

AR-B1662
VIA Processor for VIA PLE133T with
VGA(CRT/LCD), SDRAM PC133, 4 LAN,
Compact Flash
User' s Guide

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0. PREFACE

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0.2 WELCOME TO THE AR-B1662 CPU BOARD

This guide introduces the Acrosser AR-B1662 CPU Board.

Use information provided in this manual describes this card's functions and features. It also helps you start, set up and operate your AR-B1662. General system information can also be found in this publication.

0.3 BEFORE YOU USE THIS GUIDE

Please refer to the Chapter 2, "System Setting," in this guide, if you have not already installed this AR-B1662. Check the packing list before you install and make sure the accessories are completely included.

AR-B1662 CD provides the newest information regarding the CPU card. **Please refer to the files of the enclosed utility CD.** It contains the modification and hardware & software information, and adding the description or modification of product function after manual printed.

0.4 RETURNING YOUR BOARD FOR SERVICE

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

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

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

0.5 TECHNICAL SUPPORT AND USER COMMENTS

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

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

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

Internet electronic mail to: Sales@acrosser.com

acrosser@tp.globalnet.com.tw

0.6 ORGANIZATION

This information for users covers the following topics (see the Table of Contents for a detailed listing):

Chapter 1, "Introduction", provides specifications and packing list.

Chapter 2, "Setting Up System", describes how to adjust the jumpers and the connector settings.

Chapter 3, "CRT/LCD Flat Panel Display", describes the configuration and installation procedure for using LCD and CRT displays.

Chapter 4, "Watchdog Timer", describes watchdog timer setting and trigger.

Chapter 5, "BIOS Console", provides the BIOS settings options.

Appendix A, Memory & I/O Map

Appendix B, Interrupt Request (IRQ)

0.7 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:

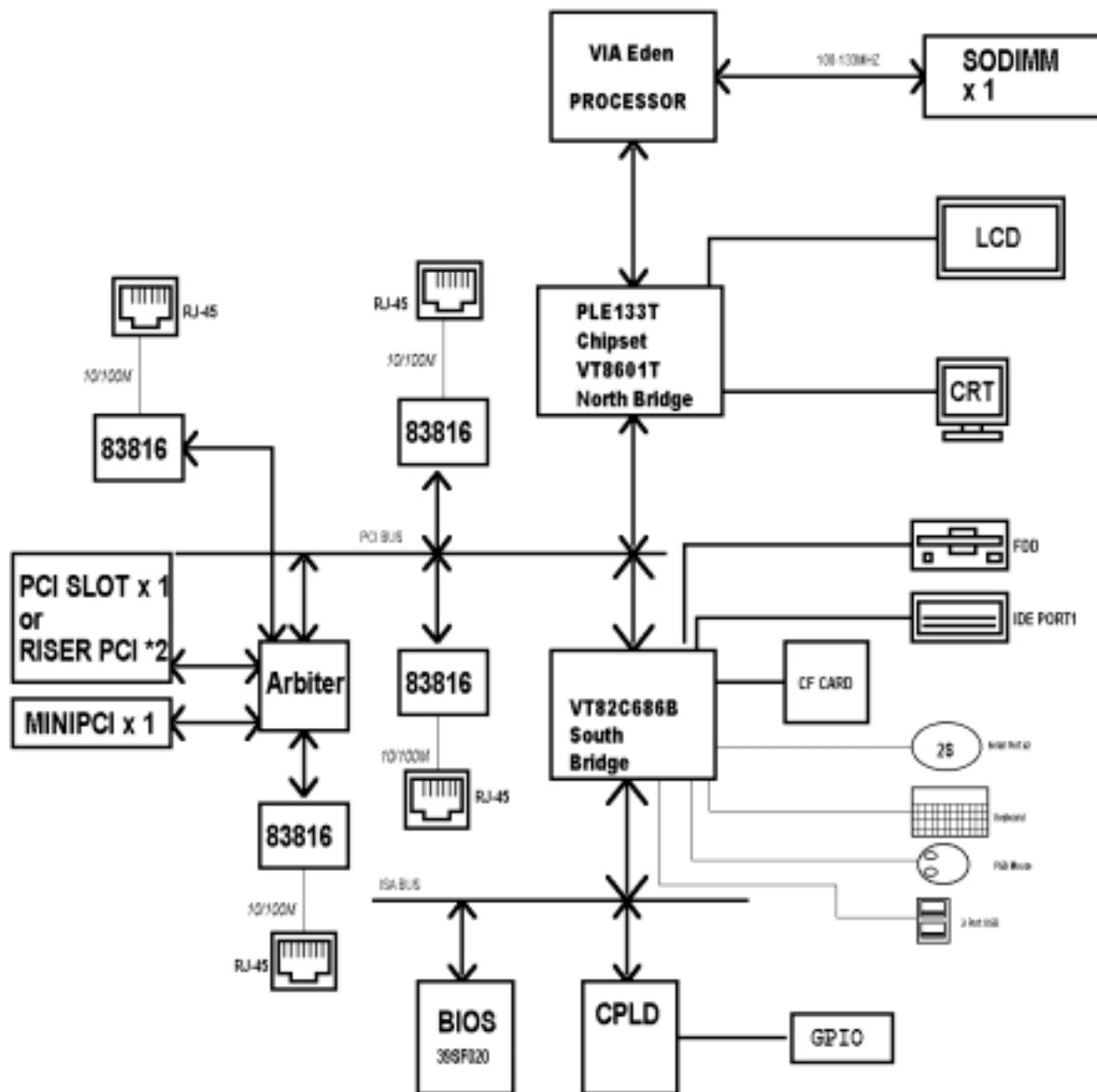
- Touch a grounded metal object to discharge the static electricity in your body (or ideally, wear a grounded wrist strap).
- When unpacking and handling the board or other system components, place all materials on an anti-static surface.
- Be careful not to touch the components on the board, especially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

1. INTRODUCTION

Welcome to the AR-B1662 Single Board Computer. The AR-B1662 board is Low power VIA Eden series Processors with the VIA ® advanced chipset Apollo PLE133T (VT8601T and VT82C686B). This product is designed for the system manufacturers, integrators, or VARs that want to provide all the performance, reliability, and quality at a reasonable price.

