

AR-B1842-G

Socket 479 Pentium® M
INDUSTRIAL GRADE
CPU BOARD
User' s Guide

Edition: 2.01

Book Number: [AR-B1842-07.0115](#)

Table of Contents

0. PREFACE	3
0.1 COPYRIGHT NOTICE AND DISCLAIMER.....	3
0.2 WELCOME TO THE AR-B1842-G CPU BOARD.....	3
0.3 BEFORE YOU USE THIS GUIDE.....	3
0.4 RETURNING YOUR BOARD FOR SERVICE.....	3
0.5 TECHNICAL SUPPORT AND USER COMMENTS.....	3
0.6 STATIC ELECTRICITY PRECAUTIONS.....	4
1. INTRODUCTION	5
1.1 PACKING LIST.....	5
1.2 SPECIFICATIONS.....	6
1.3 BLOCK DIAGRAM.....	7
2. INSTALLATION	8
2.1 AR-B1842-G'S BOARD DIMENSIONS.....	8
2.2 CPU INSTALLATION.....	9
2.3 MEMORY INSTALLATION (DDR2 SODIMM MEMORY SIZE).....	10
2.4 POWER INSTALLATION.....	10
3. CONNECTION	11
3.1 PS/2 KEYBOARD & MOUSE (CN1).....	11
3.2 KEYBOARD & MOUSE HEADER (J6).....	11
3.3 KEYBOARD LUCK/UNLCK HEADER (JP5).....	11
3.4 SERIAL PORT CONNECTOR (COM1).....	11
3.5 INTERNAL SERIAL PORT HEADER (COM2).....	11
3.6 COM2 FOR RS232 / RS422 / RS485 SELECT (JP3).....	12
3.7 RS422 / RS485 HEADER (J8).....	12
3.8 IRDA HEADER (J4).....	12
3.9 VGA CONNECTOR (VGA1).....	12
3.10 ETHERNET RJ-45 CONNECTOR (LAN1).....	12
3.11 PARALLEL PORT HEADER (J2).....	13
3.12 CPU FREQUENCY SELECT TABLE (J10).....	13
3.13 HARD DISK CONNECTOR (IDE1).....	13
3.14 COMPACT FLASH CONNECTOR (CF1).....	14
3.15 COMPACT FLASH CONNECTOR MASTER / SLAVE SELECT HEADER (JP6).....	14
3.16 AUDIO LINE IN / LINE OUT / MIC HEADER (AUDIO1).....	14
3.17 CD IN HEADER (J1).....	15
3.18 CPU FAN POWER CONNECTOR (FAN1, FAN2).....	15
3.19 COMS BATTERY HEADER (JP4).....	15
3.20 18, 24 BITS LVDS CONNECTOR (LCD1).....	15
3.21 LVDS INTERVER CONNECTOR (LCDPW1).....	15
3.22 USB PORT HEADER (USB1, USB2).....	16
3.23 DDR2 SOCKET (DDR2SODIMM1).....	16
3.24 MINI PCI SLOT (MINIPCI1).....	16
3.25 SATA CONNECTOR (SATA1, SATA2).....	16
3.26 GPIO PORT HEADER (J9).....	16
3.27 CPU VOLTAGE SELECT HEADER (JP1).....	16
3.28 PROTECT U HEADER (JP2).....	17
3.29 PANEL HEADER (J3).....	17
3.30 AT POWER CONNECTOR (PW1).....	17
4. WATCHDOG TIMER CONFIGURATION	18
4.1 WATCHDOG TIMER SETTING.....	18
5. BIOS CONSOLE	20
5.1 MAIN SETUP.....	20
5.2 ADVANCED CHIPSET SETUP.....	22
5.3 POWER SETUP.....	23
5.4 PERIPHERALS SETUP.....	24
5.5 PNP/PCI SETUP.....	26
5.6 PC HEALTH SETUP.....	27
5.7 BOOT SETUP.....	28
5.8 EXIT SETUP.....	29
5.9 BIOS UPDATE.....	30
APPENDIX A. ADDRESS MAPPING	31
IO ADDRESS MAP.....	31
APPENDIX B. INTERRUPT REQUEST (IRQ)	32

0. PREFACE

0.1 COPYRIGHT NOTICE AND DISCLAIMER

This document is copyrighted, 2006, by Acrosser Technology Co., Ltd. All rights are reserved. No part of this manual may be reproduced, copied, transcribed, stored in a retrieval system, or translated into any language or computer language in any form or by any means, such as electronic, mechanical, magnetic, optical, chemical, manual or other means without the prior written permission or original manufacturer.

Acrosser Technology assumes no responsibility or warranty with respect to the content in this manual and specifically disclaims any implied warranty of merchantability or fitness for any particular purpose. Furthermore, Acrosser Technology reserves the right to make improvements to the products described in this manual at any times without notice. Such revisions will be posted on the Internet (WWW.ACROSSER.COM) as soon as possible.

Possession, use, or copy of the software described in this publication is authorized only pursuant to valid written license from Acrosser or an authorized sub licensor.

ACKNOWLEDGEMENTS

Acrosser, AMI, IBM PC/AT, ALI, Windows 3.1, MS-DOS...are registered trademarks.

All other trademarks and registered trademarks are the property of their respective owners.

0.2 WELCOME TO THE AR-B1842-G CPU BOARD

This guide introduces the Acrosser AR-B1842-G 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 AR-B1842-G. 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 AR-B1842-G. Check the packing list before you install and make sure the accessories are completely included.

AR-B1842-G 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.

If you have any suggestions for improving particular sections or if you find any errors on it, please send your comments to Acrosser Technology Co., Ltd. or your local sales representative and indicate the manual title and book number.

Internet electronic mail to: Sales@acrosser.com

acrosser@tp.globalnet.com.tw

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 AR-B1842-G Embedded AT/ATX Single Board Computer. The AR-B1842-G Pentium® M embedded board incorporates the Intel® advanced 915GME Chipset that supports processors from 600MHz to 2.0MHz in 478-ball Micro-FCBGA package with a front side bus of 400/533MHz.

Graphics display functionality is provided by Build-in Intel Graphics Media Accelerator(GMA) that supports CRT display and LVDS interface with 2X18-bit panel specifications. Ethernet connectivity comes from the ICH6M-integrated Ethernet 10/100 Ethernet controller.

One DDR II SO-DIMM sockets supports up to 1GB of memory. Two Serial and two SATA ports are supported. There is one IDE connectors – IDE1 supporting UDMA33/66/100 while supporting a CF Type II socket for its slave channel.

Other I/O features include four USB ports connector with pin headers. Expansion slots composed of one Mini PCI slot. AR-B1842-G uses a 20-pin ATX power and a big 4-pin AT input connector.

1.1 PACKING LIST

In addition to this *User's Manual*, the AR-B1842-G package includes the following items:

