



User's Manual

2807670

Version 1.01

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0. PREFACE

0.1 COPYRIGHTS

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0.2 WELCOME TO THE 2807670 CPU BOARD

This guide introduces the 2807670 CPU Board.

Use information provided in this manual describes this card's functions and features. It also helps you start, set up and operate your 2807670. General system information can also be found in this publication.

0.3 BEFORE YOU USE THIS GUIDE

Please refer to the Chapter 3, "Setting System," in this guide, if you have not already installed this 2807670. Check the packing list before you install and make sure the accessories are completely included.

2807670 CD provides the newest information regarding the CPU card. Please refer to the files of the enclosed utility CD. It contains the modification and hardware & software information, and adding the description or modification of product function after manual printed.

0.4 RETURNING YOUR BOARD FOR SERVICE

If your board requires any services, contact the distributor or sales representative from whom you purchased the product for service information. If you need to ship your board to us for service, be sure it is packed in a protective carton. We recommend that you keep the original shipping container for this purpose.

You can help assure efficient servicing for your product by following these guidelines:

1. Include your name, address, daytime telephone, facsimile number and E-mail.
2. A description of the system configuration and/or software at the time of malfunction.
3. A brief description of the problem occurred.

0.5 TECHNICAL SUPPORT AND USER COMMENTS

Users comments are always welcome as they assist us in improving the quality of our products and the readability of our publications. They create a very important part of the input used for product enhancement and revision.

We may use and distribute any of the information you provide in any way appropriate without incurring any obligation. You may, of course, continue to use the information you provide.

0.6 STATIC ELECTRICITY PRECAUTIONS

Before removing the board from its anti-static bag, read this section about static electricity precautions. Static electricity is a constant danger to computer systems. The charge that can build up in your body may be more than sufficient to damage integrated circuits on any PC board. It is, therefore, important to observe basic precautions whenever you use or handle computer components. Although areas with humid climates are much less prone to static build-up, it is always best to safeguard against accidents that may result in expensive repairs. The following measures should be sufficient to protect your equipment from static discharge:

- „ Touch a grounded metal object to discharge the static electricity in your body (or ideally, wear a grounded wrist strap).
- „ When unpacking and handling the board or other system components, place all materials on an anti-static surface.
- „ Be careful not to touch the components on the board, especially the “golden finger” connectors on the bottom of the board.

1. INTRODUCTION

Welcome to the 2807670 Embedded Intel Core Duo Gaming Board Computer. The 2807670 Intel® Core Duo embedded board incorporates the Intel® advanced 945GM Chipset that supports processors from 1GHz to 2.16GHz in 479-ball Micro-FCBGA package with a front size bus of 667MHz.

Graphics display functionality is provided by the Intel GMCH 945GM that supports CRT display & TV-out & DVI-D and LVDS interface with 18-bits single channel and 2x18-bits dual channel. Ethernet connectivity comes from the ICH7M that integrated Ethernet 10/100Mbps controller.

Two SO-DIMM sockets support dual channel 667/533 MHz DDRII system memory. Memory capacities up to 4GB . Six serial ports are supported. There are two IDE connectors and one CF type II socket share with single IDE channel and two Serial-ATA disk interface.

Other I/O features include six USB ports connector and two USB port using pin headers. Expansion slots composed of one PCI slot and one PCI Express 16X slot. 2807670 uses a 20-pin ATX power.

1.1 PACKING LIST

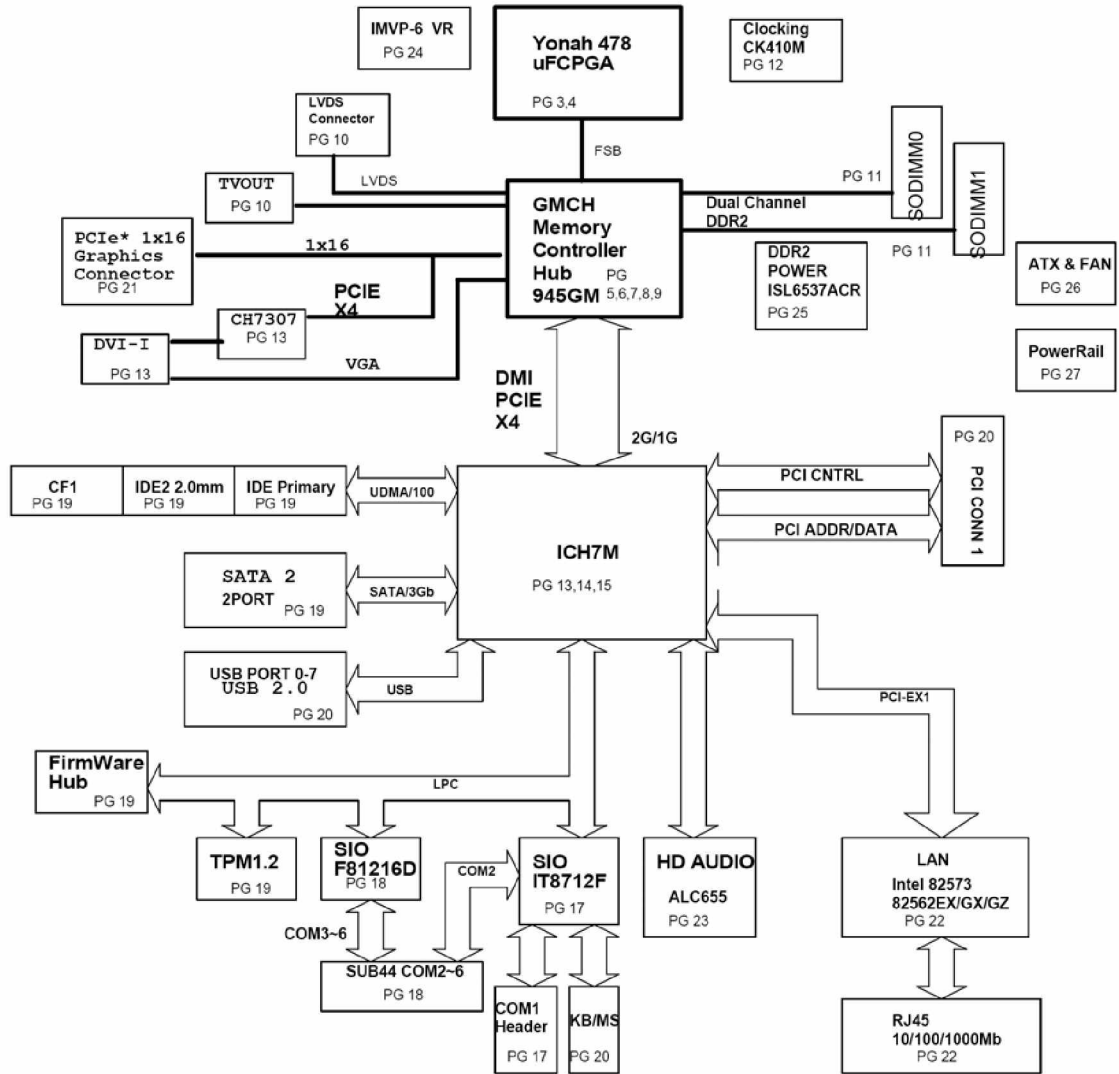
In addition to this *User's Manual*, the 2807670 package includes the following items:

- „ The quick setup manual x 1
- „ 2807670 Embedded Intel Core Duo Gaming Board x 1
- „ Software utility CD x 1
- „ CPU Cooler x 1
- „ Internal USB cable x 1
- „ PS/2 keyboard / mouse cable x 1
- „ 10-pin to DB15 VGA cable x 1
- „ 10-pin to DB9 RS-232 cable x 1
- „ D-SUB 44-pin for 5 serial ports cable x 1
- „ ATA 100 HDD cable x 1
- „ TV out cable for S-video & CVBS

