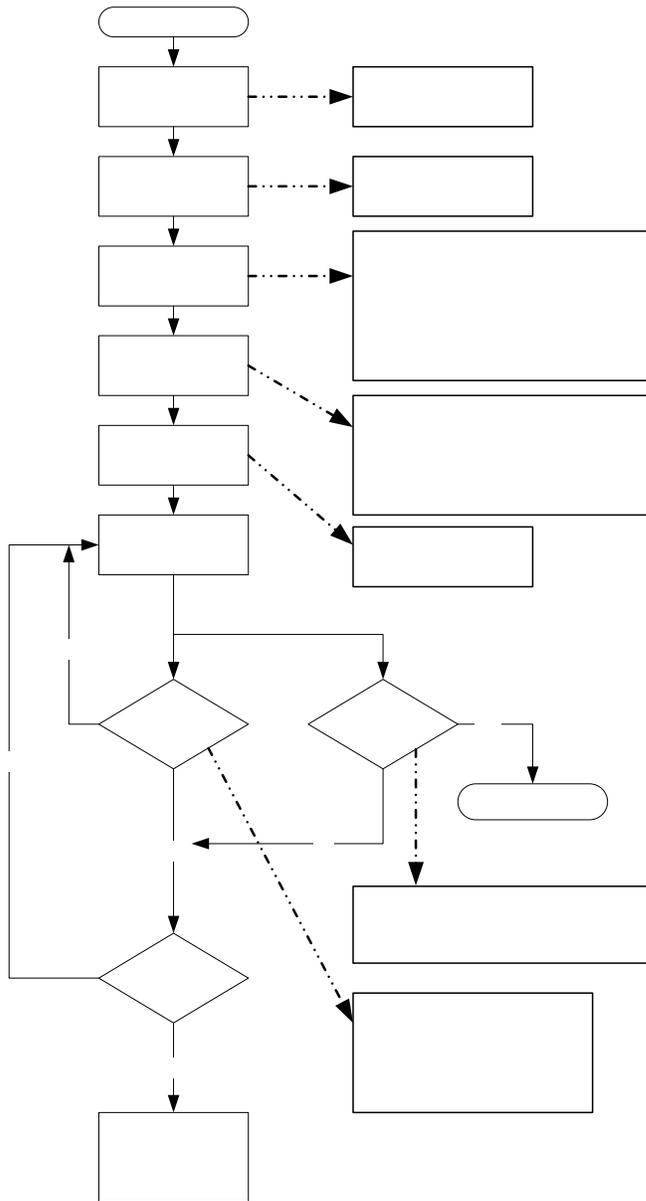**Quit without saving (Y/N)? Y**

This allows you to exit Setup without storing in CMOS any change. The previous selections remain in effect. This exits the Setup utility and restarts your compute

A p p e n d i x   A
Watchdog Timer

Please follow the below WDT process for setup the WDT function.

A p p e n d i x B
PCI IRQ ROUTING

Device	Slot	AD	IRQ
PCI Slot 1	0	31	BCDA
PCI Slot 2	1	30	CDAB
PCI Slot 3	2	29	DABC
PCI Slot 4	3	28	ABCD
MiniPCI	0	27	BC
Realtek Lan	5	26	E