

AR-B1543  
INDUSTRIAL GRADE  
CPU BOARD  
User' s Guide

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## 0. PREFACE

### 0.1 COPYRIGHT NOTICE AND DISCLAIMER

April 2001

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### 0.2 WELCOME TO THE AR-B1543 CPU BOARD

This guide introduces the Acrosser AR-B1543 CPU board.

The information provided in this manual describes about the card functions and features. It also helps you start, set up and operate your AR-B1543. General system information can also be found here.

### 0.3 BEFORE YOU USE THIS GUIDE

Please refer to the Chapter 3, "Setting Up The System" in this guide, if you have not already installed AR-B1543. Check the packing list before you install and make sure the accessories are completely included.

The AR-B1543 CD provides the newest information about the card. **Please refer to the files of the enclosed utility CD.** It contains the modification, hardware & software information. And it also has updated the product functions that may not be mentioned here.

### 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 packaging for this purpose.

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

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

### 0.5 TECHNICAL SUPPORT AND USER COMMENTS

User's comments are always welcome as they assist us in improving the quality of our products and the readability our publications. They create a very important part of the input used for product enhancement and revision. In any case, we believe that the information that you provide in anyway 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: [webmaster@acrosser.com](mailto:webmaster@acrosser.com)

Check our FAQ sheet for quick fixes to known technical problems.

## 0.6 ORGANIZATION

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

- Chapter 1, "Overview", provides an overview of the system features and packing list.
- Chapter 2, "System Controller" describes the major structure.
- Chapter 3, "Setting Up the System", describes how to adjust the jumper, and the connector's settings.
- Chapter 4, "Installation", describes setup procedures including information on the utility diskette.
- Chapter 5, "BIOS Console", provides the BIOS options settings.

## 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. Therefore, it is very 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. OVERVIEW

AR-B1543 Is a Pentium Grade CPU Board with Ethernet, DOC, and Compact Flash (option).

This chapter provides an overview of your system features and capabilities. The following topics are covered:

- Specification
- Packing List
- Features

### 1.1 SPECIFICATION

- CPU: NS GEODE GX1 BGA.
- Chipset: Cyrix CS5530A.
- RAM Memory: Support 1xDIMM 168-Pin socket, 128M maximum.
- SSD: Support one socket for DiskOnChip.
- Watchdog: Software programmable 1~63sec.
- VGA Display: CS5530A UMA, Memory Size 1~4MB.
  - CRT-with HDB 15-pin connector.
  - LCD with 2.0mm 44-pin Header
  - LVDS Interface with 2.0 mm 26-pin Header
- Ethernet: RTL8100C chipset, supports **10/100M baseT** with RJ-45 connector built-in LED.
- Super I/O: Winbond 83977F-A
  - 2 EIDE** (Ultra DMA33)– with one 2.54 mm 40-pin connector and one 2.00 mm 44-pin connector
  - 1 FDC** – with 2.54 mm 34-pin connector.
  - 1 Parallel** – with 2.54 mm 26-pin connector (supports SPP/EPP/ECP mode).
  - 1 RS-232C/RS485** –COM1 Share with 485
  - 1 RS-232C /IrDA/Touch Screen** – with 2.54 mm 10-pin connector
    - RS-232C is selectable by jumper and use the same connector.
    - IrDA with 2.54mm 5-pin header.
    - Touch Screen with 2.0mm 3-pin JST connector.
- BIOS: Flash BIOS Award.
- Keyboard/Mouse: PS/2 compatible 6-pin mini-DIN connector and JST 6pin.
- USB: Built-in **2 ports USB** interface with 2.54mm 10-pin headers.
- RTC: Chipset including, Support **ACPI function** with 10 years data retention.
- Expansion Bus: PC/104, PCI Bus.
- Power Connector: One 4-pin Wafer Connector.
- Power Req.: +5V-1.4A maximum and 12V –0.01A maximum.
- PC Board: 6 layers,EMI considered
- Dimensions: 185 mm x 122 mm (7.3"x4.8")
- **Suggestion: avoid the IDSEL 29 (Before use the back panel, please check the IDSEL and slot routing at first.)**

### 1.2 PACKING LIST

Some accessories are included with the system. Before AR-B1543 has been installed, please take a moment to make sure that the following items have been included inside the AR-B1543 package.

- The quick setup manual
- 1 AR-B1543 all-in-one single CPU board
- Software utility CD.
- 2HD cable (one 2.54mm, one 2.0mm).
- FD cable.
- USB, AR-B9462A (optional)
- KB/Mouse (one mini din)
- COM 2 cable (2\*5pin)
- Parallel cable (2\*13pin)

### 1.3 FEATURES

The system provides a number of special features that enhance its reliability, ensure its long-term availability, and improve its expansion capabilities, as well as its hardware structure.

- CPU NS GEODE GX1.
- Cyrix CS5530A Chipset.
- 1xDIMM SDRAM.
- Supports DOC Flash Disk.
- 10/100M-Base Ethernet.
- Compact Flash (AR-B9462A) optional.
- Award BIOS.
- Power Req.: +5V-1.4A maximum and 12V –0.01A maximum.
- Dimensions: 185 mm x 122 mm (7.3"x4.8").

## 2. SYSTEM CONTROLLER

This chapter describes the main structure of the AR-B1543 CPU board. The following topics are covered:

- Microprocessors
- DMA Controller
- Keyboard Controller
- Interrupt Controller
- Serial Port
- Parallel Port

### 2.1 MICROPROCESSOR

The AR-B1543 uses the NS GEODE GX1 CPU, it is an advanced 32-bit x86 compatible processor offering high performance, fully accelerated 2D graphics, a 64-synchronous DRAM controller and a PCI bus controller, all on a single chip. This latest generation of the Media GX processor enables a new class of premium performance notebook/desktop, and IPC computer designs.

The Media GX MMX enhanced processor companion chips provide advanced video and audio functions and permit direct interface to memory. This high-performance 64-bit processor is x86 instruction set compatible and supports MMX technology.

This processor is the latest member of the NS Media GX family, offering high performance, fully accelerated 2D graphics, synchronous memory interface and a PCI bus controller, all on a single chip. As described in separate manuals, the CS5520 and the CS5530 I/O Companion chips fully enable the features of the Media GX processor with MMX support. These features include full VGA and VESA video, 16-bit stereo sound, IDE interface, ISA interface, SMM power management, and AT compatibility logic. In addition, the newer CS5530 provides an Ultra DMA/33 interface, MPEG2 assist, and is AC97 Version 2.0 audio compliant.

In addition to the advanced CPU features, the Media GX processor integrates a host of functions in which typically implemented with external components. A full-function graphics accelerator provides pixel processing and rendering functions.

The NS Media GX MMX-Enhanced Processor represents a new generation of x86-compatible 64-bit microprocessors with sixth-generation features. The decoupled load/store unit (within the memory management unit) allows multiple instructions in a single clock cycle. Other features include single-cycle execution, single-cycle instruction decode, 16KB write-back cache, and clock rates up to 266MHz. These features are possible by the use of advanced-process technologies and super pipelining.

### 2.2 DMA CONTROLLER

The equivalent of two 8237A DMA controllers are implemented on the AR-B1543 board. Each controller is a four-channel DMA device that will generate the memory addresses and control signals necessary to transfer information directly between a peripheral device and memory. This allows high-speed information transfer with less CPU intervention. The two DMA controllers are internally cascaded to provide four DMA channels to transfer to 8-bit peripherals (DMA1) and three channels to transfers to 16-bit peripherals (DMA2). DMA2 channel 0 provides the cascade interconnection between the two DMA devices, thereby maintaining IBM PC/AT compatibility.

The Following is the system information for the DMA channels:

<b>Slave with four 8-bit chnls</b>	<b>Master with three 16-bit chnls</b>
<b>DMA Controller 1</b>	<b>DMA Controller 2</b>
Channel 0: Spare	Channel 4(0): Cascade for controller 1
Channel 1: IBM SDLC	Channel 5(1): Spare
Channel 2: Diskette adapter	Channel 6(2): Spare
Channel 3: Spare	Channel 7(3): Spare

**DMA Channel Controller**



## 2.3 KEYBOARD CONTROLLER

The 8042 processor is programmed to support the keyboard serial interface. The keyboard controller receives serial data from the keyboard, checks its parity, translates scan codes, and presents it to the system as a byte data in its output buffer. The controller can interrupt the system when data is placed in its output buffer, or wait for the system to poll its status register to determine when data is available.