1.2 SPECIFICATIONS

Model Name	2807670
CPU Type	Intel Core Duo & Solo Processors FSB 667MHz (ULV Type:FSB 533MHz)
CPU Voltage	0.0125V ~ 1.5V
CPU Frequency	1GHz ~ 2.16GHz
Chipset	GMCH:Intel 945GM, 1466-Micro-FCBGA ICH7M:Intel 82801GBM, 652-mBGA
BIOS	Award BIOS, support ACPI function
Cache	2M L2 cache
Video	GRAPHICS:Intel GMCH 945GM 1. CRT 2x5 2.0mm pin header 2. 18-bits single channel and 2x18-bits dual channel LVDS pin header 3. Integrated power pin header for LCD backlight inverter control 4. DVI-D display with external socket 5. S-Video & CVBS TV-out pin header 6. Supports concurrent and simultaneous Dual display
LAN	ICH7M Integrated LAN controller (10/100Mbps) + Intel 82562GZ PLC + RJ45 connector
Audio	1.Built-in Sound controller(ICH7M)+AC97 code (ALC655) 2.Line-out, Line-in, MIC-in (2.54mm 2x6 pin header)
Memory Type	1. Two SO-DIMM sockets support dual channel 667/533 MHz DDR2 system memory 2. Up to 4 Giga Bytes DDR2 SDRAM
LPC I/O	ITE IT8712F 1. Support two serial Ports COM1 2.0mm 2x5 box pin header(share with RS485/422) COM2 integrated into the CN1 first COM port 2. Support Hardware monitor 3. System FAN speed control 4. 8 bits programmable GPIO 5. IrDA 2.54mm 1x5 pin header (Option) Fintek F81216DG 1. Support four serial Ports (COM3~COM6 CN1 connector)
RTC/CMOS	ICH7M Built-in
Battery	Lithium Battery
KB&MS Controller	Integrated into ITE IT8712F 1. Internal PS2 keyboard/mouse pin header 2. Hardware keyboard lock/unlock jumper
Storage	Single IDE channel ICH7M integrated 1. One 40-pin box header (UDMA 33/66/100) 2. One 44-pin box header (UDMA 33) Two SATA disk interface
Compact Flash	Type II socket, share with IDE channel (support PIO mode)
USB	1. six USB 2.0 ports (External six USB A-type socket) 2. two USB 2.0 port (Internal one 2.54mm 2x4 pin header)
WatchDog Timer	1~255 seconds programmable
Power Input	20-pin ATX Power connector
Expansion Slots	1. One 32-bits 33MHz PCI slot 2. One PCI Express 16X slot
From factor	200mmx170mm

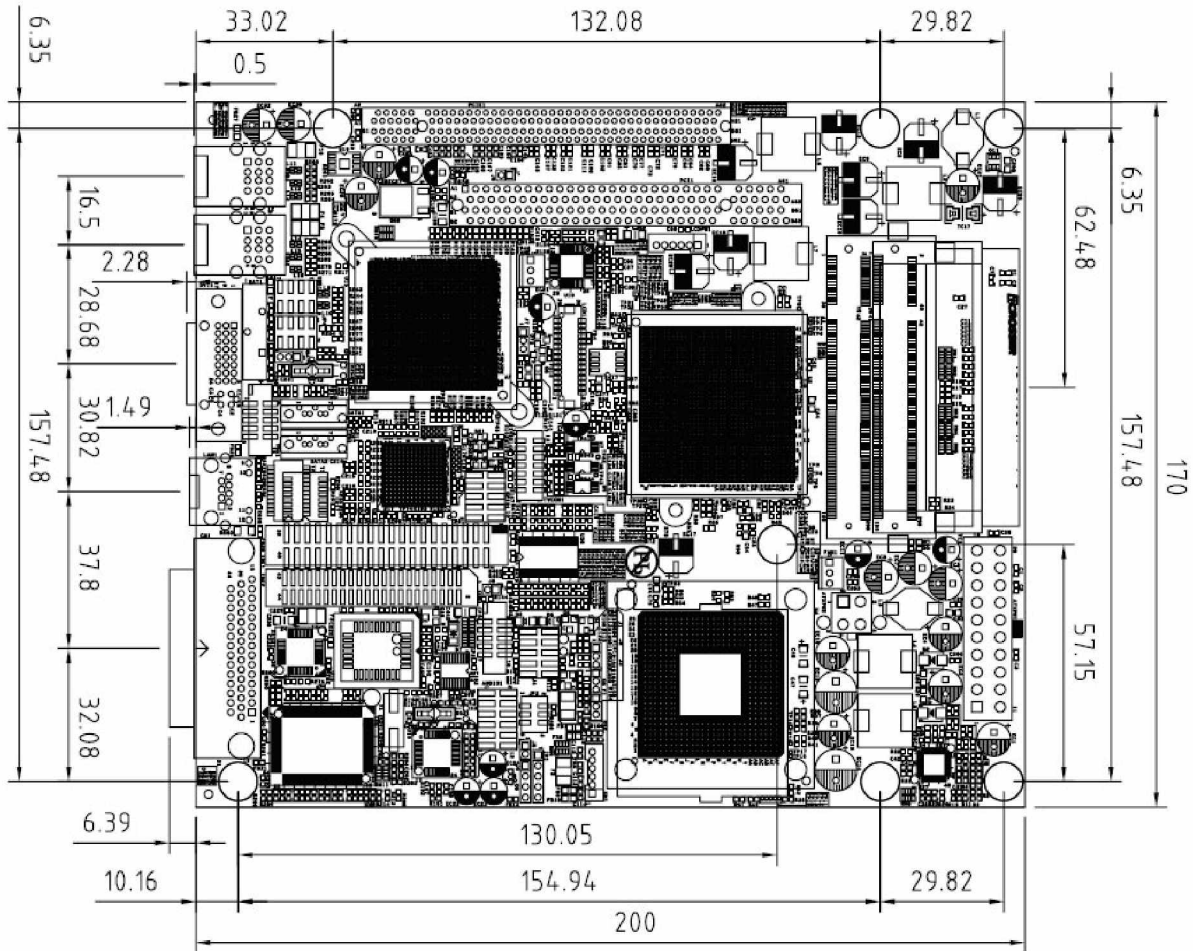
1.3 BLOCK DIAGRAM



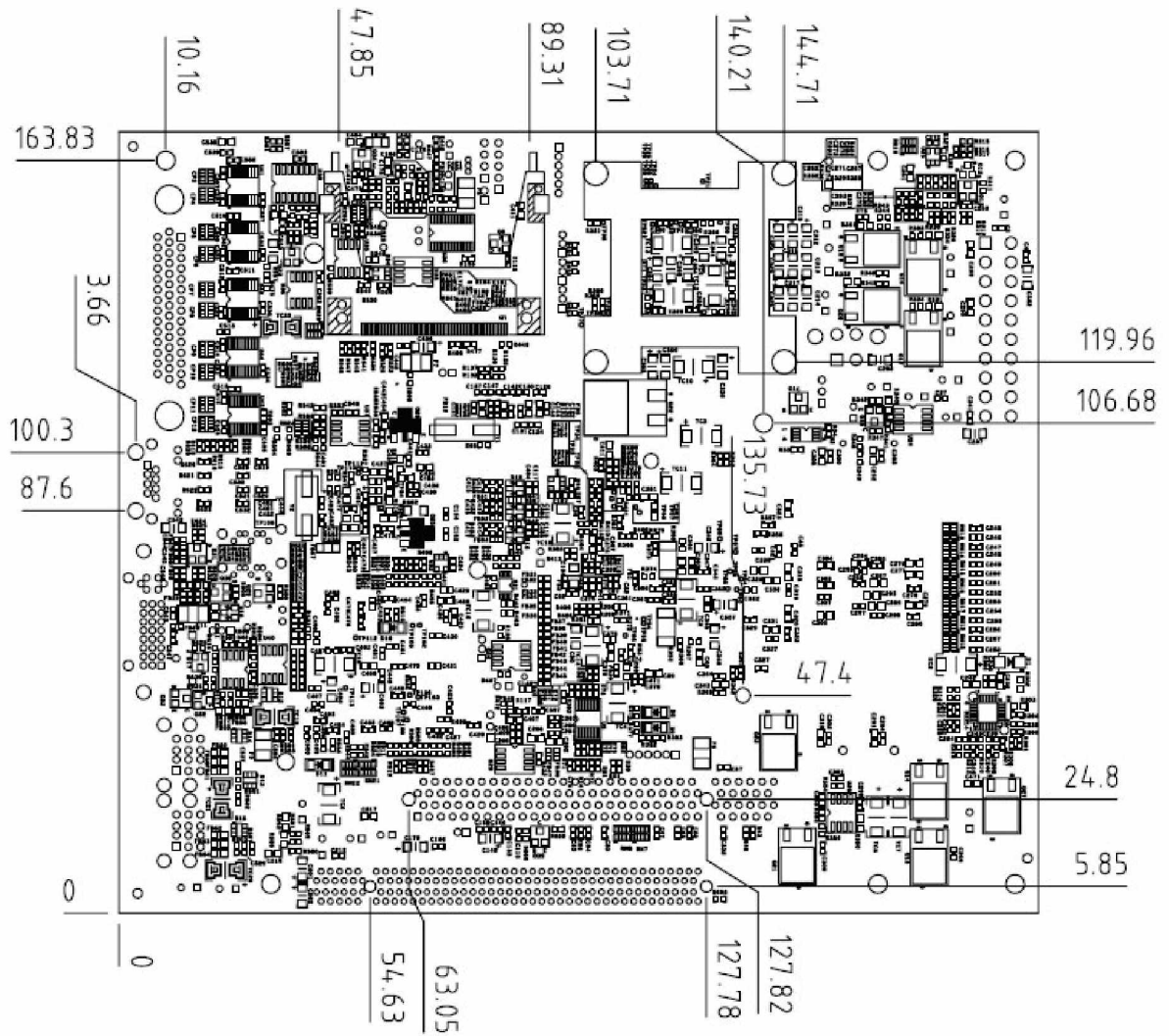
2. INSTALLATION

This chapter describes how to install the 2807670. At first, the layout of 2807670 is shown, and the unpacking information that you should be careful is described. The jumpers and switches setting for the 2807670's configuration are as below.

