AR-B5070

ISA-Bus SBC with Pentium-M or Celeron-M CPU User Guide

Edition: 1.1
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0. PREFACE

0.1 COPYRIGHT NOTICE AND DISCLAIMER

0.2 WELCOME TO THE AR-B5070 CPU BOARD

This guide introduces the Acrosser AR-B5070 CPU Board.

Use information provided in this manual describes this card's functions and features. It also helps you start, setup and operate your AR-B5070. 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-B5070. Check the packing list before you install and make sure the accessories are completely included.

AR-B5070 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-B5070 ISA AT/ATX Single Board Computer. The AR-B5070 is PIC board with onboard Intel Petium-M or Celeron -M processor and 82852GM + ICH4 Chipset. The memory contents onboard 128MB DDR and one DDR SO-DIMM socket which supports up to 512MB of memory.

Graphics display functionality is provided by Build-in Graphic Processor that supports CRT display and LVDS interface with Single or Dual channel panel specifications. Ethernet connectivity comes from the Intel 82856EZ 10/100 Ethernet controller.

The AR-B5070 integrates ITE8888 PCI-to-ISA Bridge in order to support ISA interface. The detail feature list on section 1.2

1.1 PACKING LIST

In addition to this *User's Manual*, the AR-B5070 package includes the following items:

- AR-B5070 AT/ATX Single Board
- Quick User Guide
- Utility CD(Include driver and Manual)

Accessory set ACC-5070 series for purchase separately

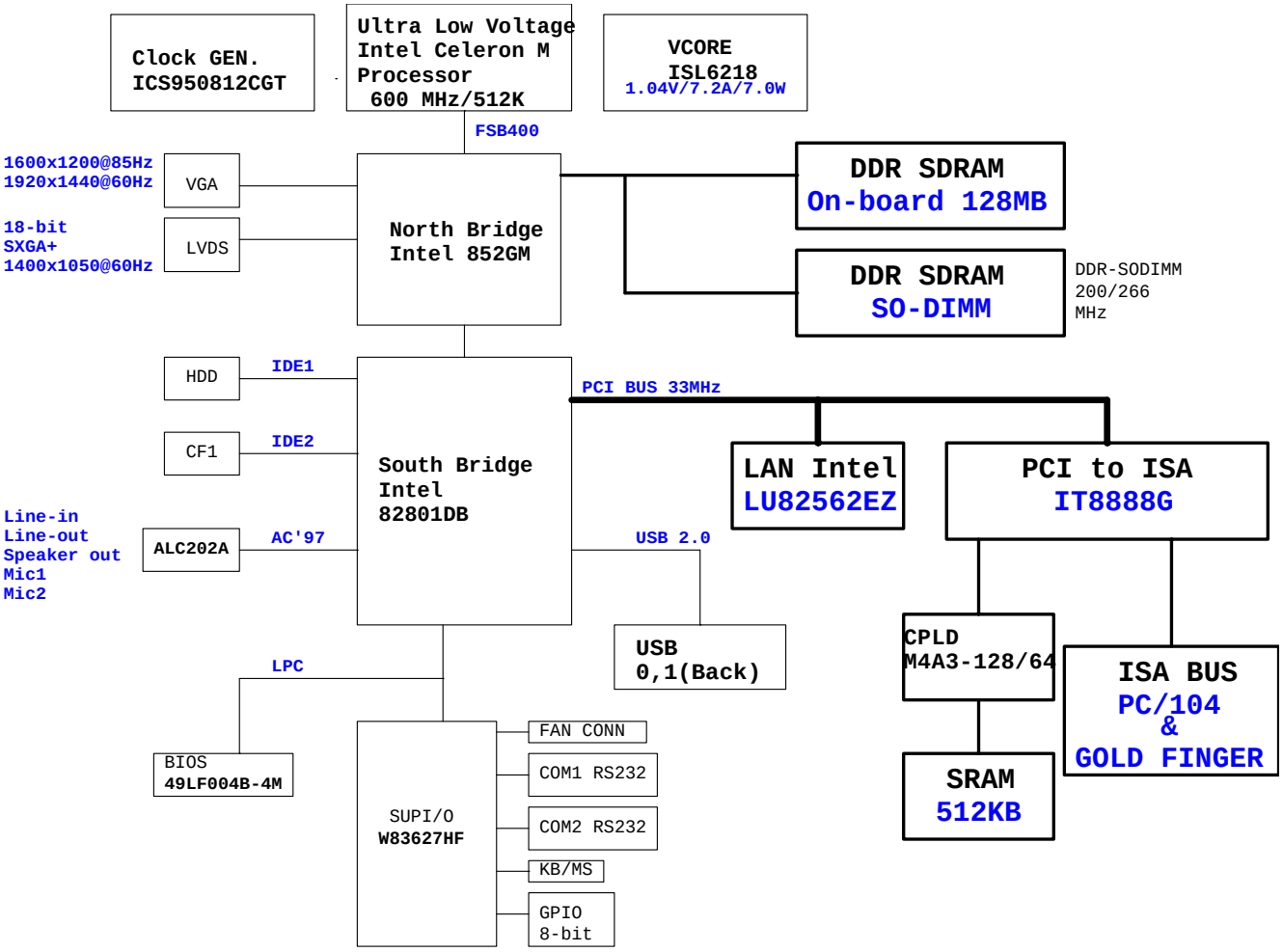
- USB Cable (with bracket) x 1
- PS/2 to PS/2 Y-cable (PS1) x 1
- Serial port cable (COM2) and Parallel port cable (LPT1) x 1
- 5.25” IDE HDD ATA100 Cable (IDE1) x 1

