

**AR-B1684VSL2/ VSL/ VL2/ VL  
SOCKET 370 PENTIUM III GRADE CPU CARD  
WITH VGA/LAN/SCSI**

***Operation Manual***

Version 1.3

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# **1. INTRODUCTION**

This chapter describes:

- About This Manual
- System Specifications
- Safety precautions
- Experienced users can skip to chapter 2 on page 5 for Quick Start.

## **1-1. ABOUT THIS MANUAL**

Thanks for purchasing our AR-B1684 serial ---Socket 370 Pentium III Grade CPU Card with VGA / LAN / SCSI, fully PC / AT compatible. This manual contains five chapters. By following the instructions herein, you can easily use AR-B1684 CPU board.

AR-B1684 serial CPU card include AR-B1684VSL2, AR-B1684VSL, AR-B1684VL2 and AR-B1684VL. The list below indicates the different.

AR-B1684 serial doesn't keyboard control function. That's because VT82C686B south bridge doesn't provide this function.

**AR-B1684VSL2:** On-board VGA, on-board dual 10/100 base Ethernet and on-board one two-channels Ultra160 SCSI.

**AR-B1684VSL:** On-board VGA, on-board single 10/100 base Ethernet and on-board one two-channels Ultra160 SCSI.

**AR-B1684VL2:** On-board VGA, on-board dual 10/100 base Ethernet.

**AR-B1684VL:** On-board VGA, on-board single 10/100 base Ethernet.

The contents of this manual are base on AR-B1684VSL2.

### **Chapter 1 Introduction**

This chapter notifies you how to avoid the damages against this CPU Card as well as describes the background of this manual and the specification of AR-B1684..

### **Chapter 2 Hardware Configuration**

This chapter outlines the components' locations and their functions. From this part, you can find how to set jumper and configure this card, as you need.

### **Chapter 3 Software Utilities**

Helpful information about the proper installations of the VGA, LAN, SCSI and the Watchdog-timer function are provided in this chapter.

### **Chapter 4 AMI BIOS Setup**

This chapter indicates you how to set up the BIOS configurations.

### **Appendix A Expansion Bus**

This section introduces you the expansion bus for ISA BUS and PICMG.

### **Appendix B Technical Summary**

This section gives you the information about the Technical maps.

### **Appendix C Trouble Shooting**

This section outlines the errors might occur and some solutions are suggested.

## **1-2. SYSTEM SPECIFICATION**

### **CPU:**

Supports 333~1GHz *Socket 370* Celeron / Coppermine Pentium III grade CPU

### **CHIPSET:**

VIA VT8604 (ProSavage PL133)

### **RAM MEMORY:**

Supports 3 168-pin DIMM (PC-133 SDRAM) sockets, 768Mb max.

### **CACHE SIZE:**

Internal 128KB L2 cache inside the CPU.

### **ETHERNET:**

Use dual RT8139Cs chipset, support 10/100M Base T with RJ-45 connectors built-in LEDs.

### **SCSI:**

Use SYMBIOS53C1010-33 or equivalent, supports two-channel Ultra-Wide SCSI III with 160MB transfer rate and two 68-pin SCSI connectors.

### **SUPER I/O:**

2 PCI IDE---with two 2.54 mm 40-pin connectors. (Support up to ATA-100)

1 FDC---with 2.54mm 34 -pin connector.

1 Parallel--- with 2.54 mm 26-pin connector. Supports SPP/EPP/ECP mode.

1 RS-232C-COM port 1 with DB9 connector located at bracket.

1 RS-232C/IrDA/Touch Screen -COM port 2.

IrDA use 2.54mm 5-pin header.

Touch Screen uses 2.0mm 3-pin JST connector.

### **BIOS:**

*AMI flash BIOS* (256KB, including VGA/SCSI BIOS) Supports utility program for easy to update new version of BIOS.

### **KEYBOARD/MOUSE:**

PS/2 compatible with 2.0mm 6-pin JST connector and 6-pin mini-DIN connector located at bracket.

### **BUS INTERFACE:**

PICMG -ISA

### **VGA DISPLAY:**

S3 ProSavage AGP 4X VGA with display memory shared with system memory (2MB~32MB).

CRT-with HDB 15-pin connector located at bracket.

### **WATCHDOG:**

System independent watchdog timer

### **SYSTEM POWER REQUIREMENT:**

+5V-5.0A max. & +12V-1.0A max. (Based on 500 MHz CPU).

### **USB:**

Built-in 4 ports USB interface with USB socket at bracket

### **RTC:**

Chipset supports ACPI Function.

**SPEAKER:**

Supports on-board buzzer and external speaker. (With 2.5mm 4-pin header).

**FLASH DISK:**

Supports 1 DiskOnChip Socket 144MB.

**H/W MONITORING:**

Built-in (Wilnbond WB83782) hardware monitoring chipset.

**HEADERS:**

2-pin Reset, hard disk LED, and power/watchdog LEDs.

3-pin CPU cooling fan and Chassis cooling fan.

**BUS DRIVER CAP:**

High driver for 32 TTL level loads (max.)

**CPU SP:**

Separated Vcore and Vio.

**CE DESIGN-IN:**

Add EMI components to COM ports, Parallel port, CRT, USB, Keyboard, and PS/2 mouse.

**PC BOARD:**

6 layers, EMI considered, especially in switching power layout.

**BOARD DIMENSION:**

Compact size 338.6mm x 121.9mm(13.33" x 4.80")

## **1-3. SAFETY PRECAUTIONS**

Follow the messages hereinafter to protect your systems from damage on all occasions.

Touch a grounded metal object to discharge the static electricity in your body (or ideally, wear a grounded wrist strap)

Stay safe from the electric shock. Don't touch any components of this card when the card is on. Always switch off power when the system is not in use.

Disconnect power when changing any hardware devices. For instance, when you connect a jumper or install any cards, a surge of power may damage the electronic components or the whole system.



## **2. HARDWARE CONFIGURATION**

Four parts are included:

- Jumper & Connector Quick Reference Table
- Components' Locations
- Configuration and Jumper settings
- Connector Pin Assignments

## 2-1. JUMPER & CONNECTOR QUICK REFERENCE TABLE

### SWITCH & JUMPER:

|                           |    |
|---------------------------|----|
| System Clock Select.....  | J3 |
| DOC Memory Mapping.....   | J7 |
| Clear CMOS Function ..... | J4 |

### CONNECTOR:

#### ON AR-B1684:

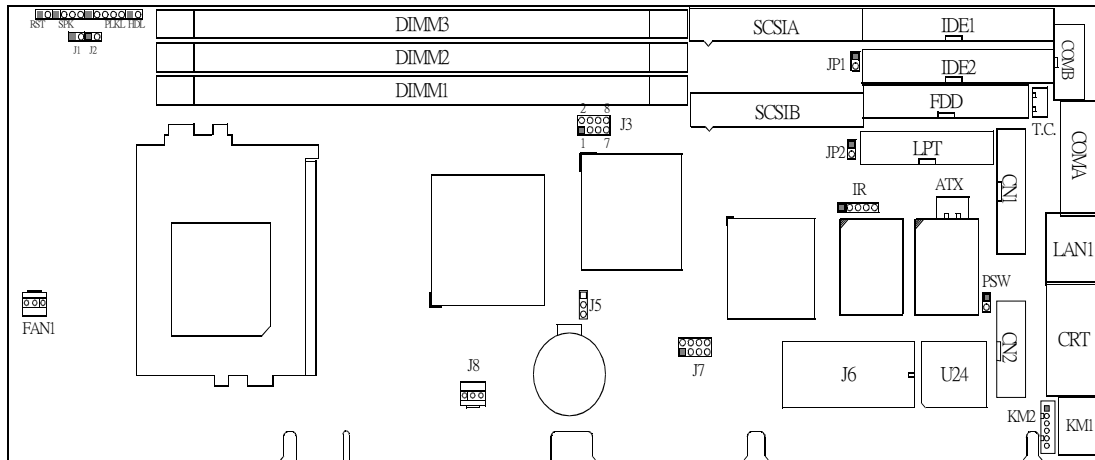
|   |                     |
|---|---------------------|
| COM1 Connector .....                      | COMA                |
| COM2 Connector .....                      | COMB                |
| PS/2 Connector .....                      | KM1                 |
| Reset Switch .....                        | RST                 |
| Floppy Disk Drive Connector .....         | FDD                 |
| Hard Disk Drive Connector .....           | IDE1, IDE2          |
| Hard Disk Drive LED Connector .....       | HDL                 |
| Power LED & KeyLock Connector .....       | PLKL                |
| Ethernet RJ-45 Connector .....            | LAN1                |
| External Speaker Connector .....          | SPK                 |
| Printer Connector .....                   | LPT                 |
| System Fan Power Connector .....          | J8                  |
| SCSI Connector .....                      | SCSIA, SCSIB        |
| CPU Fan Power Connector .....             | FAN1                |
| VGA Connector .....                       | CRT                 |
| IR Connector .....                        | IR                  |
| Touch Screen Connector .....              | T.S.                |
| Power on connector for ATX Supply .....   | ATX                 |
| Power Control Connector .....             | PSW                 |
| External Keyboard & Mouse Connector ..... | KM2                 |
| Watchdog LED Connector .....              | J1                  |
| Universal Serial Bus Connector .....      | USB1                |
| Memory Installing .....                   | DIMM1, DIMM2, DIMM3 |
| Disk-On-Chip Socket .....                 | J6                  |

#### ON AR-B9460:

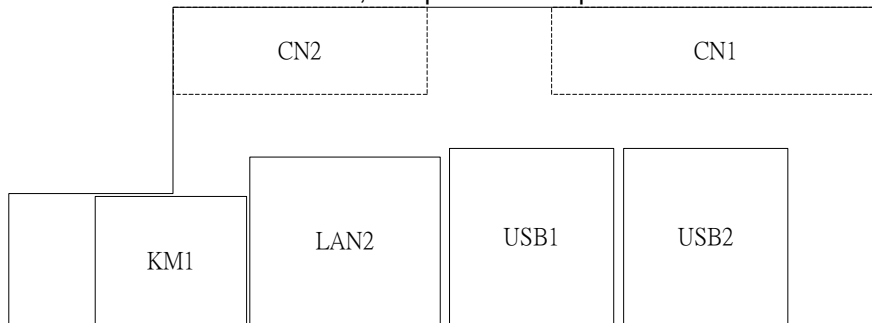
|                                      |            |
|--------------------------------------|------------|
| Universal Serial Bus Connector ..... | USB1, USB2 |
| PS/2 Mouse Connector .....           | KM1        |
| Ethernet RJ-45 Connector .....       | LAN1       |

## 2-2. COMPONENT LOCATIONS

AR-B1684 Connector, Jumper and Component Locations

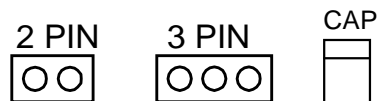


AR-B9460 Connector, Jumper and Component Locations



## 2-3. HOW TO SET JUMPERS

A jumper consists of two or three metal pins with a plastic base mounted on the card, and a small plastic cap (with a metal contact inside) to connect the pins, so you can set up your hardware configuration by "open" or close the pins. The jumper can be combined into sets, which called jumper blocks. When the jumpers are all in the block, you have to put them together to set up the hardware configuration. The figure below shows how it looks.