2.1 2807670'S BOARD DIMENSIONS(TOP)



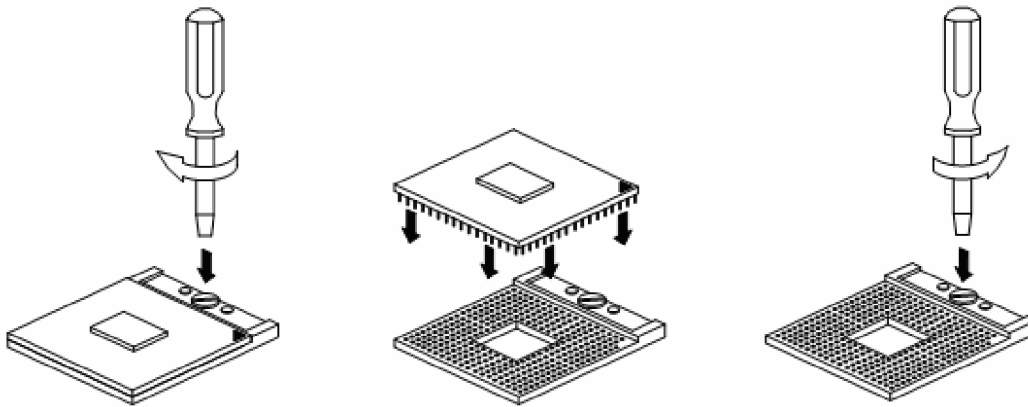
2.2 2807670'S BOARD DIMENSIONS(BOTTOM)



2.2 CPU INSTALLATION

The 2807670 embedded board supports a mPGA478MT processor socket for Intel® Core Duo or Core solo processors.

The processor socket comes with a screw to secure the processor. As shown in the left picture below, loosen the screw first before inserting the processor. Place the processor into the socket by making sure the notch on the corner of the CPU corresponds with the notch on the inside of the socket. Once the processor has slide into the socket, fasten the screw. Refer to the figures below.



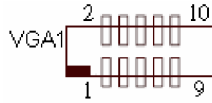
After you have installed the processor into the socket, check if the jumpers for the CPU type and speed are correct.

3. CONNECTION

The connectors on 2807670 allows you to connect external devices such as USB devices, serial port drives, hard disk devices, display connector ,etc. The following table lists the connectors on 2807670 and their respective functions.

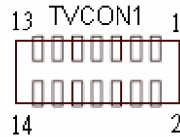
3.1 VGA DISPLAY PIN HEADER (VGA1)

Monitor can be connected to VGA cable.



PIN	Signal	PIN	Signal
1	RED	2	GND
3	GREEN	4	GND
5	BLUE	6	GND
7	VSYNC	8	SCL
9	HSYNC	10	SDA

3.2 TV-OUT S-VIDEO/CVBS DISPLAY PIN HEADER (TVCON1)



PIN	Signal	PIN	Signal
1	S-Video Y	2	N.C
3	GND	4	N.C
5	CVBS	6	N.C
7	GND	8	N.C
9	S-Video Pr	10	N.C
11	GND	12	N.C
13	N.C	14	N.C

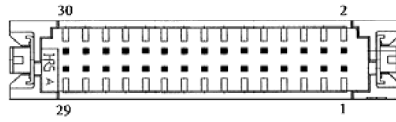
3.3 THE POWER SELECTION OF LVDS PANEL L (J7)



PIN	Indication	Note
1-2	+5V	
2-3	+3.3V	Factory preset

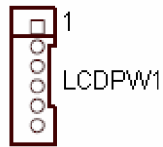
3.4 LVDS PIN HEADER (LCD1)

18-bits single channel and 2x18-bits dual channel LVDS pin header



PIN	SIGNAL	PIN	SIGNAL
1	VCC_LVDS	2	GND
3	RXEC-	4	RXEC+
5	GND	6	RXE2-
7	RXE2+	8	GND
9	RXE1-	10	RXE1+
11	N.C.	12	N.C.
13	RXE0+	14	RXE0-
15	GND	16	RXOC+
17	RXOC-	18	GND
19	RXO2+	20	RXO2-
21	DDCLK	22	RXO1+
23	RXO1-	24	DDDATA
25	RXO0+	26	RXO0-
27	N.C.	28	N.C.
29	VCC_LVDS	30	VCC_LVDS

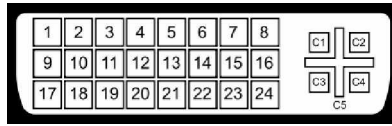
3.5 POWER PIN HEADER FOR LCD BACKLIGHT INVERTER CONTROL (LCDPW1)



PIN	SIGNAL
1	+12V
2	+12V
3	GND
4	LBKLT_EN
5	GND
6	LBKLT_CTL

3.6 DVI-D CONNECTOR (CN1)

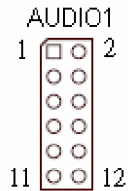
Monitor can be connected to DVI-D port.



PIN	SIGNAL	PIN	Signal	PIN	Signal
1	TDC2-	9	TDC1-	17	TDC0-
2	TDC2+	10	TDC1+	18	TDC0+
3	GND	11	GND	19	GND
4	N.C.	12	N.C.	20	N.C.
5	N.C.	13	N.C.	21	N.C.
6	DDCLK	14	+5V	22	GND
7	DDCDATA	15	GND	23	TDCLK+
8	VSYNC	16	HPD	24	TDCLK-
C1	RED	C3	BLUE	C5	GND
C2	GREEN	C4	HSYNC	C6	GND

3.7 AUDIO LINE OUT/LINE IN/MIC HEADER (AUDIO1)

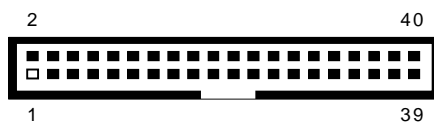
Include Line out, Line in, and MIC. Devices like CD-ROM, walkman etc. can be connected to line in. Connect the speaker, earphone to line out. Microphone can be connected to MIC.



Pin	Signal	Pin	Signal
1	LINEOUTR	2	LINEOUTL
3	GND	4	GND
5	LINEINR	6	LINEINL
7	GND	8	GND
9	N.C.	10	MICIN1
11	GND	12	+12V

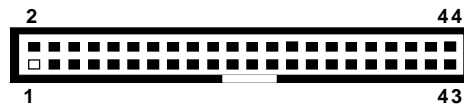
3.8 HARD DISK (IDE) CONNECTOR (IDE1, IDE2)

There is only one IDE channel. Compact Flash (CF1) and IDE 1&2 share the same channel. IDE1 can supports up to ATA100 while independently using.



IDE1 : IDE Channel Box Header

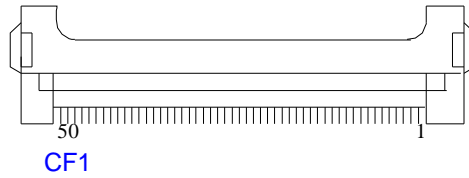
PIN	SIGNAL	PIN	SIGNAL
1	IDERST	2	GND
3	PDATA7	4	PDATA8
5	PDATA6	6	PDATA9
7	PDATA5	8	PDATA10
9	PDATA4	10	PDATA11
11	PDATA3	12	PDATA12
13	PDATA2	14	PDATA13
15	PDATA1	16	PDATA14
17	PDATA0	18	PDATA15
19	GND	20	N.C.
21	PDDREQ	22	GND
23	PDDIOW	24	GND
25	PDDIOR	26	GND
27	PIORDY	28	GND
29	PDDACK	30	GND
31	IDEIRQ	32	N.C.
33	PDA1	34	P66DET
35	PDA0	36	PDA2
37	PDCS1	38	PDCS3
39	HDDLED	40	GND



IDE2 : IDE Channel Box Header

PIN	SIGNAL	PIN	SIGNAL
1	IDERST	2	GND
3	PDATA7	4	PDATA8
5	PDATA6	6	PDATA9
7	PDATA5	8	PDATA10
9	PDATA4	10	PDATA11
11	PDATA3	12	PDATA12
13	PDATA2	14	PDATA13
15	PDATA1	16	PDATA14
17	PDATA0	18	PDATA15
19	GND	20	N.C.
21	PDDREQ	22	GND
23	PDDIOW	24	GND
25	PDDIOR	26	GND
27	PIORDY	28	GND
29	PDDACK	30	GND
31	IDEIRQ	32	N.C.
33	PDA1	34	P66DET
35	PDA0	36	PDA2
37	PDCS1	38	PDCS3
39	HDDLED	40	GND
41	+5V	42	+5V
43	GND	44	N.C.