1.2 SPECIFICATIONS

Model Name	AR-B5070 series	
Product Descriptions	Intel Celeron M 600MHz 512KB Cache Half size ISA card with LAN/CRT.	
General		**Note**
CPU	Intel Petium-M or Celeron-M CPU, Option for socket type CPU(PM 1.8GHz, PM1.6GHz, CM 1.5GHz, CM 1.3GHz)	Heatsink Inc.
BIOS	AWARD	
System Chipsets	■ Intel 852GM + ICH4	
System Memory	■ Onboard 128MB ■ 1 DDR SO-Dimm socket 200/266 SDRAM up to 1GB(option)	
SRAM	■ Onboard 512KB with battery back-up ■ Battery: Lithium Battery, 3V 220mAH ■ Beep from Buzzer when low power With independent battery. The SRAM battery should be monitored by the super I/O. If possible, an interrupt can be generated when this battery has a low voltage. This interrupt can be enable/disable by BIOS setup screen.	
Watchdog Timer	Software programmable 1~63 Seconds	
Battery	Lithium Battery, 3V 220mAH	
Power Requirements	■ AT: 12V Single Voltage Input (default set as AT mode) ■ ATX: power switch pin header and pin header for external 5V stand-by input	AT: Pin Header 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	Integrated Intel 852GM Extreme Graphics Up to 64MB Shared system Memory , Integrated AGP 4X 2D/3D engine MPEG-2 Decode ☆ **VGA always on enable**	
CRT	1 x VGA port	D-Sub15
LCD/FPD(Optional)	1 x Dual Channel 18-bits LVDS Interface LCD inverter power connector and ON/OFF control Support 3.3V and 5V LCD	Reserve space for DF13 and circuit
Audio		
Audio Interface(optional)	Reserve space for ALC202A and pin head, (default without)	
Storage		
IDE	1 x E-IDE Supports Ultra DMA 100	40-Pin Header
SSD	1 x Compact Flash support UDMA Socket upward and CF surface with PCB Edge	Type-II Socket
FDC	1	Pin header
SATA	N/A	
Network Interface		
Ethernet	1 x Intel LU82562EZ (10/100 Mbps) Support PXE function boot from LAN	RJ-45 connector
I/O		
Serial Port	2 x RS-232 (232 by connector-COM1,232/422/485 by pin head-COM2)	Pin Header
Touch Screen	N/A	
Parallel Port	Yes(2.0 pitch)	Pin header
GPIO	8 bit digital I/O	Pin Header
USB	2 x USB2.0	Header
IrDA	N/A	Header
Audio	2 x 7 pin for option	Head

Expansion slot(option)	1 x PC/104 sold less long pin for expansion --follow standard location Please reserved space and circuit	Slot(option)
Keyboard / Mouse	1 x PS/2 for Keyboard and Mouse	Mini Din
ISA Bridge	ITE8888	
Buzzer	yes	
Mechanical		
Dimension	185mm x 122mm	
Operating Temperature	0~60°C (32~140°F)	
Storage Temperature	-20~80°C (-4~176°F)	
Relative Humidity	0 to 90% @ 40°C, non-condensing (95% @ 40°C, Non-Condensing by request)	

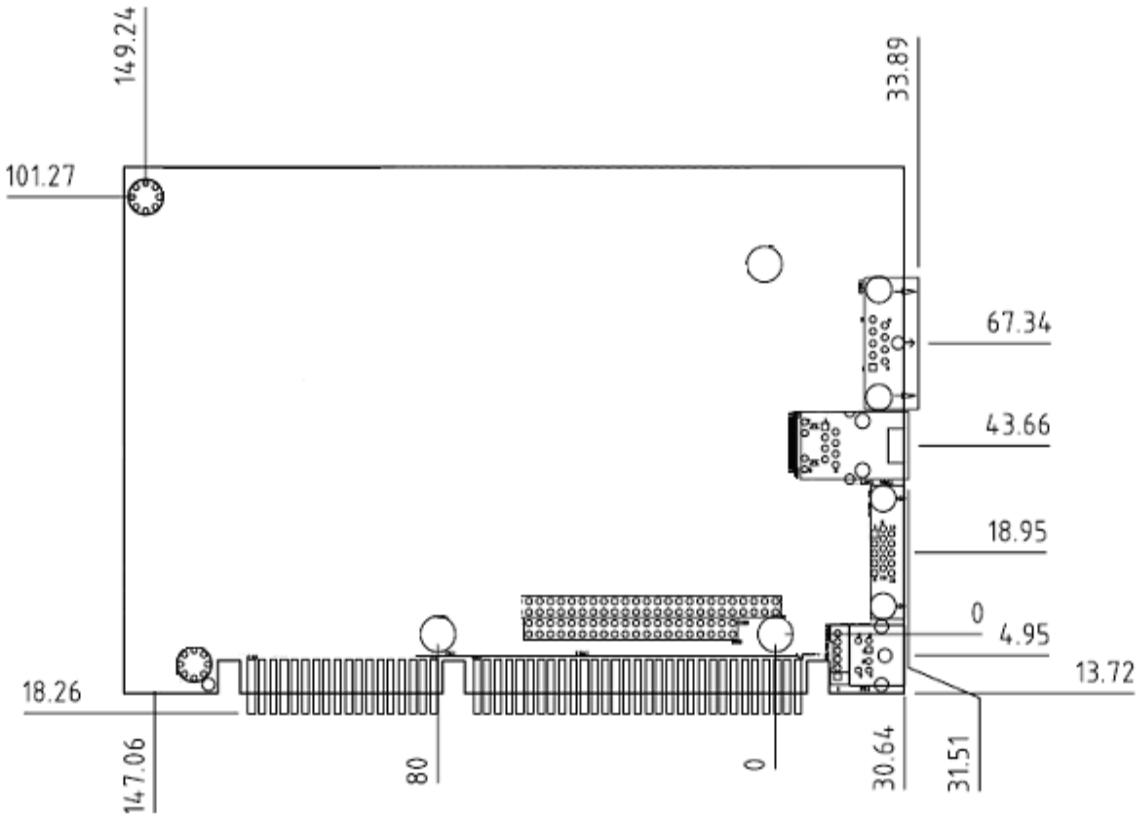
1.3 BLOCK DIAGRAM



2. INSTALLATION

This chapter describes how to install the AR-B5070. At first, the layout of AR-B5070 is shown, and the unpacking information that you should be careful is described. The jumpers and switches setting for the AR-B5070's configuration are as below.