In addition, the AR-B1662 provides on chip VGA. The VGA, which provides up to True Color (32 bit) 1024x768, or High Color (16 bit) 1280x1024 resolution. The VGA memory is share main memory (2M, 4M, or 8M). AR-B1662 also has 24-bit LCD function in the system.

The AR-B1662 is loaded with special on-board features that rival full-size systems. It has four networks controller on board, uses National Semiconductor 83816 LAN controller, a fully integrated 10/100BASE-TX solution with high performance networking functions. CompactFlash™. The AR-B1662 also includes one 144-pin SO-DIMM sockets for up to 512 MB total on-board memory. The AR-B1662 has two on-board serial ports; COM1 with RS232C, COM2 with RS232C, one USB connectors for 2 USB ports, watchdog timer and tough industrial grade construction. All these features make the AR-B1662 a very "system integrator friendly" solution, perfect for handling applications in the harshest unmanned environments.



AR-B1662 System Block Diagram

1.1 SPECIFICATIONS

- **CPU:** On-board VIA Processor Eden 667 MHz Process<EBGA>
- **DMA channels:** 7
- **Interrupt levels:** 15
- **Chipset:** VIA @ Apollo PLE133T (VT8601T Integrated 2D / 3D graphics accelerator and VT82C686B)
- **RAM memory:** Supports SDRAM PC133, on-board 144-pin SO-DIMM up to 512MB SDRAM memory module
- **VGA Controller:** Embedded VGA controller, Screen Resolution: up to True Color(32 bit)1024x768, or High Color(16 bit) 1280x1024.
- **Display Interface:** CRT – D-SUB 15-pin female connector
LCD – for 24 bit TFT LCD Panel, 2x22x2.00mm pin-header connector
- **Ultra ATA/33/66 IDE Interface:** One PCI Enhance IDE channel. The south bridge VT82C686B supports Ultra ATA/33/66 IDE interface. To support Ultra ATA66 Hard disk, a specified cable must be available.
- **Floppy disk drive interface:** 2.88 MB, 1.44MB, 1.2MB, 720KB, or 360KB floppy disk drive.
- **C. F.:** Supports Compact Flash Type I interface
- **Series ports:** On-board one D-SUB 9-pin male connector for COM1 with RS-232C. On-board one 2x5x2.00mm pin-header connector for COM2 with RS-232C.
- **USB port:** On-board one USB connector for 2 USB ports.
- **Watchdog timer:** Software programmable 1~63sec.
- **Ethernet:** On-board Four National Semiconductor 83816, supports 10/100Mbps Base-T with RJ-45 connector built-in LED
- **K/B & Mouse:** On-board PS/2 Keyboard and Mouse connector
- **GP I/O:** On-board 2x10x2.00mm pin-header connector for 8-bit input and 8-bit output, TTL level
- **Power Req.:** +5V 4A and +12V 1A maximum
- **PC Board:** 8 layers, EMI considered
- **Dimensions:** 203 mm x 146 mm
- **Operating Temperature:** 0° ~ 60°C

1.2 PACKING LIST

These accessories are included with the system. Before you begin installing your AR-B1662 board, please make sure that the following items have been included inside the AR-B1662 package.

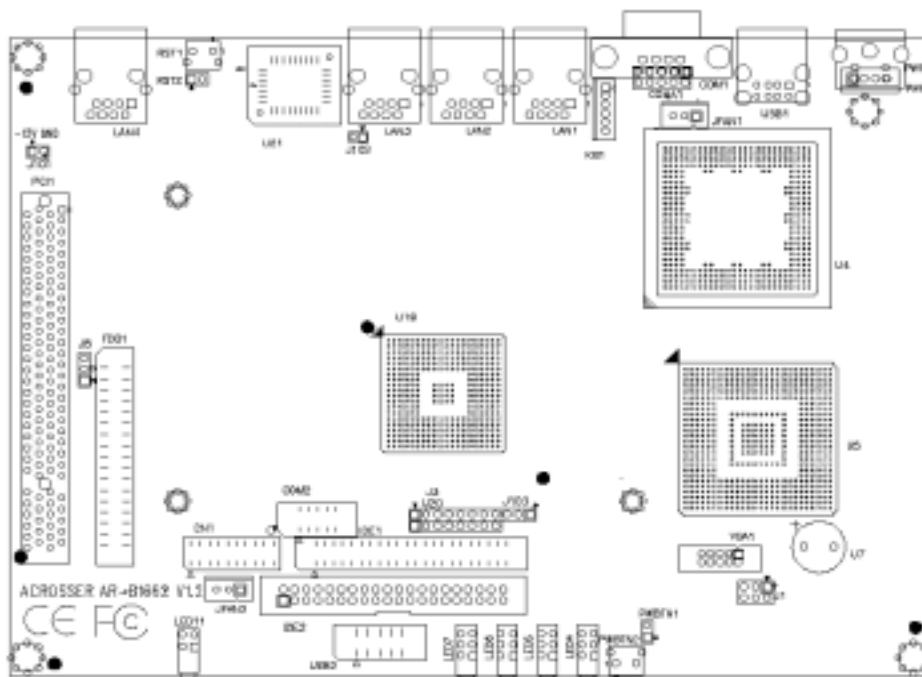
- The quick setup manual
- 1 AR-B1662 CPU board
- 1 Hard disk drive adapter cable for 2.5" hard disk
- 1 Software utility CD
- 1 RS-232 and 1 PS/2 Mouse & Keyboard interface cable mounted on bracket
- 1 VGA cable
- 1 Mini Din power adapter & cable