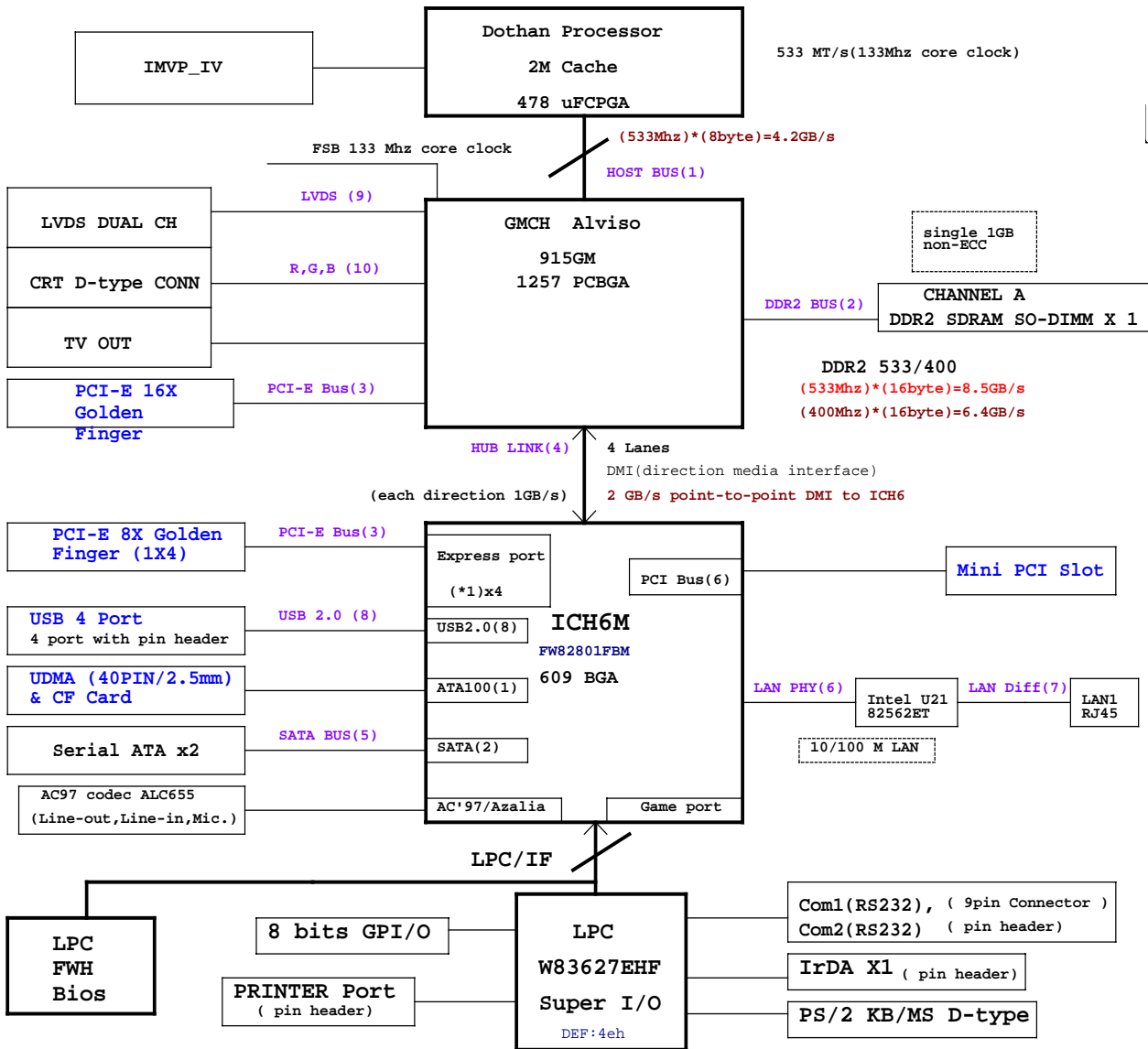
- The quick setup manual
- 1 AR-B1842-G CPU board
- 1 Software utility CD
- 1 5.25" IDE HDD ATA 100Cable
- 1 Audio interface Cable
- 1 Serial port Cable
- 1 Print port Cable
- 1 PS2 to PS2 Y Cable
- 1 JST to PS2 Y Cable (optional)
- 1 USB ports on one bracket Cable
- 1 SATA cable

1.2 SPECIFICATIONS

Model Name	■ AR-B1842-G	V 2.0
Product Descriptions	PCI-E Half Size Pentium M CPU card with Intel 915GME chipset, VGA, 10/100 LAN, CF, Mini PCI, 2 Serial ports, 4 USB 2.0	
General		Note
CPU Grade	Socket 478 FSB533/400 MHz Pentium M/ Celeron M (90nm and 130nm)	
CPU Fan	Slim Cooling Fan with on board fan power connector	
BIOS	AWARD	
System Chipsets	■ Intel 915GME + ICH6M	
System Memory	■ DDR2 SDRAM SO-DIMM socket x1 ■ Maximum up to 1GB	
Watchdog Timer	Software programmable 1~63 Seconds	
Battery	Lithium Battery, 3V 220mAH	
Power Requirements	■ AT/ATX ■ Need independent 5V/12V input by 2x5 pin connector	Big 4 pin
Hardware monitoring	1. CPU voltage 2. CPU Temperature 3. Voltage Monitoring	BIOS Support
OS	DOS, WinCE, Linux Fedora 2.6.4/Redhat 2.4.x and above, Win 2000/XP, XPe	
Video		
Video Interface	Build-in Intel Graphics Media Accelerator(GMA)	
CRT	1 x VGA port	D-Sub15
LVDS	18-bits LVDS Interface LCD inverter power connector and ON/OFF control Support 3.3V	DF13
Audio		
Audio Interface	AC97 Codec, Realtek ALC 655,	Line out L/R Channel
Storage		
IDE	1 x 40 pin IDE connector supports Ultra DMA	2x20x2.54mm
SSD	1 x Compact Flash support UDMA Socket upward and CF surface with PCB Edge	Type-II Socket
SATA	2 x SATA connectors	
Network Interface		
Ethernet	1 x Intel 82562EZ (10/100 Mbps) Support PXE function boot from LAN and Wake on LAN	RJ-45 connector
I/O		
Super I/O	Winbond 83627EHG	
Serial Port	COM1 on board DB-9 (RS-232) COM2 2 x10 pin head support RS-232/422/485	DB-9 Pin Header
Parallel Port	On board 1 x 26 pin head for LPT1, support SPP/EPP/ECP modes	Pin header
GPIO	8 bit independent I/O Lines, TTL level	Pin Header
USB	4 x USB 2.0	Pin Header
IrDA	1 x 4 x 2.5mm pin head (SIR mode)	Pin Header
Audio	Line out (L/R Channel)	Pin Head
Expansion slot	1 x Mini PCI slot	Slot
Keyboard Mouse	1 x PS/2 for Keyboard and Mouse	Mini Din Pin head
Buzzer		
Mechanical		
Dimension	167mm x 121mm	

Operating Temperature	0~60°C (32~140°F)
Storage Temperature	-20~80°C (-4~176°F)
Relative Humidity	0 to 90% @ 45°C, non-condensing
EMC & Safety	
EMC	CE , FCC Class A
Safety	N/A

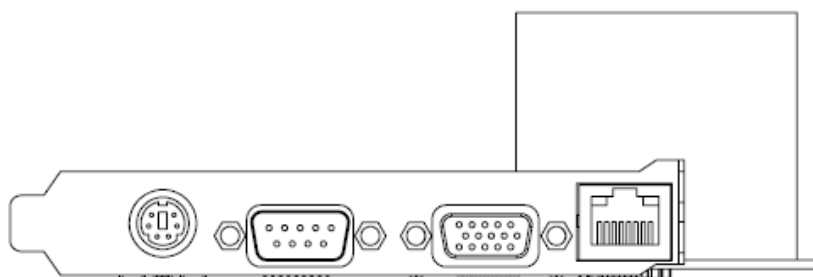
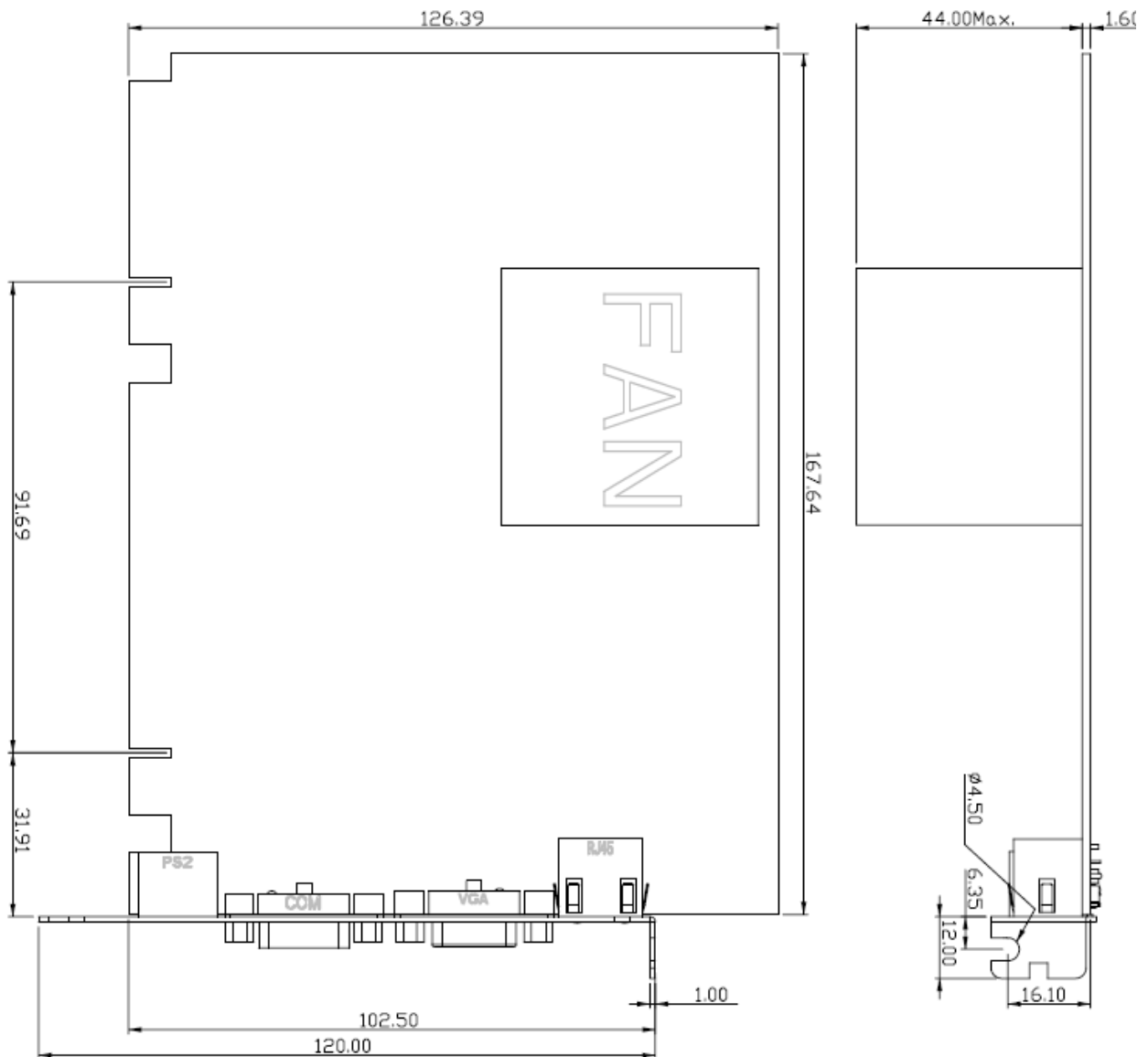
1.3 BLOCK DIAGRAM