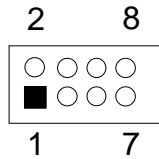


JUMPERS AND CAP

If a jumper has three pins, for example, labeled PIN1, PIN2, and PIN3, you can either connect PIN1 & PIN2 to create one setting and shorting or connect PIN2 & PIN3 to create another setting. The jumper setting rules are applied throughout this manual.

## 2-4. SYSTEM CLOCK SELECT AND CPU SETTING (J3)

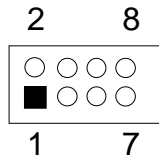
System clock is automatically detected by BIOS.



|        | PIN 1-2 | PIN 3-4 | PIN 5-6 | PIN 7.8 |
|--------|---------|---------|---------|---------|
| AUTO   | ON      | ON      | OFF     | OFF     |
| 133MHz | OFF     | OFF     | OFF     | OFF     |
| 100MHz | OFF     | OFF     | OFF     | ON      |
| 66MHz  | OFF     | OFF     | ON      | ON      |

(Factory Default)

## 2-5. DOC MEMORY MAPPING (J7)

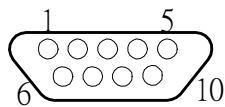


| J7    | 1-2 | 3-4 | 5-6 | 7-8 |
|-------|-----|-----|-----|-----|
| D000H | ON  | OFF | OFF | OFF |
| D200H | OFF | ON  | OFF | OFF |
| D400H | OFF | OFF | ON  | OFF |
| D600H | OFF | OFF | OFF | ON  |

(Factory Default)

## 2-6. COM1 CONNECTOR (COMA)

COMA: COM1 Connector, DB9 male connector

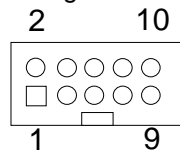


- 1: DCD
- 2: RX
- 3: TX
- 4: DTR
- 5: GND
- 6: DSR
- 7: RTS
- 8: CTS
- 9: RI

## 2-7. COM2 CONNECTOR (COMB)

### COMB: COM2 Connector

The COMB Connector assignments are as follows:



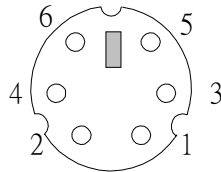
| PIN | ASSIGNMENT |
|-----|------------|
| 1   | DCD        |
| 2   | RX         |
| 3   | TX         |
| 4   | DTR        |
| 5   | GND        |
| 6   | DSR        |
| 7   | RTS        |
| 8   | CTS        |
| 9   | RI         |
| 10  | NC         |

## 2-8. PS2 KB (KM1)

### DIN: PS2 Connector

The PS2 connector can support Keyboard & Mouse.

The pin assignments for PS2 Connector are as follows:



| PIN | ASSIGNMENT |
|-----|------------|
| 1   | KBDATA     |
| 2   | MSDATA     |
| 3   | GND        |
| 4   | Vcc        |
| 5   | KBCLK      |
| 6   | MSCLK      |

## 2-9. EXTERNAL KEYBOARD & MOUSE CONNECTOR (KM2)

### EXPS2: External PS2 Connector

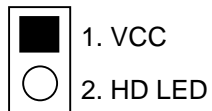
The pin assignments are as follows:

| PIN | ASSIGNMENT |
|-----|------------|
| 1   | KBDATA     |
| 2   | MSDATA     |
| 3   | GND        |
| 4   | Vcc        |
| 5   | KBCLK      |
| 6   | MSCLK      |

## 2-10. RESET SWITCH (RST)

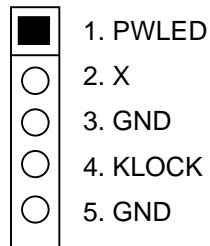


## 2-11. HDD LED Header (HDL)

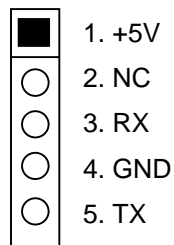


## 2-12. POWER LED & KEYLOCK CONNECTOR (PLKL)

AR-B1684 serial doesn't keyboard control function. That's because VT82C686B south bridge doesn't provide this function.



## 2-13. IR CONNECTOR (IR)

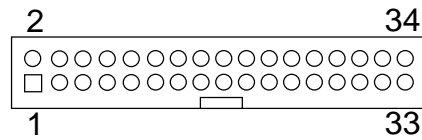


## 2-14. FLOPPY DISK DRIVE CONNECTOR (FDD)

### FDD: Floppy Disk Drive Connector

You can use a 34-pin daisy-chain cable to connect a two-FDD. One end of this cable is to attach the FDD on the board and the other one is to attach the two-FDD.

The pin assignments are as follows:

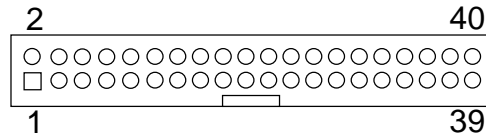


| PIN | ASSIGNMENT | PIN | ASSIGNMENT |
|-----|------------|-----|------------|
| 1   | GND        | 2   | DRV DEN0   |
| 3   | GND        | 4   | NC         |
| 5   | GND        | 6   | DRV DEN1   |
| 7   | GND        | 8   | INDEX      |
| 9   | GND        | 10  | MTR0       |
| 11  | GND        | 12  | DRV1       |
| 13  | GND        | 14  | DRV0       |
| 15  | GND        | 16  | MTR1       |
| 17  | GND        | 18  | DIR        |
| 19  | GND        | 20  | STEP       |
| 21  | GND        | 22  | WDATA      |
| 23  | GND        | 24  | WGATE      |
| 25  | GND        | 26  | TRK0       |
| 27  | GND        | 28  | WRPRT      |
| 29  | GND        | 30  | RDATA      |
| 31  | GND        | 32  | SEL        |
| 33  | GND        | 34  | DSKCHG     |

## 2-15. HARD DISK DRIVE CONNECTOR (IDE1, IDE2)

### IDE1: Hard Disk Drive Connector (IDE1, IDE2)

The AR-B1684 possesses two HDD connectors, IDE1 and IDE2. The pin assignments are as follows:



| 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  | NOT USED |
| 21  | IDEDRQA  | 22  | GROUND   |
| 23  | -LOW A   | 24  | GROUND   |
| 25  | -LOR A   | 26  | GROUND   |
| 27  | -CHRDY A | 28  | GROUND   |
| 29  | DACKA    | 30  | GROUND   |
| 31  | -IRQ 14  | 32  | NOT USED |
| 33  | SA 1     | 34  | NOT USED |
| 35  | SA 0     | 36  | SA2      |
| 37  | CS 0     | 38  | SA1      |
| 39  | HD LED A | 40  | NOT USED |

## 2-16. SPEAKER/BUZZER (SPK)

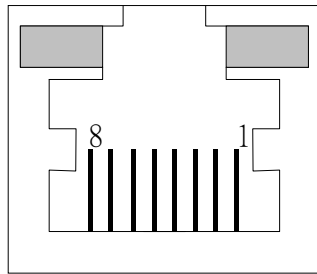
|   |           |
|---|-----------|
| ■ | 1. VCC    |
| ○ | 2. NC     |
| ○ | 3. BUZZER |
| ○ | 4. SPKR   |

3-4 on (Factory Default Setting)  
Enable Internal Buzzer



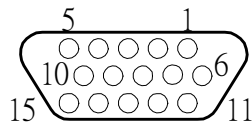
## 2-17. ETHERNET RJ-45 CONNECTOR (LAN1)

The pin assignments are as follows:



- 1: TPTX+
- 2: TPTX-
- 3: TPRX+
- 4: Not Used
- 5: Not Used
- 6: TPRX-
- 7: Not Used
- 8: Not Used

## 2-18. VGA CRT CONNECTOR (CRT)

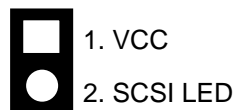


- 1: Red
- 2: Green
- 3: Blue
- 13: Horizontal
- 14: Vertical
- 4, 9, 11, 12, 15: Not Used
- 5, 10: Ground
- 6, 7, 8: GND

## 2-19. WATCHDOG CONNECTOR (J1)

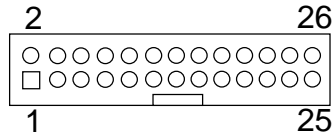


## 2-20. SCSI LED Header (J2)



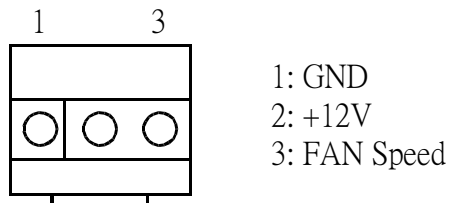
## 2-21. PRINTER CONNECTOR (LPT)

As to link the Printer to the card, a cable is needed to connect both DB25 connector and parallel port. The pin assignments are as follows:

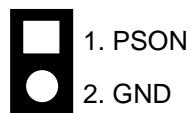


| PIN | ASSIGNMENT | PIN | ASSIGNMENT |
|-----|------------|-----|------------|
| 1   | STB        | 14  | AUTFE      |
| 2   | P0         | 15  | ERROR      |
| 3   | P1         | 16  | INIT       |
| 4   | P2         | 17  | SLCTIN     |
| 5   | P3         | 18  | GND        |
| 6   | P4         | 19  | GND        |
| 7   | P5         | 20  | GND        |
| 8   | P6         | 21  | GND        |
| 9   | P7         | 22  | GND        |
| 10  | ACK        | 23  | GND        |
| 11  | BUSY       | 24  | GND        |
| 12  | PE         | 25  | GND        |
| 13  | SLCT       | 26  | NC         |

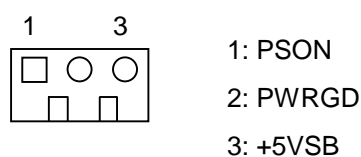
## 2-22. CPU & SYSTEM FAN POWER CONNECTOR (FAN1, J8)



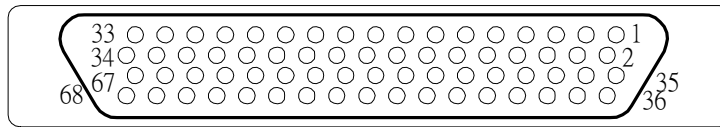
## 2-23. POWER ON CONNECTOR FOR ATX POWER SUPPLY (PSW)



## 2-24. POWER CONTROL CONNECTOR (ATX)



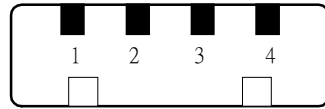
2-27. SCSI CONNECTOR (SCSIA, SCSIB)



SCSI : The pin assignments are as follow:

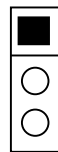
| PIN | ASSIGNMENT | PIN | ASSIGNMENT | PIN | ASSIGNMENT |
|-----|------------|-----|------------|-----|------------|
| 1   | GND        | 24  | GND        | 47  | SCD7       |
| 2   | GND        | 25  | GND        | 48  | SCDPL      |
| 3   | GND        | 26  | GND        | 49  | GND        |
| 4   | GND        | 27  | GND        | 50  | GND        |
| 5   | GND        | 28  | GND        | 51  | TRMPWR     |
| 6   | GND        | 29  | GND        | 52  | TRMPWR     |
| 7   | GND        | 30  | GND        | 53  | NC         |
| 8   | GND        | 31  | GND        | 54  | GND        |
| 9   | GND        | 32  | GND        | 55  | SATTN-     |
| 10  | GND        | 33  | GND        | 56  | GND        |
| 11  | GND        | 34  | GND        | 57  | SBSY-      |
| 12  | GND        | 35  | SCD12      | 58  | SACK-      |
| 13  | GND        | 36  | SCD13      | 59  | SRST-      |
| 14  | GND        | 37  | SCD14      | 60  | SMSG-      |
| 15  | GND        | 38  | SCD15      | 61  | SSEL-      |
| 16  | GND        | 39  | SCDPH      | 62  | SCD-       |
| 17  | GND        | 40  | SCD0       | 63  | SREQ-      |
| 18  | GND        | 41  | SCD1       | 64  | SIO-       |
| 19  | NC         | 42  | SCD2       | 65  | SCD8       |
| 20  | GND        | 43  | SCD3       | 66  | SCD9       |
| 21  | GND        | 44  | SCD4       | 67  | SCD10      |
| 22  | GND        | 45  | SCD5       | 68  | SCD11      |
| 23  | GND        | 46  | SCD6       |     |            |

## 2-25. UNIVERSAL SERIAL BUS CONNECTOR (USB1, USB2)



- 1 — VCC
- 2 — USBD-
- 3 — USBD+
- 4 — GND

## 2-26. CLEAR CMOS FUNCTION (J5)



- 1-2 NORMAL (Factory Default)
- 2-3 CLEAR CMOS

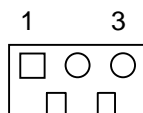
## 2-27. DOC SOCKET (J6)

**DOC: 32pin Disk-on-chip Socket**

The pin assignments are as follows:

| PIN | ASSIGNMENT | PIN | ASSIGNMENT |
|-----|------------|-----|------------|
| 1   | NC         | 17  | SD3        |
| 2   | NC         | 18  | SD4        |
| 3   | NC         | 19  | SD5        |
| 4   | SA12       | 20  | SD6        |
| 5   | SA7        | 21  | SD7        |
| 6   | SA6        | 22  | CE         |
| 7   | SA5        | 23  | SA10       |
| 8   | SA4        | 24  | OE         |
| 9   | SA3        | 25  | SA11       |
| 10  | SA2        | 26  | SA9        |
| 11  | SA1        | 27  | SA8        |
| 12  | SA0        | 28  | NC         |
| 13  | SD0        | 29  | NC         |
| 14  | SD1        | 30  | VCC        |
| 15  | SD2        | 31  | WR         |
| 16  | GND        | 32  | VCC        |

## 2-28. TOUCH SCREEN CONNECTOR (T.S.)



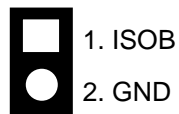
- 1: NTX2
- NRX2
- 2: TXD
- 3: GND

## 2-29. SCSI CONNECTOR ENABLED/DISABLED (JP1, JP2)



| SCSI     | PIN1-2 |
|----------|--------|
| DISABLED | ON     |
| ENABLED  | OFF    |

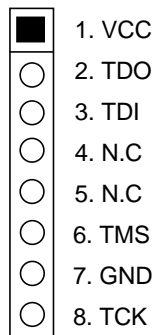
(Factory Default)



| SCSI     | PIN1-2 |
|----------|--------|
| DISABLED | ON     |
| ENABLED  | OFF    |

(Factory Default)

## 2-30. CPLD CONTROL CONNECTOR (J9)



## 2-31. MEMORY INSTALLING

AR-B1684 Card will support 3 SDRAM banks.

Note: DIMM 1,2,3 for double Bank SDRAM module (168pin x 32bit x 4)

### DRAM BANK CONFIGURATION

| DIMM 1 | DIMM 2 | DIMM 3 | TOTAL MEMORY |
|--------|--------|--------|--------------|
| 32M    |        |        | 32M          |
| 32M    | 32M    |        | 64M          |
| 32M    | 32M    | 32M    | 96M          |
| 32M    | 64M    |        | 96M          |
| 32M    | 64M    | 32M    | 128M         |
| 32M    | 64M    | 64M    | 160M         |
| 32M    | 64M    | 128M   | 224M         |
| 32M    | 64M    | 256M   | 352M         |
| 32M    | 128M   | 128M   | 288M         |
| 32M    | 128M   | 256M   | 416M         |
| 32M    | 256M   | 256M   | 544M         |
| 64M    |        |        | 64M          |
| 64M    | 64M    |        | 128M         |
| 64M    | 64M    | 64M    | 192M         |
| 64M    | 32M    | 32M    | 128M         |
| 64M    | 32M    | 64M    | 160M         |
| 64M    | 128M   |        | 192M         |
| 64M    | 128M   | 64M    | 256M         |
| 64M    | 128M   | 128M   | 320M         |
| 64M    | 128M   | 256M   | 448M         |
| 64M    | 256M   | 256M   | 576M         |
| 128M   |        |        | 128M         |
| 128M   | 128M   |        | 256M         |
| 128M   | 128M   | 128M   | 384M         |
| 128M   | 32M    | 64M    | 224M         |
| 128M   | 64M    | 128M   | 320M         |
| 128M   | 128M   | 256M   | 512M         |
| 128M   | 256M   | 256M   | 640M         |
| 256M   |        |        | 256M         |
| 256M   | 256M   |        | 512M         |
| 256M   | 32M    | 64M    | 352M         |
| 256M   | 64M    | 128M   | 448M         |
| 256M   | 128M   | 128M   | 512M         |
| 256M   | 128M   | 256M   | 640M         |
| 256M   | 256M   | 256M   | 768M         |

### **3. SOFTWARE UTILITIES**

Sections includes:

- Utility Disk File List
- Setup
- Watchdog Timer Configuration

### 3-1. UTILITY DISK FILE

| 1684_DRV#1   | 1684_DRV        | 1684_DRV#3   | 1684_DRV#4 | 1684_DRV#5 | 1684_DRV#6 |
|--------------|-----------------|--------------|------------|------------|------------|
| FREEBSD      | WFW311          | DMI          | INTEL/95   | SCSIDRV    | MANUAL.PDF |
| LINUX        | NT351           | WINDIAG/WIN4 | INTEL/NT   | W95VGA     |            |
| NDIS2DOS     | MSLANMAN.DOS    | BROM         |            | WINNTVGA   |            |
| NDIS2OS2     | MSLANMAN.OS2    | MACOS        |            | WD         |            |
| NWCLIENT     | NWSERVER/311    | RTOS         |            |            |            |
| NWSERVER/4X  | NWSERVER/312    | W98600.EXE   |            |            |            |
| NWSERVER/500 | NWSERVER/40     |              |            |            |            |
| RTSPKT       | CLIENT32        |              |            |            |            |
| SCO          | UW7             |              |            |            |            |
| TXT          | WIN95A          |              |            |            |            |
| WIN2000      | WINDIAG/WIN2000 |              |            |            |            |
| W95OSR2      | WINDIAG/WIN9X   |              |            |            |            |
| WIN98        |                 |              |            |            |            |
| WINNT4       |                 |              |            |            |            |
| FILEPATH.LST |                 |              |            |            |            |
| MAINMENU.TXT |                 |              |            |            |            |
| RSET8139.EXE |                 |              |            |            |            |
| VERSION.TXT  |                 |              |            |            |            |
| HELP8139.EXE |                 |              |            |            |            |
| NETRTS.INF   |                 |              |            |            |            |
| OEMSETUP.INF |                 |              |            |            |            |
| README.TXT   |                 |              |            |            |            |
| RELEASE.DOC  |                 |              |            |            |            |

**Remark:**

- 1.W98600.EXE (In disk 1682\_DRV#3) is a WIN98 DRIVER for VGA.
- 2.DRV#1~DRV#2 is ETHERNET DRIVER disk.
- 3.DRV#4 DISK is INTEL CHIPSET 440BX PIIX4 SETUP DRIVER
- 4.DRV#5 DISK is SCSI DRIVER FOR WIN95, NT AND WIN98, NT DRIVERS

### 3-2. SETUP

#### VIA 4in1 DRIVER SETUP

WIN95: The first step is to execute the SETUP.EXE in DISK#4, the system will update the driver automatically, the next step is to reboot the system, and then the driver of PIIX4 CHIPSET will be installed to the system correctly.