Data can be written to the keyboard by writing data to the output buffer of the keyboard controller.

Each byte of data is sent to the keyboard controller in a series with an odd parity bit automatically inserted. The keyboard controller is required to acknowledge all data transmissions. Therefore, another byte of data will not be sent to keyboard controller until acknowledgment is received for the previous byte sent. The "output buffer full" interruption may be used for both send and receive routines.

## 2.4 INTERRUPT CONTROLLER

The equivalent of two 8259 Programmable Interrupt Controllers (PIC) are included on the AR-B1543 board. They accept requests from peripherals, resolve priorities on pending interrupts in service, issue interrupt requests to the CPU, and provide vectors which are used as acceptance indices by the CPU to determine which interrupt service routine to execute. These two controllers are cascaded with the second controller representing IRQ8 to IRQ15, which is rerouted through IRQ2 on the first controller.

The following is the system information of interruption levels:

Interrupt Level	Description	
NMI	Parity check	
CTRL1	System timer interrupt from timer 8254 keyboard output buffer full Rerouting to IRQ8 to IRQ15	
CTRL2		
IRQ0	<b>IRQ8:Real time clock</b> <b>IRQ9:Reserved</b> <b>IRQ10:LAN adapters(based on PCI INT routing)</b> <b>IRQ12:Reserved for PS/2 mouse</b> <b>IRQ13:Math.Co-processor</b> <b>IRQ14:Hard disk adapter</b> <b>IRQ15:Hard disk adapter</b>	
IRQ1		
IRQ2		
IRQ3		Serial port(depends on setup assignment)
IRQ4		Serial port(depends on setup assignment)
IRQ5		Reserved
IRQ6		Reserved for floppy disk adapter
IRQ7	Parallel port 1	

### Interrupt Controller

## 2.4.1 I/O Port Address Map

Hex Range	Device
000-01F	DMA controller 1
020-021	Interrupt controller 1
022-023	Cyrix CS5530
040-04F	Timer 1
050-05F	Timer 2
060-06F	8042 keyboard/controller
070-071	Real-time clock (RTC), non-mask able interrupt (NMI)
080-09F	DMA page registers
0A0-0A1	Interrupt controller 2
0C0-0DF	DMA controller 2
0F0	Clear Math Co-processor
0F1	Reset Math Co-processor
0F8-0FF	Math Co-processor
170-178	Reserved for Fixed disk 1
1F0-1F8	Fixed disk 0
201	Reserved for Game port
208-20A	EMS register 0
214	Watch Dog
218-21A	EMS register 1
278-27F	Parallel printer port (depends on setup assignment)
2E8-2EF	Serial port (depends on setup assignment)
2F8-2FF	Serial port (depends on setup assignment)
300-31F	Prototype card/streaming type adapter
320-33F	Reserved
378-37F	Parallel printer port (depends on setup assignment)
380-38F	SDLC, bisynchronous
3A0-3AF	Bisynchronous
3B0-3BF	Monochrome display and printer port 3 (LPT 3)
3C0-3CF	EGA/VGA adapter
3D0-3DF	Color/graphics monitor adapter
3E8-3EF	Serial port 3 (depends on setup assignment)
3F0-3F7	Reserved for diskette controller
3F8-3FF	Serial port (depends on setup assignment)

**I/O Port Address Map**

## 2.4.2 Real-Time Clock and Non-Volatile RAM

The AR-B1543 contains a real-time clock compartment that maintains the date and time in addition to storing configuration information about the computer system. It contains 14 bytes of clock and control registers and 114 bytes of general purpose RAM. Because of the use of CMOS technology, it consumes very little power that can be maintained for long periods of time using an internal Lithium battery. The contents of each byte in the CMOS RAM are listed as follows:

Address	Description
00	Seconds
01	Second alarm
02	Minutes
03	Minute alarm
04	Hours
05	Hour alarm
06	Day of week
07	Date 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 status byte
10	Diskette drive type byte, drive A and B
11	Fixed disk type byte, drive C
12	Fixed disk type byte, drive D
13	Reserved
14	Equipment byte
15	Low base memory byte
16	High base memory byte
17	Low expansion memory byte
18	High expansion memory byte
19-2D	Reserved
2E-2F	2-byte CMOS checksum
30	Low actual expansion memory byte
31	High actual expansion memory byte
32	Date century byte
33	Information flags (set during power on)
34-7F	Reserved for system BIOS

**Real-Time Clock & Non-Volatile RAM**

## 2.4.3 Timer

The AR-B1543 provides three programmable timers, each with a timing frequency of 1.19 MHz.

Timer 0 The output of this timer is tied to interrupt request 0. (IRQ 0)

Timer 1 This timer is used to trigger memory refresh cycles.

Timer 2 This timer provides the speaker tone.  
Application programs can load different counts into this timer to generate various sound frequencies.

## 2.5 SERIAL PORT

The ACEs (Asynchronous Communication Elements ACE1 to ACE4) are not only used to convert parallel data to a serial format on the transmit side but also used to convert serial data to parallel on the receiver side. The serial format, in order to transmission and reception, is a start bit, followed by five to eight data bits, a parity bit (if programmed) and one, 1.5 (in a five-bit format only) or two stop bits (in a 6,7, or 8-bit format). The ACEs are capable of handling divisors of 1 to 65535, and produce a 16x clock for driving the internal transmitter logic.

The provision is not only included the use of this 16x clock to drive the receiver logic. But also included in the ACE as a completed MODEM control capability, and a processor interrupt system that may be software tailored to the computing time required to handle the communications link.

The following table is a summary of each ACE accessible register

DLAB	Port Address	Register
0	base + 0	Receiver buffer (read)
		Transmitter holding register (write)
0	base + 1	Interrupt enable
X	base + 2	Interrupt identification (read only)
X	base + 3	Line control
X	base + 4	MODEM control
X	base + 5	Line status
X	base + 6	MODEM status
X	base + 7	Scratched register
1	base + 0	Divisor latch (least significant byte)
1	base + 1	Divisor latch (most significant byte)

**ACE Accessible Registers**

### (1) Receiver Buffer Register (RBR)

Bit 0-7: Received data byte (Read Only)

### (2) Transmitter Holding Register (THR)

Bit 0-7: Transmitter holding data byte (Write Only)

### (3) Interrupt Enable Register (IER)

Bit 0: Enable Received Data Available Interrupt (ERBFI)

Bit 1: Enable Transmitter Holding Empty Interrupt (ETBEI)

Bit 2: Enable Receiver Line Status Interrupt (ELSI)

Bit 3: Enable MODEM Status Interrupt (EDSSI)

Bit 4: Must be 0

Bit 5: Must be 0

Bit 6: Must be 0

Bit 7: Must be 0

### (4) Interrupt Identification Register (IIR)

Bit 0: "0" if Interrupt Pending

Bit 1: Interrupt ID Bit 0

Bit 2: Interrupt ID Bit 1

Bit 3: Must be 0

Bit 4: Must be 0

Bit 5: Must be 0

Bit 6: Must be 0

Bit 7: Must be 0

**(5) Line Control Register (LCR)**

Bit 0: Word Length Select Bit 0 (WLS0)

Bit 1: Word Length Select Bit 1 (WLS1)

WLS1	WLS0	Word Length
0	0	5 Bits
0	1	6 Bits
1	0	7 Bits
1	1	8 Bits

Bit 2: Number of Stop Bit (STB)

Bit 3: Parity Enable (PEN)

Bit 4: Even Parity Select (EPS)

Bit 5: Stick Parity

Bit 6: Set Break

Bit 7: Divisor Latch Access Bit (DLAB)

**(6) MODEM Control Register (MCR)**

Bit 0: Data Terminal Ready (DTR)

Bit 1: Request to Send (RTS)

Bit 2: Out 1 (OUT 1)

Bit 3: Out 2 (OUT 2)

Bit 4: Loop

Bit 5: Must be 0

Bit 6: Must be 0

Bit 7: Must be 0

**(7) Line Status Register (LSR)**

Bit 0: Data Ready (DR)

Bit 1: Overrun Error (OR)

Bit 2: Parity Error (PE)

Bit 3: Framing Error (FE)

Bit 4: Break Interrupt (BI)

Bit 5: Transmitter Holding Register Empty (THRE)

Bit 6: Transmitter Shift Register Empty (TSRE)