2. INSTALLATION

This chapter describes how to install the AR-B1842-G. At first, the layout of AR-B1842-G is shown, and the unpacking information that you should be careful is described. The jumpers and switches setting for the AR-B1842-G's configuration are as below.

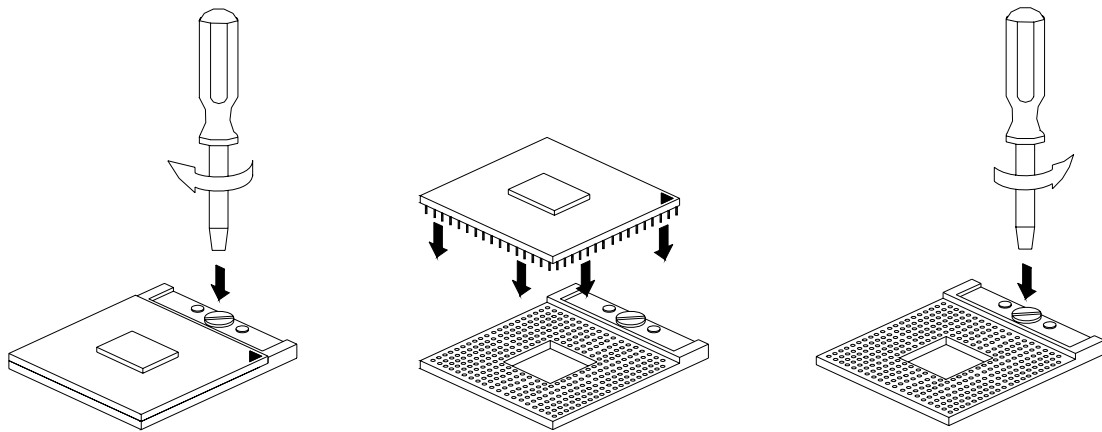
2.1 AR-B1842-G'S BOARD DIMENSIONS



2.2 CPU INSTALLATION

The AR-B1842-G embedded board supports a Socket 478 processor socket for Intel® Pentium® M or Celeron® M 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.

2.3 MEMORY INSTALLATION (DDR2 SODIMM MEMORY SIZE)

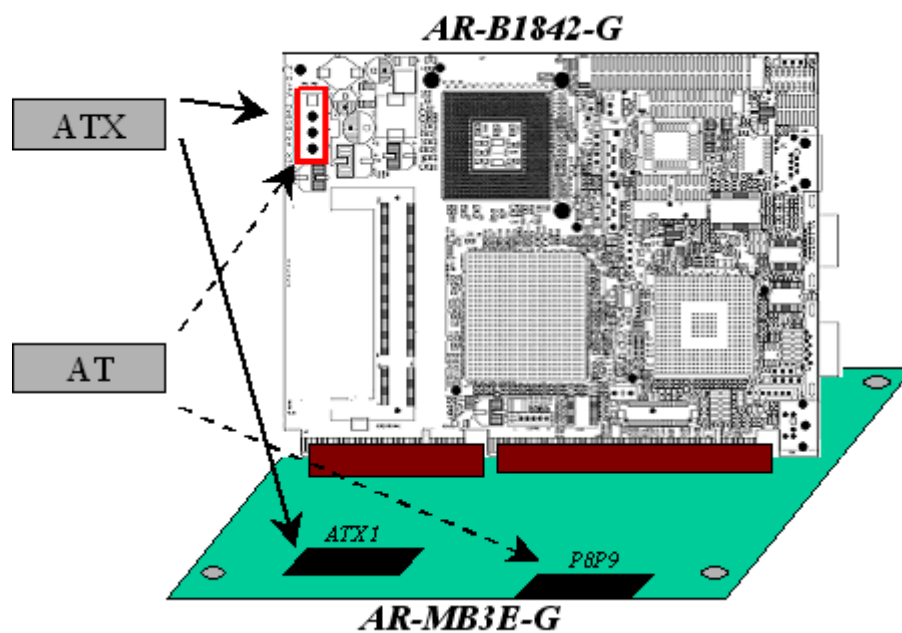
The AR-B1842-G board supports DDR2 400/533 MHz main memory. One 200-pin SODIMM connector on the board supports unbuffered nonECC, single and double-side DDR2 400/533 MHz SODIMMs. These SODIMMs provide the ability to use up to maximum of 1 GBytes system memory.

To install the DDR2 modules, locate the memory slot on the embedded board and perform the following steps:

1. Hold the DDR2 module so that the key of the DDR2 module align with those on the memory slot.
2. Gently push the DDR2 module in an upright position until the clips of the slot close to hold the DDR2 module in place when the DDR2 module touches the bottom of the slot.
3. To remove the DDR2 module, press the clips with both hands.

2.4 POWER INSTALLATION

The AR-B1842-G collocates with AR-MB3E-G, because there is no 3.3V power input on AR-B1842-G board. To install the power of AR-B1842-G, please see the install diagram.

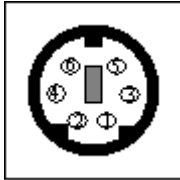


Note: No matter what power input you select (AT or ATX), the big 4-pin power connector always need +12V, +5V power input.

3. CONNECTION

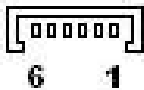
The connectors on AR-B1842-G allows you to connect external devices such as USB devices, serial port drives, hard disk devices, printers, etc. The following table lists the connectors on AR-B1842-G and their respective functions.

3.1 PS/2 KEYBOARD & MOUSE (CN1)



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

3.2 KEYBOARD & MOUSE HEADER (J6)



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

3.3 KEYBOARD LUCK/UNLCK HEADER (JP5)

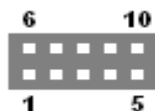


3.4 SERIAL PORT CONNECTOR (COM1)



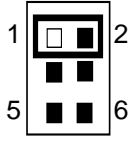
PIN	SIGNAL	PIN	SIGNAL
1	DCD1	6	DSR1
2	RXD1	7	RTS1
3	TXD1	8	CTS1
4	DTR1	9	RI1
5	GND		

3.5 INTERNAL SERIAL PORT HEADER (COM2)



PIN	SIGNAL	PIN	SIGNAL
1	DCD2	2	DSR2
3	RXD2	4	RTS2
5	TXD2	6	CTS2
7	DTR2	8	RI2
9	GND	10	GND

3.6 COM2 FOR RS232 / RS422 / RS485 SELECT (JP3)



PIN	SIGNAL
1-2 ON	RS232 (Factory Preset)
3-4 ON	RS422
5-6 ON	RS485

3.7 RS422 / RS485 HEADER (J8)



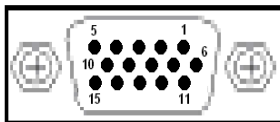
PIN	SIGNAL
1	TX2+
2	TX2-
3	RX2+
4	RX2-

3.8 IRDA HEADER (J4)



PIN	SIGNAL	PIN	SIGNAL
1	+5V	2	N.C
3	IRRX	4	GND
5	IRTX		

3.9 VGA CONNECTOR (VGA1)



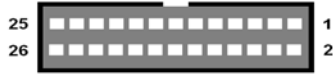
PIN	SIGNAL	PIN	SIGNAL
1	RED	9	VCC
2	GREEN	10	GND
3	BLUE	11	N.C.
4	N.C.	12	VGADATA
5	GND	13	HSYNC
6	GND	14	VSYNC
7	GND	15	VGACLK
8	GND		

3.10 ETHERNET RJ-45 CONNECTOR (LAN1)



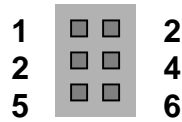
PIN	SIGNAL	PIN	SIGNAL
1	TX+	2	TX-
3	RX+	4	N.C.
5	N.C.	6	RX-
7	N.C.	8	N.C.

