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AR-B1572

Fanless ISA-Bus SBC with GX466 333MHz CPU User Guide

Edition: 1.0
Book Number: AR-B1572 06.10.25

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0. PREFACE

0.1 COPYRIGHT NOTICE AND DISCLAIMER

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ACKNOWLEDGEMENTS

0.2 WELCOME TO THE AR-B1572 CPU BOARD

This guide introduces the AR-B1572 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-B1572. 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-B1572. Check the packing list before you install and make sure the accessories are completely included.
AR-B1572 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 the manufacturer. or your local sales representative and indicate the manual title and book number.
Internet electronic mail to: Sales@emacinc.com
http://www.emacinc.com/support/

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-B1572 ISA AT/ATX Single Board Computer. The AR-B1572 is PIC board with onboard fanless AMD Geode GX 466@0.9W processor and CS5536 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 TFT interface with 24-bit panel specifications. Ethernet connectivity comes from the RTL8100C 10/100 Ethernet controller.

The AR-B1572 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-B1572 package includes the following items:

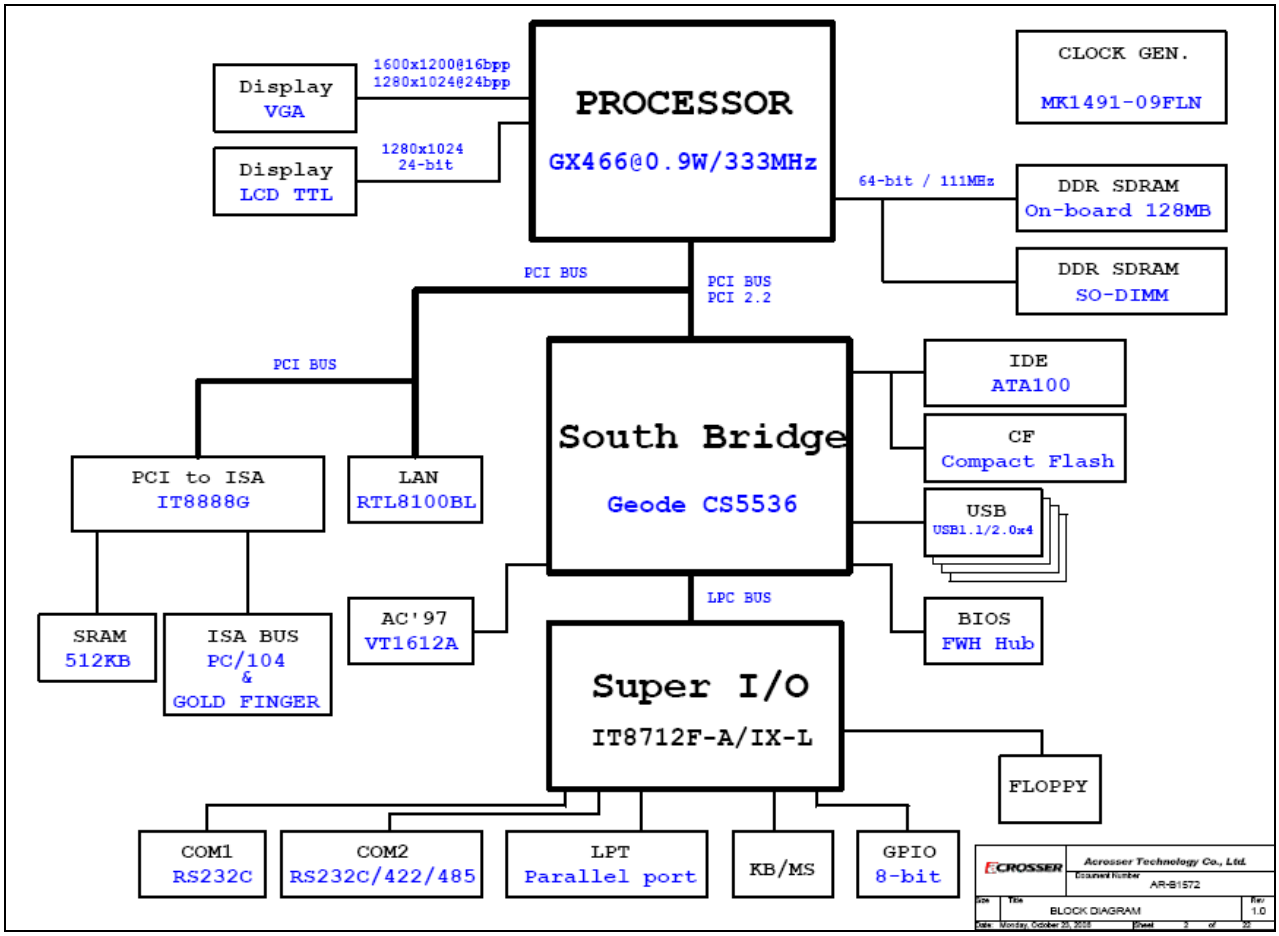
- AR-B1572 AT/ATX Single Board
- FDD Cable (FDD1) x 1
- 5.25” IDE HDD ATA100 Cable (IDE1) x 1
- Parallel port cable (LPT1) x 1
- AR-B9525A V1.4 (optional)
- USB 2.0 cable (USB1, USB2) x 1
- PS/2 to PS/2 Y-cable (PS1) x 1
- Serial port cable (COM2) x 1