Bit 7: Must be 0

**(8) MODEM Status Register (MSR)**

Bit 0: Delta Clear to Send (DCTS)

Bit 1: Delta Data Set Ready (DDSR)

Bit 2: Training Edge Ring Indicator (TERI)

Bit 3: Delta Receive Line Signal Detect (DSLSD)

Bit 4: Clear to Send (CTS)

Bit 5: Data Set Ready (DSR)

Bit 6: Ring Indicator (RI)

Bit 7: Received Line Signal Detect (RSLD)

**(9) Divisor Latch (LS, MS)**

	LS	MS
Bit 0:	Bit 0	Bit 8
Bit 1:	Bit 1	Bit 9
Bit 2:	Bit 2	Bit 10
Bit 3:	Bit 3	Bit 11
Bit 4:	Bit 4	Bit 12
Bit 5:	Bit 5	Bit 13
Bit 6:	Bit 6	Bit 14
Bit 7:	Bit 7	Bit 15

Desired Baud Rate	Divisor Used to Generate 16x Clock
300	384
600	192
1200	96
1800	64
2400	48
3600	32
4800	24
9600	12
14400	8
19200	6
28800	4
38400	3
57600	2
115200	1

Serial Port Divisor Latch

## 2.6 PARALLEL PORT

### (1) Register Address

Port Address	Read/Write	Register
base + 0	Write	Output data
base + 0	Read	Input data
base + 1	Read	Printer status buffer
base + 2	Write	Printer control latch

Registers' Address

### (2) Printer Interface Logic

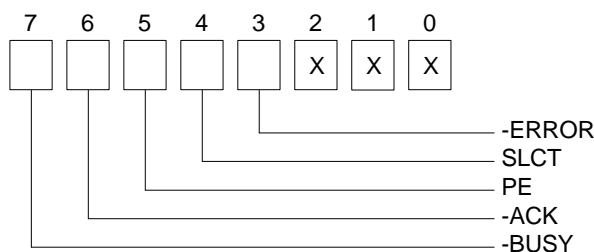
The parallel port of the W83977F-A is for attaching various devices that accept eight bits of parallel data at standard TTL level.

### (3) Data Swapper

The system microprocessor can read the contents of the printer's Data Latch through the Data Swapper by reading the Data Swapper address.

### (4) Printer Status Buffer

The system microprocessor can read the printer status by reading the address of the Printer Status Buffer. The bit definitions are described as follows:



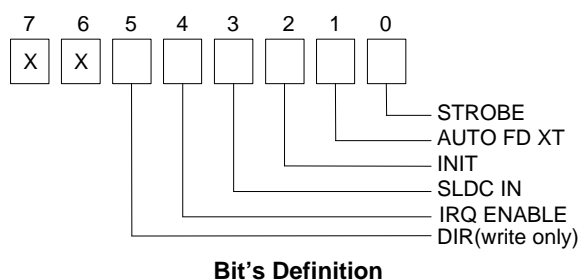
Printer Status Buffer

**NOTE:** X presents not used.

- Bit 7: This signal may become active during data entry, when the printer is off-line during printing, or when the print head is changing position or in an error state. When Bit 7 is active, the printer is busy and cannot accept data.
- Bit 6: This bit represents the current state of the printer's ACK signal. A0 means the printer has received the character and is ready to accept another. Normally, this signal will be active for approximately 5 microseconds before receiving a BUSY message stops.
- Bit 5: A1 means the printer has detected the end of the paper.
- Bit 4: A1 means the printer is selected.
- Bit 3: A0 means the printer has encountered an error condition.

### (5) Printer Control Latch & Printer Control Swapper

The system microprocessor can read the contents of the printer control latch by reading the address of printer control swapper. Bit definitions are as follows:



**NOTE:** X presents not used.

- Bit 5: Direction control bit. When logic 1, the output buffers in the parallel port are disabled allowing data driven from external sources to be read; when logic 0, they work as a printer port. This bit is writing only.
- Bit 4: A1 in this position allows an interrupt to occur when ACK changes from low state to high state.
- Bit 3: A1 in this bit position selects the printer.
- Bit 2: A0 starts the printer (50 microseconds pulse, minimum).
- Bit 1: A1 causes the printer to line-feed after a line is printed.
- Bit 0: A0.5 microsecond minimum highly active pulse clocks data into the printer. Valid data must be present for a minimum of 0.5 microseconds before and after the strobe pulse.

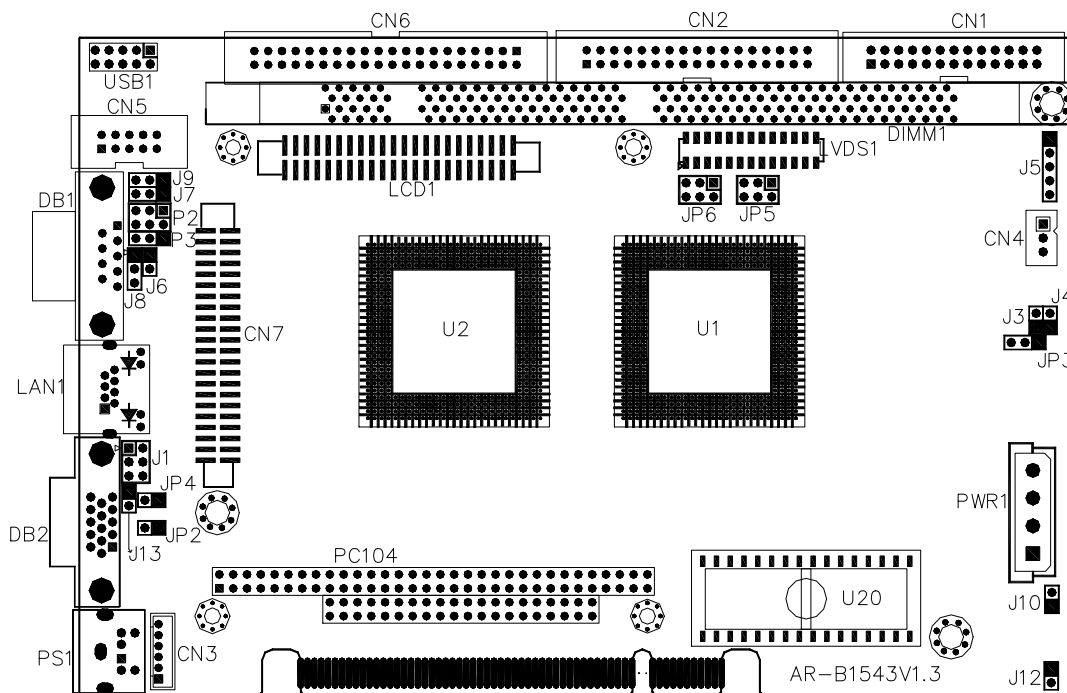
### 3. SETTING UP THE SYSTEM

This section describes pin assignments of on board connector and jumper settings.

- Overview
- System Setting

#### 3.1 OVERVIEW

AR-B1543 is a Pentium Grade CPU Board, which supports Ethernet, DOC, SSD, and Compact Flash (AR-B9462A) functions. This section provides the hardware's jumper settings, the connectors' locations, and the pin assignments.



External System Location

#### 3.2 SYSTEM SETTING

Jumper pins allow you to set specific system parameters. Set them by changing the pin location of 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.

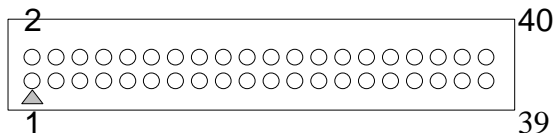
**CAUTION:** Do not touch any electronic components unless you are safely grounded. Wear a grounded wrist strap or touch an exposed metal part of the system unit chassis. The static discharges from your fingers can permanently damage electronic components.



### 3.2.1 Hard Disk (IDE) Connector

#### (1) 40-Pin Hard Disk (IDE) Connector (CN6)

A 40-pin header type connector (CN6) is provided to interface with up to two embedded hard disk drives (IDE AT 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, which is explained further in chapter 5. The following table illustrates the pin assignments of the hard disk drive's 40-pin connector.