3.11 PARALLEL PORT HEADER (J2)



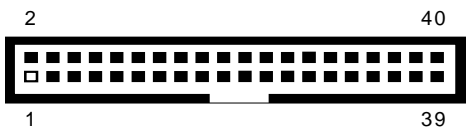
PIN	SIGNAL	PIN	SIGNAL
1	STB#	14	AFD#
2	PD0	15	ERROR#
3	PD1	16	INIT#
4	PD2	17	SLIN#
5	PD3	18	GND
6	PD4	19	GND
7	PD5	20	GND
8	PD6	21	GND
9	PD7	22	GND
10	ACK#	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SLCT	26	N.C.

3.12 CPU FREQUENCY SELECT TABLE (J10)



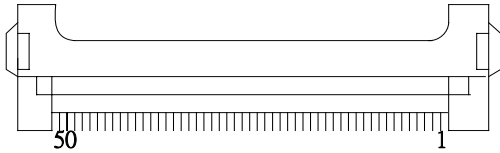
PIN	CPU_HOST_FREQUENCY
4_6,1_3	100MHz 【BANIAS】
4_6,3_5	133MHz 【DOTHAN】

3.13 HARD DISK CONNECTOR (IDE1)



PIN	SIGNAL	PIN	SIGNAL
1	/RESET	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	/PDIOW	24	GND
25	/PDIOR	26	GND
27	PIORDY	28	GND
29	/PDDACK	30	GND
31	IRQ14	32	N.C.
33	PDA1	34	P66DET
35	PDA0	36	PDA2
37	/PDCS1	38	/PDCS3
39	HDDLED	40	GND

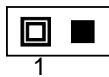
3.14 COMPACT FLASH CONNECTOR (CF1)



NOTE: Compact flash (CF1) and IDE1 share the same IDE channel. Since a compact flash card is installed, the IDE device will become unstable. CF card and IDE1 cannot use at the same time.

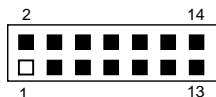
PIN	SIGNAL	PIN	SIGNAL
1	GND	2	PDATA3
3	PDATA4	4	SDATA5
5	PDATA6	6	SDATA7
7	/PDCS1	8	GND
9	GND	10	GND
11	GND	12	GND
13	+5V	14	GND
15	GND	16	GND
17	GND	18	PDA2
19	PDA1	20	PDA0
21	PDATA0	22	PDATA1
23	PDATA2	24	GND
25	GND	26	GND
27	PDATA11	28	PDATA12
29	PDATA13	30	PDATA14
31	PDATA15	32	/PDCS3
33	GND	34	/PDIOR
35	/PDIOW	36	+5V
37	IRQ14	38	+5V
39	M/S SELECT	40	N.C.
41	/RESET	42	PIORDY
43	N.C.	44	+5V
45	HDDLED	46	N.C.
47	PDATA8	48	PDATA9
49	PDATA10	50	GND

3.15 COMPACT FLASH CONNECTOR MASTER/SLAVE SELECT HEADER (JP6)



PIN	SIGNAL
1-2 ON	MASTER MODE
1-2 OFF	SLAVE MODE

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



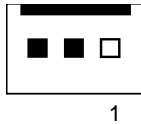
PIN	SIGNAL	PIN	SIGNAL
1	MICIN2	2	LIN_L
3	N.C	4	LIN_R
5	+12V	6	VCC
7	LOUT_L	8	MICIN1
9	LOUT_R	10	PCBEEP
11	GND	12	GND
13	GND	14	GND

3.17 CD IN HEADER (J1)



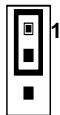
PIN	SIGNAL
1	CD-L
2	GND
3	GND
4	CD-R

3.18 CPU FAN POWER CONNECTOR (FAN1, FAN2)



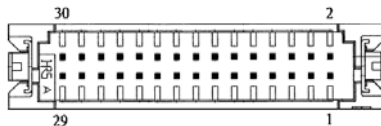
PIN	SIGNAL
1	GND
2	+12V
3	SENSE

3.19 COMS BATTERY HEADER (JP4)



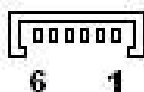
PIN	SIGNAL
1-2 ON	NORMAL OPERATION (Factory Preset)
2-3 ON	CLEAR CMOS

3.20 18 BITS LVDS CONNECTOR (LCD1)



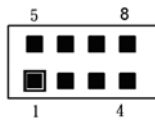
PIN	SIGNAL	PIN	SIGNAL
1	LVDS_PWR	2	GND
3	LVDS_CLKBN	4	LVDS_CLKBP
5	GND	6	LVDS_YBN2
7	LVDS_YBP2	8	GND
9	LVDS_YBN1	10	LVDS_YBP1
11	N.C.	12	N.C.
13	LVDS_YBP0	14	LVDS_YBN0
15	GND	16	RXOC+
17	LVDS_CLKAN	18	GND
19	LVDS_YAP2	20	LVDS_YAN2
21	DDPCLK	22	LVDS_YAP1
23	LVDS_YAN1	24	DDPDATA
25	LVDS_YAP0	26	LVDS_YAN0
27	N.C.	28	N.C.
29	LVDS_PWR	30	LVDS_PWR

3.21 LVDS INTERVER CONNECTOR (LCDPW1)



PIN	SIGNAL	PIN	SIGNAL
1	+12V	4	LVDS_BKLTEN
2	+12V	5	GND
3	GND	6	LVDS_BKLTCL

3.22 USB PORT HEADER (USB1, USB2)



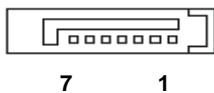
PIN	SIGNAL	PIN	SIGNAL
1	VCC	5	GND
2	DATA-	6	DATA+
3	DATA+	7	DATA-
4	GND	8	VCC

3.23 DDR2 SOCKET (DDR2SODIMM1)



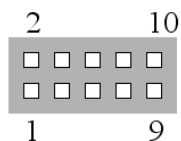
3.24 MINI PCI SLOT (MINIPCI1)

3.25 SATA CONNECTOR (SATA1, SATA2)



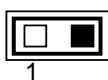
PIN	SIGNAL	PIN	SIGNAL
1	GND	5	SATA RXP
2	SATATXP	6	SATARXN
3	SATATXN	7	GND
4	GND		

3.26 GPIO PORT HEADER (J9)



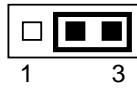
PIN	SIGNAL	PIN	SIGNAL
1	GND	6	OUT0
2	VCC	7	IN 3
3	OUT 3	8	IN 1
4	OUT 1	9	IN 2
5	OUT 2	10	IN 0

3.27 CPU VOLTAGE SELECT HEADER (JP1)



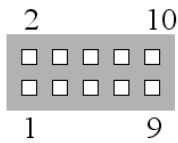
PIN	SIGNAL
1-2 ON	FORFSB133 【DOTHAN】
1-2 OFF	FOR FSB100 【BANIAS】 (Factory Preset)

3.28 PROTECT U HEADER (JP2)



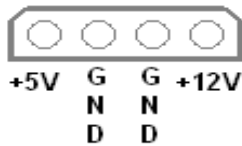
PIN	SIGNAL
1-2 ON	WRITER FUNCTION
2-3 ON	READ FUNCTION (Factory Preset)

3.29 PANEL HEADER (J3)



PIN	SIGNAL
1-2	POWER LED
3-4	HDD LED
5-6	SPEAKER
7-8	RESET BUTTON
9-10	POWER BUTTON

3.30 AT POWER CONNECTOR (PW1)



4. WATCHDOG TIMER CONFIGURATION

4.1 WATCHDOG TIMER SETTING

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.

The watchdog timer is a circuit that maybe 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 or trigger the IRQ 9 signal in order to tell your system that the watchdog time is out.