1.2 SPECIFICATIONS

Model No.	AR-B1572 V1.0 8/23/2006
Description	Fan less ISA-Bus SBC with GX466 333MHz CPU, LCD, LAN, On-board 128MB DDR 266 SDRAM, On-board 128KB SRAM
PCB Version	V1.0
Issue 8/23/2006	1. Remove Protect U 2. I/O Winbond 8712F 3. I/O connector follows AR-B1479A
Issue 11/30/2005	1. SRAM on board, but it is option 2. IDE needs to have 防呆 3. ProtectU/SRAM/Audio as option 4. Support keyboard lock
Form Factor	ISA-bus CPU Card, 185mm x 122mm (7.3" x 4.8"), 6 Layers.
CPU Grade	On-board fanless GX466 333MHz CPU, BGA396
BIOS	AWARD
SRAM	On-board 128K with battery back-up
ProtectU	No
PC/104	Interface with 4 through holes, follow AR-B1476 and AR-B1579.
System Memory	Default On-board DDR 266 SDRAM 128MB and one SODIMM socket.
System Chipset	NS Geode CS5536
Onboard Cache	L1 32KB, CPU included.
Display Interface	• Display Memory: Shared with system memory. • CRT: Up to 1600x1200 @ 16bpp, 1280x1024@24bpp. • LCD: support TTL interface with 24-bit up to 1280x1024
I/O Chipset	• Winbond 8712F o Serial: 1 high speed RS-232C serial port (COM1). o Serial: RS-232C/422/485 serial port (COM2) with pin header. o Parallel: SPP, EPP and ECP mode. o Floppy: Floppy disk drives 3.5". o K/B & Mouse: PS/2 KB/Mouse port on bracket, AT Keyboard header(keyboard lock). • USB: 4 x USB v2.0 ports(four internal). • Digital I/O: 8-bit, 4 Digital Input and 4 Digital Output.
IDE	On-board one 2x20x2.54mm box-header connector supports Ultra-DMA 33/66 Compact Flash share with IDE
Extension Bus	PC/104 Connector
Audio	• Chipset: VIA VT1612A • AC97 Digital Audio controller • Interface: Line-in, CD-in, Mic-in, and Line-out (AR-B9425 is optional adapter board which has four phone jack for audio I/O connection and an amplifier module for Line-out signal)
RTC	Yes
H/W Monitor	Supports Power Voltage, and CPU temperature monitoring.
K/B and Mouse	On-board PS/2 Keyboard and Mouse connector.
LAN Chipset	On-board one Realtek RTL8100B supports 10/100Mbps Ethernet with RJ-45 connector built-in LED at bracket,
Through Holes	Needs to follow AR-B1672 and AR-B1570
Watchdog	Software programmable 1~63 seconds
Power Req.	+5V@ 2.0 A typical, +12V@ 1.0A typical, supports AT/ATX power

	function, wafer 5.08 mm, 4 pin, male 180 degree, white for PCB
Operating Temp.	0~60℃
Storage Temp.	-20~80℃
Operating Humidity	0~90% relative humidity none-condensing
Safety	CE FCC class A Certified
Supporting OS	Windows NT4.0/2000, 98, XP. Linux Version: Mandrake / Caldara / Redhat. WinCE

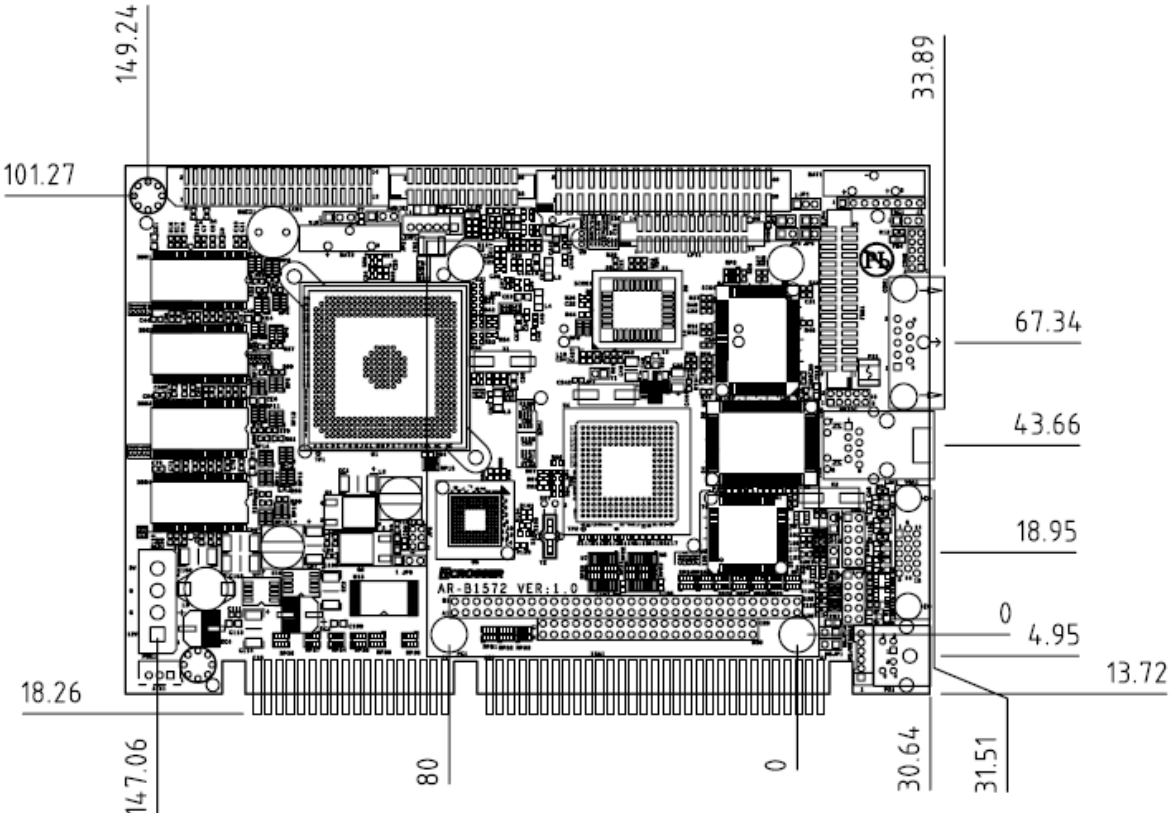
1.3 BLOCK DIAGRAM



2. INSTALLATION

This chapter describes how to install the AR-B1572. At first, the layout of AR-B1572 is shown, and the unpacking information that you should be careful is described. The jumpers and switches setting for the AR-B1572's configuration are as below.

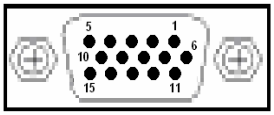
2.1 AR-B1572'S BOARD DIMENSIONS



3. CONNECTION

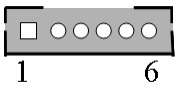
The connectors on AR-B1572 allows you to connect external devices such as USB devices, serial port drives, hard disk devices, printers, etc. The following table lists the connectors on AR-B1572 and their respective functions.