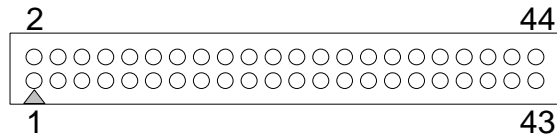


Pin	Signal	Pin	Signal
1	-RESET	2	GROUND
3	DATA 7	4	DATA 8
5	DATA 6	6	DATA 9
7	DATA 5	8	DATA 10
9	DATA 4	10	DATA 11
11	DATA 3	12	DATA 12
13	DATA 2	14	DATA 13
15	DATA 1	16	DATA 14
17	DATA 0	18	DATA 15
19	GROUND	20	NOT USED
21	IDEDREQ	22	GROUND
23	-IOW A	24	GROUND
25	-IOR A	26	GROUND
27	IDEIORDYA	28	GROUND
29	-DACKA	30	GROUND
31	AINT	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

Hard Disk (IDE0) Connector

**(2) 44-Pin Hard Disk (IDE) Connector (CN7)**

AR-B1543 also provides IDE interface 44-pin connector to connect with the hard disk device.

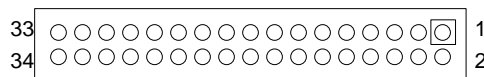


Pin	Signal	Pin	Signal
1	-RESET	2	GROUND
3	DATA 7	4	DATA 8
5	DATA 6	6	DATA 9
7	DATA 5	8	DATA 10
9	DATA 4	10	DATA 11
11	DATA 3	12	DATA 12
13	DATA 2	14	DATA 13
15	DATA 1	16	DATA 14
17	DATA 0	18	DATA 15
19	GROUND	20	NOT USED
21	IDEDREQ	22	GROUND
23	-IOW A	24	GROUND
25	-IOR A	26	GROUND
27	IDEIORDYA	28	GROUND
29	-DACKA	30	GROUND
31	AIN T	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

**Hard Disk (IDE1) Connector**

**3.2.2 FDD Port Connector (CN2)**

The AR-B1543 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.



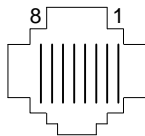
**Figure 0-1 CN2: FDD Port connector**

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 GATE
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

**Table 0-1 FDD Pin Assignment**

### 3.2.3 Network Setting (LAN1)

The LAN1 RJ-45&LED headers are the standard network headers. The following table is the pin assignment.



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

RJ-45 Pin Assignment

### 3.2.4 PS/2 KB/Mouse Connector (CN3 & PS1)

To use the PS/2 interface, an adapter cable has to be connected to the CN3 (6-pin header type) connector. This adapter cable is mounted on a bracket and is included in your AR-B1543 package. The connector for the PS/2 KB/mouse is a Mini-DIN 6-pin connector. Pin assignments for the PS/2 port connector are as follows:

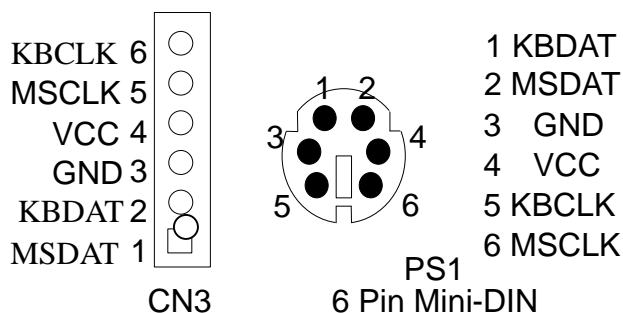
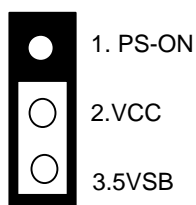


Figure 0-2 CN3 & PS1: PS/2 KB/Mouse Connector

### 3.2.5 PS-ON Header (CN4)

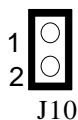


CN4

- When AT power supplier is applied, jumper 2&3 should be tied together. (Factory preset)
- When ATX power supplier is applied, pin1&pin 3 should be connect to proper location of ATX power supplier.

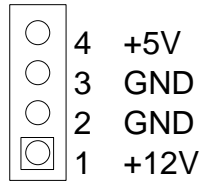
### 3.2.6 Reset Header (J10)

The J10 is a reset switch. Shorting these two pins will reset the system.



### 3.2.7 Power Connector (PWR1)

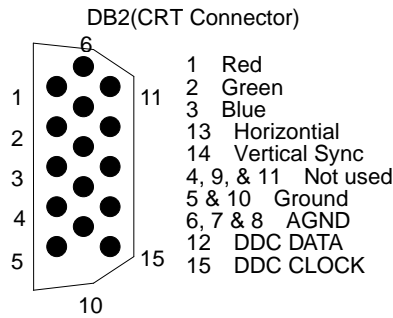
The PWR1 is a 4-pin power connector. It's the standard connector on all Acrosser boards.



**PWR1**

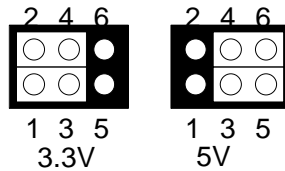
**PWR1: 4-Pin Power Connector**

### 3.2.8 CRT Connector (DB2)



**DB2: CRT Connector**

### 3.2.9 LCD Supported Voltage Select (JP6)



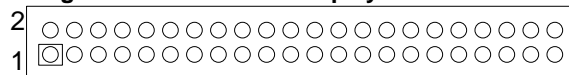
**Factory Preset**

**Figure 0-3 JP6: LCD Supported Voltage Select**

### 3.2.10 LCD Panel Display Connector (LCD1)

Attach a display panel connector to this 44-pin connector with pin assignments as shown below:

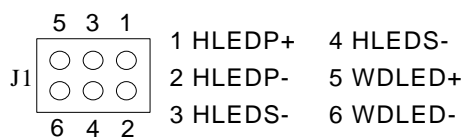
**Figure 0-4 LCD1: LCD Display Connector**



Pin	Signal	Pin	Signal
1	GND	2	SHFCLK
3	GND	4	LP
5	FLM	6	GND
7	NC	8	NC
9	P0 (B0)	10	P1 (B1)
11	P2 (B2)	12	P3 (B3)
13	GND	14	DB2 (B4)
15	P5 (B5)	16	NC
17	NC	18	P6 (G0)
19	P7 (G1)	20	GND
21	P8 (G2)	22	P9 (G3)
23	P10 (G4)	24	P11 (G5)
25	NC	26	NC
27	GND	28	P12 (R0)
29	P13 (R1)	30	P14 (R2)
31	P15 (R3)	32	P16 (R4)
33	P17 (R5)	34	GND
35	VCC	36	VCC
37	+12V	38	+12V
39	GND	40	GND
41	DE	42	ENBLK
43	GND	44	VEE

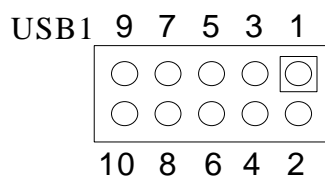
Table 0-2 LCD Display Pin Assignment

### 3.2.11 LED Header (J1)



HLEDP: External LED connector for primary IDE channel.  
HLEDS: External LED connector for secondary IDE channel.  
WDLED: External LED connector for watchdog status indication.

### 3.2.12 USB Connector(USB1)



Pin	Description	Pin	Description
1	USB1V	2	USB2V
3	USBD1F-	4	USBD2F-
5	USBD1F+	6	USBD2F+
7	GND	8	GND
9	CASE	10	CASE

### 3.2.13 PC104 Connector

#### (1) 64-Pin PC/104 Connector Bus A & B (PC104)

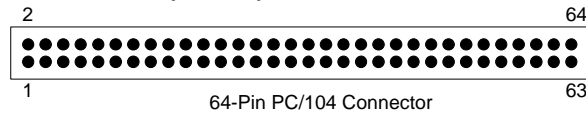
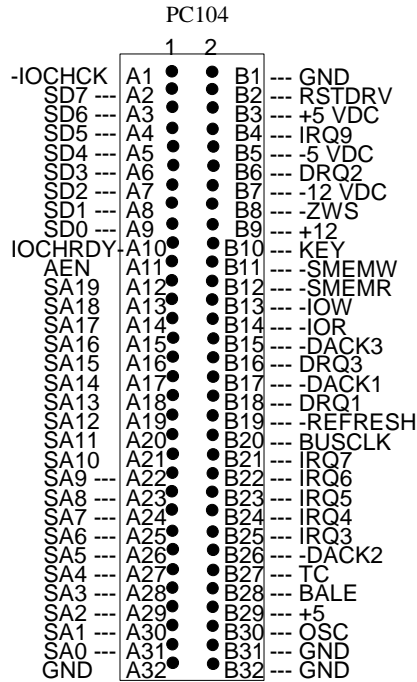