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

```
C:>debug
o 4E 87 ;Extended Functions Enable Register
o 4E 87 ;Extended Functions Enable Register
o 4E 07 ;EFIR=EFER (Extended Functions Index Register)
point to Logical Device Number Reg.
o 4F 08 ; Select logical device 8, (Watchdog Function)
o 4E 30 ; Device Active register
o 4F01 ;update CR30 with value 01H
o 4E F6 ; Select Watchdog count mode seconds or minutes
o 4F 08 ;update CRF6 with value 08H ,(8sec reset)
q
```

Sample code as below:

```
IO_Port_Address = 0x4E;

outportb(IO_Port_Address,0x87); // (EFER) Extended Functions Enable Register
outportb(IO_Port_Address,0x87);

outportb(IO_Port_Address,0x2D); // Point to Global Reg.
// Select Multi-Function pin, (Bit0=0 Watchdog Function)
outportb(IO_Port_Address+1,(inportb(IO_Port_Address+1)&0xFE));

outportb(IO_Port_Address,0x07); // Point to Logical Device Number Reg.
outportb(IO_Port_Address+1,0x08); // Select logical device 8, (Watchdog Function)

outportb(IO_Port_Address,0x30); // Device Active register
outportb(IO_Port_Address+1,0x01);

outportb(IO_Port_Address,0xF5); // Select Watchdog count mode seconds or minutes
outportb(IO_Port_Address+1,Format); // Default is second

outportb(IO_Port_Address,0xF6); // Set Watchdog Timer Value
outportb(IO_Port_Address+1,Time); // 0x00 to disable, max 0xFF
```

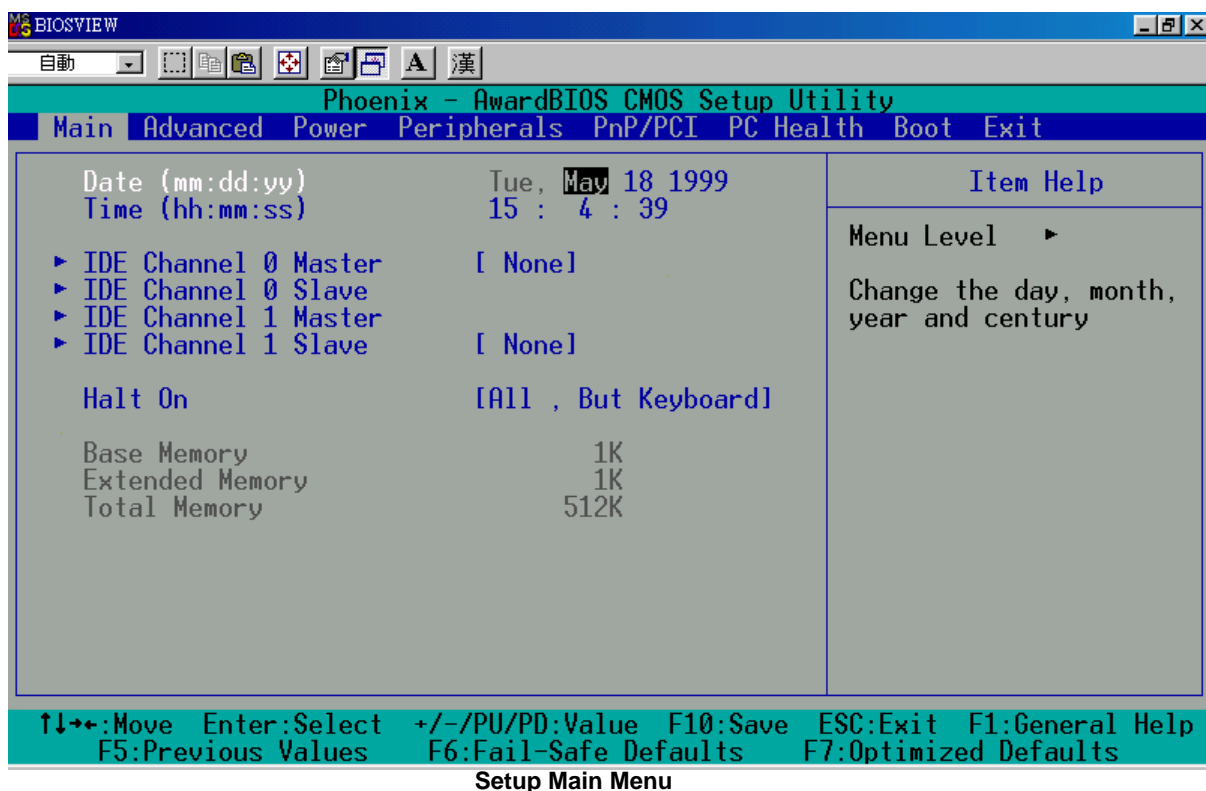
5. BIOS CONSOLE

This chapter describes the AR-B1842-G 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:

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



About the button 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 : 1 to 12
Date : 1 to 31
Year : 1999 to 2099

To set the date, highlight the "Date" field and use the **【PageUp】** / **【PageDown】** or **【+】** / **【-】** keys to set the current time.

Time Setup

The time format is :
Hour : 0 to 24
Minute : 00 to 59
Second : 00 to 59

To set the time, highlight the "Time" field and use the **【PageUp】** / **【PageDown】** or **【+】** / **【-】** keys to set the current time.

IDE Primary HDDs/IDE Secondary HDDs

The onboard PCI IDE connectors provide primary and secondary channels for connecting up to four IDE hard disks or other devices. Each channel can support up to two hard disks; 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 precompensation.
LANDING SONE : 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

Video

The field selects the type of video display card installed in your system. You can choose the following Video display cards:

EGA/VGA : For EGA, VGA, SEGA, SVGA or PGA monitor adapters. (default)
CGA 40 : Power up in 40 column mode.
CGA 80 : Power up in 80 column mode.
MONO : For Hercules or MDA adapters.

Halt On

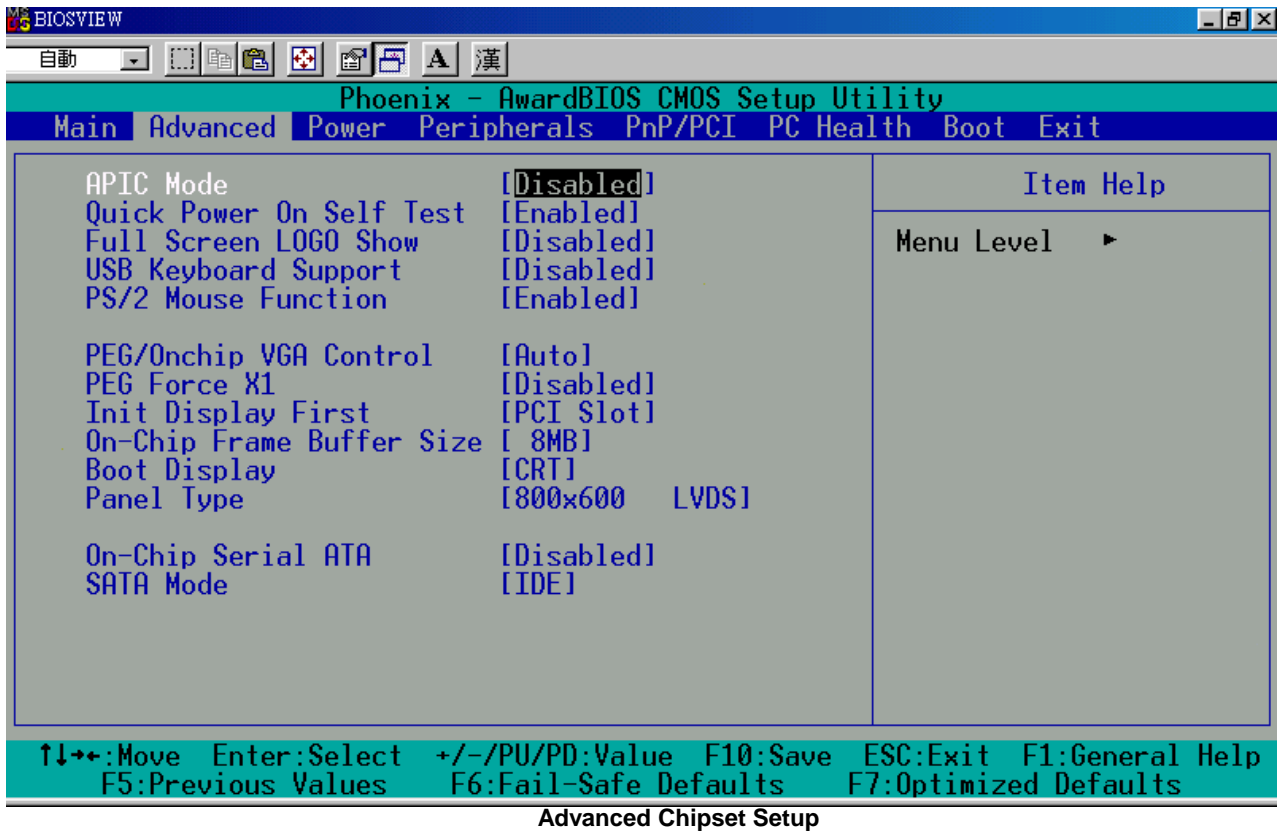
The field determines whether or not the system will halt if an error is detected during the power up.