3.1 VGA CONNECTOR (VGA1)



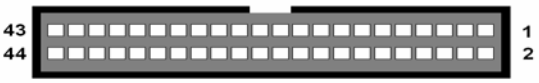
PIN	SIGNAL	PIN	SIGNAL
1	RED	9	**+5V**
2	GREEN	10	GND
3	BLUE	11	NC
4	NC	12	SDA
5	GND	13	HSYNC
6	GND	14	VSYNC
7	GND	15	SCL
8	GND		

3.2 VOLTAGE SOUCE FOR LCD INVERTER (INV1)



PIN	SIGNAL	PIN	SIGNAL
1	**+12V**	2	**+12V**
3	GND	4	**+5V**
5	GND	6	NC

3.3 LCD CONNECTOR (LCD)

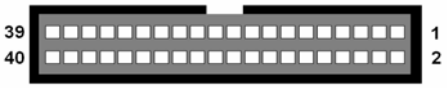


Pin	Signal		Pin	Signal	
1	GND		2	CLK	
3	GND		4	HSYNC	
5	VSYNC		6	GND	
7	B0	NC	8	B1	NC
9	B2	B0	10	B3	B1
11	B4	B2	12	B5	B3
13	GND		14	B6	B4
15	B7	B5	16	G0	NC
17	G1	NC	18	G2	G0
19	G3	G1	20	GND	
21	G4	G2	22	G5	G3
23	G6	G4	24	G7	G5
25	R0	NC	26	R1	NC
27	GND		28	R2	R0
29	R3	R1	30	R4	R2
31	R5	R3	32	R6	R4
33	R7	R5	34	GND	
35	VCC		36	VCC	
37	+12V		38	+12V	
39	GND		40	GND	
41	DISPEN		42	BLKEN	
43	GND		44	VDDEN	

NOTE: For 24 bit panel reference to left side of pin definition. For 18 bits panel reference to right

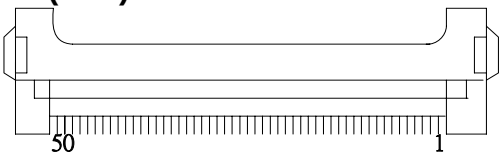
side.

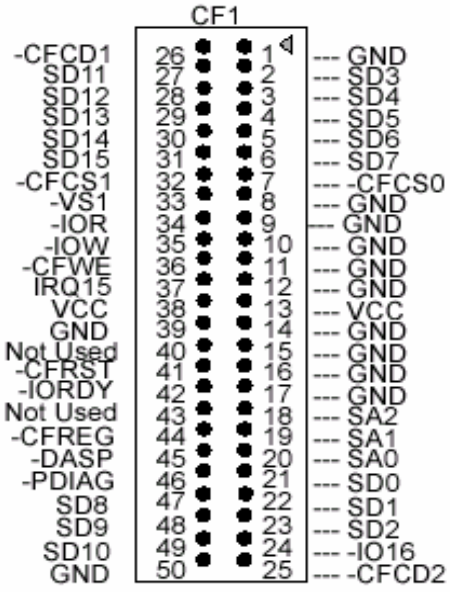
3.4 HARD DISK CONNECTOR (IDE1)



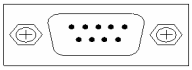
Pin	Signal	Pin	Signal
1	-RESET	2	GROUND
3	DATA 7	4	DATA 8
5	DATA 6	6	DATA 9
7	DATA 5	8	DATA 10
9	DATA 4	10	DATA 11
11	DATA 3	12	DATA 12
13	DATA 2	14	DATA 13
15	DATA 1	16	DATA 14
17	DATA 0	18	DATA 15
19	GROUND	20	N.C
21	PDDREQ	22	GROUND
23	-PDIOW	24	GROUND
25	-PDIOR	26	GROUND
27	PIORDY	28	GROUND
29	-PDDACK	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 (CF1)



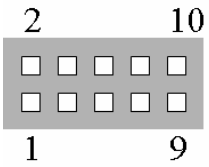


3.6 SERIAL PORT (COM1)



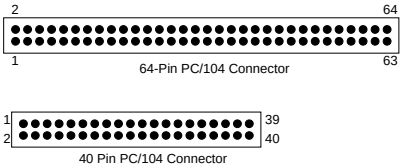
PIN	SIGNAL	PIN	SIGNAL
1	/DCDA	6	/DSRA
2	RXDA	7	/RTSA
3	TXDA	8	/CTSA
4	/DTRA	9	/RIA
5	GND		

3.7 SERIAL PORT (COM2)

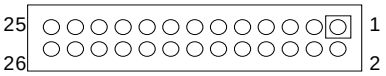


PIN	SIGNAL	PIN	SIGNAL
1	/DCDB	2	/DSRB
3	RXDB	4	/RTSB
5	TXDB	6	/CTSB
7	/DTRB	8	/RIB
9	GND		

3.8 PC104



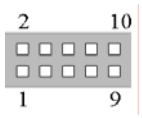
3.9 AUDIO CONNECTOR (AUDIO1)



Audio Connector

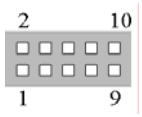
PIN	SIGNAL	PIN	SIGNAL
1	CDINL	2	LININL
3	CDINR	4	LININR
5	VCC	6	NC
7	LINOUTL	8	MICIN
9	LINOUTR	10	PCPEEP
11	AUDIOGND	12	GND
13	NC	14	NC
15	AUDIOGND	16	GND
17	NC	18	NC
19	NC	20	NC
21	NC	22	NC
23	NC	24	NC
25	AUDIOGND	26	GND

3.10 USB CONNECTOR (USB1)



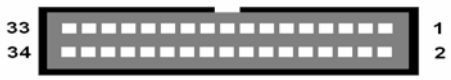
PIN	SIGNAL	PIN	SIGNAL
1	+5V	2	+5V
3	USB2-	4	USB3-
5	USB2+	6	USB3+
7	GND	8	GND
9	GND	10	GND

3.11 USB CONNECTOR (USB2)



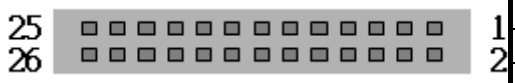
PIN	SIGNAL	PIN	SIGNAL
1	+5V	2	+5V
3	USB0-	4	USB1-
5	USB0+	6	USB1+
7	GND	8	GND
9	GND	10	GND

3.12 FLOPPY DISK DRIVE CONNECTOR (FDD1)）



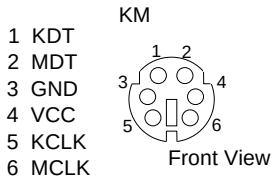
PIN	SIGNAL	PIN	SIGNAL
1	GND	2	DRVDEN0
3	GND	4	NC
5	GND	6	NC
7	GND	8	/INDEX
9	GND	10	/MOA
11	GND	12	/DSB
13	GND	14	/DSA
15	GND	16	/MOB
17	GND	18	/DIR
19	GND	20	/STEP
21	GND	22	/WD
23	GND	24	/WE
25	GND	26	/TRAK0
27	GND	28	/WP
29	NC	30	/RDATA
31	GND	32	/HEAD
33	NC	34	/DSKCHG

3.13 PARALLEL PORT CONNECTOR (LPT1)

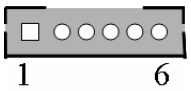


CN8	Signal	CN8	Signal
1	-Strobe	2	-Auto Form Feed
3	Data 0	4	-Error
5	Data 1	6	-Initialize
7	Data 2	8	-Printer Select In
9	Data 3	10	Ground
11	Data 4	12	Ground
13	Data 5	14	Ground
15	Data 6	16	Ground
17	Data 7	18	Ground
19	-Acknowledge	20	Ground
21	Busy	22	Ground
23	Paper	24	Ground
25	Printer Select	26	No Used