3.9 COMPACT FLASH CONNECTOR (CF1)



PIN	SIGNAL	PIN	SIGNAL
1	GND	2	PDATA3
3	PDATA4	4	PDATA5
5	PDATA6	6	PDATA7
7	PDCS1	8	GND
9	GND	10	GND
11	GND	12	GND
13	+5V	14	GND
15	GND	16	GND
17	GND	18	PDA2
19	PDA1	20	PDA0
21	PDATA0	22	PDATA1
23	PDATA2	24	GND
25	GND	26	GND
27	PDATA11	28	PDATA12
29	PDATA13	30	PDATA14
31	PDATA15	32	PDCS3
33	GND	34	PDDIOR
35	PDDIOW	36	+5V
37	IRQ15	38	+5V
39	M/S SELECT	40	N.C.
41	IDERST	42	PIORDY
43	N.C.	44	+5V
45	HDDLED	46	P66DET
47	PDATA8	48	PDATA9
49	PDATA10	50	GND

Compact Flash (CF1) and IDE 1&2 share the same channel. Since a Compact Flash card is installed in the socket, please set the jumper J8 to select CF device as Master/Slave and the other as Slave/Master.

3.10 COMPACT FLASH CONNECTOR MASTER/SLAVE SELECT HEADER (J8)

Set the jumper on one compact flash device as Master and the other as Slave.



PIN	SIGNAL
ON	CF MASTER
OFF	CF SLAVE

3.11 PS2 KEYBOARD & MOUSE CONNECTOR (KM1)

To install a PS/2 port keyboard and mouse, plug the mouse to the upper port (green) and the keyboard to the lower port (purple).



PIN	SIGNAL
1	MSDAT
2	KBDAT
3	GND
4	5V_DUAL
5	MSCLK
6	KBCLK

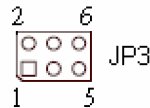
3.12 KEYBOARD LOCK JUMPER (J5)

To install a PS/2 port keyboard and mouse, plug the mouse to the upper port (green) and the keyboard to the lower port (purple).



PIN	Signal
ON	Enable Keyboard
OFF	Disable Keyboard

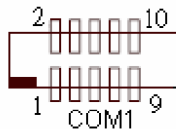
3.13 COM1 FUNCTION SELECTION (JP3)



JP3	COM1 SELECT
1-2	RS232(Default)
3-4	RS422
5-6	RS485

3.14 SERIAL PORT CONNECTOR (COM1)

Devices like mouse, modems ...etc, can be connected to serial port.



Pin	Signal	Pin	Signal
1	/DCD1	2	/DSR1
3	RX1	4	/RTS1
5	TX1	6	/CTS1
7	/DTR1	8	/RI1
9	GND	10	N.C.

3.15 RS485/RS422 SIGNAL PIN HEADER (J6)



J6	SIGNAL
1	TX
2	/TX
3	RX
4	/RX

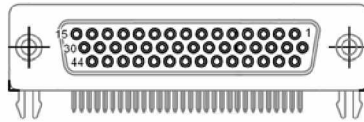
3.16 IrDA (IR1)



IR1	SIGNAL
1	VCC
2	N.C.
3	RX
4	GND
5	TX

3.17 EXTERNAL SERIAL PORT CONNECTOR (COM2~COM6)

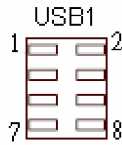
The following table describes the pin out assignments of this connector.



PIN	SIGNAL	PIN	Signal	PIN	Signal
1	/DCD2	16	/DTR2	31	/CTS2
2	RX2	17	/DSR2	32	/RI2
3	TX2	18	/RTS2	33	GND
4	/DCD3	19	/DTR3	34	/CTS3
5	RX3	20	/DSR3	35	/RI3
6	TX3	21	/RTS3	36	GND
7	/DCD4	22	/DTR4	37	/CTS4
8	RX4	23	/DSR4	38	/RI4
9	TX4	24	/RTS4	39	GND
10	/DCD5	25	/DTR5	40	/CTS5
11	RX5	26	/DSR5	41	/RI5
12	TX5	27	/RTS5	42	GND
13	/DCD6	28	/DTR6	43	/CTS6
14	RX6	29	/DSR6	44	/RI6
15	TX6	30	/RTS6		

3.18 INTERNAL USB HEADER (USB1)

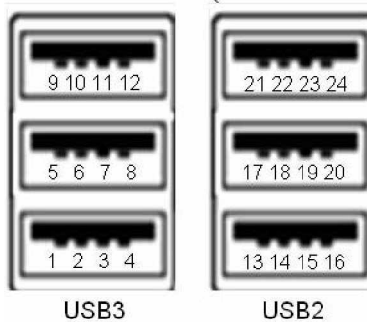
The following table shows the pin outs of the USB pin headers connectors. Overall, the one pin headers support two USB ports.



PIN	Signal	PIN	Signal
1	VCC	2	GND
3	USBD6-	4	USBD7+
5	USBD6+	6	USBD7-
7	GND	8	VCC

3.19 USB CONNECTOR (USB2,USB3)

Before you connect your device into USB connectors, please make sure your devices such as USB keyboard, mouse, scanner, zip, speaker ...etc. have a standard USB interface, Also make sure your OS supports USB controller. If your OS doesn't support USB controller, please contact OS vendor for possible patch or driver upgrade. For more information please contact your OS or devices vendors.



PIN	SIGNAL	PIN	Signal	PIN	Signal
1	VCC	9	VCC	17	VCC
2	USBD0-	10	USBD2-	18	USBD4-
3	USBD0+	11	USBD2+	19	USBD4+
4	GND	12	GND	20	GND
5	VCC	13	VCC	21	VCC
6	USBD1-	14	USBD3-	22	USBD5-
7	USBD1+	15	USBD3+	23	USBD5+
8	GND	16	GND	24	GND

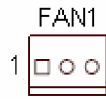
3.20 COMS BATTERY HEADER (JBAT1)

You may clear the COMS data to its default values by this jumper. To clear COMS, temporarily short pins 1-2. To prevent improper use of this header, we do not include a jumper on it.



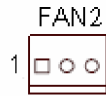
PIN	FUNCTION
1-2	Normal Operation (Factory Preset)
2-3	Clear CMOS

3.21 SYSTEM PWM CONTROL FAN CONNECTOR (FAN1)



PIN	Signal
1	GND
2	PWM FAN Control
3	SENSE

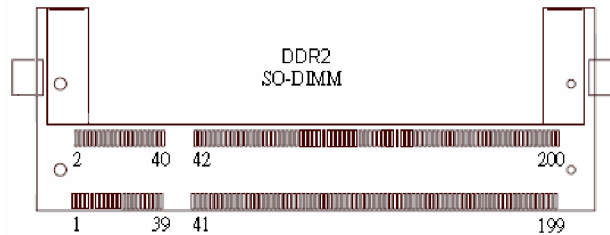
3.22 CPU FAN CONNECTOR (FAN2)



PIN	Signal
1	GND
2	+12V
3	SENSE

3.23 DDRII SDRAM SO-DIMM SOCKET (DIMM1, DIMM2)

The board has two DDRII small outline dual inline memory module (SO-DIMM) sockets.



3.24 PCI SLOT (PCI1)

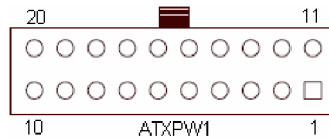
The board has one PCI slot.

3.25 PCI-E SLOT (PCIE1)

The board has one PCI-E slot.

3.26 ATX POWER CONNECTOR (ATXPW1)

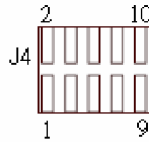
With the use of the power connector, the power supply can enough stable power to all the components on the board. Before connecting the power connector, please make sure that all components and devices are properly installed. Align the power connector with its proper location on the board and connect tightly.



PIN	SIGNAL	PIN	SIGNAL
1	+3.3V	11	+3.3V
2	+3.3V	12	-12V
3	GND	13	GND
4	+5V	14	PSON
5	GND	15	GND
6	+5V	16	GND
7	GND	17	GND
8	PWOK	18	-5V
9	+5VSB	19	+5V
10	+12V	20	+5V

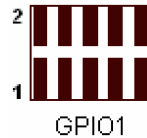
3.27 PANEL HEADER (J4)

Please connect the power LED, IDE Hard disk active LED, buzzer, reset switch and power switch etc.