WINNT: The first step is to execute the INTEL\NT\SETUP.EXE in DISK#4, the system will update the driver automatically, the next step is to reboot the system, and then the driver of PIIX4 CHIPSET will be installed to the system correctly.

#### WIN95 VGA SETUP

To update display driver by choosing display interface card, put disk#5 in driver A, the driver of S3 ProSavage will be found, and reboot your system after setup will be ok.

#### WIN 95 SCSI DRIVER SETUP

The first step is to execute the file WIN9598.EXE included in folder SCSIDRV in disk#5, and then chose 'Add the new hardware ' in the console, chose the option 'Chose the hardware from the list', then chose the 'SCSI control card' and 'Install from diskette, the WIN95 SCSI DRIVER of SYS53C1010 will be installed.

#### WIN NT SCSI DRIVER SETUP

The first step is to execute A:\SCSIDRV\WINNT.EXE, a folder named 'Test' will be built up in driver C, and the next step is to reboot the system, press F3 when you chose the display mode, enter the Load driver program display, chose the direction C:\TEST\WINNT\MINPORT, and then the SCSI DRIVER will be installed.



### **3-3. WATCHDOG TIMER CONFIGURATION**

I/O port address 215h

Use **Debug.exe** to control **WATCHDOG**

## **4. AMI BIOS SETUP**

The following topics are covered:

- ◆ BIOS Setup Overview
- ◆ Standard CMOS Setup
- ◆ Advanced CMOS Setup
- ◆ Advanced Chipset Setup
- ◆ Power Management
- ◆ PCI/Plug and Play
- ◆ Peripheral Setup
- ◆ Hardware Monitor Setup
- ◆ Auto-Detect Hard Disks
- ◆ Password Setting
- ◆ Load Default Setting
- ◆ BIOS Exit
- ◆ BIOS Update

## 4-1. BIOS SETUP OVERVIEW

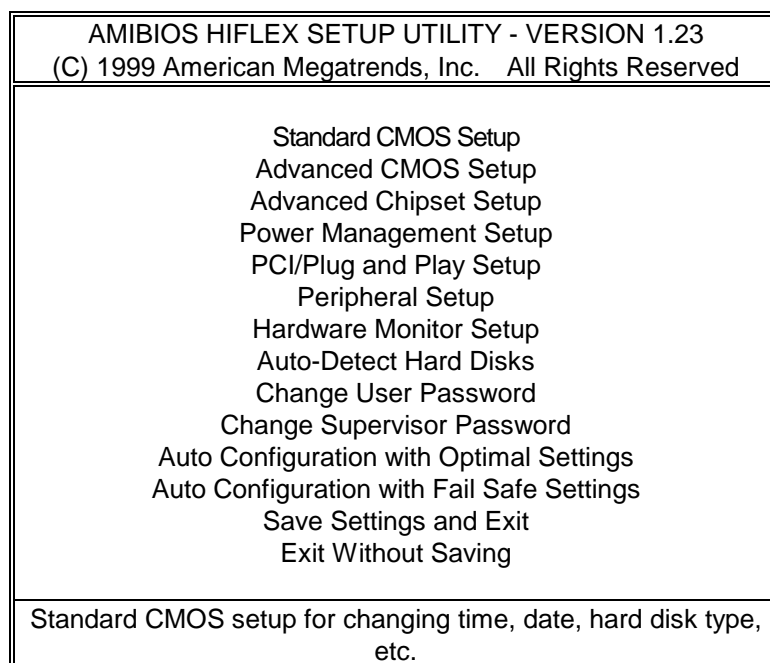
The BIOS is a program used to initialize and set up the I/O system of the computer, which includes the PCI bus and connected devices such as the video display, diskette drive, and the keyboard.

The BIOS provides a menu-based interface to the console subsystem. The console subsystem contains special software, called firmware that interacts directly with the hardware components and facilitates interaction between the system hardware and the operating system.

The BIOS default values ensure that the system will function at its normal capability. In the worst situation the user may have corrupted the original settings set by the manufacturer.

After the computer is turned on, the BIOS will perform diagnostics on the system and display the size of the memory that is being tested. Press the [Del] key to enter the BIOS Setup program, and then the main menu will show on the screen.

The BIOS Setup main menu includes some options. Use the [Up/Down] arrow key to highlight the option that you wish to modify, and then press the [Enter] key to select the option and configure the functions.



BIOS: Setup Main Menu

### CAUTION:

1. In the AR-B1684 BIOS the factory-default setting is the <Auto Configuration with Optimal Settings>. Acrosser recommends using the BIOS default settings, unless you are very familiar with the settings function, or you can contact the technical support engineers (FAE).

2. If the BIOS loses the settings, the CMOS will detect the <Auto Configuration with Fail Safe Settings> to boot the operating system. This option will reduce the performance of the system. Acrosser recommends choosing the <Auto Configuration with Optimal Settings> in the main menu. This option gives best-case values that should optimize system performance.

3. The BIOS settings are described in detail in this section.

## 4-2. STANDARD CMOS SETUP

The <Standard CMOS Setup> option allows you to record some basic system hardware configurations and set the system clock and error handling. If the CPU board is already installed in a working system, you will not need to select this option anymore.

| AMIBIOS SETUP - STANDARD CMOS SETUP<br>(C) 1999 American Megatrends, Inc. All Rights Reserved |        |               |      |                  |       |     |          |          |                |
|---|--------|---------------|------|------------------|-------|-----|----------|----------|----------------|
| Date (mm/dd/yyyy): Tue Jun 02, 1998   |        |               |      | 640KB            |       |     |          |          |                |
| Time (hh/mm/ss): 13:39:30   |        |               |      | 63MB             |       |     |          |          |                |
| Floppy Drive A:   |        | 1.44MB 3 1/2  |      |                  |       |     |          |          |                |
| Floppy Drive B:   |        | Not Installed |      |                  |       |     |          |          |                |
|   | Type   | Size          | Cyln | Head             | Wpcom | Sec | LBA Mode | Blk Mode | PIO 32Bit Mode |
| Pri Master  | : Auto |               |      |                  |       |     | Off      | Off      | Auto Off       |
| Pri Slave   | : Auto |               |      |                  |       |     | Off      | Off      | Auto Off       |
| Sec Master  | Auto   |               |      |                  |       |     | Off      | Off      | Auto Off       |
| Sec Slave   | Auto   |               |      |                  |       |     | Off      | Off      | Auto Off       |
| Boot Sector Virus Protection  |        |               |      | Disabled         |       |     |          |          |                |
| Month: Jan - Dec  |        |               |      | ESC:Exit ↑ ↓:Sel |       |     |          |          |                |
| Day: 01 - 31  |        |               |      | PgUp/PgDn:Modify |       |     |          |          |                |
| Year: 1901 - 2099   |        |               |      | F2/F3:Color      |       |     |          |          |                |

### BIOS: Standard CMOS Setup

#### Date & Time Setup

Highlight the <Date> field and then press the [Page Up] / [Page Down] or [+]/[-] keys to set the current date. Follow the month, day and year format.

Highlight the <Time> field and then press the [Page Up] / [Page Down] or [+]/[-] keys to set the current date. Follow the hour, minute and second format.

The user can bypass the date and time prompts by creating an AUTOEXEC.BAT file. For information on how to create this file, please refer to the MS-DOS manual.

#### Floppy Setup

The <Standard CMOS Setup> option records the types of floppy disk drives installed in the system.

To enter the configuration value for a particular drive, highlight its corresponding field and then select the drive type using the left-or right-arrow key.

#### Hard Disk Setup

The BIOS supports various types for user settings, The BIOS supports <Pri Master> and <Pri Slave> so the user can install up to two hard disks. For the master and slave jumpers, please refer to the hard disk's installation descriptions and the hard disk jumper settings.

You can select <AUTO> under the <TYPE> and <MODE> fields. This will enable auto detection of your IDE drives during bootup. This will allow you to change your hard drives (with the power off) and then power on without having to reconfigure your hard drive type. If you use older hard disk drives, which do not support this feature, then you must configure the hard disk drive in the standard method as described above by the <USER> option.

#### Boot Sector Virus Protection

This option protects the boot sector and partition table of your hard disk against accidental modifications. Any attempt to write to them will cause the system to halt and display a warning message. If this occurs, you can either allow the operation to continue or use a bootable virus-free floppy disk to reboot and investigate your system. The default setting is <Disabled>. This setting is recommended because it conflicts with new operating systems. Installation of new operating systems requires that you disable this to prevent write errors.