2. SETTING UP SYSTEM

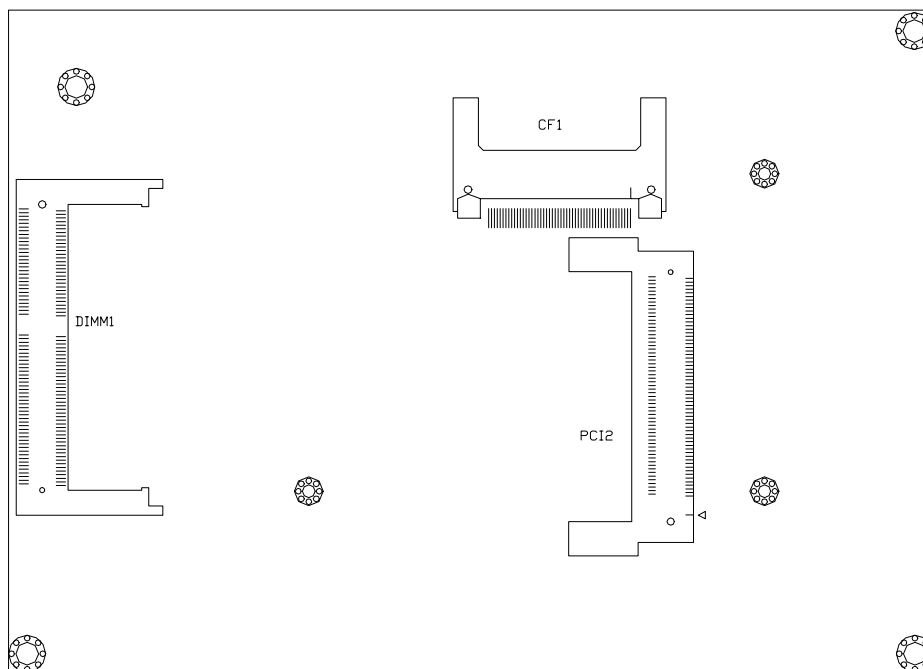
This chapter describes how to install the AR-B1662. At first, the layout of AR-B1662 is shown, and the unpacking information that you should be careful is described.

- Overview
- System Settings

2.1 AR-B1662 OVERVIEW



TOP PLACEMENT



BOTTOM PLACEMENT

2.2 SYSTEM SETTINGS

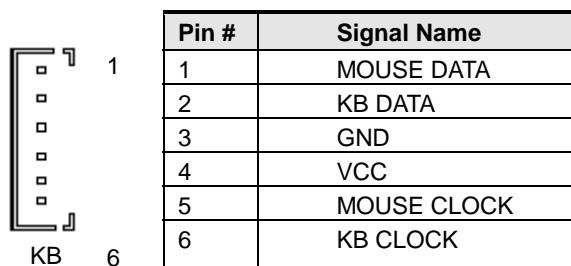
Jumper pins allow you to set specific system parameters. Set them by changing the pin location of the jumper blocks. (A jumper block is a small plastic-encased conductor that slips over the pins.) To change a jumper setting, remove the jumper from its current location with your fingers or small needle-nosed pliers. Place the jumper over the two pins designated for the desired setting. Press the jumper evenly onto the pins. Be careful not to bend the pins.

We will show the locations of the AR-B1662 jumper pins, and the factory-default settings.

CAUTION: Do not touch any electronic components unless you are safely grounded. Wear a grounded wrist strap or touch an exposed metal part of the system unit chassis. The static discharges from your fingers can permanently damage electronic components.

2.2.1 Keyboard & Mouse Connector (KB1)

The KB1 is a 6-pin pin header keyboard & Mouse connector. This keyboard & Mouse connector is PS/2 type connector. This connector is also for a standard IBM-compatible keyboard when used with the included PS/2 keyboard & Mouse adapter cable.



2.2.2 SDRAM SOCKET 144 PIN (DIMM1)

It can assemble 16/32/64/128/256/512MB 144 pin DIMM Module Memory. When you set up 144-pin DIMM Module Memory, AR-B1662 will auto-detect DRAM, and adopt correct save in order to make memory work till the best situation.

Caution: Set up 144-pin DIMM Module Memory, please insert into slot vertical, if the direction is wrong and it leads to failure, please confirm the direction is right.

DRAM Configuration (DIMM1)

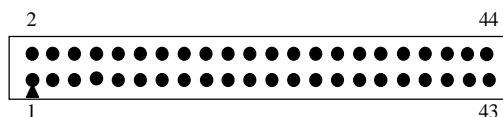


144 pin SO-DIMM

2.2.3 Hard Disk (IDE) Connector (IDE1&IDE2)

※ 44 Pin Hard Disk Connector (IDE1)

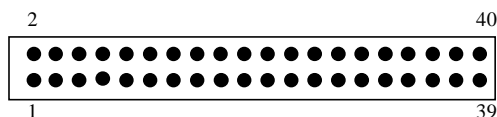
The on-board 44-pin mini-pitched IDE interface is used to let user support either a 3.5" HDD with 44 to 40pin adapter cable.



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	IDEDREQ	22	GROUND
23	-IOW A	24	GROUND
25	-IOR A	26	GROUND
27	IDEIORDYA	28	GROUND
29	-DACKA	30	GROUND
31	AINTE	32	GROUND
33	SA 1	34	Not Used
35	SA 0	36	SA 2
37	CS 0	38	CS 1
39	HD LED A	40	GROUND
41	VCC	42	VCC
43	GROUND	44	Not Used

※ 40 Pin Hard Disk Connector (IDE2)(Option)

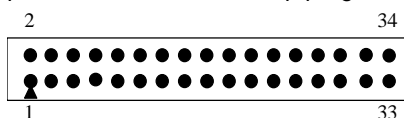
A 40-pin header type connector (IDE2) is provided to interface with up to two embedded hard disk drives (IDE PCI bus). This interface, through a 40-pin cable, allows the user to connect up to two drives in a “daisy chain” fashion. To enable or disable the hard disk controller, please use the BIOS Setup program. The following table illustrates the pin assignments of the hard disk drive's 40-pin connector.



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	DRQ A	22	GROUND
23	-IOW A	24	GROUND
25	-IOR A	26	GROUND
27	-CHRDY A	28	NOT USED
29	DACK A	30	GROUND
31	-IRQ A	32	NOT USED
33	SA 1	34	NOT USED
35	SA 0	36	SA 2
37	CS 0	38	CS 1
39	HD LED A	40	GROUND

2.2.4 FDD Port Connector (FDD1)

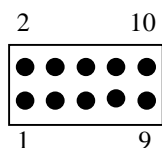
The AR-B1662 provides a 34-pin header type connector for supporting up to two floppy disk drives. To enable or disable the floppy disk controller, please use the BIOS Setup program.