J4	FUNCTION
1-2	POWER LED (1+)
3-4	HDD LED (3+)
5-6	PCBEEP (5+)
7-8	RESET BTN
9-10	POWER BTN

3.28 GENERAL PURPOSE INPUT OUTPUT (GPIO1)



PIN	Signal	PIN	Signal
1	DIO0	2	3V
3	DIO1	4	DIO7
5	DIO2	6	DIO6
7	DIO3	8	DIO5
9	GND	10	DIO4

3.29 RESERVED FUNCTION (J9)

This function have been reserved. Please follow the following setting.



PIN	Signal
ON	Factory default
OFF	

4. WATCHDOG TIMER CONFIGURATION

The WDT (Watch Dog Timer) is used to generate a variety of output signals after a user programmable count. The WDT is suitable for use in the prevention of system lock-up, such as when software becomes trapped in a deadlock. Under these sorts of circumstances, the timer will count to zero and the selected outputs will be driven. Under normal circumstance, the user will restart the WDT at regular intervals before the timer counts to zero.

4.1 WATCHDOG TIMER SETTING

The watchdog timer is a circuit that maybe be used from your program software to detect crash or hang up. The Watchdog timer is automatically disabled after reset. Once you enabled the watchdog timer, your program should trigger the watchdog timer every time before it times out. After you trigger the watchdog timer, the timer will be set to zero and start to count again. If your program fails to trigger the watchdog timer before times out, it will generate a reset pulse to reset the system.

Users could test watchdog function under 'Debug' program as follows:

```
C:>debug
- o 2e 87 ;; Enter configure
- o 2e 01
- o 2e 55
- o 2e 55
- o 2e 07 ;; select LDN
- o 2f 07
- o 2e 72
- o 2f 40 ;; watchdog used keyboard reset
- o 2e 72
- o 2f 80 ;; select second
- o 2e 73
- o 2f 08 ;;: 8 secondq
```

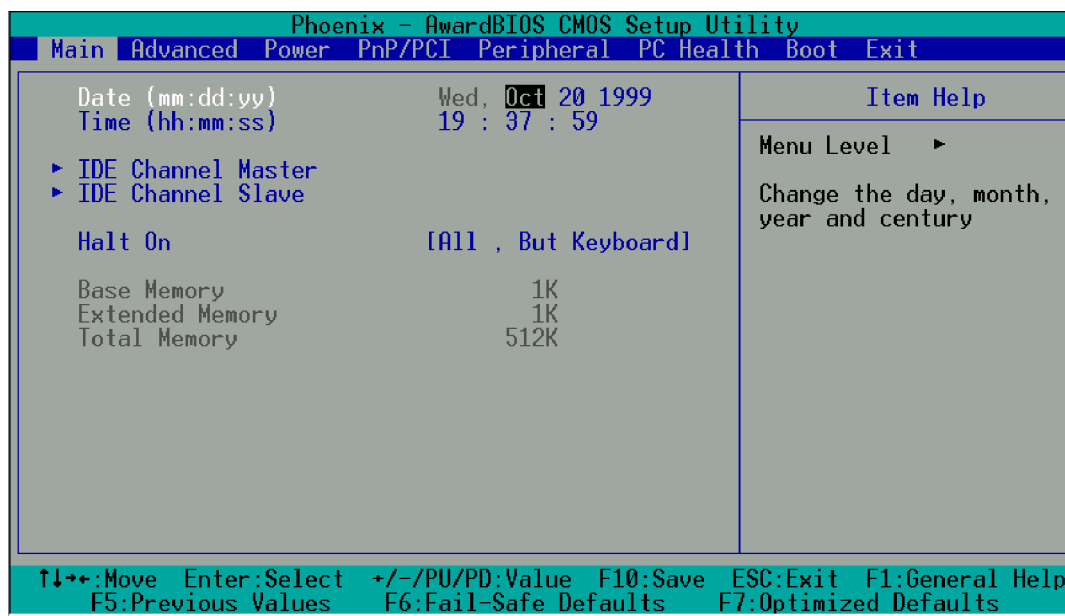
5. BIOS CONSOLE

This chapter describes the 2807670 BIOS menu displays and explains how to perform common tasks needed to get up and running, and presents detailed explanations of the elements found in each of the BIOS menus. The following topics are covered:

- z Main Setup
- z Advanced Chipset Setup
- z Power Setup
- z PnP/PCI Setup
- z Peripherals Setup
- z PC Health Setup
- z Boot Setup
- z Exit Setup

5.1 MAIN SETUP

The <Main Setup> choice allows you to record some basic hardware configuration 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 this Setup option, however, if you change your system hardware configuration, the onboard battery fails, or the configuration stored in the COMS memory was lost or damaged.



Setup Main Menu

About 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 automatically according to the memory changed. The following describes each item of this menu.

Date Setup

The date format is:

DAY: SUN to SAT

Month: Jan to Dec

Date: 1 to 31

Year: 1999 to 2099

To set the date, highlight the "Date" field and use the [Page Up] / [Page Down] or [+] / [-] keys to set the current time.

Time Setup

The time format is:

Hour: 1 to 24

Minute: 00 to 59

Second: 00 to 59

To set the time, highlight the "Time" field and use the [Page Up] / [Page Down] or [+] / [-] keys to set the current time.

IDE Channel Master/Slave

The onboard single IDE channel provide IDE connectors for connecting up to two IDE hard disks or other devices. The first is the "Master" and the second is "Slave".

Press <Enter> to configure the hard disk. The selections include Auto, Manual, and None. Select "Manual" to define the device information manually. You will be asked to enter the following items.

CYLS: Number of cylinders.

HEAD: Number of read/write heads.

PRECOMP: Write pre-compensation.

LANDING ZONE: Landing zone.

SECTOR: Number of sectors.

The Access Mode selections are as follows:

CHS: (HD<528MB)

LBA: (HD>528MB and support Logical Block Addressing)

Large: (for MS-DOS only)

Auto

Halt On

The field determines whether or not the system will halt if an error is detected during the power up.

No errors: The system boot will not be halted for any error that may be detected.

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 be halted for a keyboard error; it will stop for all other errors.

5.2 ADVANCED CHIPSET SETUP

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

The screenshot shows the Phoenix - AwardBIOS CMOS Setup Utility interface. The title bar reads "Phoenix - AwardBIOS CMOS Setup Utility". The menu bar includes "Main", "Advanced", "Power", "PnP/PCI", "Peripheral", "PC Health", "Boot", and "Exit". The "Advanced" menu is selected. The main display area shows the following settings:

Item	Value	Item Help
Hyper-Threading Technology	[Enabled]	Menu Level ▶ "Enabled" for Windows XP and Linux 2.4.x(OS optimized for Hyper Threading Technology and "Disable" for other OS(OS not optimized for Hyper Threading Technology)
Quick Power On Self Test	[Enabled]	
Full Screen LOGO Show	[Disabled]	
APIC Mode	[Disabled]	
USB Keyboard Support	[Disabled]	
PS/2 Mouse Function	[Enabled]	
PEG/Onchip VGA Control	[Auto]	
Init Display First	[PCI Slot]	
Boot Display	[CRT]	
Panel Number	[800x600]	
TV Standard	[Off]	
On-Chip Frame Buffer Size	[8MB]	
DVMT Mode	[DVMT]	
DVMT/FIXED Memory Size	[128MB]	

At the bottom of the screen, the following navigation keys are listed: ↑↓←→:Move, Enter:Select, +/-/PU/PD:Value, F10:Save, ESC:Exit, F1:General Help, F5:Previous Values, F6:Fail-Safe Defaults, F7:Optimized Defaults.

Advanced Chipset Setup

Hyper-Threading Technology

Hyper-Threading allows a single physical processor to execute two heavyweight threads (processes) at the same time, dynamically sharing processor resources. the field is set to enabled

Quick Power On Self Test

When enabled, this field speeds up the Power On Self Test (POST) after the system is turned on. If it is set to *Enable*, BIOS will skip some items.

Full Screen LOGO Show

This item enables you to show the company logo on the boot up screen. Settings are:

- | | |
|----------|---|
| Enabled | Shows a still image(logo) on the full screen at boot. |
| Disabled | Shows the POST messages at boot |

APIC Mode

APIC stands for Advanced Programmable Interrupt Controller. The default setting is Disabled.

USB Keyboard Support

The options for this field are *Enabled* and *Disabled*. By default, the field is set to *Disabled*.

PS/2 Mouse Function

The options for this field are *Enabled* and *Disabled*. By default, the field is set to *Disabled*.

PEG/Onchip VGA Control

The default setting is *Auto*. This determines which VGA controller is initialized when the system boots.