### 4-3. ADVANCED CMOS SETUP

The <Advanced CMOS Setup> option consists of configuration entries that allow you to improve your system performance, or let you set up some system features according to your preference. Some entries here are required by the CPU board's design to remain in their default settings.

| AMBIOS SETUP - ADVANCED CMOS SETUP<br>(C) 1999 American Megatrends, Inc. All Rights Reserved |            |   |
|--|------------|---|
| Quick Boot   | Enabled    | Available Options :<br>Disabled<br>Enabled          |
| 1st Boot Device  | Floppy     |   |
| 2nd Boot Device  | IDE-0      |   |
| 3rd Boot Device  | CDROM      |   |
| 4th Boot Device  | Disabled   |   |
| Try Other Boot Devices   | Yes        |   |
| Floppy Access Control  | Read-Write |   |
| Hard Disk Access Control   | Read-Write | ESC:Exit ↑ ↓:Sel<br>PgUp/PgDn:Modify<br>F2/F3:Color |
| S.M.A.R.T. for Hard Disks  | Enabled    |   |
| BootUp Num-Lock  | On         |   |
| Floppy Drive Swap  | Disabled   |   |
| Floppy Drive Seek  | Disabled   |   |
| PS/2 Mouse Support   | Enabled    |   |
| Typemaice Rate   | Fast       |   |
| System Keyboard  | Absent     |   |
| Primary Display  | VGA/EGA    |   |
| Password Check   | Setup      |   |
| Boot to OS/2 > 64MB  | No         |   |
| Wait For 'F1' If Error   | Disabled   |   |
| Hit 'DEL' Message Display  | Enabled    |   |
| Internal Cache   | WriteBack  |   |
| External Cache   | WriteBack  |   |
| Cache Bus Ecc  | Enabled    |   |
| System BIOS Cacheable  | Enabled    |   |
| C000, 16k Shadow   | Enabled    |   |
| C400, 16k Shadow   | Enabled    |   |
| C800, 16k Shadow   | Enabled    |   |
| CC00, 16k Shadow   | Disabled   |   |
| D000, 16k Shadow   | Disabled   |   |
| D400, 16k Shadow   | Disabled   |   |
| D800, 16k Shadow   | Disabled   |   |
| DC00, 16k Shadow   | Disabled   |   |

Advanced CMOS Setup

#### Quick Boot

This category speeds up the <Power On Self Test> (POST) after you power on the computer. If it is set to *Enabled*, the BIOS will shorten or skip some check items during POST.

#### 1st Boot Device

#### 2nd Boot Device

#### 3rd Boot Device

#### 4th Boot Device

These options determine where the system looks first for an operating system.

#### Try Other Boot Devices

If you have other bootup device other than the above mentioned devices, such as IDE-0, IDE-1, IDE-3, IDE-4, Floppy.

#### Floppy Access Control

This option determines the floppy access method, which can be either read only or normal (read/write). When set to read only, the data in the floppy is being read instead of being written." Normal" allows the floppy to be read or written.

### **HDD Access Control**

This option determines the hard disk access method, which can be either read only or normal (read/write). When set to read only, the data in the hard disk is being read instead of being written." Normal" allows the floppy to be read or written.

**Available options: Disabled, Enabled**

### **S.M.A.R.T for hard Disks**

S.M.A.R.T is abbreviation of Self-Monitoring Analysis and Reporting Technology .It is reliable and precautions technology. When Hard Disk disorder, It prevents Hard Disk from the loss of data.

### **BootUp Num-Lock**

This item is used to activate the Num-Lock function upon system boot. If the setting is on, after a boot, the Num-Lock light is lit, and the user can automatically use the number keys.

### **Floppy Drive Swap**

The option reverses the drive letter assignments of your floppy disk drives in the Swap A, B setting, otherwise leave on the setting to *Disabled* (No Swap). This works separately from the BIOS Features floppy disk swap feature. It is functionally the same as physically interchanging the connectors of the floppy disk drives. When *<Enabled>*, the BIOS swaps the floppy drive assignments so that Drive A becomes Drive B, and Drive B becomes Drive A under DOS.

### **Floppy Drive Seek**

If the *<Floppy Drive Seek>* item is set to **Enabled**, the BIOS will seek the floppy *<A>* drive one time upon bootup.

### **PS/2 Mouse Support**

The setting of *Enabled* allows the system to detect a PS/2 mouse on boot up. If detected, IRQ12 will be used for the PS/2 mouse. IRQ 12 will be reserved for expansion cards if a PS/2 mouse is not detected. **Disabled** will reserve IRQ12 for expansion cards and therefore the PS/2 mouse will not function.

### **Typematic Rate**

This item specifies the speed at which a keyboard keystroke is repeated.

### **System Keyboard**

The setting of **<Absent>** allows the system to boot without a keyboard attached to the computer and the setting of *<Present>* is in the contrary.

#### Primary Display

The setting of **<Absent>** allows the system to boot without a Primary Display attached to the computer and the setting of *<Present>* is in the contrary.

### **Password Check**

This option enables password checking every time the computer is powered on or every time the BIOS Setup is executed. If **Always** is chosen, a user password prompt appears every time the computer is turned on. If *Setup* is chosen, the password prompt appears if the BIOS are executed.

### **Boot to OS/2 >64MB**

When using the OS/2 operating system with DRAM of greater than 64MB installed, you need to *Enabled* this option; otherwise leave this on the setup default of **Disabled**.

### **Wait for 'F1' If Error**

AMIBIOS POST error messages are followed by:

Press *<F1>* to continue

If this option is set to **Disabled**, the AMIBIOS does not wait for you to press the *<F1>* key after an error message.

### Hit 'DEL' Message Display

Set this option to **Disabled** to prevent the following message:

Hit 'DEL' if you want to run setup

It will prevent the message from appearing on the first BIOS screen when the computer boots.

### Internal Cache

This option specifies the caching algorithm used for the L1 internal cache memory. The settings are:

| Setting   | Description  |
|-----------|--|
| Disabled  | Neither L1 internal cache memory on the CPU or L2 secondary cache memory is enabled. |
| WriteBack | Use the write-back caching algorithm.  |
| WriteThru | Use the write-through caching algorithm.   |

Internal Cache Setting

### External Cache

This option specifies the caching algorithm used for the L2 secondary cache memory. The settings are:

| Setting   | Description  |
|-----------|--|
| Disabled  | Neither L1 internal cache memory on the CPU or L2 secondary cache memory is enabled. |
| WriteBack | Use the write-back caching algorithm.  |
| WriteThru | Use the write-through caching algorithm.   |

External Cache Setting

### Cache Bus ECC

This item is to set up the function of Cache Bus Error Correction Code, choose **<Enabled>** or **<Disabled>** to determine if the function is available.

#### System BIOS Cacheable

This item is used to activate the function of re-buffering the contents of shadow RAM from system BIOS. The default setting is **<Enable>**, which will improve the speed of system.

### Shadow

These options control the location of the contents of the 16KB of ROM beginning at the specified memory location. If no adapter ROM is using the named ROM area, this area is made available to the local bus. The settings are:

| SETTING  | DESCRIPTION   |
|----------|---|
| Disabled | The video ROM is not mapped to RAM. The contents of the video ROM cannot be read from or written to cache memory. |
| Enabled  | The contents of C000h - C7FFFh are written to the same address in system memory (RAM) for faster execution.       |
| Cached   | This option specifies the size of the memory area reserved for legacy ISA adapter cards.                          |

Shadow Setting

## 4-4. ADVANCED CHIPSET SETUP

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

| AMIBIOS SETUP - ADVANCED CHIPSET SETUP<br>(C) 1999 American Megatrends, Inc. All Rights Reserved |                |  |
|--|----------------|--|
| Configure SDRAM Timing by SPD  | Enabled        | Available Options :<br>Disabled<br>Enabled |
| SDRAM RAS# to CAS# delay   | 2 SCLKs        |  |
| RAS# Precharge   | 2 SCLKs        |  |
| CAS# Latency   | 3 SCLKs        |  |
| Loadoff Cmd Timing   | Auto           |  |
| DRAM Integrity Mode  | Non-ECC        |  |
| Memory Hole  | Disabled       |  |
| Graphics Aperture Size   | 64MB           |  |
| 8bit I/O Recovery Time   | 1 Sysclk       |  |
| 16bit I/O Recovery Time  | 1 Sysclk       |  |
| USB Function   | Enabled        |  |
| USB Keyboard / Mouse Legacy Support  | Enabled        |  |
| ATX Power Supply Controller  | Disabled       | ESC:Exit ↑ ↓ :Sel                          |
| LCD CRT Selection  | Both           | PgUp/PgDn:Modify                           |
| LCD Type   | #5 640x480 TFT | F2/F3:Color                                |

### BIOS: Advanced Chipset Setup

#### Configure SDRAM Timing by SPD:

SPD is the abbreviation Serial Presence Detect. SPD takes accord the chip types, capacity, timing, voltage data. The system can auto adjust memory according to the data to reach the best situation.

#### SDRAM RAS# to CAS# delay:

When CPU saves data from memory, it has to deliver RAS single first, and then CAS single. The item is to set up the interval between two singles.

#### RAS# Precharge:

This item is the time when RAS has to be re-located.

#### CAS# Latency:

This item is to set up the time when memory receives one CAS single, after how much clock, the memory starts to write and read data.

#### Loadoff Cmd Timing:

It is the first read-write action under burst pattern

#### Memory Hole:

This reserves the 15MB to 16MB memory address space for use of ISA expansion cards.

#### Graphics Aperture Size:

The item is to set up AGP display to use how much memory to save Texture Data.

#### 8 bit I/O Recovery Time:

The item is to set up CPU to demand ISA Bus 8 bit how much it takes to recovery.

#### 16 bit I/O Recovery Time:

The item is to set up CPU to demand ISA Bus 16 bit how much it takes to recovery.



**Memory Hole at 15-16 MB**

This option specifies the range 15MB to 16MB in memory that cannot be addressed on the ISA bus.

**USB Function**

This option can enable or disable USB function

**USB Keyboard/Mouse Legacy Support**

These options are used to *<Enabled>* the USB function and it's only useful in the DOS mode.

**ATX Power Supply Controller**

If the ATX Power Supply Controller function is *<Enabled>*, the system will get more functions such as shutting down the power by using software.

**LCD CRT Selection**

This item determines whether to use LCD Monitor or CRT Monitor in the system.

**LCD Type**

This option specifies the resolution of LCD.