Pin	Signal	Pin	Signal
1-33(odd)	GROUND	18	-DIRECTION
2	DRVEN 0	20	-STEP OUTPUT PULSE
4	NOT USED	22	-WRITE DATA
6	DRVEN 1	24	-WRITE ENABLE
8	-INDEX	26	-TRACK 0
10	-MOTOR ENABLE 0	28	-WRITE PROTECT
12	-DRIVE SELECT 1	30	-READ DATA
14	-DRIVE SELECT 0	32	-SIDE 1 SELECT
16	-MOTOR ENABLE 1	34	DISK CHANGE

2.2.5 CRT Connector (VGA1)

VGA1 is a standard 10-pin header connector commonly used for VGA.



Pin #	Signal Name	Pin #	Signal Name
1	RED	6	AGND
2	AGND	7	V.S
3	GREEN	8	DDCD
4	GND	9	H.S
5	BLUE	10	DDCK

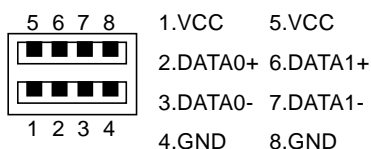
2.2.6 USB Connector (USB1)

The Universal Serial Bus (USB) controller is USB V1.1 and Universal HCI V1.1 compliant. The Universal Serial Bus (USB) standard is a low-to-medium speed interface for the connection of PC peripherals, which gives complete Plug & Play, and hot attach/detach for up to 127 external devices.

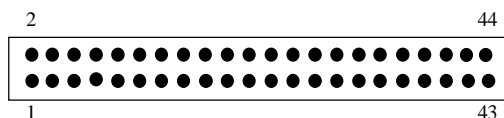
USB is a leading edge technology that allows the user to quickly and easily add a wide range of peripheral devices from printers to keyboards and telephony devices to fax/modems. Universal Host Controller Interface (UHCI) and future support for the Open Host Controller Interface (OHCI) ensure USB compatibility and usability well into the future.

The CPU board supports two Universal Serial Bus ports. If the USB ports are installed, the USB Controller line in the Integrated Peripherals section of the CMOS Setup utility must be set to "Enabled". USB ports may also require Operating System support for USB devices.

■ USB1



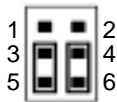
2.2.7 LCD Header (LCD1)



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

LCD1 Voltage Select (J1)

■ (LCD1) Bit VOLTAGE SELECT



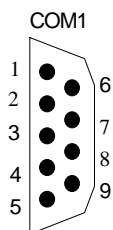
Jumper	Voltage
1-3	VCC 3
2-4	
3-5	VCC (Factory Preset)
4-6	

2.2.8 Serial Port (COM1, COM2)

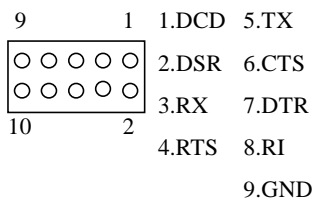
- AR-B1662 is equipped with two serial ports. COM1 is a standard RS-232 interface.
- COM2 use an adapter cable to interface with external equipment.

A. COM1

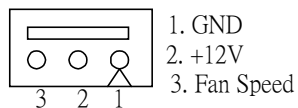
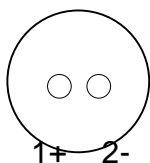
USED RS232

**B. COM2**

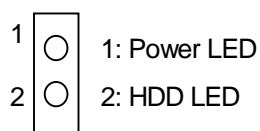
USED RS232

**2.2.9 Fan Power Connector (JFAN1, JFAN2)**

JFAN1, JFAN2 is 3-pin header for the CPU fan. The fan must be a 12V fan.

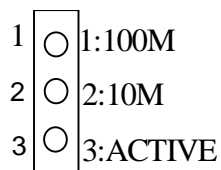
**2.2.10 Internal Buzzer (U7)**

2.2.11 Power/HD LED (LED11)



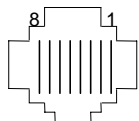
Power LED: External LED connector for Power status indication.
HDD LED (IDE1): External LED connector for primary IDE channel.

2.2.12 LAN LED (LED4, LED5, LED6, LED7)



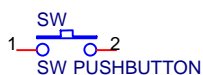
2.2.13 Ethernet RJ-45 Connector (LAN1, LAN2, LAN3, LAN4)

The system supports onboard network connectivity. To utilize this function, install the network driver from the utility diskette, and connect the cable to the following RJ-45 header.

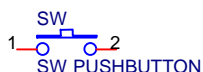


PIN (CN8)	FUNCTION
1	TPTX+
2	TPTX -
3	TPRX+
4	Not Used
5	Not Used
6	TPRX-
7	Not Used
8	Not Used

2.2.14 Reset Button (RST1)

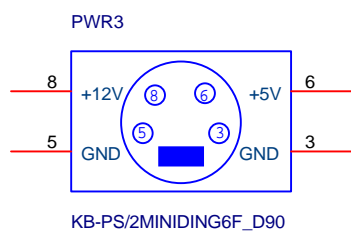


2.2.15 Power Button (PWBTN2)



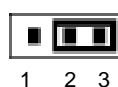
2.2.16 Power Connector (PWR3)

The PWR2 is a 4-pin mini dim power connector.



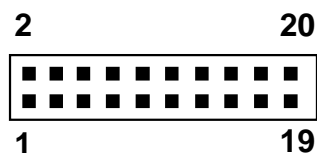
2.2.17 Support Riser Card (J8)

This 3-pins jumper will decide the BUS1 support a PCI CARD or a Riser Card.