3.14 KEYBOARD/MOUSE CONNECTOR (PS1)



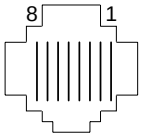
3.15 KEYBOARD/MOUSE CONNECTOR (KB/MS1)



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

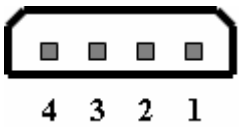
3.16 KEYBOARD AND MOUSE LOCK / UNLOCK HEADER (KBJP1 / MSJP1)

3.17 RJ45 CONNECTOR (LAN1)



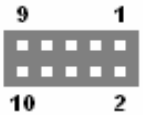
PIN (LAN1	FUNCTION
1	TPTX+
2	TPTX -
3	TPRX+
4	Not Used
5	Not Used
6	TPRX -
7	Not Used
8	Not Used

3.18 POWER INPUT CONNECTOR (PWR1)



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

3.19 GPIO CONNECTOR (GPIO1)

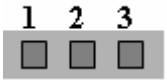


PIN	SIGNAL	PIN	SIGNAL
1	GPIO1	2	GPIO5
3	GPIO2	4	GPIO6
5	GPIO3	6	GPIO7
7	GPIO4	8	GPIO8
9	GND	10	+5V

3.20 CMOS CLEAR (JP1)

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

3.21 CRT/LCD SELECT (JP2)



SET	SIGNAL
1-2	CRT (DEFAUL)
2-3	LCD

3.22 LCD VOLTAGE SELECT (VJP1)

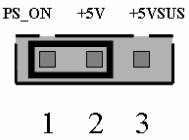
	1-2	2-3(default)
Voltage	5V	3.3V

3.23 HARDWARE RESET PIN (JP3)

NOTE: Short this pin for system reset.

3.24 AT/ATX SELECT PIN (JP4, ATX1)

JP4



ATX1

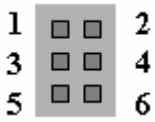
FUNCTION	JP4	ATX1 (PIN 2-3)
AT	OPEN	SHORT
ATX	SHORT	OPEN

3.25 POWER BUTTEN (JP6)

3.26 CF MASTER SELECT (JP7)

SET	SIGNAL
SHORT	SLAVE
OPEN	MASTER

3.27 IT8888G STRAPING (JP8)）



SET	SIGNAL
1-2	ON: IT8888G normal function OFF: enable chip test with PCIRST#0
3-4	ON: NO F-SEG decoding OFF: fast DEVSEL# decode for F-SEG
5-6	ON: disable SM boot-ROM OFF: enable SM boot-ROM

3.28 SRAM ADDRESS SELECT (JP9)

	1-2(default)	2-3
Address	D0h	D8h

3.29 RS232/RS422/RS485 SWITCHING (JP10,JP11)

	JP11(open)	JP11(short)
JP10(open)	RS232	RS422
JP10(short)	RS485 2W	RS485 4W

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 2E 87
    o 2E 87
    o 2E 55
    o 2E 55    Extended Functions Enable Register

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

    o 2F 07    ; Select logical device 8, (Watchdog Function)

    o 2E 23 ; Device Active register

    o 2F10 ;update CR30 with value 01H

    o 2E 72 ; Select Watchdog count mode seconds or minutes

    o 2F C0    unit select C0 → second
                              40 → minute
    o 2E 73
    o 2F 00    timer set 00 → FF
    q
```

Sample code shows as below

```
//   Normal procedure
//=============================================================================
void Show_Title()
{
    clrscr();
    printf("WatchDog Test for ITE8712F\n");
    printf("1. WDT.EXE 10 s ==--> 10 seconds to reset.\n");
    printf("2. WDT.EXE 20 m ==--> 20 minutes to reset.\n");
}

//=============================================================================
//   Main procedure
//=============================================================================
int main(int argc, char *argv[])
{
    BYTE i,j;
    char Time_Format;
    BYTE    IO_Port_Address=0x2E;
    BYTE Time=10;       // Default is 10
    BYTE Format=0x80;       // Default is 0x01 = Seconds

    if ( argc != 3 )
      {   Show_Title();     return 1;       }

    clrscr();

    textcolor(YELLOW+BLINK);

    Time=atoi(argv[1]);

    Time_Format=argv[2][0];
    if(Time_Format=='m' || Time_Format=='M')
     Format=0x00;       // Minutes
    if(Time_Format=='s' || Time_Format=='S')
     Format=0x80;       // Seconds

    // Set Watchdog
    outportb(IO_Port_Address,0x87);     // Enter configure
    outportb(IO_Port_Address,0x01);
    outportb(IO_Port_Address,0x55);
    outportb(IO_Port_Address,0x55);

    outportb(IO_Port_Address,0x07);     // Point to Logical Device Number Reg.
    outportb(IO_Port_Address+1,0x07); // Select logical device 7, (Watchdog Function)

    outportb(IO_Port_Address,0x72);     // Select Watchdog use keyboard reset
    outportb(IO_Port_Address+1,0x40);

    outportb(IO_Port_Address,0x72);     // Select Watchdog count mode seconds or minutes
    outportb(IO_Port_Address+1,Format|inportb(IO_Port_Address+1));

    outportb(IO_Port_Address,0x73);     // Set Watchdog Timer Value
    outportb(IO_Port_Address+1,Time); // 0x00 to disable, max 0xFF

    i=Time;
    j=i*60;
```

```
    while(1)
     {
        gotoxy(20,10);
        if(Time_Format=='m' || Time_Format=='M')
          {
            cprintf(">>> After %d Second will reset the system. <<<",j);
        j--;
     }
        if(Time_Format=='s' || Time_Format=='S')
          {
            cprintf(">>> After %d Second will reset the system. <<<",i);
        i--;
          }
        delay(900);
     }