Figure PC104: 64-Pin PC/104 Connector Bus A & B



#### (2) 40-Pin PC/104 Connector Bus C & D (PC104)

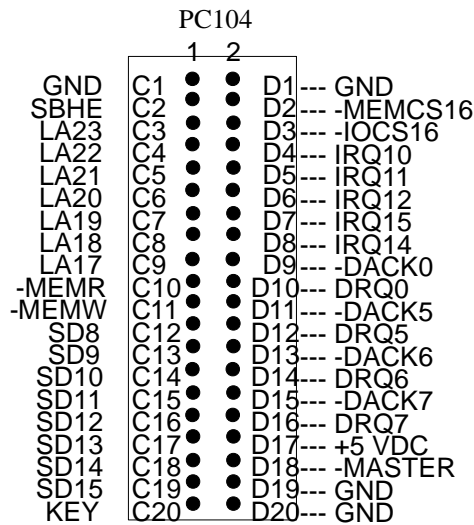
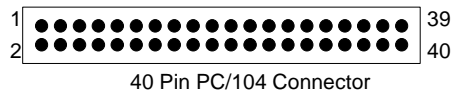
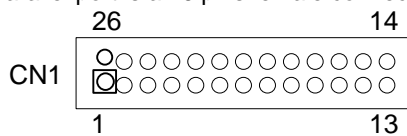


Figure PC104: 40-Pin PC/104 Connector Bus C & D

### 3.2.14 Parallel Port Connector (CN1)

The connector for the parallel port is a 26 pins female connector.

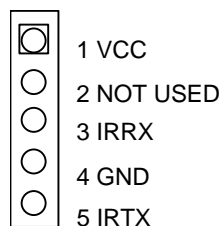


PIN	Signal	PIN	Signal
1	-Strobe	14	-Auto Form Feed
2	Data 0	15	-Error
3	Data 1	16	-Initialize
4	Data 2	17	-Printer Select In
5	Data 3	18	Ground
6	Data 4	19	Ground
7	Data 5	20	Ground
8	Data 6	21	Ground
9	Data 7	22	Ground
10	-Acknowledge	23	Ground
11	Busy	24	Ground
12	Paper	25	Ground
13	Printer Select	26	Not Used

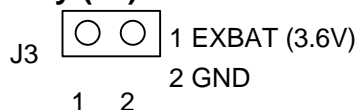
Parallel Port Pin Assignments

### 3.2.15 IR. Header (J5)

The Infra-red Header pin assignment is as follows:

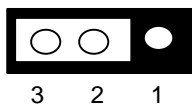


### 3.2.16 Ext. Battery (J3)



### 3.2.17 Battery Jumper (JP3)

JP3



- 1-EXBAT
- 2-VCC
- 3-INTVBAT

1-2	2-3
External Battery	On-Board Battery

JP3: Battery Setting

### 3.2.18 COM1, COM2 (DB1, CN5)

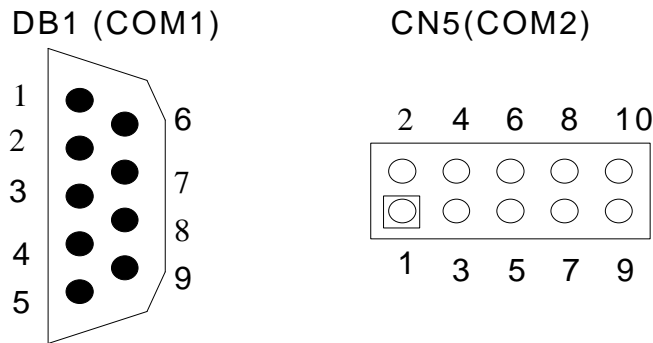


Figure 0-5 DB1 & CN5: RS-232 Connector

DB1	CN5	Signal	DB1	CN5	Signal
1	1	/DCD	8	6	/CTS
6	2	/DSR	4	7	/DTR
2	3	RXD	9	8	/RI
7	4	/RTS	5	9	VCC
3	5	TXD	--	10	VCC

Table 0-3 RS-232 Connector Pin Assignment

#### (1) RS-232/RS-485 Select for COM1 (P2 & P3)

The P2&P3 jumper is used to choose between the use of the on-board RS-232 or RS-485 for the DB1 – COM1.

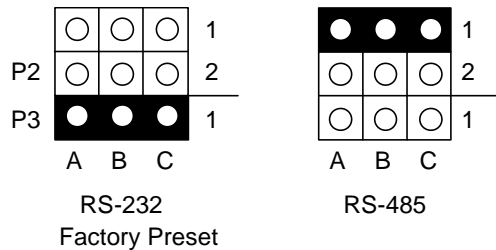


Figure 0-6 P2 & P3: RS-232/RS-485 Select for COM1

#### (2) RS-485 Terminator Select (J6)

When there is only one line the setting should be left off (please take off the jumper), but if you are using multiple blocks on a single line this should be set to “ON” (place a jumper) in order to properly terminate the connection for better transmission of data

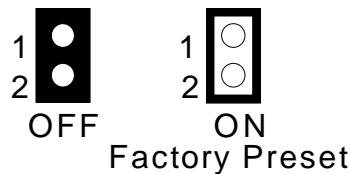


Figure 0-7 J6: RS-485 Terminator Select



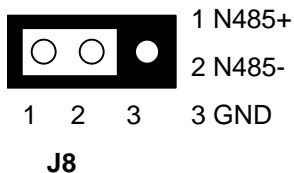
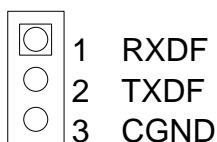
**(3) RS-485 Header (J8)****3.2.19 Touch Screen Connector (J7 & J9)**

Figure 0-8 J7&amp;J9: Touch Screen Connector

**3.2.20 D.O.C. Memory Bank Address Select (JP2)**

This section provides the information about how to use the D.O.C. (Disk On Chip). There divided two parts: hardware setting and software configuration.

**Step 1:** Use JP2 to select the correct D.O.C. memory bank address.

**Step 2:** Insert programmed Disk On Chip into sockets U20 setting as DOC.

**Step 3:** Line up and insert the AR-B1543 card into slot of your computer.

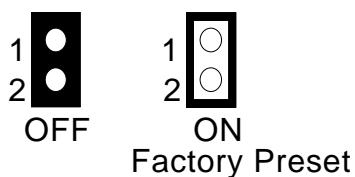


Figure 0-9 JP2: D.O.C. Memory Address Select

JP2	Address	Note
OFF	C800 : 0000	
ON	D000 : 0000	Factory Preset

Table 0-4 D.O.C. Memory Address

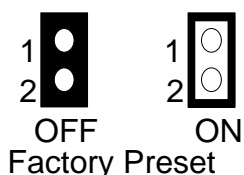
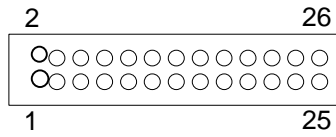
**3.2.21 ATX POWER External Bottom Connector (J4)**

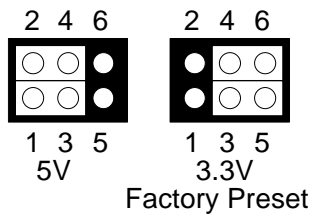
Figure 0-10 J4: External Bottom Connector for ATX power

### 3.2.22 LVDS Header (LVDS1)



LVDS1	Signal	LVDS1	Signal
1	TXOUT0-	14	GND
2	GND	15	TXCLK+
3	TXOUT0+	16	VTX12
4	GND	17	TXOUT3-
5	TXOUT1-	18	VTX12
6	VTX5	19	TXOUT3+
7	TXOUT1+	20	GND
8	VTX5	21	VTKBP
9	TXOUT2-	22	NC
10	NC	23	VTX5
11	TXOUT2+	24	NC
12	GND	25	VTX5
13	TXCLK-	26	NC

### 3.2.23 LVDS Supported Voltage Select (JP5)



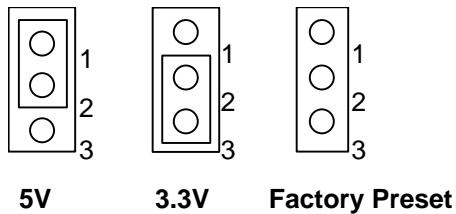
### 3.2.24 Ethernet Setup (JP4)

In here not install is called Enable. If it Enable, it can pass through Ethernet. And when it disable, it can't pass through Ethernet.