Jumper	Function
1-2	For Riser Card
2-3	Factory Preset

2.2.18 GPIO Port (CN1)



PIN	Signal	PIN	Signal
1	GPIO	2	GPO0
3	GPI1	4	GPO1
5	GPI2	6	GPO2
7	GPI3	8	GPO3
9	GPI4	10	GPO4
11	GPI5	12	GPO5
13	GPI6	14	GPO6
15	GPI7	16	GPO7
17	NONE	18	NONE
19	VCC5	20	GND

Users could test GPIO function under 'Debug' program as follow:

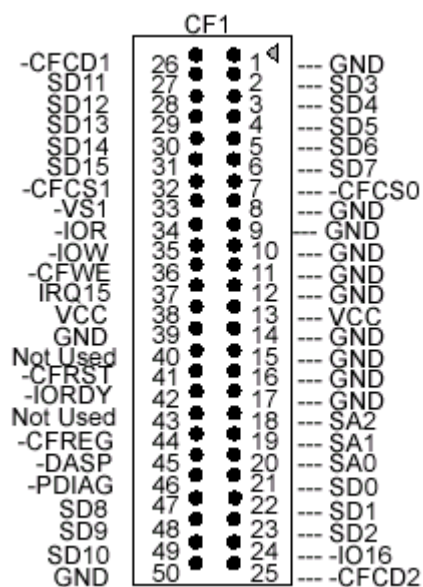
```
C:>debug
O 78 01H
Generally, the CN1 Pin2 will be High Level, others output pin are Low Level.
I 78
FC
Generally, suppose that CN1's Pin1 and Pin3 are High Level then will show "FC"
```

2.2.19 Mini PCI Slot (PCI2)

On board one mini PCI slot (PCI2)

2.2.20 Compact Flash Slot (CF1)

Pin assignment is showed below.

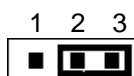


2.2.21 CF Master/Slave Mode Select (J102)

This 2-pins jumper will decide the CF operating in master/slave mode.

Jumper	Function
Open (Factory Preset)	Slave
Short	Master

2.2.22 Clear CMOS Jumper (J103)



Jumper	Function
(1-2)	Clear Data
(2-3)	Keep Data (Factory Preset)

3. CRT/LCD FLAT PANEL DISPLAY

This chapter describes the configuration and installation procedures for LCD & CRT displays. The following topics are covered:

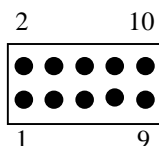
- CRT Connector
- LCD Flat Panel Displays

※ DON'T SUPPORT EXTERNAL VGA CARD

3.1 CRT CONNECTOR (CRT1)

The AR-B1662 supports CRT color monitors. It uses an onboard VGA chipset and you can use the VGA RAM 2.4 or 8 MB. For different VGA display modes, your monitor must possess certain characteristics (the right drivers) to display the mode you want.

To connect to a CRT monitor, an adapter cable has to be connected to the VGA connector. VGA is used to connect with a VGA monitor when you are using the on-board VGA controller as a display adapter. Pin assignments for the VGA connector are as follows:



CRT1: CRT Connector

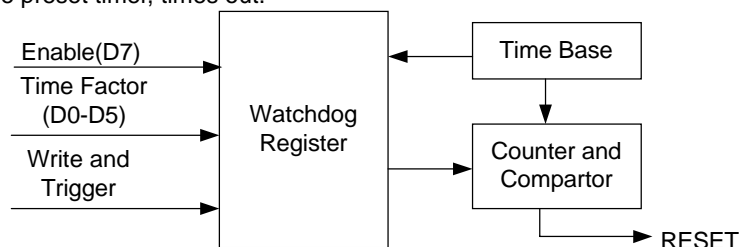
Pin #	Signal Name	Pin #	Signal Name
1	RED	6	AGND
2	AGND	7	V.S
3	GREEN	8	DDCD
4	GND	9	H.S
5	BLUE	10	DDCK

3.2 LCD FLAT PANEL DISPLAYS (OPTIONAL)

AR-B1662 needs different BIOS with LCD module when Connecting AR-B1662 to different LCD resolution. It does not contain LCD module default. Please visit our web site (www.acrosser.com) or contact with our technical support department (csd@acrosser.com.tw) for supports of LCD connecting.

4. WATCHDOG TIMER

This section describes the use of Watchdog Timer, including disable, enable, and trigger. AR-B1662 is equipped with a programmable time-out period watchdog timer that occupies I/O port 443H. Users can use simple program to enable the watchdog timer. Once you enable the watchdog timer, the program should trigger it every time before it times out. Watchdog Timer will generate a response (system or IRQ) due to system fails to trigger or disable watchdog timer before preset timer, times out.



Watchdog Block Diagram

4.1 WATCHDOG TIMER SETTING

The watchdog timer is a circuit that maybe be used from your program software to detect crash or hang up. The Watchdog timer is automatically disabled after reset. Once you enabled the watchdog timer, your program should trigger the watchdog timer every time before it times out. After you trigger the watchdog timer, the timer will be set to zero and start to count again. If your program fails to trigger the watchdog timer before times out, it will generate a reset pulse to reset the system or trigger the IRQ 9 signal in order to tell your system that the watchdog time is out.

Please refer to the following table in order to properly program Watchdog function

	D7	D6	D5	D4	D3	D2	D1	D0
1	Enable	Reset	Time period					
0	Disable	IRQ 9						

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

```

C:>debug
● O 443 C8H
Generally, watchdog function would reset system after 8 seconds
● O 443 0H
Disable watchdog function
  
```

```

C:>debug
● O 443 88H
Generally, watchdog function would generate IRQ 9 after 8 seconds
● O 443 0H
Disable watchdog function
  
```

4.2 WATCHDOG TIMER TRIGGER

After you enable the watchdog timer, your program must write the same factor as triggering to the watchdog timer at least once during every time-out period. You can change the time-out period by writing another timer factor to the watchdog register at any time, and you must trigger the watchdog during every new time-out period in next trigger.