    return 0;
}
```

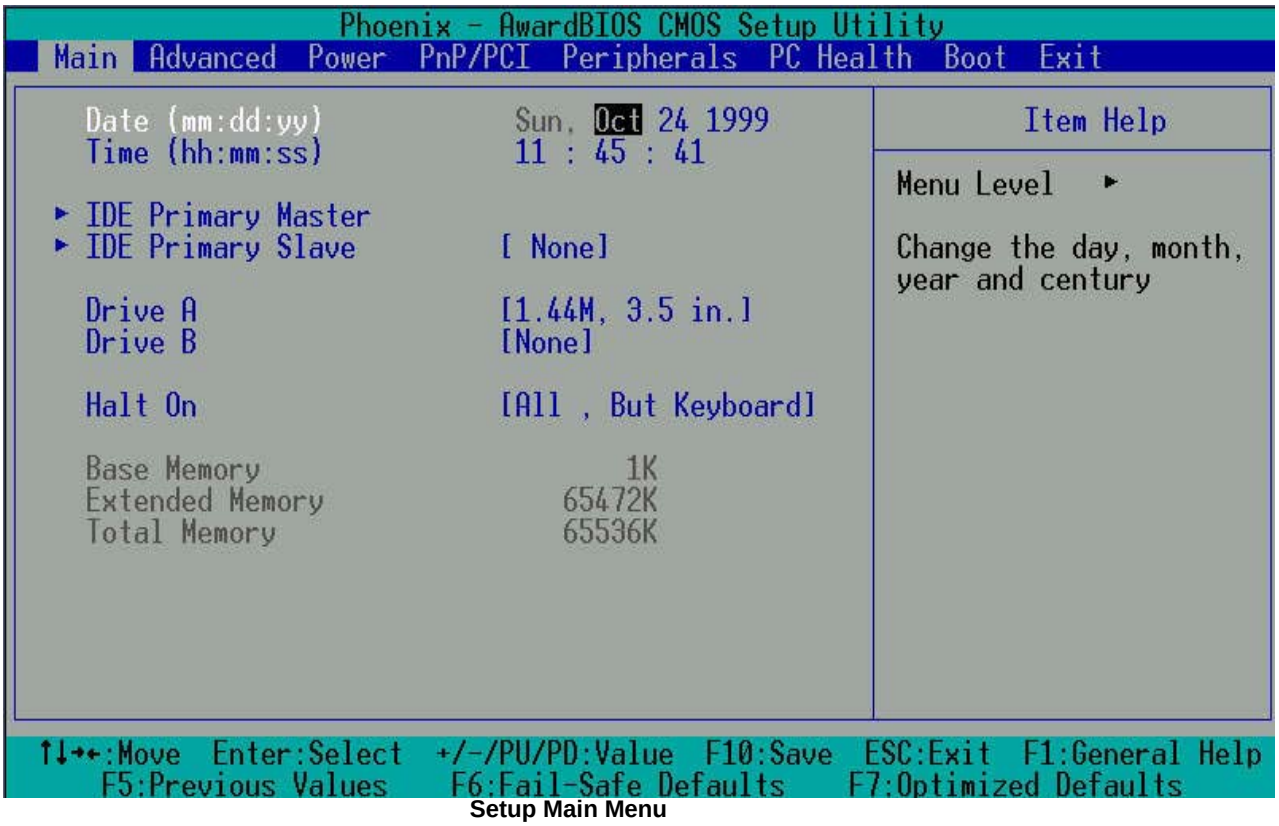
5. BIOS CONSOLE

This chapter describes the AR-B1572 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

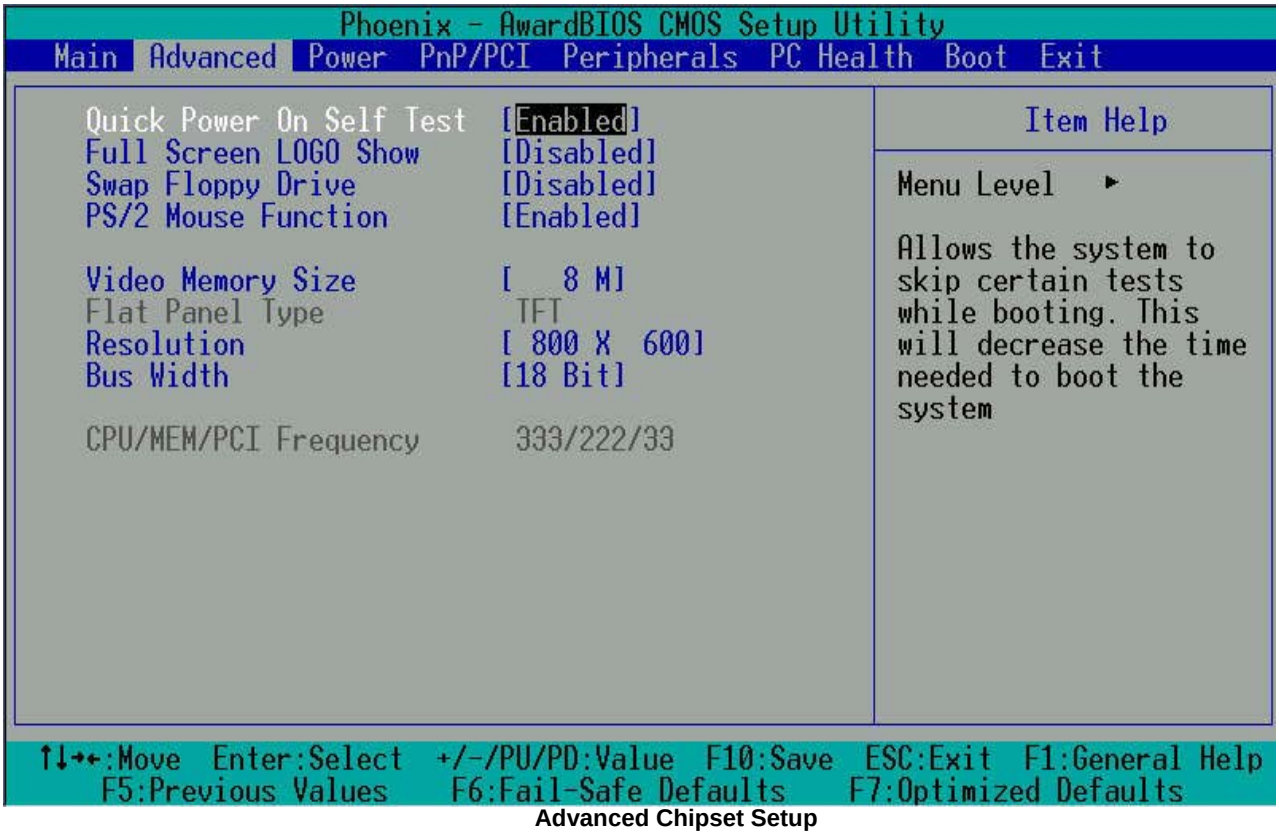
The field determines whether or not the system will halt if an error is detected during the power up.

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

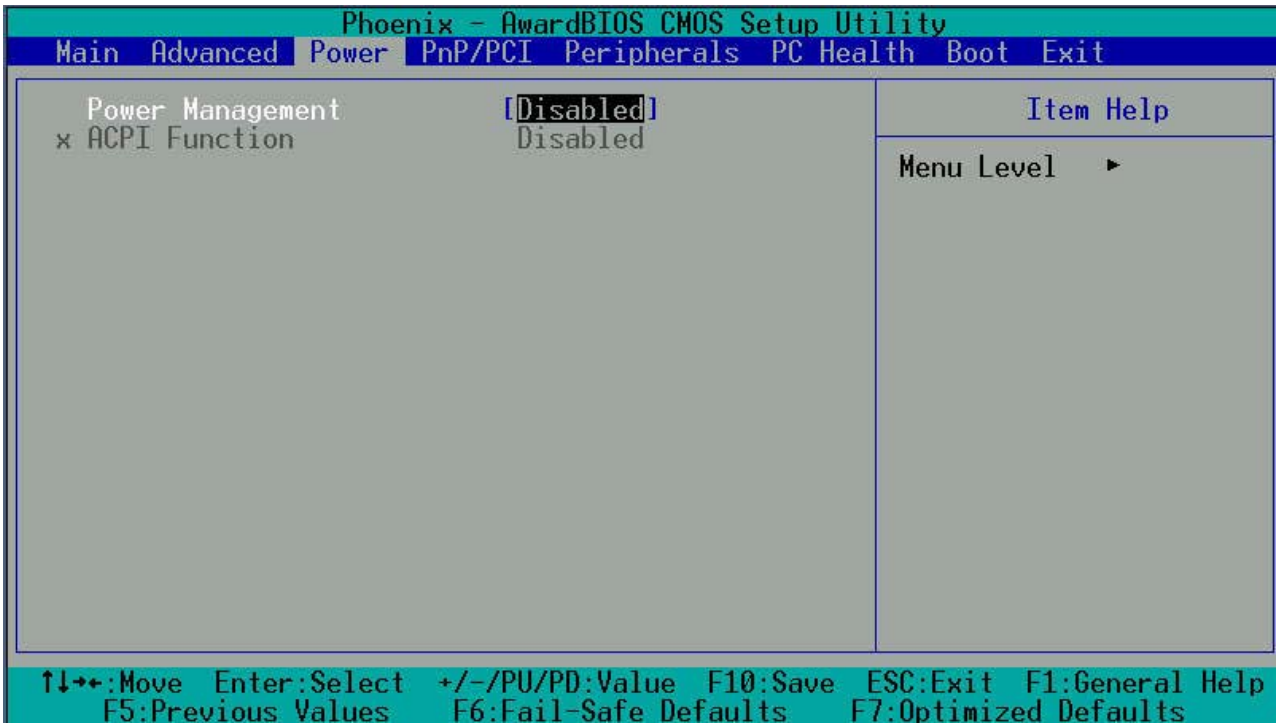
Choose FPT resolution. The default setting set to “ *800x600* “

Bus Width

This field shows the FPT bus width. The default setting set to “ *18 bit* “

5.3 POWER SETUP

Use this main to specify your setting for power management.