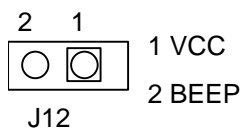


### 3.2.25 PCI SOLT Voltage Select (J11)

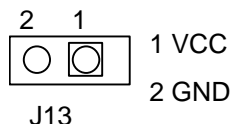
It must be Jumper, when you need to connect the SOLT.



### 3.2.26 External Speaker (J12)



### 3.2.27 External Power (J13)

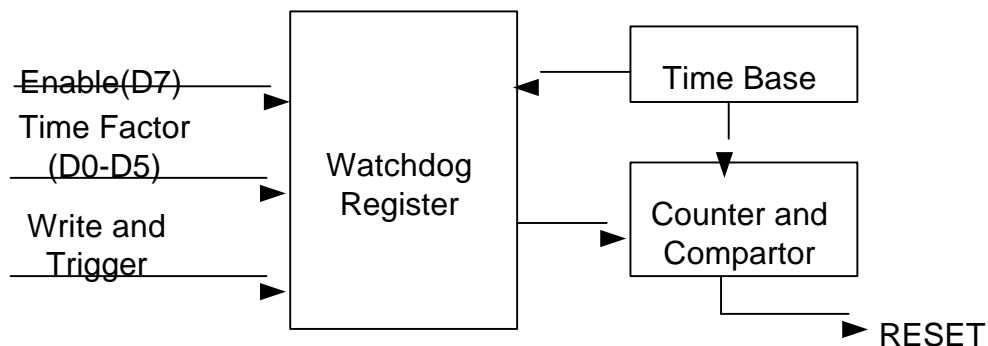


### 3.2.28 Burn-in use (JP1 & J2)

JP1 and J2 are designed for factory use only.

## 3.3 WATCHDOG TIMER

This section describes the use of Watchdog Timer, including disable, enable, and trigger. AR-B1543 is equipped with a programmable time-out period watchdog timer that occupies I/O port 214H. 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

### 3.3.1 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 214 C8H
    Generally, watchdog function would
    reset system after 8 seconds
● O 214 0H
    Disable watchdog function
```

```
C:>debug
● O 214 88H
    Generally, watchdog function would
    generate IRQ 9 after 8 seconds
● O 214 0H
    Disable watchdog function
```

### 3.3.2 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.