5. BIOS CONSOLE

This chapter describes the AR-B1662 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:

- BIOS Setup Overview
- Standard CMOS Setup
- Advanced CMOS Setup
- Advanced Chipset Setup
- Power Management Setup
- PCI/Plug and Play Setup
- Peripheral Setup
- Hardware Monitor Setup
- Auto-Detect Hard Disks
- Change User Password
- Auto configuration with Optimal Settings
- Auto configuration with Fail Save Settings
- Save Settings and Exit
- Exit Without Saving

5.1 BIOS SETUP OVERVIEW

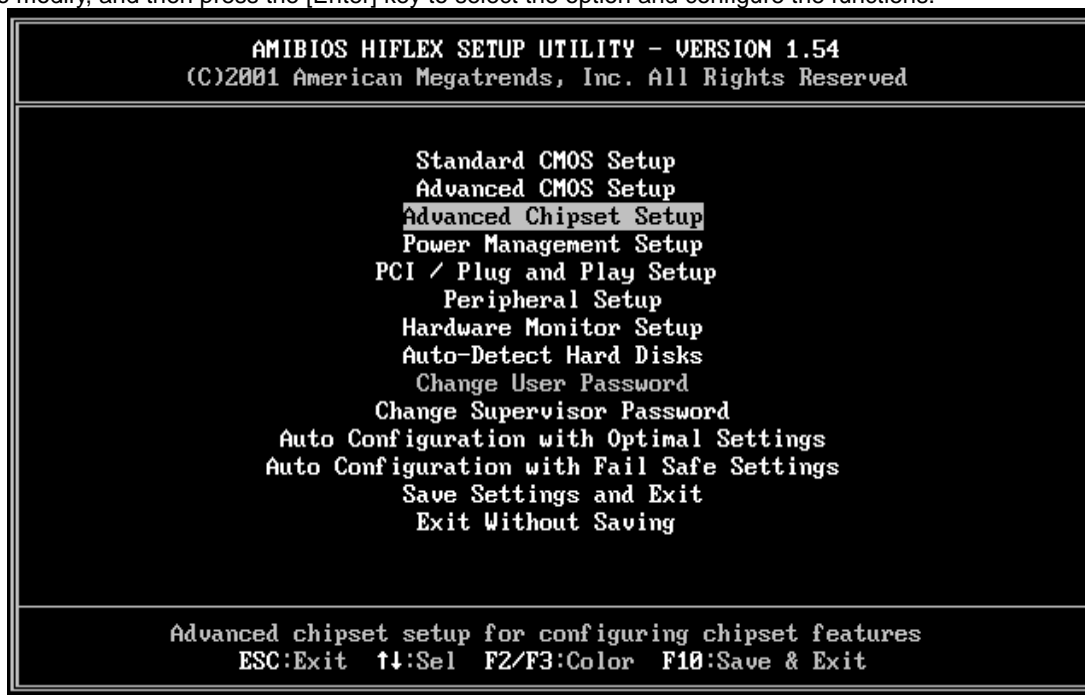
The BIOS is a program used to initialize and set up the I/O system of the computer, which includes the ISA bus and connected devices such as the video display, diskette drive, and the keyboard.

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.



Setup Main Menu

CAUTION:

1. AR-B1662 BIOS the factory-default setting is used to the <Auto Configuration with Optimal Settings>. Acrosser recommends using the BIOS default setting, unless you are very familiar with the setting function, or you can contact the technical support engineer.
2. If the BIOS settings are lost, the CMOS will detect the <Auto Configuration with Fail Safe Settings> to boot the operation system, this option will reduce the performance of the system. Acrosser recommends choosing the <Auto Configuration with Optimal Setting> 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.

5.2 STANDARD CMOS SETUP

The <Standard CMOS Setup> option allows you to record some basic system hardware configuration 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
    (C)2001 American Megatrends, Inc. All Rights Reserved

Date (mm/dd/yyyy): Thu Feb 20, 2003      Base Memory: 0 KB
Time (hh/mm/ss)  : 15:26:30              Extd Memory: 0 MB

Floppy Drive A:   1.44 MB 3½
Floppy Drive B:   Not Installed

                                LBA Blk PIO 32Bit
                                Mode Mode Mode
Pri Master: Auto
Pri Slave : Auto
Sec Master: Auto
Sec Slave : Auto