## 4-5. POWER MANAGEMENT

This section is used to configure the power management features. This <Power management Setup> option allows you to reduce power consumption. This feature turns off the video display and shuts down the hard disk after a period of inactivity.

| MIBIOS SETUP - Power Management Setup<br>(C) 1998 American Megatrends, Inc. All Rights Reserved |            |  |
|---|------------|--|
| Power Management /APM   | Disabled   | Available Options :<br>Disabled<br>Enabled |
| Green PC Monitor Power State  | Off        |  |
| Video Power Down Mode   | Disabled   |  |
| Hard Disk Power Down Mode   | Disabled   |  |
| Hard Disk Time Out (Minute)   | Disabled   |  |
| Standby Time Out (Minute)   | Disabled   |  |
| Suspend Time Out (Minute)   | Disabled   |  |
| Throttle slow Clock Ratio   | 25-37.5%   |  |
| Modem Use IO Port   | 3F8h/COM1  |  |
| Modem Use IRQ   | 3          |  |
| Display Activity  | Ignore     |  |
| Device 6 (Serial Port 1)  | Monitor    |  |
| Device 7 (Serial Prot 2)  | Monitor    |  |
| Device 8 (Parallel Port)  | Ignore     |  |
| Device 5 (Floppy disk)  | Monitor    |  |
| Device 0 (Primary master IDE)   | Monitor    |  |
| Device 1 (Primary slave IDE)  | Ignore     |  |
| Device 2 (Secondary master IDE)   | Monitor    |  |
| Device 3 (Secondary slave IDE)  | Ignore     |  |
| System Thermal  | Ignore     |  |
| Thermal Slow Clock Ratio  | 50-62.5%   |  |
| CPU Critical Temperature  | 65°C/149°F |  |
| Power Button Function   | On/Off     | ESC:Exit ↑ ↓ :Sel                          |
| Restore on AC/Power Loss  | Last State | PgUp/PgDn:Modify                           |
| Ring Resume From Soft Off   | Disabled   | F2/F3:Color                                |
| Lan Resume From Soft Off  | Disabled   |  |

### BIOS: Power Management Setup

#### ACPI Aware O/S

The option(YES) is for ATX power , the option(NO) is for AT Power.

#### ACPI Standby State

This option has two mode support Standby state.

#### USB Device Wakeup From S3-S5

This option specifies the power management with ACPI.

#### Power Management /APM

*Enabled* this option is to enable the power management and APM (Advanced Power Management) features.

#### Green PC Monitor Power State

This option specifies the suspend mode of shutting down the cathode ray gun, if only the system is fixed a green function monitor, the power saving function is available.

#### Video Power Down Mode

This option specifies the power management state that the video subsystem enters after specified period of display inactivity has expired.

#### Hard Disk Power Down Mode

This option specifies the power management states that the hard disk drive enters after the specified period of display inactivity have expired.

**Hard Disk time out (minute)**

This item is used to set up the initial value of the waiting timer .the Hard Disk will turn into the suspend mode when the time is out if no operation applied to Hard Disk.

**Standby Time Out (minute)**

This item is used to set up the initial value of the waiting timer, the System will turn into the suspend mode when the time is out if no operation applied to system.

**Suspend Time Out (minute)**

These options specify the length of the period of system inactivity when the computer is already in Standby mode before the computer is placed on Suspend mode. In Suspend mode, nearly all power use is curtailed.

**Throttle Slow Clock Ratio**

This item is to set up the Operating Frequency of system clock in power saving mode, to set a suitable clock frequency ratio which between standard CPU clock and CPU clock in power saving mode when the system is in suspend mode.

**Modem Use IO Port**

To chose a suitable IO Port in this option.

**Modem use IRQ**

To chose the IRQ Signal.

**Device**

These options enable event monitoring. When the computer is in a power saving mode, activity on the named interrupt request line is monitored by BIOS. When any activity occurs, the computer enters Full On mode.

**System Thermal**

If the choice <monitor>is chose, the system will alarm when the system temperature is beyond the critical temperature.

**Thermal Slow Clock Ratio**

This item is to set up the Operating Frequency of system clock in power saving mode, to set a suitable clock frequency ratio, which between standard CPU clock and CPU clock in power saving mode when the temperature is beyond the critical temperature.

**Restore on AC/Power Loss**

This item is to set up the system will restore with the last setting after the AC\Power Loss.

**Ring Resume From Soft Off**

This item is set up to awake the system from suspend mode and a ring bell while any access coming from modem.

**Lan Resume From Soft Off**

This item is set up to awake the system from suspend mode when encounter a network access, the function will be available if system is fixed with an Ethernet card.

## 4-6. PCI/PLUG AND PLAY

This section is used to configure PCI / Plug and Play features. The <PCI & PNP Setup> option configures the PCI bus slots. All PCI bus slots on the system use INTA#, thus all installed PCI cards must be set to this value.

| AMIBIOS SETUP - PCI/PLUG AND PLAY SETUP<br>(C) 1998 American Megatrends, Inc. All Rights Reserved |          |  |
|---|----------|--|
| Plug and Play Aware O/S   | Yes      | Available Options :<br>Yes<br>No                     |
| Clear NVRAM   | No       |  |
| On board PCI LAN Controller   | Enabled  | ESC:Exit ↑ ↓ :Sel<br>PgUp/PgDn:Modify<br>F2/F3:Color |
| PCI Latency Timer (PCI Clocks)  | 64       |  |
| Primary Graphic Adapter   | PCI      |  |
| PCI VGA Palette Snoop   | Disabled |  |
| PCI IDE BusMaster   | Disabled |  |
| PCI Slot1 IRQ Priority  | Auto     |  |
| PCI Slot2 IRQ Priority  | Auto     |  |
| PCI Slot3 IRQ Priority  | Auto     |  |
| PCI Slot4 IRQ Priority  | Auto     |  |
| DMA Channel 0   | PnP      |  |
| DMA Channel 1   | PnP      |  |
| DMA Channel 3   | PnP      |  |
| DMA Channel 5   | PnP      |  |
| DMA Channel 6   | PnP      |  |
| DMA Channel 7   | PnP      |  |
| IRQ 3   | ISA/EISA |  |
| IRQ 4   | ISA/EISA |  |
| IRQ 5   | PCI /PnP |  |
| IRQ 7   | ISA/EISA |  |
| IRQ 9   | PCI /PnP |  |
| IRQ 10  | PCI /PnP |  |
| IRQ 11  | PCI /PnP |  |
| IRQ 12  | PCI /PnP |  |
| IRQ 14  | PCI /PnP |  |
| IRQ 15  | PCI /PnP |  |
| Reserved Memory Size  | 32K      |  |
| Reserved Memory Address   | CC000    |  |

### BIOS: PCI / Plug and Play Setup

#### Plug and Play Aware O/S

Set this option to <No> if the operating system installed in the computer is Plug and Play-aware. The BIOS only detects and enables PnP ISA adapter cards that are required for system boot. The Windows 95 (and above) operating system detects and enables all other PnP-aware adapter cards. Windows 95 (and above) is PnP-aware. Set this option to <Yes> if the operating system (such as DOS, OS/2, Windows 3.x) does not use PnP. You must set this option correctly or PnP-aware adapter cards installed in your computer will not be configured properly.

#### Clear NVRAM

This sets the operating mode of the boot block area of the BIOS FLASH ROM to allow programming in the Yes setting.

#### On board PCI LAN Controller

This option is to activate the PNP (Plug & Play) function of LAN.

#### PCI Latency Timer (PCI Clocks)

This option sets latency of all PCI devices on the PCI bus. The settings are in units equal to PCI clocks.

#### Primary Graphic Adapter

This option is set to use PCI bus or AGP. The AGP mode will get system a faster processing speed.

**PCI VGA Palette Snoop**

This item is for BIOS to snoop the appearance of VGA palette, and modify it when necessary.

**PCI IDE BusMaster**

When *Enabled* this option specifies that the IDE controller on the PCI local bus has bus mastering capability.

**PCI Slot1/2/3/4 IRQ Priority**

The parameters of this item will set a interrupt signal to the PCI device fixed in the 1-4 PCI slot by priority.

**DMA & IRQ**

These options specify the bus that the named IRQs/DMA lines are used on. These options allow you to specify IRQs/DMA for use by legacy ISA adapter cards. These options determine if the BIOS should remove an IRQ/DMA from the pool of availability of IRQs/DMA passed to the BIOS configurable devices. If more IRQs/DMA must be removed from the pool, the end user can use these PCI/PnP Setup options to remove the IRQ/DMA by assigning the option to the ISA/EISA setting. The onboard I/O is configurable with BIOS.

**Reserved Memory Size**

This option specifies the size of the memory area reserved for legacy ISA adapter cards.

**Reserved Memory Address**

This option specifies the beginning address (in hex) of the reserved memory area. The specified ROM memory area is reserved for use by legacy ISA adapter cards.

## 4-7. PERIPHERAL SETUP

This section is used to configure the peripheral features.

| AMIBIOS SETUP - PERIPHERAL SETUP<br>(C) 1998 American Megatrends, Inc. All Rights Reserved |         |  |
|--|---------|--|
| OnBoard FDC  | Auto    | Available Options :<br>Yes<br>No                     |
| OnBoard Serial Port1   | Auto    |  |
| OnBoard Serial Port2   | Auto    |  |
| Serial Port2 Mode  | Normal  |  |
| IR pins  | N/A     |  |
| Duplex Mode  | N/A     |  |
| OnBoard Parallel Port  | Auto    |  |
| Parallel Port Mode   | Normal  |  |
| EPP Version  | N/A     |  |
| Parallel Port DMA Channel  | N/A     |  |
| Parallel Port IRQ  | N/A     |  |
| OnBoard IDE  | BOTH    |  |
| OnBoard LAN1 Controller  | Enabled |  |
| OnBoard LAN2 Controller  | Enabled |  |
|  |         | ESC:Exit ↑ ↓ :Sel<br>PgUp/PgDn:Modify<br>F2/F3:Color |

BIOS: Peripheral Setup

### OnBoard FDC

This option enables the floppy drive controller on the AR-B1684.

### OnBoard Serial Port

This option enables the serial port on the AR-B1684.

### IR Port support

This item is to activate the function of Infra-red.

### OnBoard Parallel Port

This option enables the parallel port on the AR-B1684.

### Parallel Port Mode

This option specifies the parallel port mode. ECP and EPP are both bi-directional data transfer schemes that adhere to the IEEE1284 specifications.

### Parallel Port DMA Channel

This option is only available if the setting for the parallel Port Mode option is ECP.

### K/B Wake-Up function

This item is to set up the function of waking-up the system by Keyboard from suspend mode.