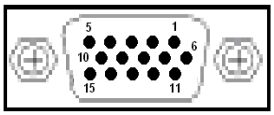
2.1 AR-B5070'S BOARD DIMENSIONS



3. CONNECTION

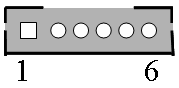
The connectors on AR-B5070 allows you to connect external devices such as USB devices, serial port drives, hard disk devices, printers, etc. The following table lists the connectors on AR-B5070 and their respective functions.

3.1 VGA CONNECTOR (VGA1)



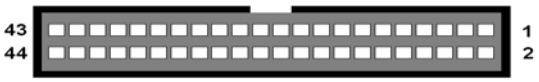
PIN	SIGNAL	PIN	SIGNAL
1	RED	9	**+5V**
2	GREEN	10	GND
3	BLUE	11	NC
4	NC	12	SDA
5	GND	13	HSYNC
6	GND	14	VSYNC
7	GND	15	SCL
8	GND		

3.2 VOLTAGE SOUCE FOR LCD INVERTER (LCDPW1)



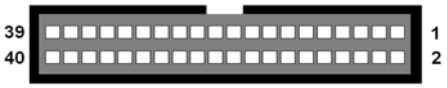
PIN	SIGNAL	PIN	SIGNAL
1	+12V	2	+12V
3	GND	4	EN_LCDBL
5	GND	6	LCDBL_CTL

3.3 LCD CONNECTOR (LCD)



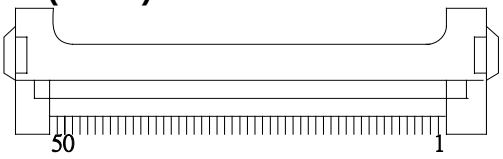
Pin	Signal	Pin	Signal
1	VCC_LVDS	2	GND
3	RXEC-	4	RXEC+
5	GND	6	RXE2-
7	RXE2+	8	GND
9	RXE1-	10	RXE1+
11	NC	12	NC
13	RXE0+	14	RXE0-
15	RXOC-	16	RXOC+
17	GND	18	GND
19	RXO2+	20	RXO2-
21	DDCLK	22	RXO1+
23	RXO1-	24	DDDATA
25	RXO0+	26	RXO0-
27	NC	28	NC
29	VCC_LVDS	30	VCC_LVDS

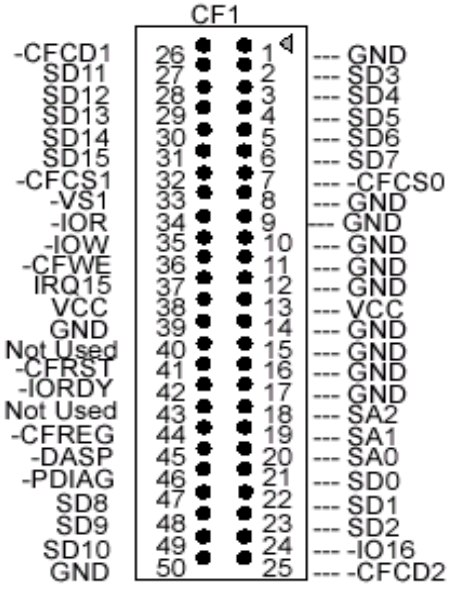
3.4 HARD DISK CONNECTOR (IDE1)



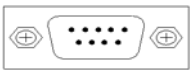
Pin	Signal	Pin	Signal
1	-RESET	2	GROUND
3	DATA 7	4	DATA 8
5	DATA 6	6	DATA 9
7	DATA 5	8	DATA 10
9	DATA 4	10	DATA 11
11	DATA 3	12	DATA 12
13	DATA 2	14	DATA 13
15	DATA 1	16	DATA 14
17	DATA 0	18	DATA 15
19	GROUND	20	N.C
21	PDDREQ	22	GROUND
23	-PDIOW	24	GROUND
25	-PDIOR	26	GROUND
27	PIORDY	28	GROUND
29	-PDDACK	30	GROUND
31	IRQ14	32	N.C
33	PDA1	34	PD66/100
35	PDA0	36	PDA2
37	-PDCS1	38	-PDCS3
39	HLEDP	40	GROUND

3.5 COMPACT FLASH SLOT (CFD1)



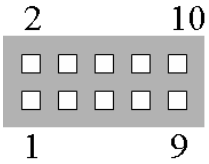


3.6 SERIAL PORT (COM1)



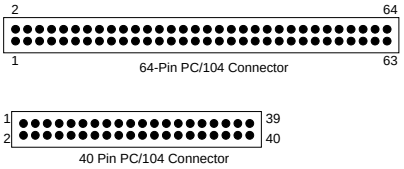
PIN	SIGNAL	PIN	SIGNAL
1	/DCDA	6	/DSRA
2	RXDA	7	/RTSA
3	TXDA	8	/CTSA
4	/DTRA	9	/RIA
5	GND		