Init Display First

This setting specifies which VGA card is your primary graphics adapter. Setting options are:

- | | |
|----------|--|
| PCI Slot | The system initializes the installed PCI VGA card. |
| Onboard | The system initializes the onboard display |
| PCIEx | The system initializes the installed PCI Express card. |

Boot Display

This field selects the type of video display in your system. You can choose the following video

CRT/LVDS/CRT+LVDS/DVI/TV/CRT+DVI

Panel Number

640x480/800x600/1024x768

TV Standard

This field selects the type of TV-out display in your system. Setting options are:

Off/NTSC/PAL/SECAM

On-Chip Frame Buffer Size

The frame buffer is the video memory that is used to hold the video image displayed on the screen. The option allows the selection of frame size of 1MB, 8MB.

DVMT Mode

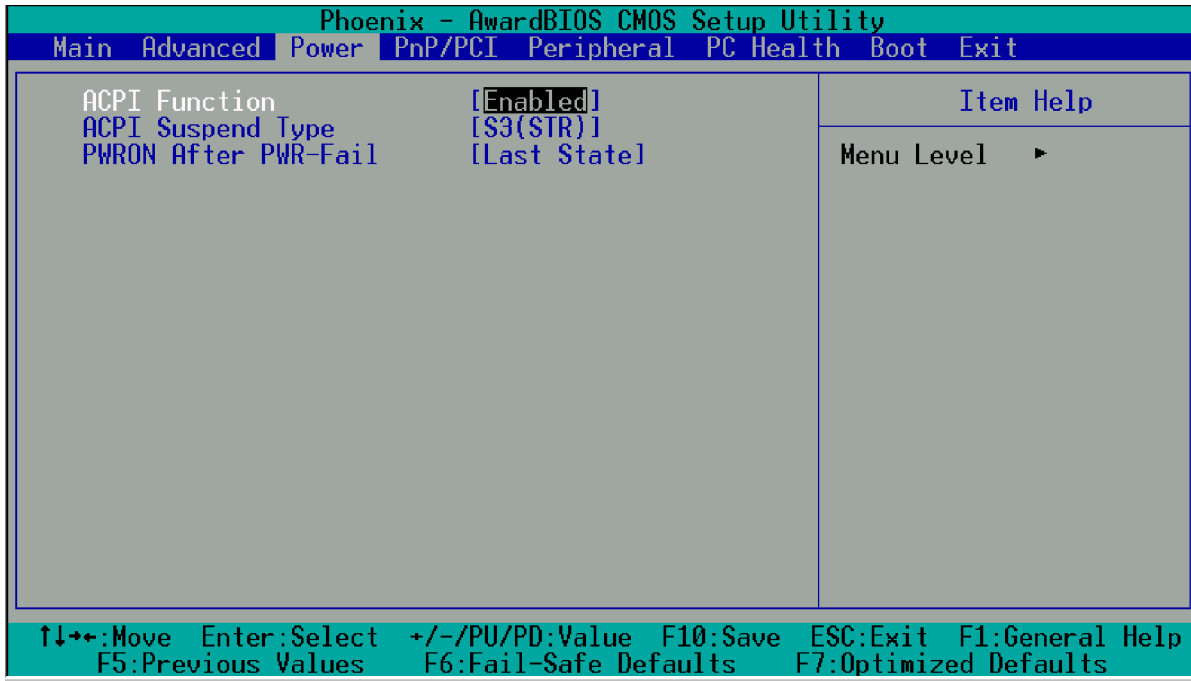
DVMT(Dynamic Video Memory Technology) dynamically responds to system requirements, and applications demands, by allocating the proper amount of display, texturing, and buffer memory after the operating system has started

DVMT/FIXED Memory Size

The option allows the selection of memory size of 64MB, 128MB, 224MB.

5.3 POWER SETUP

Use this main to specify your setting for power management.



Power Setup

ACPI Function

Enable this function to support ACPI (Advance Configuration and Power Interface).

ACPI Suspend Type

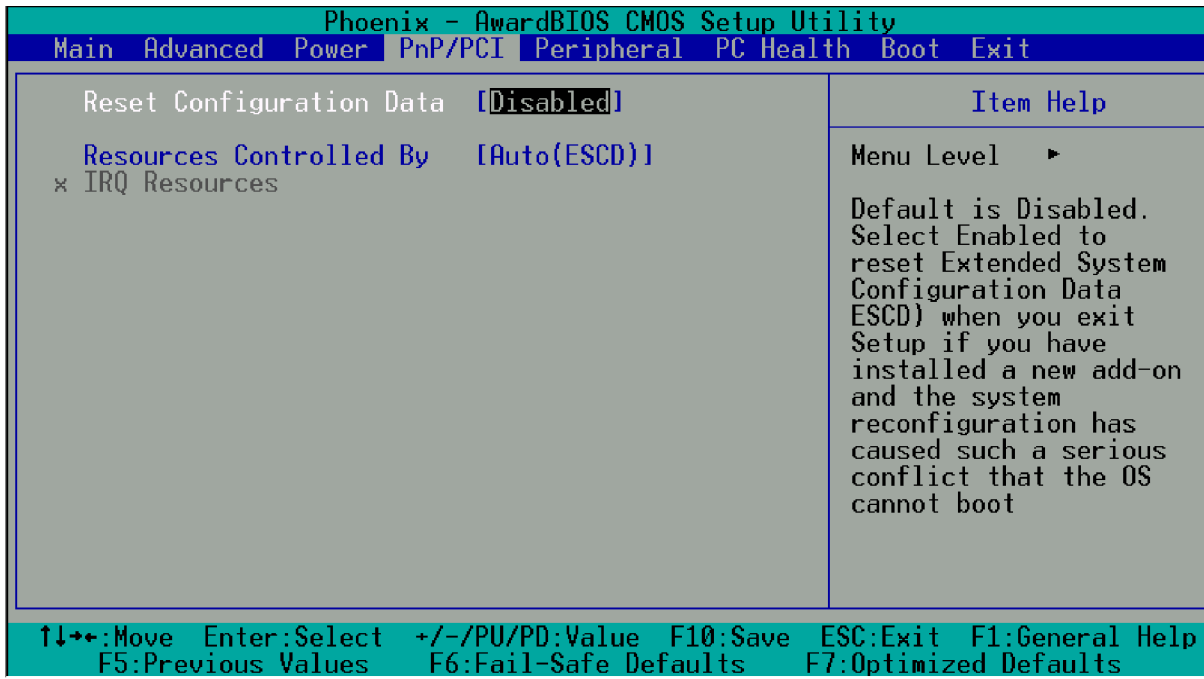
The options for this field are *S1 (POS)* and *S3 (STR)*. By default, the field is set to *S3 (STR)*.

PWRON After PWR-Fail

The field sets the system power status whether on or off when power returns from a power failure situation.

5.5 PNP/PCI SETUP

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



PnP / PCI Setup

Reset Configuration Data

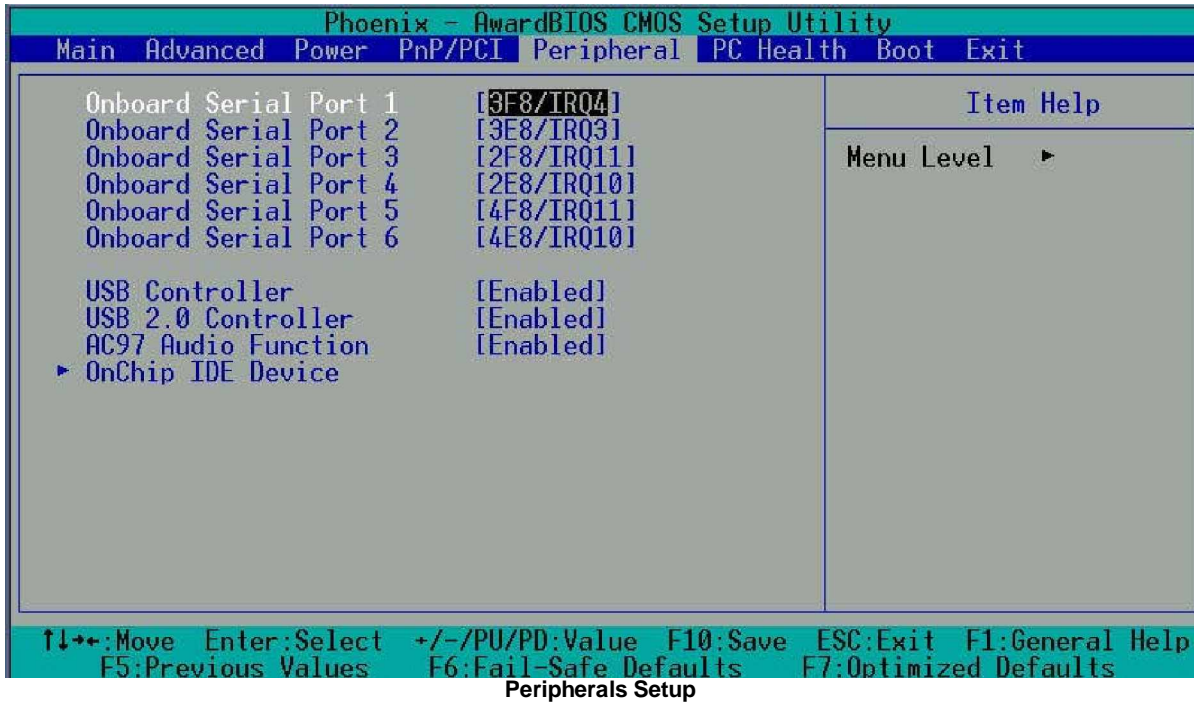
This field allow you to determine whether to reset the configuration data or not. The default value is *Disabled*.