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.

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.



APIC Mode

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

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.

USB Keyboard Support

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

PS/2 Mouse Function

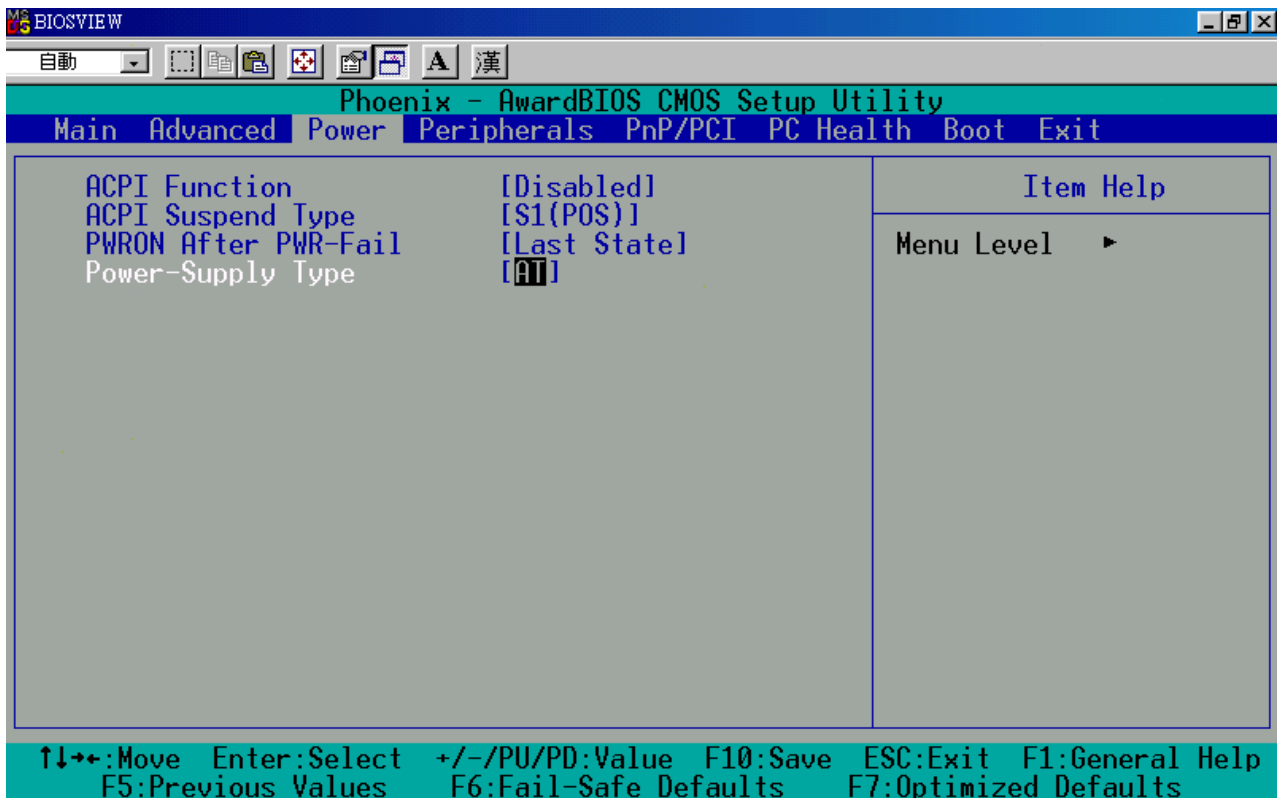
The options for this field are "Enabled" and "Disabled". By default, the field is set to "Disabled".

Init Display First

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

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

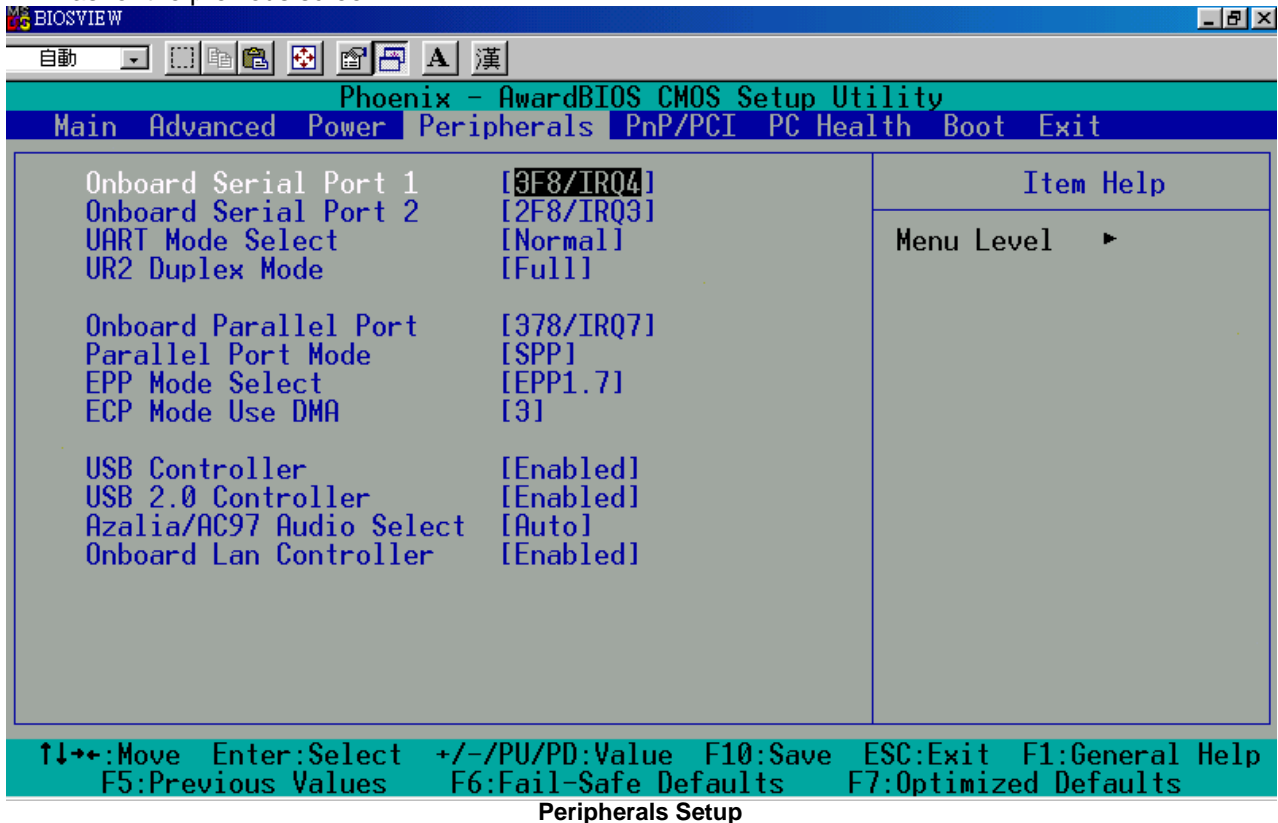
This options for this field are *S1 (POS)* and *S3 (STR)*. By default, the field is set to *S1 (POS)*

PWRON After PWR-Fail

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

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 : 2F8 / IRQ3
- Serial Port 3 : 3E8 / IRQ11
- Serial Port 4 : 2E8 / IRQ10
- Serial Port 5 : 4F8 / IRQ11
- Serial Port 6 : 4E8 / IRQ10

Onboard Parallel Port

This field allow you to select the on board parallel port and their addresses. The default values for this port is :

- Parallel Port : 378 / IRQ7

Parallel Port Mode

This field allow you determine parallel port mode function :

- SSP : Standard Parallel Port
- EPP : Enhanced Parallel Port
- ECP : Extended Capabilities Port