3.7 SERIAL PORT (COM2)

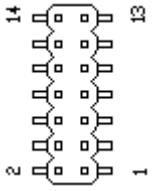


PIN	SIGNAL	PIN	SIGNAL
1	/DCDB	2	/DSRB
3	RXDB	4	/RTSB
5	TXDB	6	/CTSB
7	/DTRB	8	/RIB
9	GND		

3.8 PC104

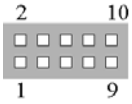


3.9 AUDIO CONNECTOR (AUDIO1)



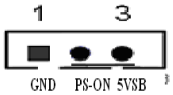
PIN	SIGNAL	PIN	SIGNAL
1	MICIN2	2	LINEIN_L
3	NC	4	LINEIN_R
5	+12V	6	+5V
7	LINE_OUTL	8	MICIN1
9	LINE_OUTR	10	SPKR
11	GND	12	GND
13	GND	14	GND

3.10 USB CONNECTOR (USB1)



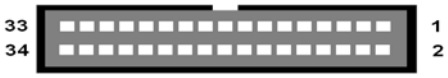
PIN	SIGNAL	PIN	SIGNAL
1	**+5V**	**2**	**+5V**
3	**USB0-**	**4**	**USB1-**
5	**USB0+**	**6**	**USB1+**
7	**GND**	**8**	**GND**
9	**GND**	**10**	**GND**

3.11 ATX POWER CONNECTOR (ATX1)



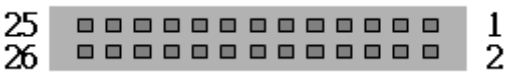
PIN	SIGNAL
1	GND
2	PSON#
3	+5VSB

3.12 FLOPPY DISK DRIVE CONNECTOR (FDD1)）



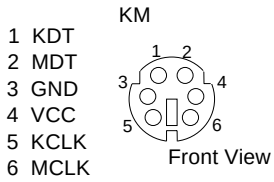
PIN	SIGNAL	PIN	SIGNAL
1	GND	2	DRVDEN0
3	GND	4	NC
5	GND	6	NC
7	GND	8	/INDEX
9	GND	10	/MOA
11	GND	12	/DSB
13	GND	14	/DSA
15	GND	16	/MOB
17	GND	18	/DIR
19	GND	20	/STEP
21	GND	22	/WD
23	GND	24	/WE
25	GND	26	/TRAK0
27	GND	28	/WP
29	NC	30	/RDATA
31	GND	32	/HEAD
33	NC	34	/DSKCHG

3.13 PARALLEL PORT CONNECTOR (LPT1)

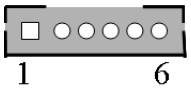


PIN	Signal	PIN	Signal
1	-Strobe	2	-Auto Form Feed
3	Data 0	4	-Error
5	Data 1	6	-Initialize
7	Data 2	8	-Printer Select In
9	Data 3	10	Ground
11	Data 4	12	Ground
13	Data 5	14	Ground
15	Data 6	16	Ground
17	Data 7	18	Ground
19	-Acknowledge	20	Ground
21	Busy	22	Ground
23	Paper	24	Ground
25	Printer Select	26	No Used

3.14 KEYBOARD/MOUSE CONNECTOR (PS1)

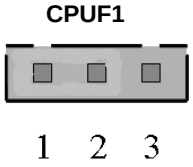


3.15 KEYBOARD/MOUSE CONNECTOR (KB1)



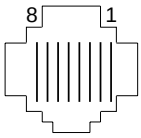
PIN	SIGNAL	PIN	SIGNAL
1	MSDAT#	2	KBDAT#
3	KBGND	4	+5V
5	MSCLK	6	KBCLK

3.16 CPU FAN CONNECTOR (CPUF1)



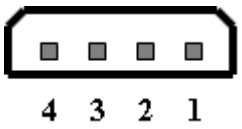
PIN	SIGNAL
1	+12V_CTL
2	FAN_FB
3	GND

3.17 RJ45 CONNECTOR (LAN1)



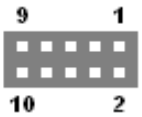
PIN (LAN1	FUNCTION
1	TPTX+
2	TPTX -
3	TPRX+
4	Not Used
5	Not Used
6	TPRX -
7	Not Used
8	Not Used

3.18 POWER INPUT CONNECTOR (PWR1)



PIN	SIGNAL
1	+12V
2	GND
3	GND
4	+5V

3.19 GPIO CONNECTOR (GPIO1)

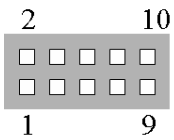


PIN	SIGNAL	PIN	SIGNAL
1	GPIO1	2	GPIO5
3	GPIO2	4	GPIO6
5	GPIO3	6	GPIO7
7	GPIO4	8	GPIO8
9	GND	10	+5V

3.20 CMOS CLEAR (JP1)

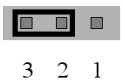
1-2 : On-board battery
(Factory preset)
2-3 : Clear CMOS

3.21 COM2 FOR RS232 CONNECTOR



PIN	SIGNAL	PIN	SIGNAL
1	DCDB	2	DSRB
3	SINB	4	RTSB
5	SOUTB	6	CTSB
7	DTRB	8	RIB
9	GND	10	GND

3.22 LCD VOLTAGE SELECT (JP1)



	1-2	2-3(default)
Voltage	5V	3.3V

3.23 HARDWARE RESET PIN (RST_BUT)

NOTE: Short this pin for system reset.

3.24 CPU TYPE SELECT (J1)

J1 **ATX1**

FUNCTION	CPU Type
Short	BIANS
Open	DOTHAN

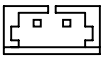
3.25 POWER BUTTEN (PWR_BUT)

Notes: Trigger power button will turn on/off system. Pushed power button longer than 4 seconds system will off while system is on.