### Mouse Wake-up function

This item is to set up the function of waking-up the system by Mouse from suspend mode.

### **OnBoard IDE**

This option is to set up the operating mode of IDE controller. If the main board offers the enhanced I/O port, the choice should be <**Enabled**>.

### **Reset, Power, Sleep Button**

These options are to activate the Reset, Power, and Sleep function in the ATX Keyboard.

## **4-8. AUTO-DETECT HARD DISKS**

This option detects the parameters of an IDE hard disk drive, and automatically enters them into the Standard CMOS Setup screen.

## **4-9. PASSWORD SETTING**

This BIOS Setup has an optional password feature. The system can be configured so that all users must enter a password every time the system boots or when BIOS Setup is executed. The user can set either a Supervisor password or a User password.

## **4-10. SETTING THE PASSWORD**

Select the appropriate password icon (Supervisor or User) from the Security section of the BIOS Setup main menu. Enter the password and press [Enter]. The screen does not display the characters entered. After the new password is entered, retype the new password as prompted and press [Enter].

If the password confirmation is incorrect, an error message appears. If the new password is entered without error, press [Esc] to return to the BIOS Main Menu. The password is stored in CMOS RAM after the BIOS is exited and saved. The next time the system boots, you are prompted for the password.

Enter new supervisor password:

## **4-11. PASSWORD CHECKING**

The password check option is enabled in Advanced Setup by choosing either *Always* (the password prompt appears every time the system is powered on) or *Setup* (the password prompt appears only when BIOS is run). The password is stored in CMOS RAM. User can enter a password by typing on the keyboard. As user select Supervisor or User. The BIOS prompts for a password, user must set the Supervisor password before user can set the User password. Enter a 1 to 6 characters password. The password does not appear on the screen when typed. Make sure you write it down.

## **4-12. LOAD DEFAULT SETTING**

This section permits users to select a group of settings for all BIOS Setup options. You not only can use these items to quickly set system configuration parameters, but also can choose a group of settings that have a better chance of working when the system is having configuration related problems.

### **4-12-1. Auto Configuration with Optimal Setting**

The user can load the optimal default settings for the BIOS. The Optimal default settings are best-case values that should optimize system performance. If CMOS RAM is corrupted, the optimal settings are loaded automatically.

Load high performance setting (Y/N) ?

## **4-12-2. Auto Configuration with Fail Safe Setting**

The user can load the Fail-Safe BIOS Setup option settings by selecting the Fail-Safe item from the Default section of the BIOS Setup main menu.

The Fail-Safe settings provide far from optimal system performance, but are the most stable settings. Use this option as a diagnostic aid if the system is behaving erratically.

Load failsafe settings (Y/N) ?

## **4-13. BIOS EXIT**

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.

### **4-13-1. Save Settings and Exit**

This item is in the <Standard CMOS Setup>, <Advanced CMOS Setup>, <Advanced Chipset Setup> and the new password (if it has been changed) will be stored in the CMOS. The CMOS checksum is calculated and written into the CMOS.

When you select this function, the following message will appear at the center of the screen to assist you to save data to CMOS and Exit the Setup.

Save current settings and exit (Y/N) ?

### **4-13-2. Exit Without Saving**

When you select this option, the following message will appear at the center of the screen to help to abandon all the modified data and Exit Setup.

Quit without saving (Y/N) ?



## 4-14. 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-B1684 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: Insert the FLASH BIOS diskette into the floppy disk drive.

Step 3: In the MS-DOS mode, you can type the FLASH826 program.

```
A:\>FLASH826
```

Step 4: Press [ALT+F], The <File> box will show the following message, this message will be highlighted.

```
BIOS Filename Loading ... . After typing in the File name you must press<ENTER> or  
press <ESC> to exit.
```

Step 5: And then please enter the file name to the <Enter File Name> box. And the <Message> box will show the following notice.

```
Are you sure to write this BIOS into flash ROM?
```

Step 6: Press the <Enter> key to update the new BIOS.  
Then the <Message> box will show the <Programming now ...>.

Step 7: When the BIOS update is successful, the message will show <Flash ROM Update Completed - Pass>.

NOTE: The BIOS Flash disk is not a standard accessory. Now that the onboard BIOS is updated to the newest version, if you need to add some functions in the future please contact the technical support (FAE) engineers. They will provide the newest known BIOS for update engineers. They will provide the newest known BIOS for update.

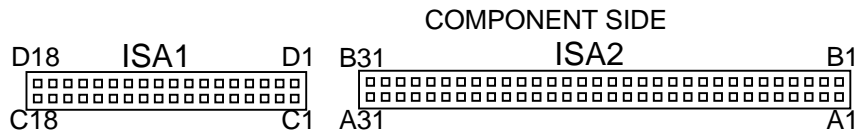
# APPENDIX A

## EXPANSION BUS

This chapter includes:

- ISA BUS Pin Assignment
- PICMG BUS Pin Assignment

# A-1. ISA BUS PIN ASSIGNMENT



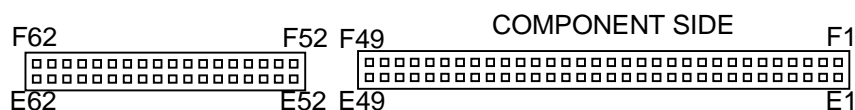
There are two edge connectors (called "gold fingers") on this CPU Card. On the right hand is the connector of ISA Bus, beside PCI BUS connector. The ISA-bus connector is divided into two sets: one consists of 62 pins; the other consists of 36 pins.

The pin assignments are as follows:

| B   |            | A   |             | D   |            | C   |            |
|-----|------------|-----|-------------|-----|------------|-----|------------|
| PIN | ASSIGNMENT | PIN | ASSIGNMENT  | PIN | ASSIGNMENT | PIN | ASSIGNMENT |
| B1  | GND        | A1  | -I/O CH CHK | D1  | -MEMCS16   | C1  | SBHE       |
| B2  | RESET      | A2  | SD07        | D2  | -I/OCS16   | C2  | LA23       |
| B3  | +5V        | A3  | SD06        | D3  | IRQ10      | C3  | LA22       |
| B4  | IRQ9       | A4  | SD05        | D4  | IRQ11      | C4  | LA21       |
| B5  | -5V        | A5  | SD04        | D5  | IRQ12      | C5  | LA20       |
| B6  | DRQ2       | A6  | SD03        | D6  | IRQ15      | C6  | LA19       |
| B7  | -12V       | A7  | SD02        | D7  | IRQ14      | C7  | LA18       |
| B8  | OWS        | A8  | SD01        | D8  | -DACK0     | C8  | LA17       |
| B9  | +12V       | A9  | SD00        | D9  | DRQ0       | C9  | -MEMR      |
| B10 | GND        | A10 | -I/O CH RDY | D10 | -DACK5     | C10 | -MEMW      |
| B11 | -SMEMW     | A11 | AEN         | D11 | DRQ5       | C11 | SD08       |
| B12 | -SMEMR     | A12 | SA19        | D12 | -DACK6     | C12 | SD09       |
| B13 | -IOW       | A13 | SA18        | D13 | DRQ6       | C13 | SD10       |
| B14 | -IOR       | A14 | SA17        | D14 | -DACK7     | C14 | SD11       |
| B15 | -DACK3     | A15 | SA16        | D15 | DRQ7       | C15 | SD12       |
| B16 | -DRQ3      | A16 | SA15        | D16 | +5V        | C16 | SD13       |
| B17 | -DACK1     | A17 | SA14        | D17 | -MASTER    | C17 | SD14       |
| B18 | -DRQ1      | A18 | SA13        | D18 | GND        | C18 | SD15       |
| B19 | -REFRESH   | A19 | SA12        |     |            |     |            |
| B20 | BCLK       | A20 | SA11        |     |            |     |            |
| B21 | IRQ7       | A21 | SA10        |     |            |     |            |
| B22 | IRQ6       | A22 | SA09        |     |            |     |            |
| B23 | IRQ5       | A23 | SA08        |     |            |     |            |
| B24 | IRQ4       | A24 | SA07        |     |            |     |            |
| B25 | IRQ3       | A25 | SA06        |     |            |     |            |
| B26 | -DACK2     | A26 | SA05        |     |            |     |            |
| B27 | T/C        | A27 | SA04        |     |            |     |            |
| B28 | BALE       | A28 | SA03        |     |            |     |            |
| B29 | +5V        | A29 | SA02        |     |            |     |            |
| B30 | OSC        | A30 | SA01        |     |            |     |            |
| B31 | GND        | A31 | SA00        |     |            |     |            |

## A-2. PICMG BUS PIN ASSIGNMENT

Like ISA-BUS connector, the PICMG-BUS edge connector is divided into two sets as well: one consists of 98 pins, and the other 22 pins. The pin assignments are as follows:



| F   |            | E   |            | F   |            | E   |            |
|-----|------------|-----|------------|-----|------------|-----|------------|
| PIN | ASSIGNMENT | PIN | ASSIGNMENT | PIN | ASSIGNMENT | PIN | ASSIGNMENT |
| F1  | -12V       | E1  | TRST#      | F31 | +3.3V      | E31 | AD18       |
| F2  | TCK        | E2  | +12V       | F32 | AD17       | E32 | AD16       |
| F3  | GND        | E3  | TMS        | F33 | C/BE2#     | E33 | +3.3V      |
| F4  | TDO        | E4  | TDI        | F34 | GND        | E34 | FRAME#     |
| F5  | +5V        | E5  | +5V        | F35 | IRDY#      | E35 | GND        |
| F6  | +5V        | E6  | INTA#      | F36 | +3.3V      | E36 | TRDY#      |
| F7  | INTB#      | E7  | INTC#      | F37 | DEVSEL#    | E37 | GND        |
| F8  | INTD#      | E8  | +5V        | F38 | GND        | E38 | STOP#      |
| F9  | PRSNT1#    | E9  | NC         | F39 | LOCK#      | E39 | +3.3V      |
| F10 | NC         | E10 | +5V        | F40 | PERR#      | E40 | SDONE      |
| F11 | PRSNT2#    | E11 | NC         | F41 | +3.3V      | E41 | SB0#       |
| F12 | GND        | E12 | GND        | F42 | SERR#      | E42 | GND        |
| F13 | GND        | E13 | GND        | F43 | +3.3V      | E43 | PAR        |
| F14 | NC         | E14 | NC         | F44 | C/BE1#     | E44 | AD15       |
| F15 | GND        | E15 | RST#       | F45 | AD14       | E45 | +3.3V      |
| F16 | CLK        | E16 | +5V        | F46 | GND        | E46 | AD13       |
| F17 | GND        | E17 | GNT#       | F47 | AD12       | E47 | AD11       |
| F18 | REQ#       | E18 | GND        | F48 | AD10       | E48 | GND        |
| F19 | +5V        | E19 | NC         | F49 | GND        | E49 | AD09       |
| F20 | AD31       | E20 | AD30       | F52 | AD8        | E52 | C/BE0#     |
| F21 | AD29       | E21 | +3.3V      | F53 | AD7        | E53 | +3.3V      |
| F22 | GND        | E22 | AD28       | F54 | +3.3V      | E54 | AD6        |
| F23 | AD27       | E23 | AD26       | F55 | AD5        | E55 | AD4        |
| F24 | AD25       | E24 | GND        | F56 | AD3        | E56 | GND        |
| F25 | +3.3V      | E25 | AD24       | F57 | GND        | E57 | AD2        |
| F26 | C/BE3#     | E26 | IDSEL      | F58 | AD1        | E58 | AD0        |
| F27 | AD23       | E27 | +3.3V      | F59 | +5V(I/O)   | E59 | +5V(I/O)   |
| F28 | GND        | E28 | AD22       | F60 | ACK64#     | E60 | REQ64#     |
| F29 | AD21       | E29 | AD20       | F61 | +5V        | E61 | +5V        |
| F30 | AD19       | E30 | GND        | F62 | +5V        | E62 | +5V        |

## APPENDIX B

### TECHNICAL SUMMARY

This chapter focus on:

- Interrupt Map
- RTC & CMOS RAM Map
- Timer & DMA Channels Map
- I / O & Memory Map

## **B-1. INTERRUPT MAP**

| IRQ | ASSIGNMENT                          |
|-----|-------------------------------------|
| 0   | System TIMER interrupt from TIMER-0 |
| 1   | Keyboard output buffer full         |
| 2   | Cascade for IRQ 8-15                |
| 3   | Serial port 2                       |
| 4   | Serial port 1                       |
| 5   | Parallel port 2                     |
| 6   | Floppy Disk adapter                 |
| 7   | Parallel port 1                     |
| 8   | RTC clock                           |
| 9   | Available                           |
| 10  | Available                           |
| 11  | Available                           |
| 12  | Available                           |
| 13  | Math coprocessor                    |
| 14  | Hard Disk adapter                   |
| 15  | Available                           |

## B-2. RTC & CMOS RAM MAP

| CODE  | ASSIGNMENT                              |
|-------|---|
| 00    | Seconds                                 |
| 01    | Second alarm                            |
| 02    | Minutes                                 |
| 03    | Minutes alarm                           |
| 04    | Hours                                   |
| 05    | Hours alarm                             |
| 06    | Day of week                             |
| 07    | Day of month                            |
| 08    | Month                                   |
| 09    | Year                                    |
| 0A    | Status register A                       |
| 0B    | Status register B                       |
| 0C    | Status register C                       |
| 0D    | Status register D                       |
| 0E    | Diagnostic status byte                  |
| 0F    | Shutdown byte                           |
| 10    | Floppy Disk drive type byte             |
| 11    | Reserve                                 |
| 12    | Hard Disk type byte                     |
| 13    | Reserve                                 |
| 14    | Equipment byte                          |
| 15    | Base memory low byte                    |
| 16    | Base memory high byte                   |
| 17    | Extension memory low byte               |
| 18    | Extension memory high byte              |
| 30    | Reserved for extension memory low byte  |
| 31    | Reserved for extension memory high byte |
| 32    | Date Century byte                       |
| 33    | Information Flag                        |
| 34-3F | Reserve                                 |
| 40-7f | Reserved for Chipset Setting Data       |

### **B-3. TIMER & DMA CHANNELS MAP**

#### **Timer Channel Map:**

| Timer Channel | Assignment             |
|---------------|------------------------|
| 0             | System timer interrupt |
| 1             | DRAM Refresh request   |
| 2             | Speaker tone generator |

#### **DMA Channel Map:**

| DMA Channel | Assignment                   |
|-------------|------------------------------|
| 0           | Available                    |
| 1           | IBM SDLC                     |
| 2           | Floppy Disk adapter          |
| 3           | Channel-3 Available          |
| 4           | Cascade for DMA controller 1 |
| 5           | Available                    |
| 6           | Available                    |
| 7           | Available                    |



## B-4. I/O & MEMORY MAP

### Memory Map:

| MEMORY MAP       | ASSIGNMENT  |
|------------------|---|
| 0000000-009FFFF  | System memory used by DOS and application                     |
| 00A0000-00BFFFF  | Display buffer memory for VGA/ EGA / CGA / MONOCHROME adapter |
| 00C0000-00DFFFF  | Reserved for I/O device BIOS ROM or RAM buffer.               |
| 00E0000-00EFFFF  | Reserved for PCI device ROM                                   |
| 00F0000-00FFFFFF | System BIOS ROM   |
| 0100000-FFFFFFF  | System extension memory                                       |

### I/O Map:

| I/O MAP | ASSIGNMENT                              |
|---------|---|
| 000-01F | DMA controller (Master)                 |
| 020-021 | Interrupt controller (Master)           |
| 022-023 | Chipset controller registers I/O ports. |
| 040-05F | Timer control registers.                |
| 060-06F | Keyboard interface controller (8042)    |
| 070-07F | RTC ports & CMOS I/O ports              |
| 080-09F | DMA register                            |
| 0A0-0BF | Interrupt controller (Slave)            |
| 0C0-0DF | DMA controller (Slave)                  |
| 0F0-0FF | Math coprocessor                        |
| 1F0-1F8 | Hard Disk controller                    |
| 278-27F | Parallel port-2                         |
| 2B0-2DF | Graphics adapter controller             |
| 2F8-2FF | Serial port-2                           |
| 360-36F | Net work ports                          |
| 378-37F | Parallel port-1                         |
| 3B0-3BF | Monochrome & Printer adapter            |
| 3C0-3CF | EGA adapter                             |
| 3D0-3DF | CGA adapter                             |
| 3F0-3F7 | Floppy disk controller                  |
| 3F8-3FF | Serial port-1                           |

# APPENDIX C

## TROUBLE SHOOTING

### TROUBLE SHOOTING FOR ERROR MESSAGES

The following information will present the resolution of trouble encountered as well as the error messages. Adjust the system following the messages below and make sure all the components & connectors are in proper position and firmly attached. If the error still remains, contact with your distributor for maintenance.

#### **POST BEEP:**

There are two kinds of beep codes in BIOS. One code indicates that a video error has occurred and the BIOS cannot initialize the video screen to display any additional information. This beep code contains a single long beep followed by three short beeps. The other code indicates that DRAM error has incurred. This beep code appears a single long beep repeatedly.

#### **CMOS BATTERY FAILURE:**

When the CMOS battery is out of work or has run out, the user has to replace it with a new battery same as the old one.

#### **CMOS CHECKSUM ERROR:**

When the battery runs weak, CMOS will be corrupted. Check the battery and change a new one when necessary.

#### **DISPLAY SWITCH IS SET INCORRECTLY:**

Display switch on the motherboard can be set to either monochrome or color, which indicates the switch is set to a different setting from the indicated in Setup. Determine which setting is correct, and then either turn off the system and change the jumper, or enter Setup and change the video selection.

#### **DISK BOOT FAILURE:**

When boot device isn't available, insert a system disk into Drive A and press < Enter >. Make sure both the controller and cables are all in proper positions, also make sure the disk is formatted correct device. Then reboot the system.

#### **DISKETTE DRIVES OR TYPES MISMATCH ERROR:**

If the diskette drive type is different from CMOS, run setup and correct it.

#### **ERROR ENCOUNTERED INITIALIZING HARD DRIVE:**

When hard drive can't be initialized, make sure the adapter is installed correctly and all cables are properly and firmly attached. Also be sure the correct hard drive type is selected in Setup.

#### **ERROR INITIALIZING HARD DISK CONTROLLER:**

When error occurs, be sure the cord is exactly installed in the bus and the correct hard drive type is selected in Setup. Besides that, check whether all of the jumpers in the hard drive are set correctly.

#### **FLOPPY DISK CONTROLLER ERROR OR NO CONTROLLER PRESENT:**

When fail to find or initialize the floppy drive controller, check whether the controller in proper station. If there are no floppy drive installed, Ensure the Diskette Drive selection in Setup is set to NONE.

#### **KEYBOARD ERROR OR NO KEYBOARD PRESENT:**

When it happens, make sure keyboard properly attached and no keys being pressed during booting. If you are purposely configuring the system without a keyboard, enter <ADVANCED CMOS SETUP>and choose <Absent>at the item<System Keyboard>, BIOS will ignore the missing keyboard and continue the booting.

**MEMORY ADDRESS ERROR:**

While the memory address error revealed, trace the error location with the memory map in system and replace the bad memory chips.

**MEMORY SIZE HAS CHANGED:**

Memory has been added or removed since the last boot. In EISA mode, re-configure the memory configuration by using Configuration Utility. While in ISA mode, enter Setup and enter the new memory size in the memory fields.

**MEMORY VERIFYING ERROR:**

It indicates an error verifying value has been written to memory. Use the location along with system's memory map to locate the bad chip.

**OFFENDING ADDRESS MISSING:**

This is related to the I/O CHANNEL CHECK and RAM PARITY ERROR when the segment cannot be isolated.

**REBOOT ERROR:**

When error occurs, press any key to reboot the system.

**SYSTEM HALTED:**

This message indicates the present boot has failed. Press and hold down Ctrl, Alt and Del simultaneously to reboot the system.

Note:

If the content in Setting is inconsistent with CD-ROM, please refer to the Setting as priority.