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

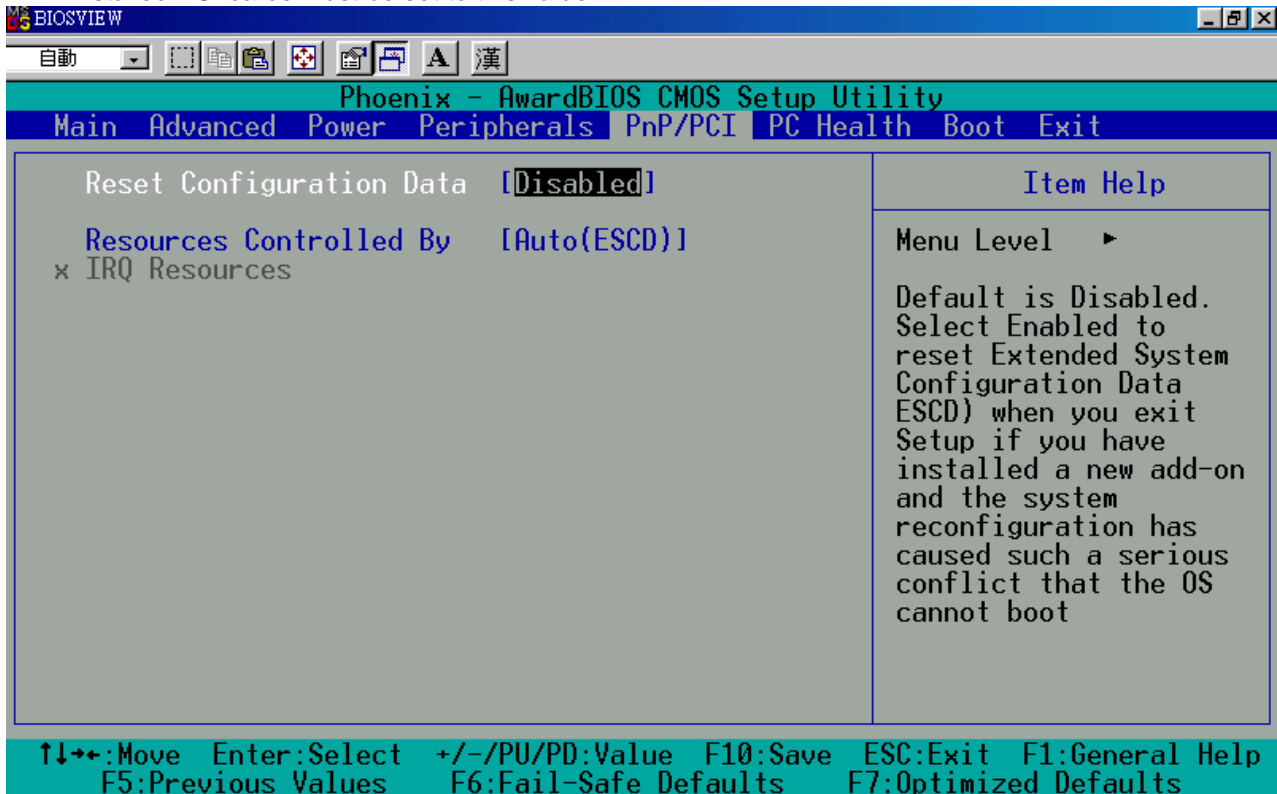
The default setting of the AC97 Audio is *Auto*.

Onboard Lan Controller

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

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

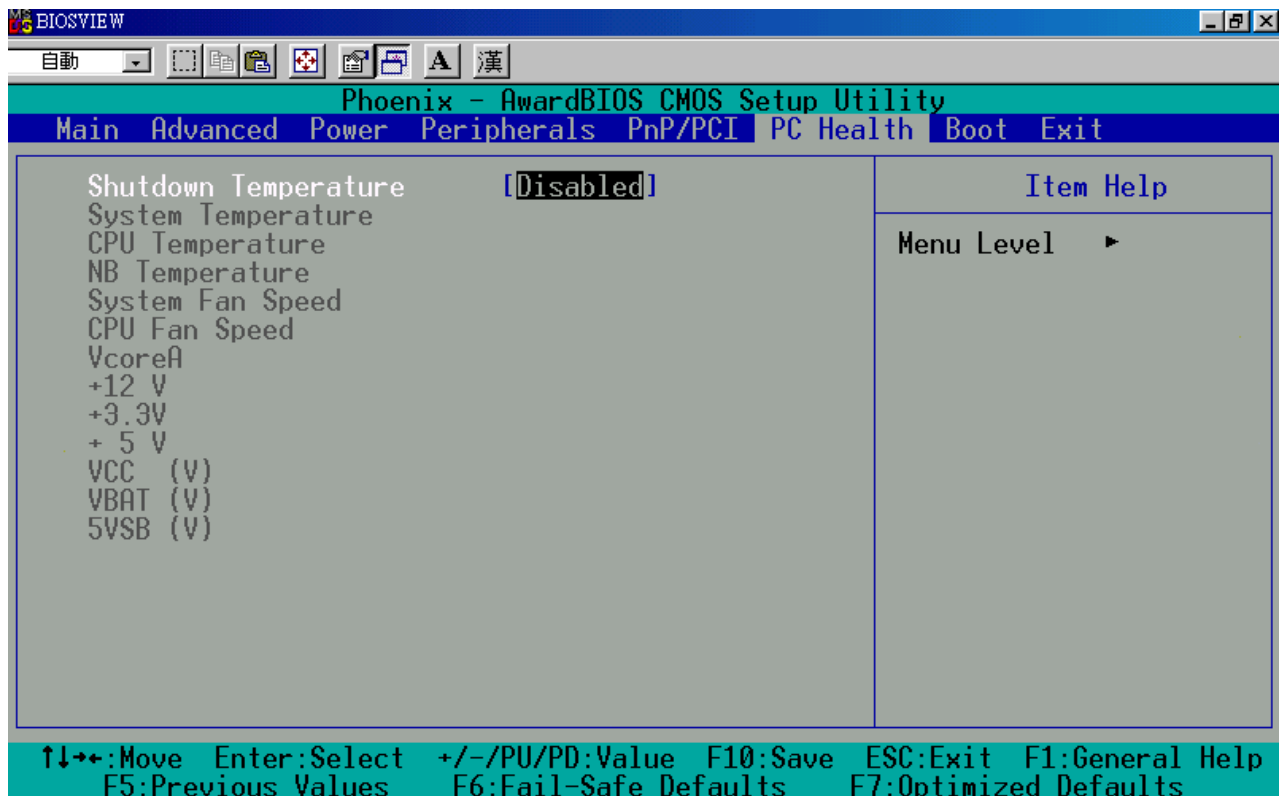
This field allows you to determine whether to reset the configuration data or not. The default value is "Disabled".

Resources Controlled By

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

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

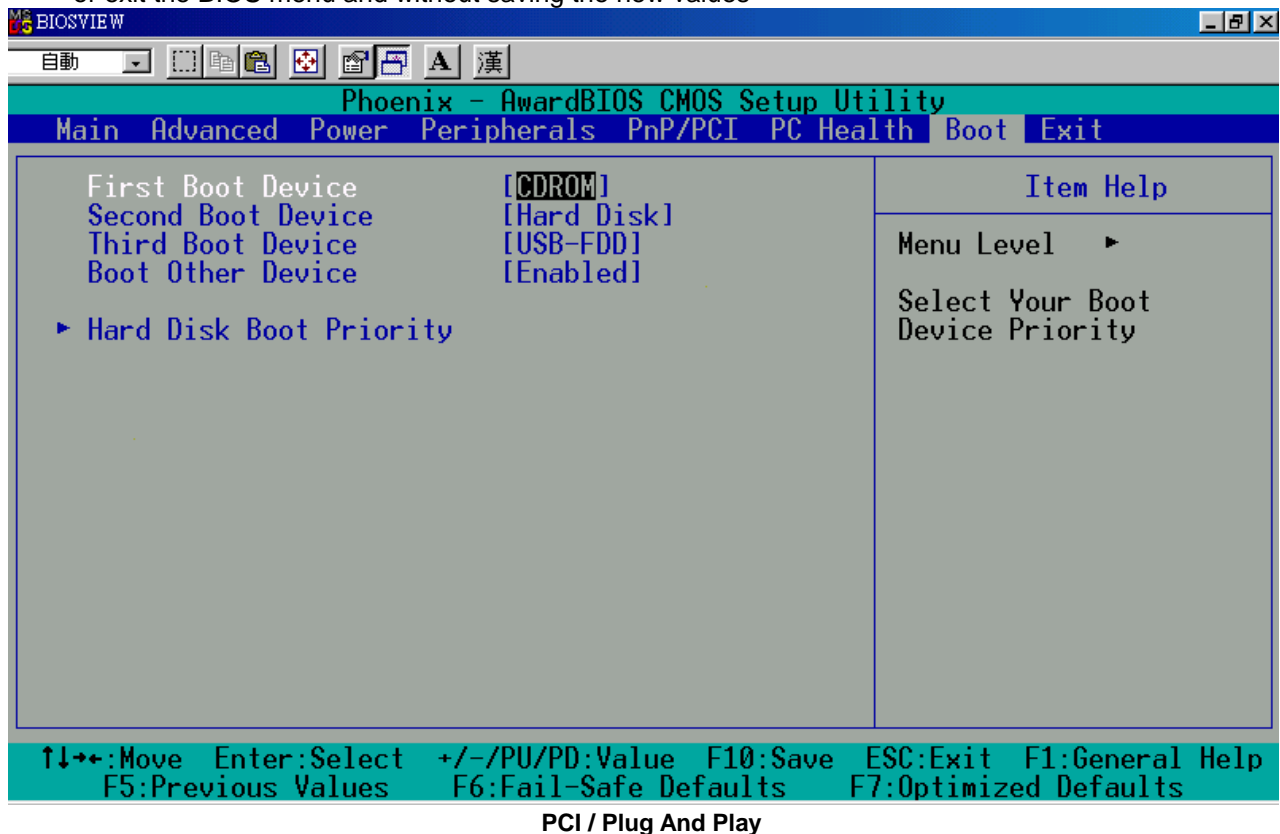
These fields are parameters of the hardware monitoring function feature of the motherboard. The values are read-only values as monitored by the system and show the PC health status.