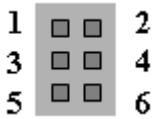
3.26 SRAM BACKUP BATTEY

BAT2

Connect to 3V Battery

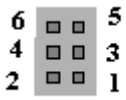


3.27 SRAM IO DEFINE (JP8)）



SET	SIGNAL
1-2	CLOSE: 8K BANK OPEN : 16K BANK
3-4	RESERVE
5-6	CLOSN: DC00H OPEN : D000H

3.28 COM2 RS422/RS485 SELECT(JRTS1)

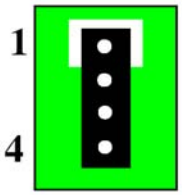


SET	SIGNAL
1-2	RS232
3-4	RS422
5-6	RS485

3.29 COM2 FOR RS422/RS485 CON (JCOM2)

- **JCOM2 : 4-pin Connector for RS-422 / RS-485**

PIN NO.	For RS-422	For RS-485
1	TX+	RTX+
2	TX-	RTX-
3	RX+	
4	RX-	



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

C:>debug

o 2E 87   ;Extended Functions Enable Register

o 2E 87   ;Extended Functions Enable Register

o 2E 07   ;EFIR=EFER (Extended Functions Index Register)
                      point to Logical Device Number Reg.

o 2F 08   ; Select logical device 8, (Watchdog Function)

o 2E 30   ; Device Active register

o 2F 01   ;update CR30 with value 01H

o 2E F6 ; Select Watchdog count mode seconds or minutes

o 2F 08   ;update CRF6 with value 08H ,(8sec reset)
        q
```

```
// Enter W83627HF/HG Config
    outportb(IO_Port_Address,0x87);
    outportb(IO_Port_Address,0x87);

    outportb(IO_Port_Address,0x2B);     // Point to Global Reg.
    outportb(IO_Port_Address+1,(inportb(IO_Port_Address+1)&0xEF));
                                        // Select Multi-Function pin, (Bit4=0 Watchdog Function)

    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+1,0x00);       // Default is second

    outportb(IO_Port_Address,0xF6);     // Set Watchdog Timer Value
    outportb(IO_Port_Address+1,Time);  // 0x00 to disable, max 0xFF (255 Seconds)