Power Setup

Power Management

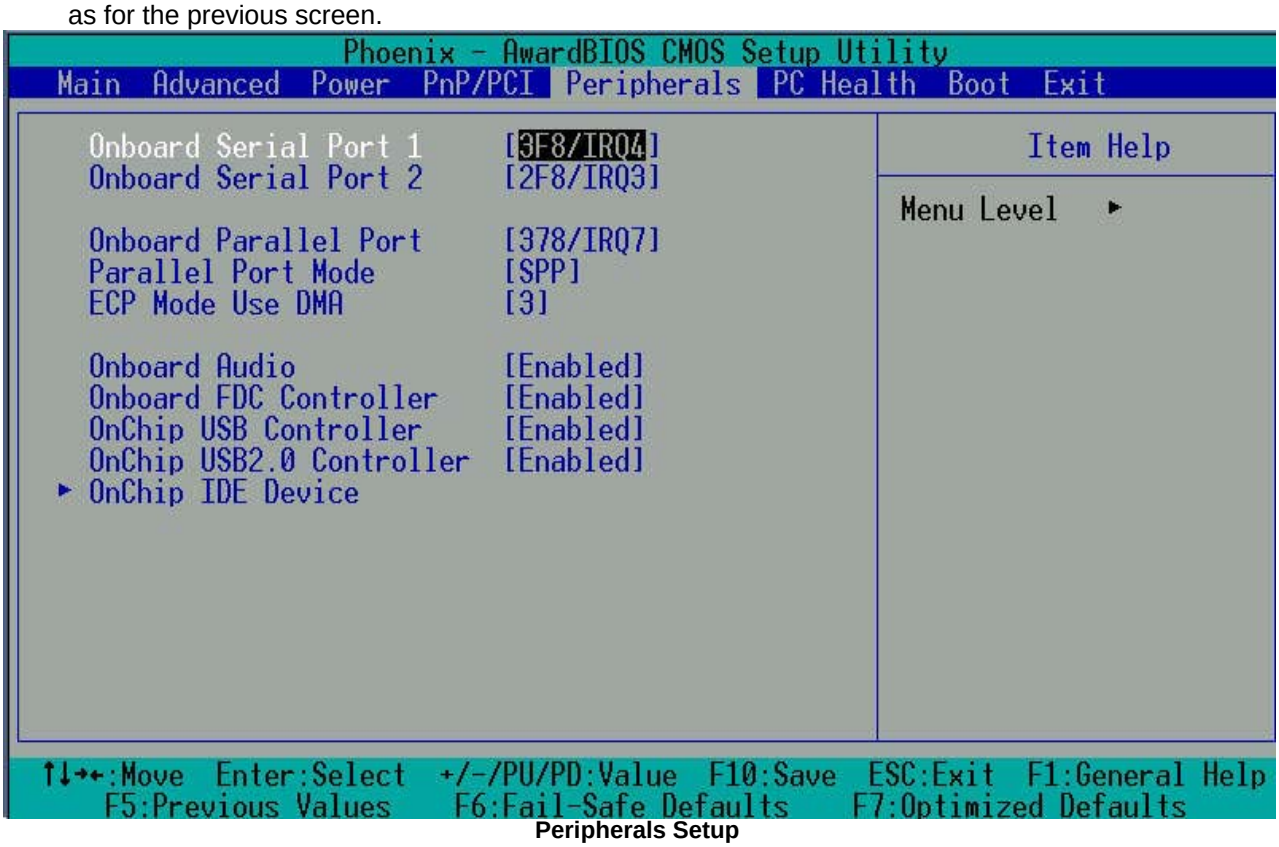
Enable this field to support Power Management function

ACPI Function

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

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

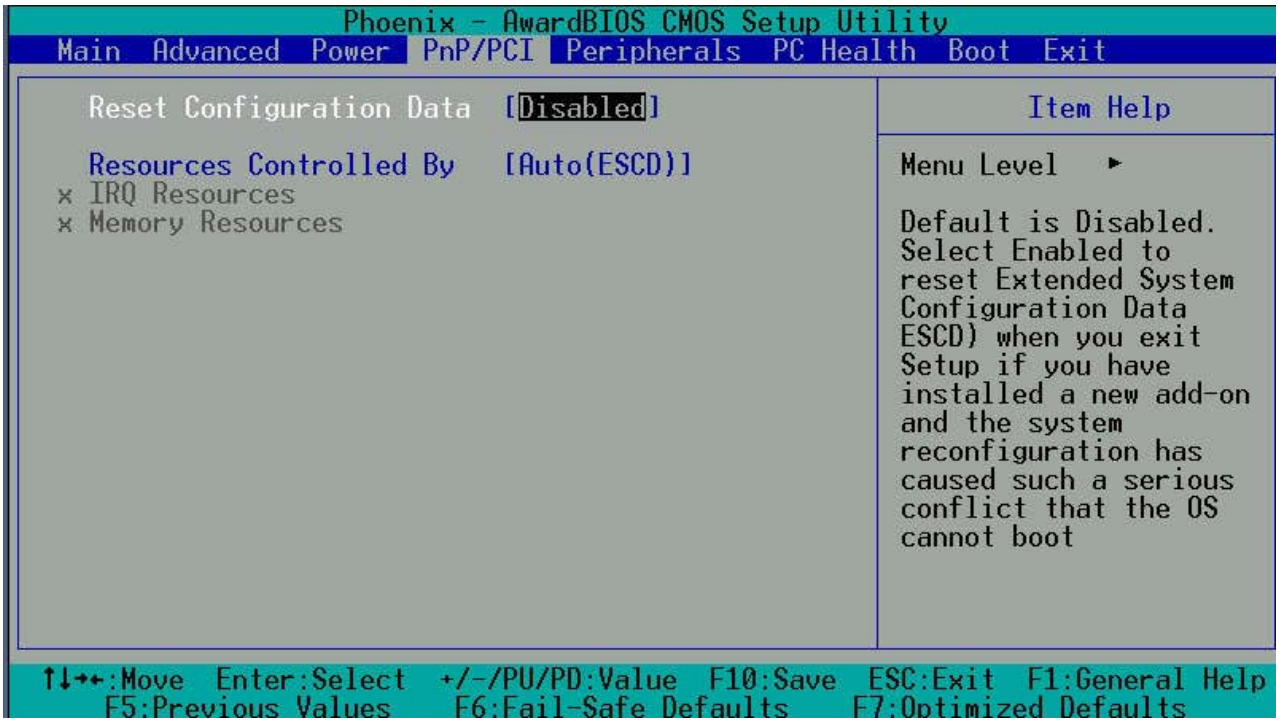
The options for this field are *Enabled* and *Disabled*. By default, the field is set to *Enabled*. In order to use USB 2.0, necessary OS drivers must be installed first. ***Please update your system to Windows 2000 SP4 or Windows XP SP1***.

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

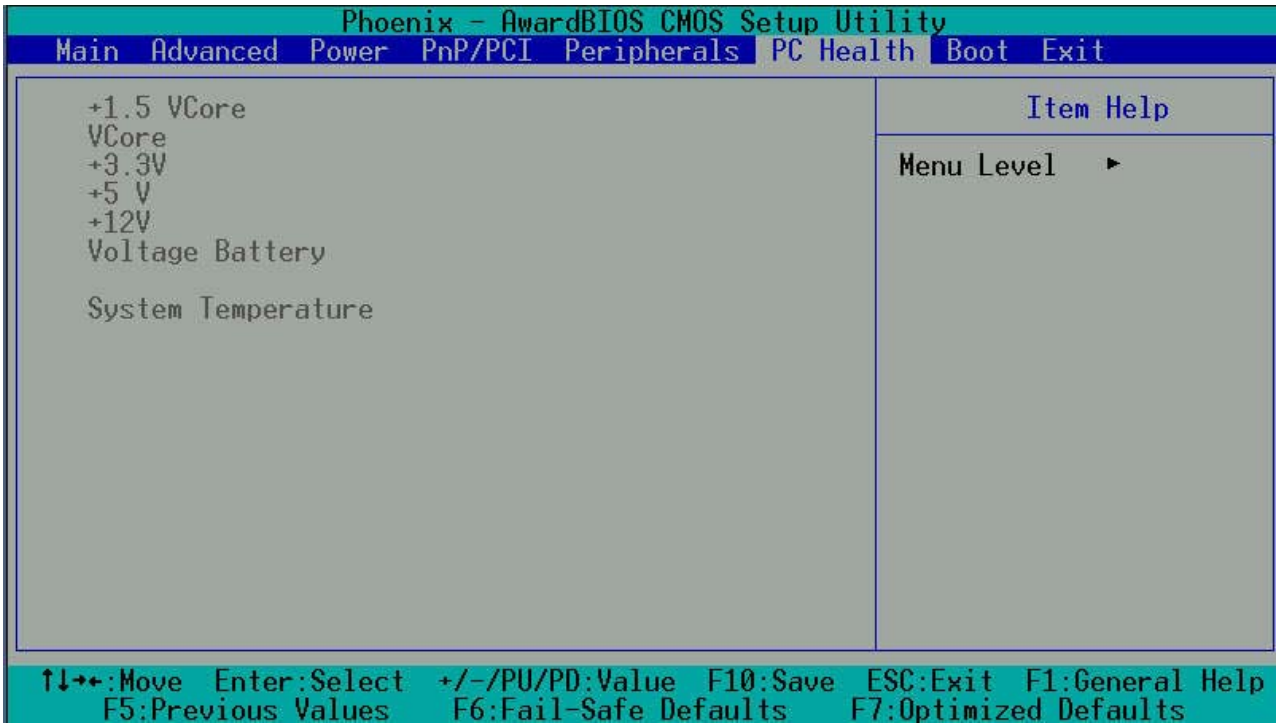