Boot Sector Virus Protection  Disabled

Month: Jan - Dec      ESC:Exit ↑↓:Sel
Day: 01 - 31          PgUp/PgDn:Modify
Year: 1980 - 2099    F1:Help F2/F3:Color
  
```

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.

Hard Disk Setup

The BIOS supports various types for user settings, The BIOS supports < Pri Master>, < 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 in section three of this manual.

<Sec Master>, <Sec Slave> is reserved to Compact Flash, user can set CF in master mode or slave mode by J102. You can select <AUTO> under the <TYPE> and <MODE> fields. This will enable auto detection of your IDE drives during boot-up. 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.

Floppy Setup

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

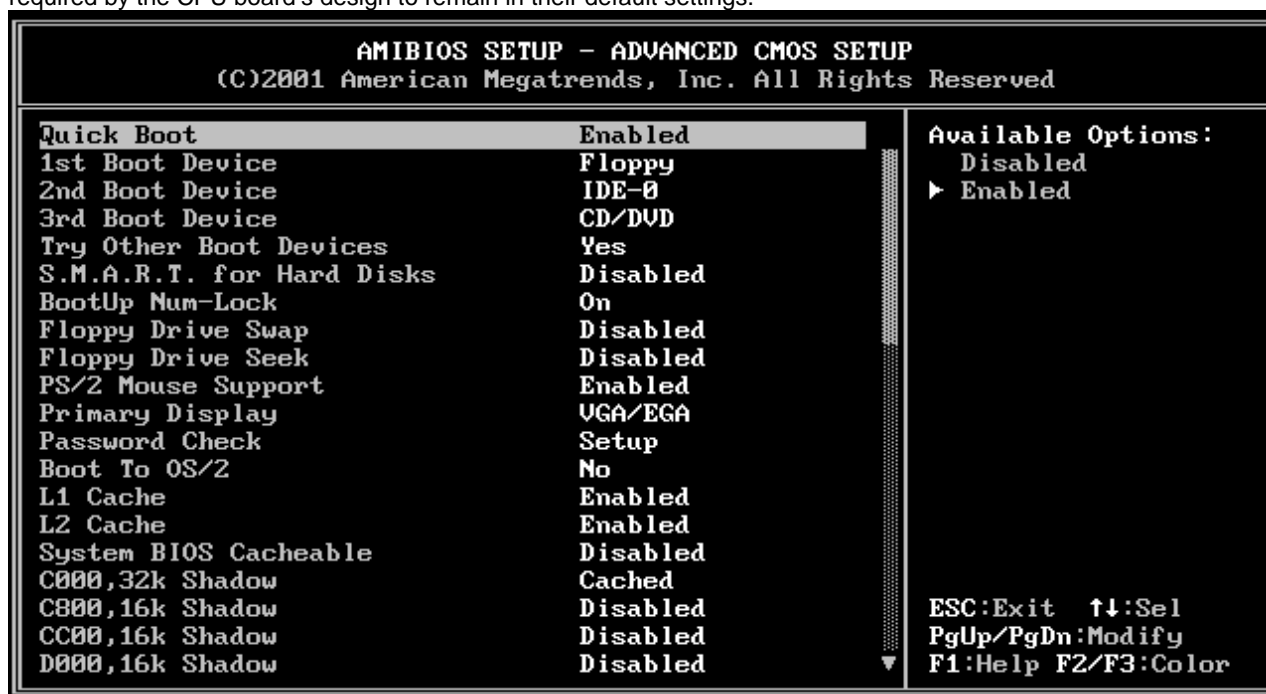
To enter the configuration value for a particular drive, highlight its corresponding field and then select the drive type using the left-or right-arrow key.

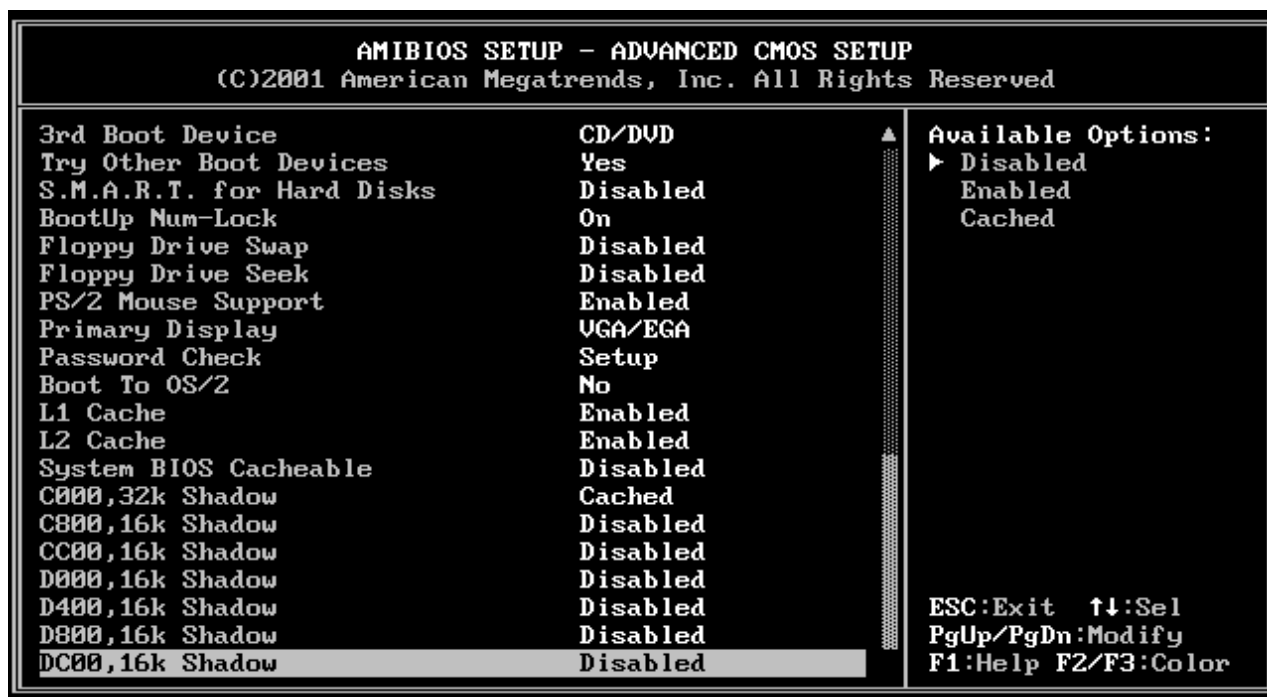
Boot Sector Virus Protection

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.

5.3 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.





Advanced CMOS Setup

Quick Boot

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

1st Boot Device

2nd Boot Device

3rd Boot Device

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

Try Other Boot Devices

This option can boot from other devices when default setting boot is failed.

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 precautionous technology. When Hard Disk disorder, it prevents Hard Disk from the loss of data.

Boot Up 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 user can use the number key.

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 of *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 swapped 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 setting *Enabled*, the BIOS will seek the floppy *<A>* drive one time upon boot up.

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.

Primary Display

The option is used to set the type of video display card installed in the system.

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 executed.

Boot to OS/2

When using the OS/2 operating system, you need to Yes this option otherwise leave this on the setup default of *No*.

L1 Cache

This option controls to *Enabled* or *Disabled* the CPU's Level 1 built-in cache.

L2 Cache

This option controls to *Enabled* or *Disabled* the CPU's Level 2 built-in cache.

System BIOS Cacheable

Enabled this option to enhance system performance by shadowing and caching system BIOS shadow functions will be ignored.

Shadow Memory

Each of segments provides three options *Disabled*, *Enabled*, and *Cached* for faster adapter's ROM executions. However this shadow function is Chipset oriented and dependent on system hardware feature. In general, C000 64K will be allocated for VGA BIOS and set to *Cached* to get higher display performance by shadowing and caching feature. If user chooses *Enabled* setting, only BIOS shadow function is active.

5.4 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		(C)2001 American Megatrends, Inc. All Rights Reserved	
***** DRAM Timing *****		Available Options:	
Configure SDRAM Timing by SPD	Disabled	▶ Disabled	
DRAM Frequency	100Mhz	Enabled	
SDRAM CAS# Latency	3		
Memory Hole	Disabled		
AGP Aperture Size	64MB		
ISA Bus Clock	PCICLK/4		
USB Controller	Disabled		
USB Device Legacy Support	Disabled		
		ESC:Exit ↑↓:Sel PgUp/PgDn:Modify F1:Help F2/F3:Color	

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.

The Choice: Enabled, Disabled

DRAM Frequency

PC-100 means the memory bus is running at 100MHz. PC-133 means the memory bus is running at 133MHz.

The Choice: 66Mhz, 100Mhz, 133Mhz

SDRAM CAS Latency Time

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing.

The Choice: 2, 3

Memory Hole

You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements.

AGP Aperture Size