// Exit W83627HF/HG Config
  outportb(IO_PORT_BASE , 0xAA);
```

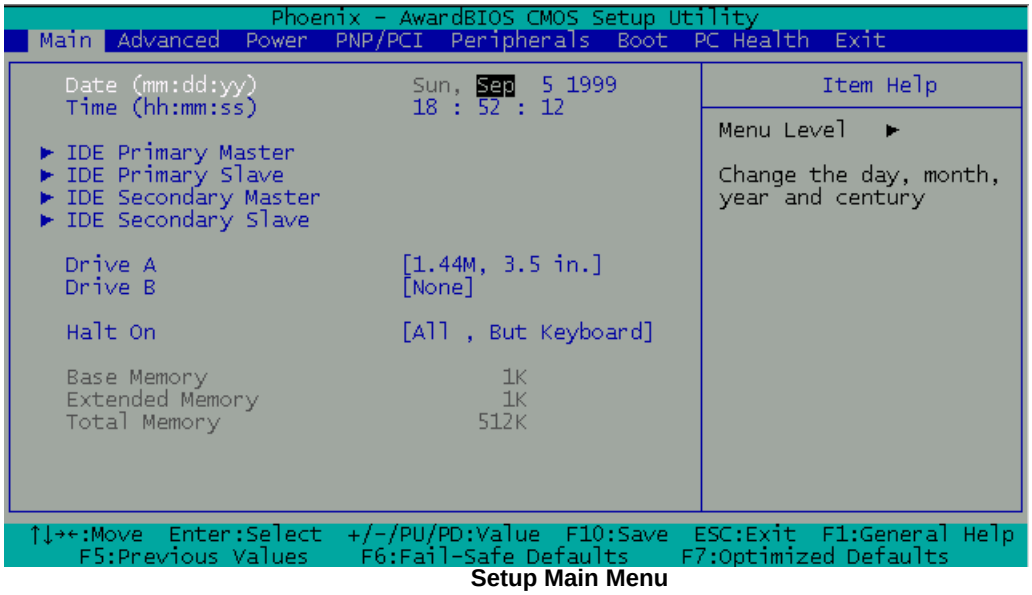
5. BIOS CONSOLE

This chapter describes the AR-B5070 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.



Setup Main Menu

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

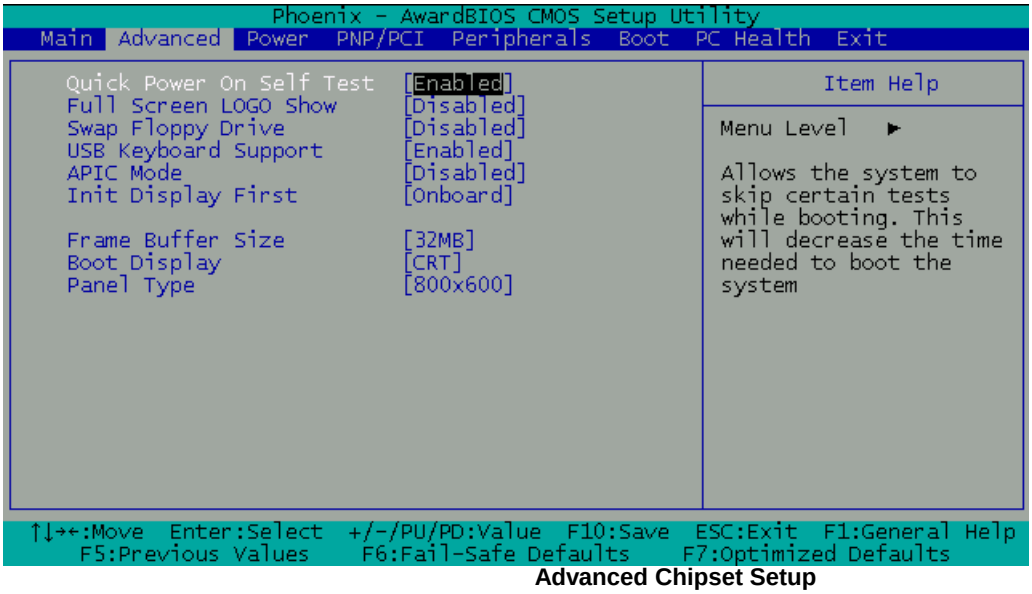
The field determines whether or not the system will halt if an error is detected during the power up.

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



Advanced Chipset Setup

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

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

Swap Floppy Drive

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”*.

Video Memory Size

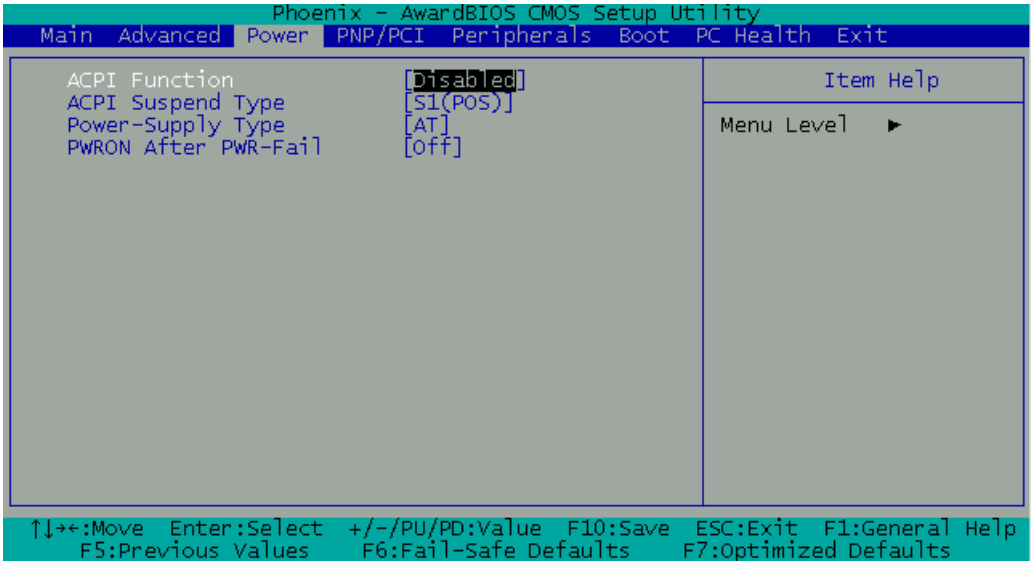
The Video Memory Size shows how many memory are used by VGA controller. By default, this field is set to “8M”.

Resolution

Choose FPT resolution. The default setting set to “ *800x600* “

5.3 POWER SETUP

Use this main to specify your setting for power management.



Power Setup

Power Management

Enable this field to support Power Management function

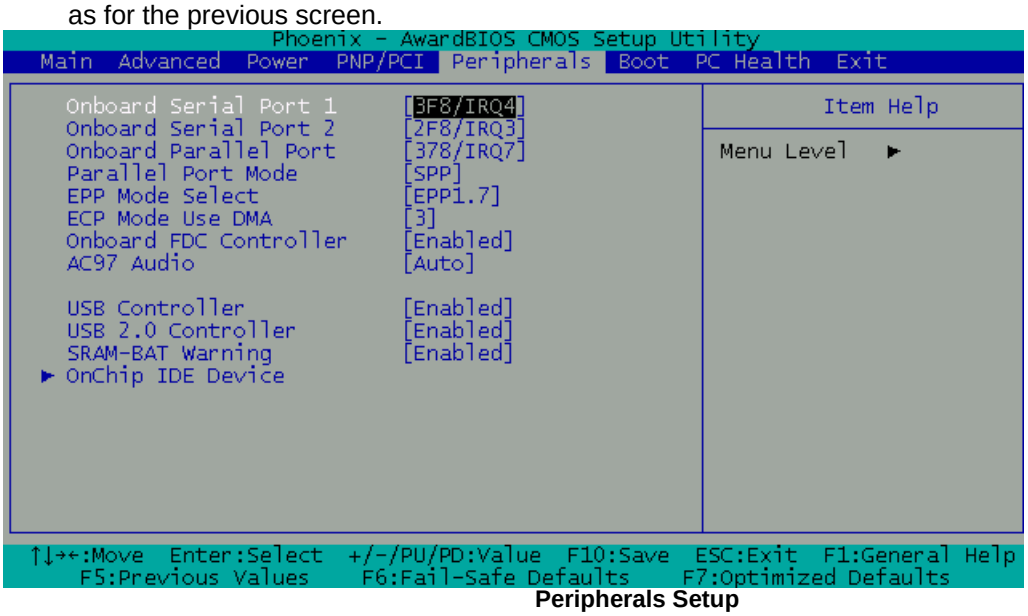
ACPI Function

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

By default, the field is set to *Disabled*.

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.



Peripherals Setup

Onboard Serial Port 1

Onboard Serial Port 2

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

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***.

SRAM-BAT Warning

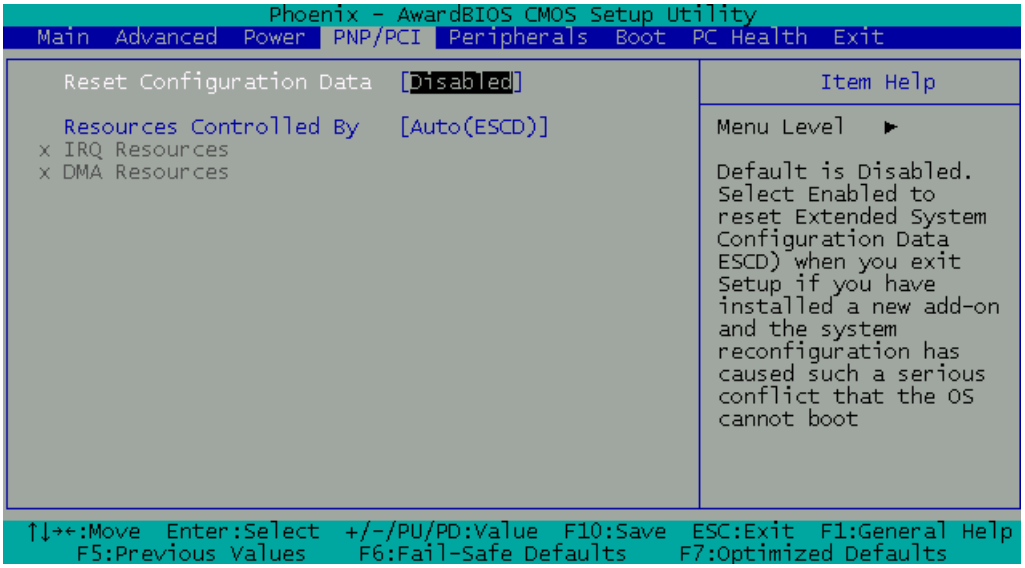
Beep from Buzzer when SRAM Battery is low power. By default, the field is set to *Enabled*.

Onboard Audio

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

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

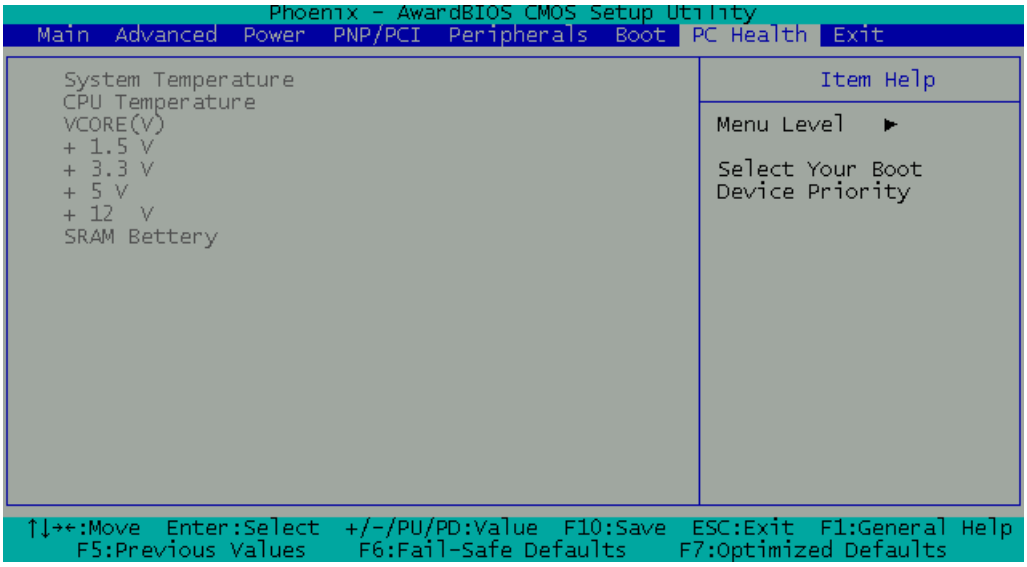
Thus field allows you to determine whether to reset the configuration data or not. The default value is *"Disabled"*.