```
C:>debug
● O 214 CFH
    Generally, watchdog function would
    reset system after 15 seconds
● O 214 40H
    Disable watchdog function
    Trigger success.
```

## 4. INSTALLATION

This chapter describes the installation procedure. The following topics are covered:

- Overview
- Utility Diskettes

### 4.1 OVERVIEW

This chapter provides information for you to set up a working system based on the AR-B1543 CPU board. Please carefully read the details of the CPU board's hardware descriptions before installation. Pay special attention to the jumper settings, switch settings and cable connections.

Follow steps listed below for proper installation:

- Step 1:** Read the CPU board's hardware description in this manual.
- Step 2:** Set jumpers.
- Step 3:** Make sure that the power supply connected to your AR-B1543 CPU board is turned off.
- Step 4:** Connect all necessary cables. Make sure that the HDD; serial and parallel cables are connected to pin 1 of the related connector (not upside down).
- Step 5:** Connect the hard disk flat cables from the CPU board to the drives. Connect a power source to drive.
- Step 6:** Plug the keyboard into the keyboard connector.
- Step 7:** Turn on the power.
- Step 8:** Configure your system with the BIOS Setup program (section 5) then re-boot your system.
- Step 9:** If the CPU board does not work, turn off the power and read the hardware description carefully again.
- Step 10:** If the CPU board still does not perform properly, return the board to your dealer for immediate service.

### 4.2 UTILITY DISKETTE

The AR-B1543 provides a piece of which contains necessary drivers and utility for installing AR\_B1543.

#### 4.2.1 Driver Installation

Generally, the CD that comes with AR-B1543 should be able to carry out 'Auto run' function, please follows the instruction displayed on the screen to install drives. In case, if the 'Auto run' function is fail, please execute 'Setup.exe' program under root directory of the CD.

## 5. BIOS CONSOLE

This chapter describes the AR-B1543 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
- BIOS Features Setup
- Chipset Features Set
- PNP/PCI Configuration
- Load Default Setting
- Integrated Peripherals
- Password Setting
- IDE HDD Auto Detection
- BIOS Exit

### 5.1 BIOS SETUP OVERVIEW

Once you enter Award BIOS CMOS Setup Utility by holding the "Delete" button during boot-up, the Main Menu will appear on the screen. The Main Menu allows you to select from various setup functions and two exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

ROM PCI/ISA BIOS (2A434AVJ)  
CMOS SETUP UTILITY  
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION
PNP/PCI CONFIGURATION	SAVE & EXIT SETUP
LOAD BIOS DEFAULTS	EXIT WITHOUT SAVING
LOAD SETUP DEFAULTS	

Esc: Quit    ??? ? : Select Item  
F10: Save & Exit Setup                      (Shift) F2: Change Color

Time, Date, Hard Disk Type...

**BIOS Setup Main Menu**

- 
- CAUTION:**
1. AR-B1543 BIOS the factory-default setting is used to the <LOAD BIOS DEFAULTS> 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 <LOAD SETUP DEFAULTS> to boot the operation system, this option will reduce the performance of the system. Acrosser recommends choosing the <LOAD BIOS DEFAULTS> 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.

ROM PCI/ISA BIOS (2A434AVJ)  
STANDARD CMOS SETUP  
AWARD SOFTWARE, INC.

Date (mm:dd:yyyy): Tue, Jan 2, 2001		Time (hh:mm:ss): 15:52:15	
Drive C: Auto	( 0Mb)	CYLS. HEADS	PRECOMP LANDZONE SECTORS MODE
Drive D: Auto	( 0Mb)	0 0	0 0 0 AUTO
Drive A: 1.44M, 3.5 in.		0 0	0 0 0 AUTO
Drive B: None			
Video: EGA/VGA			
Halt On: All, But Keyboard			
		Base Memory:	640K
		Extended Memory:	127488K
		Other Memory:	384K
		Total Memory:	128512K
Esc: Quit	??? ? :	Select Item	PU/PD/+/-: Modify
F1: Help	(Shift) F2:	Change 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>, <Sec Master> and <Sec 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.

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 by choosing the HDD type, which should be noted directly on the HDD.

### 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.

### Video

This option selects the type of adapter used for the primary system monitor that must match your video display card and monitor. Although secondary monitors are supported, you do not have to select the type in Setup.

You have two ways to boot up the system:

1. When VGA as primary and monochrome as secondary, the selection of the video type is “VGA Mode”.
2. When monochrome as primary and VGA as secondary, the selection of the video type is “Monochrome Mode”.

EGA/VGA	Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, SEGA, or PGA monitor adapters
CGA 40	Color Graphics Adapter, power up in 40 column mode
CGA 80	Color Graphics Adapter, power up in 80 column mode
MONO	Monochrome adapter, includes high resolution monochrome adapters

**Halt On**

This option determines whether the computer will stop if an error is detected during power up.

No errors	The system boot will not be stopped for any error that may be detected.
All errors	Whenever the BIOS detect a non-fatal error the system will be stopped and you will be prompted.
All, But Keyboard	The system boot will not stop for a keyboard errors, it will stop for all other errors.
All, But Diskette	The system boot will not stop for a disk errors, it will stop for all other errors.
All, But Disk/Key	The system boot will not stop for a keyboard or a disk error it will stop for all other errors.

**5.3 BIOS FEATURES SETUP**

The <BIOS FEATURES SETUP> option consist 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 for optimal performance.

It is suggested that you leave the settings on the factory default unless you are well versed in BIOS features.

ROM PCI/ISA BIOS (2A434AVJ)  
 BIOS FEATURES SETUP  
 AWARD SOFTWARE, INC.

Virus Warning	: Disabled	Video BIOS Shadow	: Enabled
CPU Internal Cache	: Enabled	C8000-CBFFF Shadow	: Disabled
Quick Power On Self Test	: Disabled	CC000-CFFFF Shadow	: Disabled
Boot From LAN First	: Enabled	D0000- D3FFF Shadow	: Disabled
Boot Sequence	: A, C, SCSI	D4000- D7FFF Shadow	: Disabled
Swap Floppy Drive	: Disabled	D8000- DBFFF Shadow	: Disabled
Boot Up Floppy Seek	: Enabled	DC000-DFFFF Shadow	: Disabled
Boot Up Num lock Status	: On	Cyrix 6x86/MII CPUID	: Enabled
Boot Up System Speed	: High		
Gate A20 Option	: Fast		
Memory Parity Check	: Enabled		
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec)	: 6		
Typematic Delay (Msec)	: 250		
Security Option	: Setup	Esc: Quit	??? ? : Select Item
PCI/VGA Palette Snoop	: Disabled	F1: Help	PU/PD/+/-: Modify
OS Select For DRAM > 64MB	: Non-OS2	F5: Old Values	(Shift) F2: Color
Report No FDD For WIN 95	: Yes	F6: Load BIOS Defaults	
		F7: Load Setup Defaults	

**BIOS Features Setup**



**CPU Internal Cache/External Cache**

The two functions speed up memory access. However, it depends on CPU/chipset design. If your CPU is without Internal cache then this item <CPU Internal Cache> will not be show. The AR-B1543's GX1 Cyrix CPU has an internal cache and will automatically be set to <Enabled>.

**Quick Power On Self-Test**

This option speeds up Power On Self Test (POST) after you power on the computer. If it is set to Enable, BIOS will shorten or skip some items' checks during POST.

**Boot Sequence**

The option determines which drive computer searches first for the disk operating system.

**Boot Up Num Lock Status**

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 use the number keys.

**Boot Up System Speed**

This item is used to choose the boot-up speed of system. The choices provided are <LOW> and <HIGH>.

**Gate A20 Option**

This item is chosen as <Normal>, the A20 signal is controlled by keyboard controller or chipset hardware. The selection "Fast" means the A20 signal is controlled by Port 92 or a chipset specific method.

**Memory Parity Check**

An approach that generates and checks parity on each memory transfer and provides an interrupt if an error is found. This item is to <Disabled> or <Enabled> this function.

**Typematic Rate Setting**

To enable typematic rate and typematic delay programming. If you disable the typematic rate and typematic delay programming, the system BIOS will use the default value of these 2 items and the defaults are controlled by the keyboard.

**Typematic Rate (Chars/Sec)**

Typematic Rate sets the rate at which characters on the screen repeat when a key is pressed and held down. The settings are 6, 8, 10, 12, 15, 20, 24, or 30 characters per second.

**Typematic Delay (Msec)**

The number selected indicates the time period between two identical characters appearing on screen.

**Security Option**

The option allows the user to limit access to the System and Setup, or just to Setup.

System	The system will not boot and access to setup de denied if the correct password is not entered at the prompt.
Setup	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

**Note:** To disable security, select PASSWORD SETTING at Main Menu and then you will be asked to enter password. Do not type anything and just press <Enter>, it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.

**PCI/VGA Palette Snoop**

This option must be set to Enabled if any ISA adapter card installed in the computer requires VGA palette snooping.

**Video BIOS Shadow**

ROM Shadow copies Video BIOS code from slower ROM to faster RAM. Video BIOS can then execute from RAM. This makes your system faster.

**Cyrix 6x86/MII CPUID**

The option is to determine whether or not to use the function of controlling or accessing the Cyrix 6x86/MII CPUID.

**5.4 CHIPSET FEATURES SETUP**

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

ROM PCI/ISA BIOS (2A434AVJ)  
 CHIPSET FEATURES SETUP  
 AWARD SOFTWARE, INC.

SDRAM CAS latency Time : AUTO SDRAM Clock Ratio Div By : 4  16-bit I/O Recovery (CLK) : 5 8-bit I/O Recovery (CLK) : 5  USB Controller : Disabled	Esc: Quit      ??? ? : Select Item F1: Help      PU/PD/+/-: Modify F5: Old Values (Shift) F2: Color F6: Load BIOS Defaults F7: Load Setup Defaults
---	--

**Chipset Features Setup**

**SDRAM CAS latency Time**

This item is to setup the SDRAM CAS# signal latency time, the smaller value you set it, the higher efficiency you will get.

**SDRAM Clock Ratio Div By**

This item is to determine the SDRAM Clock Ratio.