Shutdown Temperature

This field allows the user to set the temperature by which the system automatically shut down once the threshold temperature is reached. This function can help prevent damage to the system that is caused by overheating.

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



First / Second / Third Boot Device

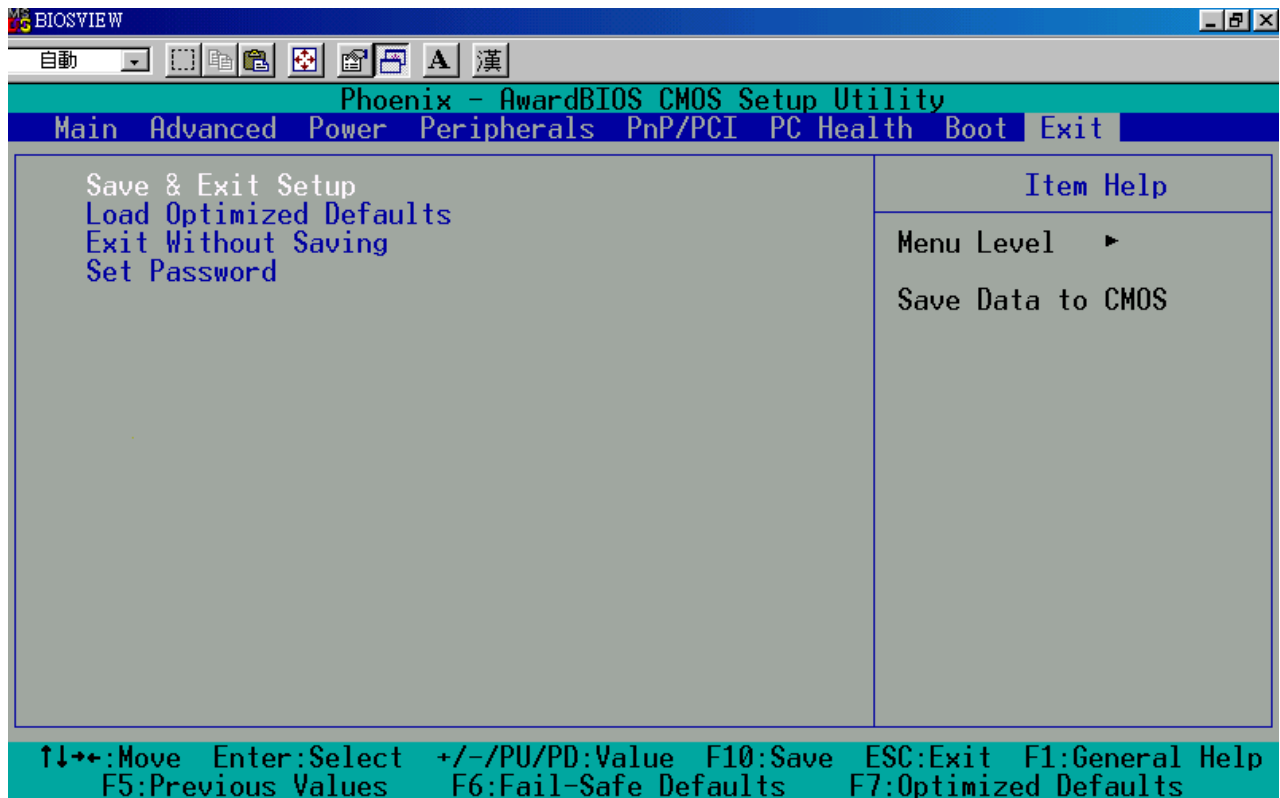
These fields determine the device that the system searches first for an operating system. The options available include Hard Disk, CDROM, USB-FDD, USB-CDROM and Disable.

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.

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 AR-B1842-G provides the FLASH BIOS update function for you to easily to 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 .

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 - 000F	Direct Memory Access controller
0010 - 001F	Motherboard resources
0020 - 0021	Programmable interrupt controller
0022 - 003F	Motherboard resources
0040 - 0043	System timer
0044 - 005F	Motherboard resources
0060 - 0060	Standard 101/102 – key or Microsoft Natural Keyboard
0061 - 0061	System speaker
0062 - 0063	Motherboard resources
0064 - 0064	Standard 101/102 – key or Microsoft Natural Keyboard
0065 - 006F	Motherboard resources
0070 - 0073	System CMOS/real time clock
0074 - 007F	Motherboard resources
0080 - 0090	Direct Memory Access controller
0091 - 0093	Motherboard resources
0094 - 009F	Direct Memory Access controller
00A0 - 00A1	Programmable interrupt controller
00A2 - 00BF	Motherboard resources
00C0 - 00DF	Direct Memory Access controller
00E0 - 00EF	Motherboard resources
00F0 - 00FF	Numeric data processor
0170 - 0177	Secondary IDE Channel
01F0 - 01F7	Primary IDE Channel
0274 - 0277	ISAPNP Read Data Port
0279 - 0279	ISAPNP Read Data Port
02F8 - 02FF	Communication Port (COM2)
0376 - 0376	Secondary IDE Channel
0378 - 037F	Print Port (LPT1)
03B0 - 03BB	Mobile Intel(R) 915GM/GMS, 915GML Express Chipset Family
03C0 - 03DF	Mobile Intel(R) 915GM/GMS, 915GML Express Chipset Family
03F6 - 03F6	Primary IDE Channel
03F8 - 03FF	Communication Port (COM1)
0400 - 04BF	Motherboard resources
04D0 - 04D1	Motherboard resources
0500 - 051F	Intel(R) 82801FB/FBM SMBus controller-266A
0778 - 077B	Print Port (LPT1)
0A79 - 0A79	ISAPNP Read Data Port
DF00 - DF3F	Intel(R) PRO/100 VE Network Connection
F000 - F0FF	Realtek AC'97 Audio
F800 - F80F	Intel(R) 82801FB/FBM Ultra ATA Storage Controllers – 266F
FA00 - FA3F	Realtek AC'97 Audio
FD00 - FD1F	Intel(R) 82801FB/FBM USB Universal Host Controller-2659
FE00 - FE1F	Intel(R) 82801FB/FBM USB Universal Host Controller-2658
FF00 - FF07	Mobile Intel(R) 915GM/GMS, 915GML Express Chipset Family

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	Mobile Intel(R) 915GM/GMS, 915GML Express Chipset Family
08	System CMOS/real time clock
09	Microsoft ACPI-Compliant System
09	Realtek AC'97 Audio
10	Intel(R) Pro/100 VE Network Connection
11	Intel(R) 82801FB/FBM SMBus controller-266A
11	Intel(R) 82801FB/FBM USB Universal Host Controller-2658
11	Intel(R) 82801FB/FBM USB Universal Host Controller-2659
11	Universal Serial Bus (USB) controller
12	PS/2 Compatible Mouse
13	Numeric data processor
14	Primary IDE Channel
15	Secondary IDE Channel