Resources Controlled By

This PnP BIOS can configure all of the boot and compatible devices automatically with the use of a use 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

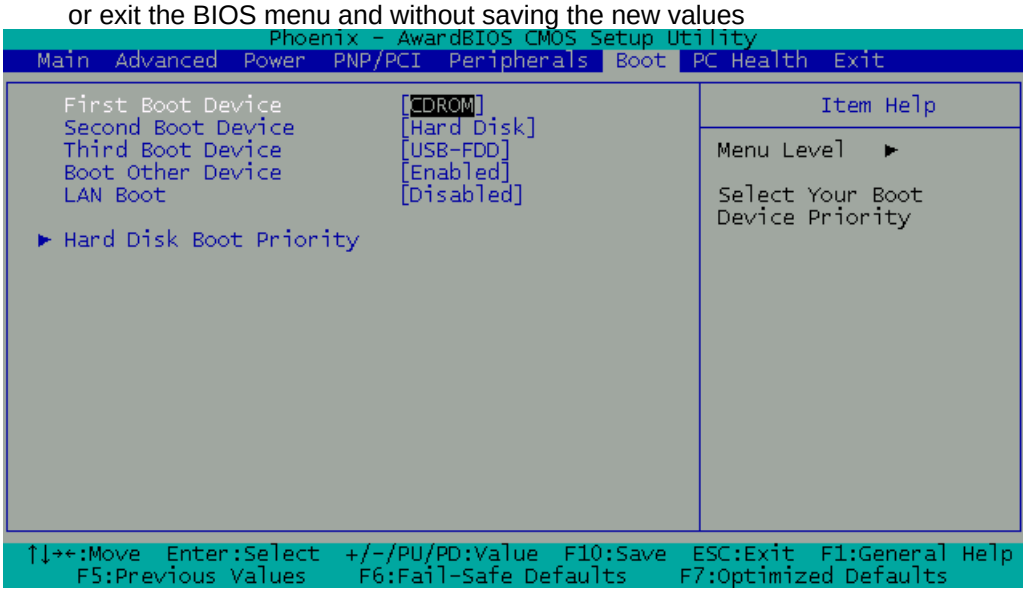
These fields are parameters of the hardware monitoring function feature of the motherboard. The values are read-only values as monitored by the system and show the PC health status.

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



PCI / Plug And Play

First / Second / Third Boot Device

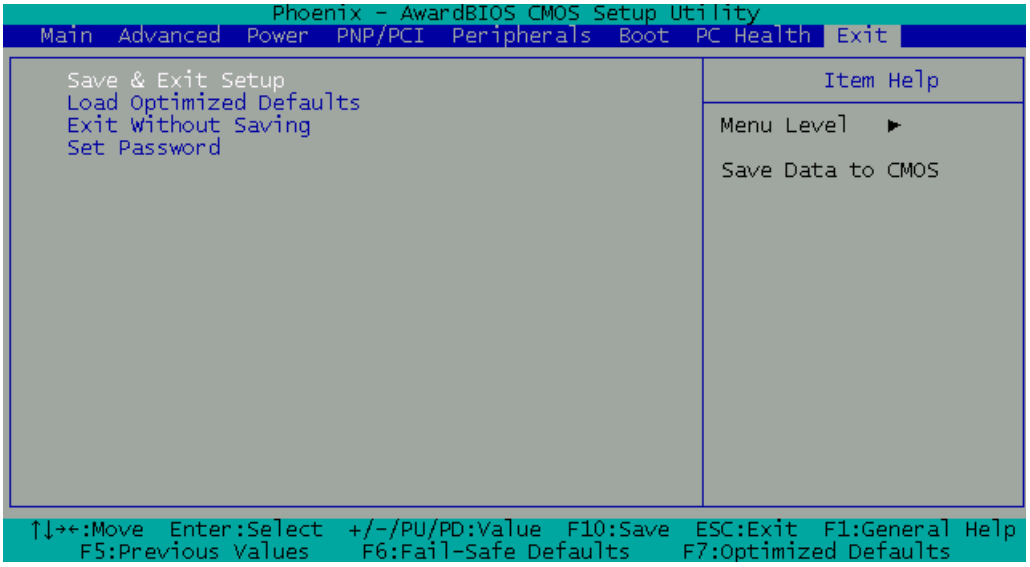
These fields determine the device that the system searches first for an operating system. The option available include Hard Disk, CDROM, USB-FDD, USB-CDROM and Disable.

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.

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-B5070 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 Kayboard
0061 - 0061	System speaker
0062 - 0063	Motherboard resources
0064 - 0064	Standard 101/102 – key or Microsoft Natural Kayboard
0065 - 006F	Motherboard resources
0070 - 0073	System CMOS/real time clock
0074 – 0077	Motherboard resources
0078	SRAM Access controller (**)
0079 - 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 - 03BA	Advance Micro Device Win XP Graphics Driver
03C0 - 03DF	Advance Micro Device Win XP Graphics Driver
03F6 - 03F6	Primary IDE Channel
03F8 - 03FF	Communication Port (COM1)

(**) SRAM will use the init address D0000H or DC000H by jumpper setting

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	Standard Enhanced PCI to USB Host Controller
05	Standard OpenHCD USB Host Controller
06	Standard FDD Controller
07	LPT1
08	System CMOS realtime clock
09	Microsoft ACPI-Compliant System / PCI or ISA PNP Device
10	PCI or ISA PNP Device
11	PCI or ISA PNP Device
12	PS/2 Compatible Mouse
13	Numeric data processor
14	Primary IDE Channel
15	Secondary IDE Channel

APPENDIX C. GPIO SETTING FOR AR-B5070