**16-Bit I/O Cycle Recovery Time**

**8-Bit I/O Cycle Recovery Time**

These options specify the length of the delay (in BUSCLK) inserted between consecutive 8-bit/16-bit I/O operations.

**USB Controller**

To enable or disable USB function.

## 5.5 PNP/PCI CONFIGURATION

ROM PCI/ISA BIOS (2A434AVJ)  
PNP/PCI CONFIGURATION  
AWARD SOFTWARE, INC.

PNP OS Installed	: NO	PCI IRQ Actifed by	: Level
Resources Controlled By	: Manual	Used MEM base addr	: N/A
Reset Configuration Data	: Disabled		
IRQ-3 assigned to:	PCI/ISA PnP		
IRQ-4 assigned to:	PCI/ISA PnP		
IRQ-5 assigned to:	PCI/ISA PnP		
IRQ-7 assigned to:	PCI/ISA PnP		
IRQ-9 assigned to:	PCI/ISA PnP		
IRQ-10 assigned to:	PCI/ISA PnP		
IRQ-11 assigned to:	PCI/ISA PnP		
IRQ-12 assigned to:	PCI/ISA PnP		
IRQ-14 assigned to:	PCI/ISA PnP		
IRQ-15 assigned to:	PCI/ISA PnP		
DMA-0 assigned to:	PCI/ISA PnP	Esc: Quit	??? ? : Select Item
DMA-1 assigned to:	PCI/ISA PnP	F1: Help	PU/PD/+/-: Modify
DMA-3 assigned to:	PCI/ISA PnP	F5: Old	(Shift) F2: Color
DMA-5 assigned to:	PCI/ISA PnP	Values	
DMA-6 assigned to:	PCI/ISA PnP	F6: Load BIOS Defaults	
DMA-7 assigned to:	PCI/ISA PnP	F7: Load Setup Defaults	

### PNP/PCI CONFIGURATION

#### PNP OS Installed

This item is to choose whether or not installing the PNP (Plug & Play) operation system.

#### Resources Controlled By

The available choices are <Auto>&<Manual>. To choose <Auto>the resources will be under the control of system automatically. If <Manual> is chosen, the following items will be listed.

<IRQ (3,4,5,7,9,10,11,12,14,15)> Setting these items one by one will clear up the conflict between NON-PNP ISA extension cards and PNP system.

<DMA (0,1,3,5,6,7)> these items are used for the PNP ISA (PCI) cards or NON-PNP old ISA cards which use DMA channel to enable them work normally.

#### Reset Configuration Data

This item is used to <enable> the function of Reset Configuration Data or not.

#### PCI IRQ Actifed By

This item is to determine the active mode.

## 5.6 LOAD DEFAULT SETTING

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

### 5.6.1 Load BIOS Defaults

User can load the optimal default settings for the BIOS. The <LOAD BIOS DEFAULTS> uses best-case values that should optimize system performance. If CMOS RAM is corrupted, the optimal settings are loaded automatically.

Load high performance settings (Y/N)?

### 5.6.2 Load Setup Defaults

User can load the <LOAD SETUP DEFAULTS> 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)?

### 5.7 INTEGRATED PERIPHERALS

This section is designed to configure the peripheral features.

ROM PCI/ISA BIOS (2A434AVJ)	
INTEGRATED PERIPHERALS	
AWARD SOFTWARE, INC.	
IDE HDD Block Mode : Enabled Primary IDE Channel : Enabled Master Drive PIO Mode : Auto Slave Drive PIO Mode : Auto  IDE Primary Master UDMA : Auto IDE Primary Slave UDMA : Auto  KBC input clock : 8 MHz Onboard FDC Controller : Enabled Onboard Serial Port 1 : 3F8/IRQ4 Onboard Serial Port 2 : 2F8/IRQ3 Onboard IR Controller : Enabled IR Address Select : 3EOH IR Mode : IrDA IR Transmission delay : Enabled IR IRQ Select : IRQ10  Onboard Parallel Port : 378/IRQ7 Parallel Port Mode : SPP	Multiple Monitor Support : M/B First  Video Memory Size : 2.5 M Flat Panel Status : Enabled Flat Panel Resolution : 800x600  Esc: Quit                    ??? ? : Select Item F1: Help                      PU/PD/+/-: Modify F5: Old Values                (Shift) F2: Color F6: Load BIOS Defaults F7: Load Setup Defaults

#### Integrated Peripherals

#### IDE HDD Block Mode

This option allows your hard disk controller to use the fast block mode to transfer data to and from your hard disk drive (HDD).

Enabled	IDE controller uses block mode.
Disabled	IDE controller uses standard mode.

#### IDE PIO

IDE hard drive controllers can support up to two separate hard drives. These drives have a master/slave relationship, which is determined by the cabling configuration used to attach them to the controller. Your system supports one IDE controller – a primary and a secondary – so you have the ability to install up to four separate hard disks.

PIO means Programmed Input/Output. Rather than have the BIOS issue a series of commands to affect a transfer to or from the disk drive, PIO allows the BIOS to tell the controller what it wants and then let the controller and the CPU perform the complete task by them. This is simpler and more efficient (and faster). Your system supports five modes, numbered from 0 to 4, which primarily differ in timing. When Auto is selected, the BIOS will select the best available mode.

#### KBC input clock

This item it to chose the input clock of Keyboard Controller

### Onboard Serial Port 1 & 2

These options are used to select the port address of the on-board serial port A. The options are 3F8H, 2F8H, 3E8H, 2E8H, Auto and Disable. Port 1 is COM A, Port 2 is Com D and so on. Port four can be set to be IrDA (Choose Auto) if the IrDA device has been connected.

### Onboard Parallel Port

This option is used to select the port address of the on-board parallel port. The options are 378H, 278H, 3BCH, and Disabled.

### Parallel Port Mode

This option specifies the parallel port Mode. The settings are Printer or Extended (Bi-direction).

### Multiple Monitor Support

This is to determine the highest priority that the monitor supports. <PCI First> is the default setting. The other two choices are <No Onboard> and <M/B First>.

## 5.8 POWER MANAGEMENT SETUP

ROM PCI/ISA BIOS (2A434AVJ)  
POWER MANAGEMENT SETUP  
AWARD SOFTWARE, INC.

Power Management	: Disabled	IRQ1 (Keyboard)	: ON
** P.M. Timers **		IRQ3 (COM 2)	: OFF
Doze Mode	: Disabled	IRQ4 (COM 1)	: OFF
Standby Mode	: Disabled	IRQ5 (LPT 2)	: OFF
HDD Power Down	: Disabled	IRQ6 (Floppy Disk)	: OFF
MODEM Use IRQ	: N/A	IRQ7 (LPT 1)	: OFF
Throttle Duty Cycle	: 33.3%	IRQ9 (IRQ2 Redir)	: OFF
		IRQ10 (Reserved)	: OFF
		IRQ11 (Reserved)	: OFF
		IRQ12 (PS/2 Mouse)	: OFF
		IRQ13 (Coprocessor)	: OFF
		IRQ14 (Hard Disk)	: OFF
		IRQ15 (Reserved)	: OFF
		Esc: Quit	??? ? : Select Item
		F1: Help	PU/PD/+/-: Modify
		F5: Old Values	(Shift) F2: Color
		F6: Load BIOS Defaults	
		F7: Load Setup Defaults	

## 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.

### 5.9.1 Setting Password

Select the appropriate password icon 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 is completed. The next time the system boots, the prompt for the password function is present and is enabled.

**Enter new supervisor password:**

## 5.9.2 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 with the keyboard. Enter a 1-6 character password. The password does not appear on the screen when typed. Make sure you write it down.

## 5.10 IDE HDD AUTO DETECTION

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

## 5.11 BIOS EXIT

This section is used to exit the BIOS main menu in two types of situation. After making your changes, you can either save them or exit the BIOS menu and without saving the new values.

### 5.11.1 Save & Exit Setup

This item set in the <Standard CMOS Setup>, <BIOS Features Setup>, <Chipset Features Setup>, <Power Management Setup>, <Integrated Peripherals> 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.

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

Save current settings and exit (Y/N)?

### 5.11.2 Exit Without Saving

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

Quit without saving (Y/N)?

## 6. PCI CONNECTOR

This chapter describes that the middle of HBI (PCI Bridge) and Gold finger separate 3 Bus Switch. The main purpose is to increase sufficient signal to connect HBI and Gold Finger through 3 Bus Switch. This section also produces 4 level PCI.

## APPENDIX A. ADDRESS MAPPING

### IO Address Map

I/O MAP	ASSIGNMENT
0x03B0-0x03BB	VgaSave
0x03C0-0x03DF	VgaSave
0x01CE-0x01CF	VgaSave
0x02E8-0x02EF	VgaSave
0x0022-0x003F	PCI bus
0x0044-0x0047	PCI bus
0x004C-0x006F	PCI bus
0x0072-0x007F	PCI bus
0x0090-0x0091	PCI bus
0x0093-0x009F	PCI bus
0x00A2-0x00BF	PCI bus
0x00E0-0x00EF	PCI bus
0x0100-0x0CF7	PCI bus
0x0D00-0xFFFF	PCI bus
0xE000-0xE0FF	Realtek RTL8139(A) PCI Fast Ethernet Adapter
0x0A79-0x0A79	ISAPNP Read Data Port
0x0279-0x0279	ISAPNP Read Data Port
0x0274-0x0277	ISAPNP Read Data Port
0xF000-0xF00F	Standard Dual Channel PCI IDE Controller
0x01F0-0x01F7	Primary IDE Channel
0x03F6-0x03F6	Primary IDE Channel
0x0170-0x0177	Secondary IDE Channel
0x0376-0x0376	Secondary IDE Channel
0x0020-0x0021	Programmable interrupt controller
0x00A0-0x00A1	Programmable interrupt controller
0x0040-0x0043	System timer
0x0000-0x000F	Direct memory access controller
0x0081-0x0083	Direct memory access controller
0x0087-0x0087	Direct memory access controller
0x0089-0x008B	Direct memory access controller
0x008F-0x0091	Direct memory access controller
0x00C0-0x00DF	Direct memory access controller
0x0060-0x0060	PC/AT Enhanced PS/2 Keyboard (101/102-Key)
0x0064-0x0064	PC/AT Enhanced PS/2 Keyboard (101/102-Key)
0x0378-0x037F	Printer Port (LPT1)
0x03F8-0x03FF	Communications Port (COM1)
0x02F8-0x02FF	Communications Port (COM2)
0x03F2-0x03F5	Standard floppy disk controller
0x03F7-0x03F7	Standard floppy disk controller
0x0061-0x0061	System speaker
0x0070-0x0071	System CMOS/real time clock
0x00F0-0x00FF	Numeric data processor

**Memory Map:**

<b>MEMORY MAP</b>	<b>ASSIGNMENT</b>
0xA0000-0xBFFFF	VgaSave
0xA0000-0xBFFFF	PCI bus
0xC8000-0xDFFFF	PCI bus
0x7E80000-0xFFFFEFFFF	PCI bus
0xD0000000-0xD00000FF	Realtek RTL8139(A) PCI Fast Ethernet Adapter
0x40012000-0x400120FF	Other PCI Bridge Device
0x40800000-0x40FFFFFF	Video Controller (VGA Compatible)
0x0000-0x9FFFF	System board
0x40010000-0x40010FFF	System board
0x40008000-0x4000FFFF	System board
0x40018000-0x407FFFFF	System board
0x41000000-0x41017FFF	System board
0xFFFFC0000-0xFFFFF7FFF	System board
0xFEE00000-0xFEE0FFFF	System board
0x100000-0x7E7FFFF	System board
0xE0000-0xEFFFF	Motherboard resources
0xF0000-0xF3FFF	Motherboard resources
0xF4000-0xF7FFF	Motherboard resources
0xF8000-0xFBFFF	Motherboard resources
0xFC000-0xFFFFF	Motherboard resources

**APPENDIX B. INTERRUPT REQUEST (IRQ)**

<b>SETTING</b>	<b>HARDWARE USING THE SETTING</b>
01	PC/AT Enhanced PS/2 Keyboard (101/102-Key)
03	Communications Port (COM2)
04	Communications Port (COM1)
06	Standard floppy disk controller
08	System CMOS/real time clock
11	Realtek RTL8139(A) PCI Fast Ethernet Adapter
12	PS/2 Compatible Mouse
13	Numeric data processor
14	Primary IDE Channel

**Note:**

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