Thus field allows you to determine whether to reset the configuration data or not. The default value is *"Disabled"*.

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

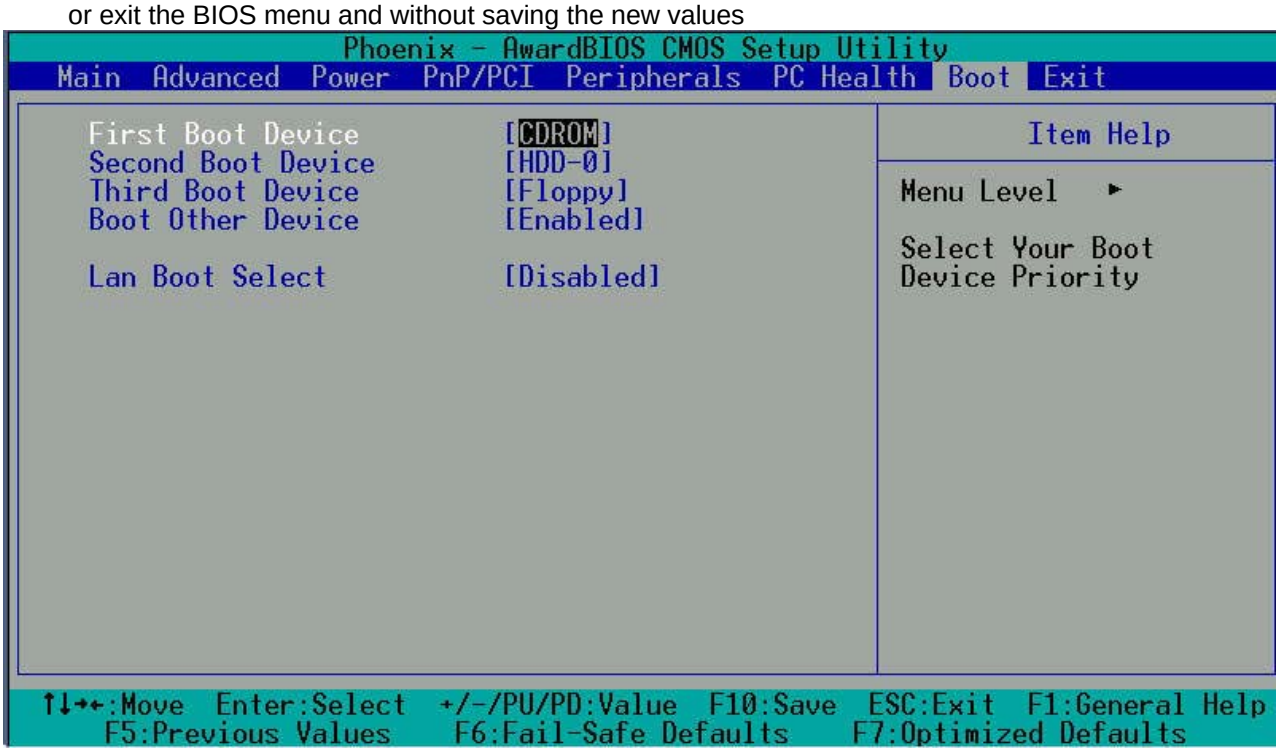
These fields are parameters of the hardware monitoring function feature of the motherboard. The values are read-only values as monitored by the system and show the PC health status.

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

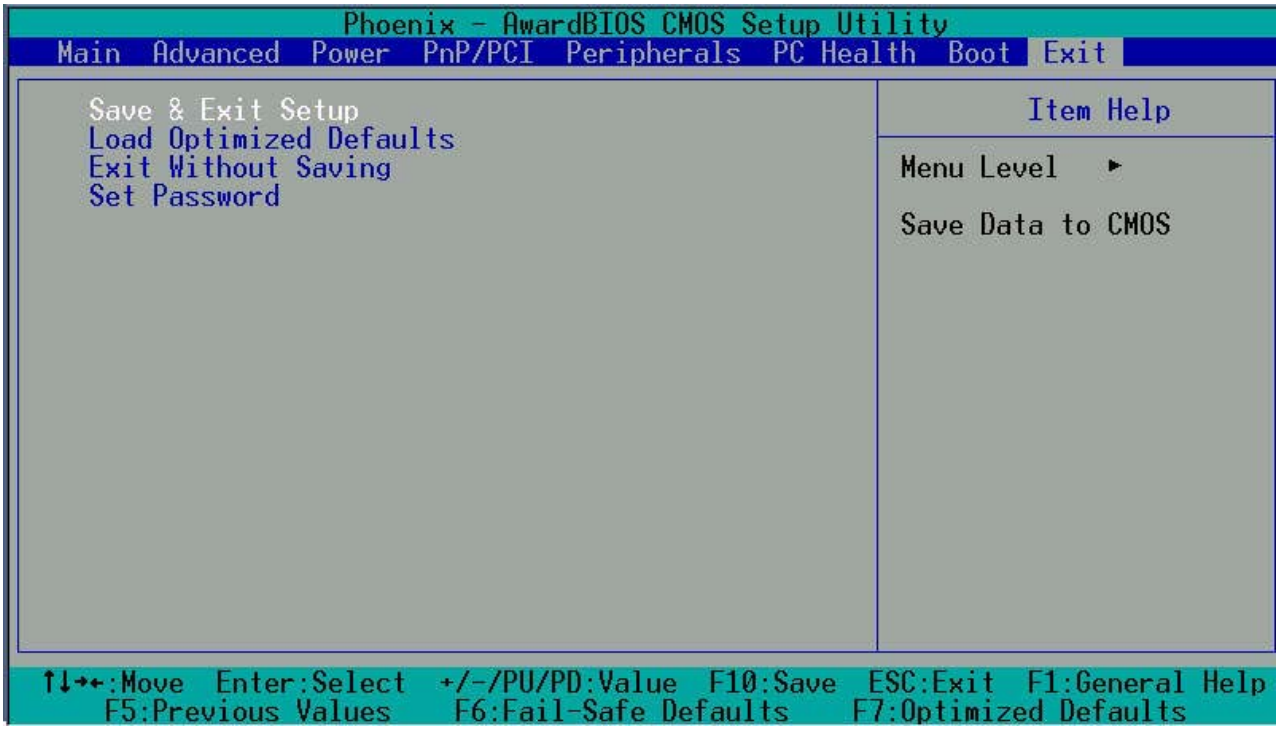
These fields determine the device that the system searches first for an operating system. The option available include Hard Disk, CDROM, USB-FDD, USB-CDROM and Disable.

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-B1572 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 - 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)
04D0 - 04D1	Motherboard resources
0800 - 0805	Motherboard resources
0A79 - 0A79	ISAPNP Read Data Port
0D00 – AC17	PCI bus
AC20 - FFFF	PCI bus
FC00 – FCFF	Realtek RTL8139 Family PCI Fast Ethernet NIC
FE00 – FE7F	Geode LX Audio Driver (WDM)

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
08	System CMOS realtime clock
09	Microsoft ACPI-Compliant System
10	GeodeLX Audio Driver (WDM)
12	PS/2 Compatible Mouse
13	Numeric data processor
14	Primary IDE Channel