Resources Controlled By

This PnP BIOS can configure all of the boot and compatible devices automatically with the use of a use a PnP operating system such as Windows 95.

5.4 PERIPHERALS SETUP

This option controls the configuration of the board's chipset. Control keys for this screen are the same as for the previous screen.



Onboard Serial Port 1

Onboard Serial Port 2

Onboard Serial Port 3

Onboard Serial Port 4

Onboard Serial Port 5

Onboard Serial Port 6

These fields allow you to select the on board serial ports and their addresses. The default values for these ports are:

Serial Port 1: 3F8 / IRQ4

Serial Port 2: 3E8 / IRQ3

Serial Port 3: 2F8 / IRQ11

Serial Port 4: 2E8 / IRQ10

Serial Port 5: 4F8 / IRQ11

Serial Port 6: 4E8 / IRQ10

USB Controller

The options for this field are *Enabled* and *Disabled*. By default, the field is set to *Enabled*.

USB 2.0 Controller

The options for this field are *Enabled* and *Disabled*. By default, the field is set to *Enabled*. In order to use USB 2.0, necessary OS drivers must be installed first. **Please update your system to Windows 2000 SP4 or Windows XP SP1.**

AC97 Audio

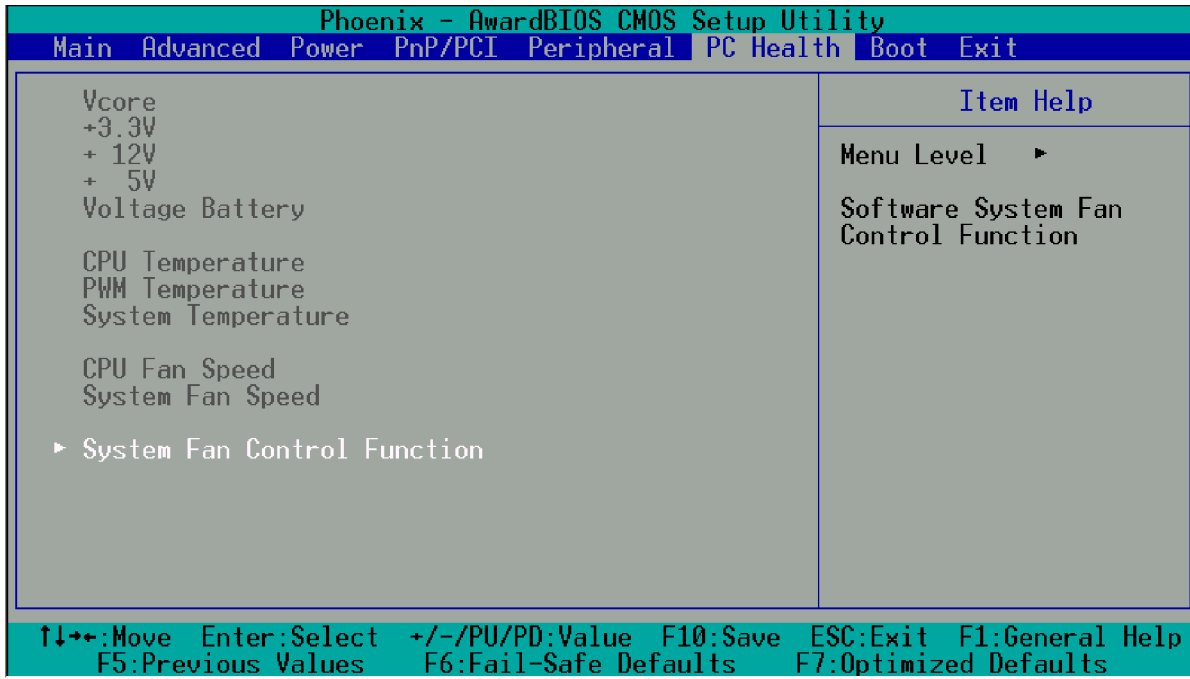
The default setting of the AC97 Audio is *Enabled*.

Onboard Lan Controller

The default setting of the Lan controller is *Enabled*.

5.6 PC HEALTH SETUP

This section shows the parameters in determining the PC Health Status. These parameters include temperatures, fan speeds, voltages.



PC Health Status

Temperature / Voltage

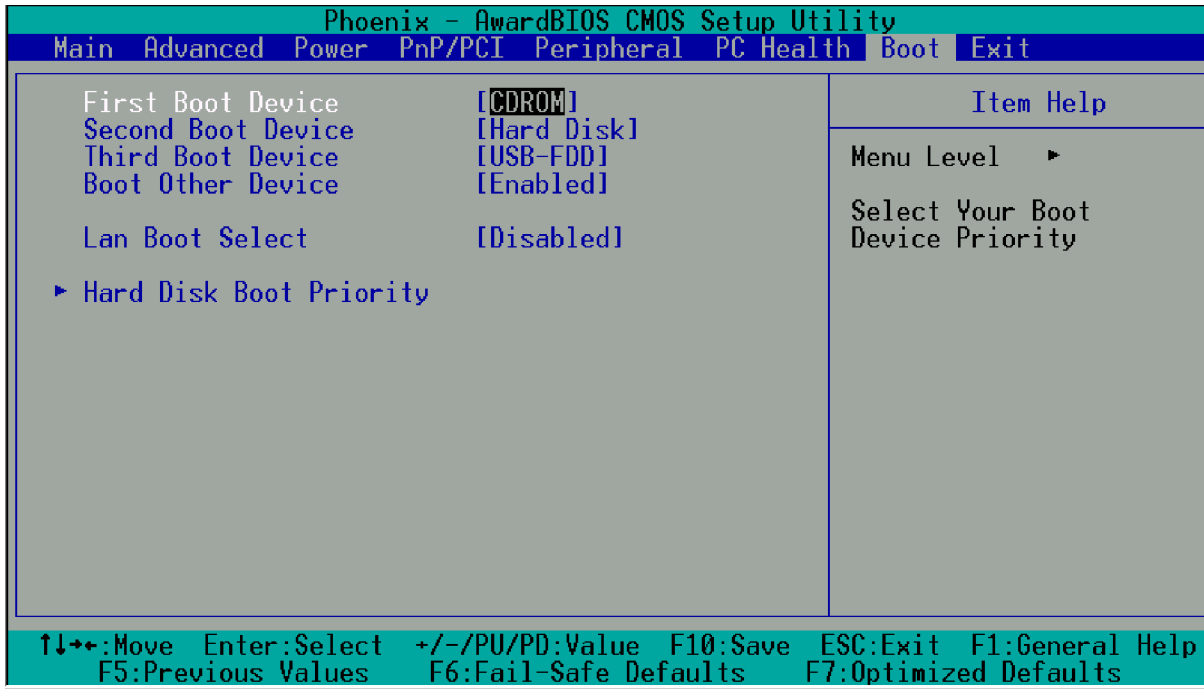
These fields are parameters of the hardware monitoring function feature of the motherboard. The values are read-only values as monitored by the system and show the PC health status.

System Fan Control Function

System Fan mode	Auto/Manual .Default setting is Auto
High Temperature	When system Temperature is higher than this value ,FAN1 turn on Default: 50°C
Low Temperature	When system Temperature is lower than this value .FAN1 turn off Default: 45°C
Fan PWM Step Value	Selection range 0~127 to setup PWM FAN turning speed Default: 127

5.7 BOOT SETUP

This section is used to exit the BIOS main menu. After making your changes, you can either save them or exit the BIOS menu and without saving the new values



PCI / Plug And Play

First / Second / Third Boot Device

These fields determine the device that the system searches first for an operating system. The option available include Hard Disk, CDROM, USB-FDD, USB-CDROM and Disable.

Boot Other Device

These fields allow the system to search for an OS from other devices other than the ones selected in the First / Second / Third Boot Device.