```
   int IO_PORT_BASE = 0x2EH
// Enter W83627HF/HG Config
   outportb(IO_PORT_BASE,0x87);
   outportb(IO_PORT_BASE,0x87);

// Set Multi-function Pins to GPIO
   outportb(IO_PORT_BASE,0x2A);
   Temp = inportb(IO_PORT_BASE+1);
   outportb(IO_PORT_BASE+1 , Temp | 0xFC);

// Select GPIO Port device
   outportb(IO_PORT_BASE , 0x07);              // Select Logical Dev. with CR07
   outportb(IO_PORT_BASE + 1 , 0x07);          // Select LDNo.7
   outportb(IO_PORT_BASE , 0x30);              // Enable this Dev. with LDev's CR30
   outportb(IO_PORT_BASE + 1 , 0x01);


// I/O Setting 1 --> UserIO[8~5] received side , UserIO[4~1] output side
  outportb(IO_PORT_BASE , 0xF0);               // Set UserIO[8~1] to In or Out
  outportb(IO_PORT_BASE + 1 , 0xF0);           // 1 --> Input side ; 0 --> Output side

  outportb(IO_PORT_BASE , 0xF1);               // GPIO DATA Reg.
  outportb(IO_PORT_BASE + 1 , 0xF0);           // UserIO[8~5] receive signal ; UserIO[4~1] send 'Hi'

// I/O Setting 2 --> UserIO [8~5] output side , UserIO [4~1] received side
  outportb(IO_PORT_BASE , 0xF0);               // Set UserIO[8~1] to In or Out
  outportb(IO_PORT_BASE + 1 , 0x0F);           // 1 --> Input side ; 0 --> Output side
  outportb(IO_PORT_BASE , 0xF1);               // GPIO DATA Reg.
  outportb(IO_PORT_BASE + 1 , 0x0F);           // UserIO [8~5] send 'Hi' ; UserIO [4~1] receive signal

// Exit W83627HF/HG Config
  outportb(IO_PORT_BASE , 0xAA);
```