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

ISA Bus Clock

This option is used to select the ISA bus clock rate.

USB Controller

This option can enable ALL USB Port, USB Port 0&1, USB Port 2&3, or Disabled USB function.

USB Device Legacy Support

These options are used to *Enabled* the USB function and it's only useful in the DOS mode. The USB function sets *Enabled* will occupy IRQ10.

5.5 POWER MANAGEMENT

This section is used to configure 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.

AMIBIOS SETUP - POWER MANAGEMENT SETUP		
(C)2001 American Megatrends, Inc. All Rights Reserved		
ACPI Aware O/S	Yes	Available Options: No ▶ Yes
Power Management/APM	Enabled	
Video Power Down Mode	Suspend	
Hard Disk Power Down Mode	Stand By	
System Thermal	Disabled	
Thermal Active Temperature	75°C/167°F	
Thermal Slow Clock Ratio	50%-56.25%	
		ESC:Exit ↑↓:Sel PgUp/PgDn:Modify F1:Help F2/F3:Color

Power Management

Power Management / APM

Video Power Down Mode

Hard Disk Power Down Mode

System Thermal

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

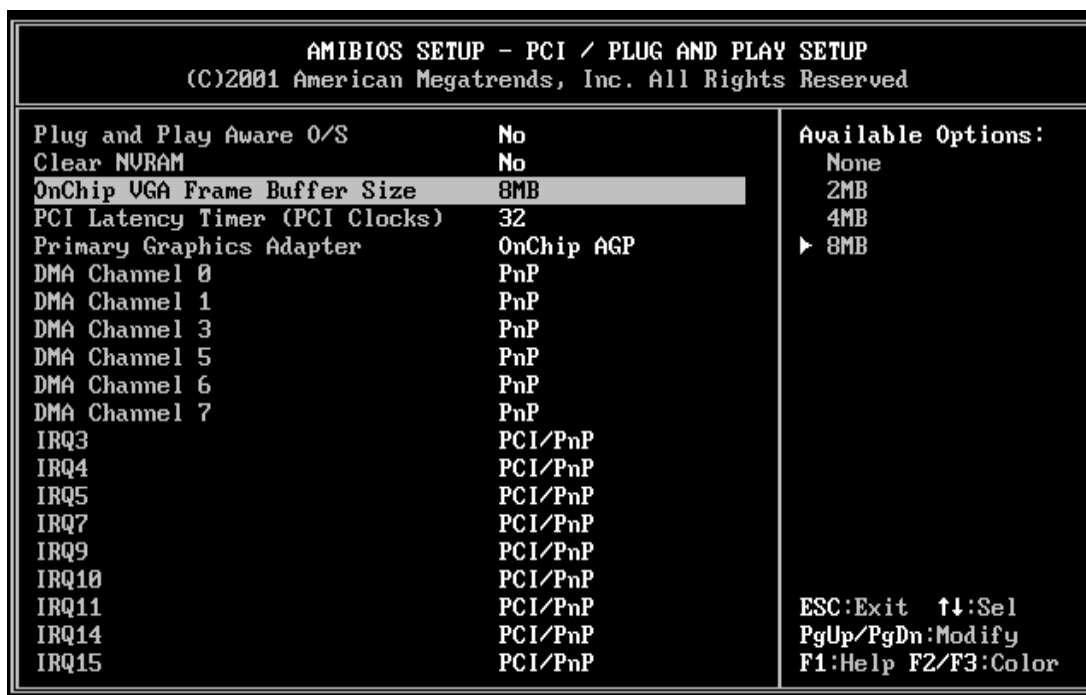
Thermal Active Temperature

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.

5.6 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.



PCI / Plug And Play

Plug and Play Aware O/S

Set this option to Yes 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 operating system detects and enables all other PnP-aware adapter cards. Windows 95 is PnP-aware. Set this option <No> 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.

OnChip VGA Frame Buffer Size

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.

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.

5.7 PERIPHERAL SETUP

This section is used to configure peripheral features.

AMIBIOS SETUP - PERIPHERAL SETUP		(C)2001 American Megatrends, Inc. All Rights Reserved	
OnBoard FDC	Auto	Available Options:	
OnBoard Serial Port1	Auto	▶ Auto	
OnBoard Serial Port2	Auto	Disabled	
Serial Port2 Mode	Normal	Enabled	
OnBoard IDE	Both		
		ESC:Exit ↑↓:Sel	
		PgUp/PgDn:Modify	
		F1:Help F2/F3:Color	

Peripheral Setup

OnBoard FDC

This option enables the floppy drive controller on the AR-B1662.

OnBoard Serial Port

This option enables the serial port on the AR-B1662.

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>*.

5.8 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.

5.9 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. User can set either a Supervisor password or a User 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 BIOS completes. The next time the system boots, you are prompted for the password function is present and is enabled.

Enter new supervisor password:

5.10 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.

5.10.1 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) ?

5.10.2 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 fail safe settings (Y/N) ?

5.11 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.

5.12 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-B1662 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 the 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>.

APPENDIX A. 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
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
250-258	Super I/O
2B0-2DF	Graphics adapter controller
2E8-2EF	Serial port-4
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
3E8-3EF	Serial port-3
3F0-3F7	Floppy disk controller
3F8-3FF	Serial port-1

APPENDIX B. INTERRUPT REQUEST (IRQ)

SETTING	HARDWARE USING THE SETTING
00	System timer
01	Standard 101/102-Key or Microsoft Natural Keyboard
02	Programmable interrupt controller
03	Serial Port (COM2)
04	Serial Port (COM1)
05	IRQ Holder for PCI Steering
06	Floppy Disk Controller
07	Parallel Port (LPT1)
08	RTC clock
09	ACPI
10	Serial Port (COM4)
11	Serial Port (COM3)
12	PS/2 Compatible Mouse Port
13	Numeric data processor
14	Primary IDE controller
15	Secondary IDE controller

Note:

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