Lan Boot Select

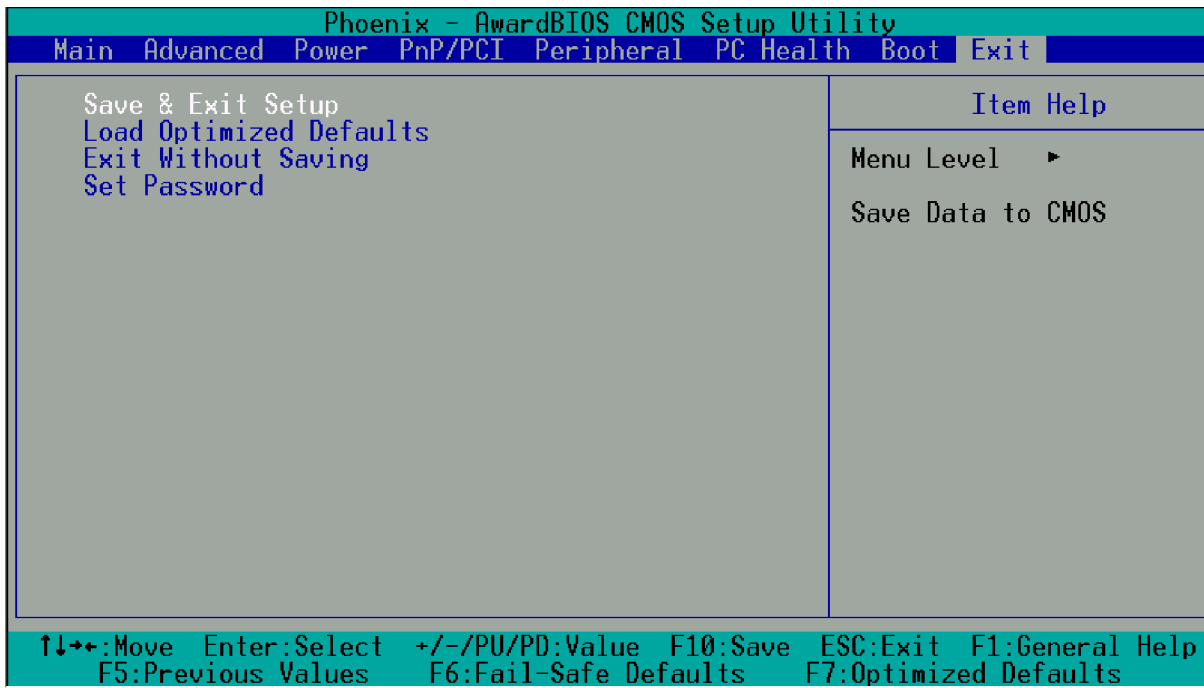
This setting is used to enable/disable the Lan Boot function.

Hard Disk Boot Priority

This item is to set up the hard disk boot device. When your hard disk devices have been changed, system bios will ask you to re-setup Hard disk boot priority.

5.8 EXIT SETUP

This section is used to configure exit mode.



Exit Setup

Save & Exit Setup

This option allow you determine whether or not to accept the modifications. If you type “Y”, You will quit the setup utility and save all changes into the CMOS memory. If you type “N”, you will return to setup utility.

Load Optimized Defaults

This option allow you to load the default values to your system configuration. These default settings are optimal and enable all high performance features.

Exit Without Saving

Select this option to exit the Setup utility without saving the changes you have made in this session. Typing “Y” will quit the Setup utility without saving the modifications. Typing “N” will return to setup utility.

5.9 BIOS UPDATE

The BIOS program instructions are contained within computer chips called FLASH ROMs that are located on your system board. The chips can be electronically reprogrammed, allowing you to upgrade your BIOS firmware without removing and installing chips.

The 2807670 provides the FLASH BIOS update function for you to easily update to a newer BIOS version. Please follow these operating steps to update to new BIOS:

Step 1: Turn on your system and don't detect the CONFIG.SYS and AUTOEXEC.BAT files.

Step 2: You will get **AWDFLASH.EXE** and **XXXXXX.BIN**, please copy them to the boot disk.

Step 3: In the MS-DOS mode, you can type the AWDFLASH and press [ENTER].

```
A:\> AWDFLASH
```

Step 4: A window will appear and ask you to type the complete BIOS file (**xxxxxx.BIN**) and press [ENTER].

Step 5: Then it will ask whether you save the old BIOS file, you can choose the YES or NO.

Step 6: Then it will ask you whether want to program it, please choose YES.

Step 7: The BIOS will start to upgrade

Step 8: When you have successfully flashed the BIOS then press the[F1] to reboot the Computer and hit [DEL] to enter the BIOS CMOS SETTING . Select "LOAD S-STUP DEFAULTS" set as YES. Then save and exit the setting

Note:

1. In order to prevent your system from hanging up during flashing BIOS, please check the new BIOS match your model name and current BIOS version.
2. In order to protect your motherboard, please don't turn off your computer during the flashing or it will damage your BIOS ROM.

6. TRUSTED PLATFORM MODULE (TPM1.2)

The basis of Trusted Computing is the Trusted Platform Module, or TPM. The TPM is a small piece of silicon affixed in a device. It securely stores digital keys, certificates and passwords and is more difficult to attack virtually or physically.

INFINEON'S TPM Security Solution provides a comprehensive hardware and software solution for safer computing targeted for today's notebook and desktop architectures. The Infineon TPM Management software enables the easy use of the most important trusted computing functions such as authentication, data integrity, system integrity, confidentiality, and availability.

The detail of the TPM functions and installation please refer to following web-address and driver CD folder "Infineon TPM"

<http://www.infineon.com>

APPENDIX A. ADDRESS MAPPING

IO ADDRESS MAP

Each peripheral device in the system is assigned a set of I/O port addresses which also becomes the identity of the device. The following table list the I/O addresses used.

I/O MAP	ASSIGNMENT
0000 – 0CF7	Direct Memory Access controller
0020 - 0021	Programmable interrupt controller
0040 - 0043	System timer
0060 - 0060	Standard 101/102 – key or Microsoft Natural Keyboard
0061 - 0061	System speaker
0070 - 0073	System CMOS/real time clock
00F0 - 00FF	Numeric data processor
01F0 - 01F7	Main IDE channel
02E8 - 02EF	Communication Port (COM4)
02F8 - 02FF	Communication Port (COM3)
03B0 – 03BB	Mobile Intel ® 945GM Express Chipset Family
03C0 – 03DF	Mobile Intel ® 945GM Express Chipset Family
03E8 - 03EF	Communication Port (COM2)
03F6 - 03F6	Main IDE channel
03F8 - 03FF	Communication Port (COM1)
04E8 - 04EF	Communication Port (COM6)
04F8 - 04FF	Communication Port (COM5)
0500 - 051F	Intel ® 82801G (ICH7 Family) SMBus Controller
EF00 – EF3F	Intel ® PRO/100 VE Network Connection
F200 – F2FF	RealTek AC'97 Audio
F800 – F80F	Intel ® 82801G (ICH7 Family) Ultra ATA Storage Controller
FB00 – FE1F	Intel ® 82801G (ICH7 Family) USB Universal Host Controller

MEMORY MAP

MEMORY MAP	ASSIGNMENT
00000000-0009FFFF	System board extension for ACPI BIOS
000D0000-000D7FFF	Unavailable for use by devices
D0000000-FDFBFFFF	Mobile Intel ® 945GM Express Chipset Family
FDFFF000-FDFFF3FF	Intel ® 82801G (ICH7 Family)USB2 Enhanced Host Controller
FDDFF000-FDDFFFFF	Intel ® PRO/100 VE Network Connection
FDFFE000-FDFFE1FF	Realtek AC'97 Audio
FFB80000-FFBFFFFF	Intel ® 82802 Firmware Hub Device

APPENDIX B. INTERRUPT REQUEST (IRQ)

Peripheral devices use interrupt request lines to notify CPU for the services required. The following table shows the IRQ used by the devices on board.

Level	HARDWARE USING THE SETTING
00	System timer
01	Standard 101/102-Key or Microsoft Natural Keyboard
02	Programmable interrupt controller
03	Communication Port (COM2)
04	Communication Port (COM1)
05	Intel® 82801G(ICH7 Family)USB Universal Host Controller
05	Intel® PRO/100 VE Network Connection
05	Realtek AC'97 Audio
08	System CMOS/real time clock
09	Microsoft ACPI-Compliant System
09	Mobile Intel® 945GM Express Chipset Family
09	Intel® 82801G(ICH7 Family)USB2 Enhanced Host Controller
10	Communication Port (COM4)
10	Communication Port (COM6)
11	Communication Port (COM3)
11	Communication Port (COM5)
12	PS/2 Compatible Mouse Port
13	Numeric data processor
14	Main IDE controller

Any advice or comments about our products and service, or anything we can help you with please don't hesitate to contact with us. We will do our best to support you for your products, projects and business.

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