

AR-B1682V
Full Size Celeron/Pentium III
CPU BOARD with LAN, VGA, and LCD
User' s Guide

Edition: 1.0

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0.PREFACE

0.1 COPYRIGHT NOTICE AND DISCLAIMER

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0.2 WELCOME TO THE AR-B1683 CPU BOARD

This guide introduces the Acrosser AR-B1683 CPU board.

The following information describes this card's functions, features, and how to start, set up and operate your AR-B1683. General system information can also be found here.

0.3 BEFORE YOU USE THIS GUIDE

If you have not already installed this AR-B1683, refer to the Chapter 3, "Setting Up the System," in this guide. Check the packing list to ensure the all accessories in the package.

The AR-B1683 diskette provides the newest information about the card. **Please refer to the README.DOC file of the enclosed utility diskette.** It contains the modification, hardware & software information, and it has updates to product functions that may not be mentioned here.

0.4 RETURNING YOUR BOARD FOR SERVICE

If your board requires servicing, contact the dealer 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 assure efficient servicing of 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 of malfunction,
3. And a brief description of the symptoms.

0.5 TECHNICAL SUPPORT AND USER COMMENTS

User's comments are always welcome as they assist us in improving the usefulness of our products and the understanding of our publications. They form a very important part of the input used for product enhancement and revision.

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

If you have suggestions for improving particular sections or if you find any errors, please indicate the manual title and book number.

Please send your comments to Acrosser Technology Co., Ltd. or your local sales representative.

Internet electronic mail to: sales@acrosser.com

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

0.6 ORGANIZATION

This information for users 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 jumpers and the connector settings.
- Chapter 4, "CRT/LCD Flat Panel Display", describes the configuration and installation procedure for using LCD and CRT displays.
- Chapter 5, "Installation", describes setup procedures and information on the utility diskette.
- Chapter 6, "BIOS Console", provides the BIOS settings options.

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 may result in expensive repairs. The following measures should generally be sufficient to protect your equipment from static discharge:

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

1. OVERVIEW

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

- Introduction
- Packing List
- Features

1.1 INTRODUCTION

The Acrosser's SBC AR-B1683 is an All-In-One Hi-performance single board computer for the Celeron & Pentium III, which with VGA-Panel, 10/100MHz Base-Tx Ethernet.

ABOUT THE SYSTEM: AR-B1683 using Intel 440BX chipset, it can work on the 66/100MHz FSB environment with CPU and SDRAM. The socket-370, can plug in the Intel Celeron 533 plus or Intel Pentium III 850 plus' hi-performance CPU. Three hi-speed DIMMs can support up to 256MB*3 = 768MB system memory which support PC-100 SDRAM. On boards' 2 IDE connector not only support mode 4 but also DMA33 architecture, they can let the hard disks' transfer rate up to maximum 33MHz/Sec.

ABOUT THE SUPER I/O: AR-B1683 using Winbond W83977 chipset. It supports one floppy driver, two serial ports, one parallel port, one keyboard, one PS/2 mouse interface and one IrDA connectors.

ABOUT SPECIAL SUPPORT: The onboard Solid State Disk (SSD) inter-face supports M-system DiskOnChip2000 series, memory size from 2MB to 288MB. It can allow user emulate a hard disk drive when under a hostile environment. On-boards' Hardware monitoring is designed to watch the supply power, CPU fan speed and CPU temperature monitoring to increase Systems' reliability. On-boards' watchdog timer can generate system reset, NMI or interrupt if the system goes abnormal states when timer be enable. The watchdog timer is designed hardware independent to avoid the system fail.

ABOUT THE LCD-VGA, LAN: The AR-B1683 is a highly integration system which combine LCD-VGA, LAN function on this single board computer. On-board 69000 VGA chipset supports up to 1024*768*64K colors display resolution which built-in 2MB SDRAM. And provides one 50-pin connector for various type of LCD panel connection. On-board REALTEK RTL8139 Ethernet chipset can support 10/100Based-Tx which with one RJ-45 connector.

1.2 PACKING LIST

These accessories are included with the system. Before you begin installing your AR-B1683 board, take a moment to make sure that the following items have been included inside the AR-B1683 package.

- The quick setup manual
- 1 AR-B1683 CPU board
- 1 Hard disk drive adapter cable
- 1 Floppy disk drive adapter cable
- 1 Parallel port adapter cable & com cable
- 1 RS-232 & PS/2 Mouse interface cable mounted on one bracket.
- 6 Software utility diskettes

1.3 FEATURES

The AR-B1683's features are summarized below.

- **CPU:** Intel Celeron or Pentium III processor, up to 850MHz plus.
- **CPU socket:** Intel 370-pin socket.
- **Chipset:** Intel 440BX chipset, support 66/100MHz FSB.
- **BIOS:** AWARD 256KB Flash Memory
- **System memory:** Support three 168-pins DIMM sockets, up to 768MB SDRAM with ECC.
- **Enhanced IDE:** Up to 4 IDE devices, can support Ultra DMA 33 mode which data transfer rate up to 33MB/sec.
- **USB:** 4x2 head on board, support Dual USB ports. (Option).
- **I/O chipset:** Winbond 83977 with fully 16-bit I/O decoded.
FDD interface: Support up to two floppy disk devices.
Parallel port: One parallel port, support SSP, EPP and ECP modes.
Serial ports: Two RS-232 Ports
IR interface: Support one IrDA TX/RX header.
KB/Mouse: 6-pin mini-DIN connector, support PC/AT keyboard and PS/2 mouse
- **RTC Battery:** Lithium Battery or Dallas retention, up to 10 years.
- **SSD interface:** Support M-Systems DiskOnChip 2000 series up to 288MB
- **Watchdog timer:** Software programmable 1 to 127 sec (127 levels) can generate IRQ11, NMI or system reset.
- **H/W status monitoring:** Winbond W83781D H/W status monitoring IC. It supports Power Voltage, FAN speed and CPU temperature monitoring.
- **Bus interface:** PCI/ISA bus, PICMG compliant.
- **ISA driving capacity:** Supports driving capacity up to 64mA.
- **LCD/VGA Chipset:** C&T 69000 VGA Controller
Display Memory: Built-in 2MB SDRAM on chip.
Display Type: Supports non-interlaced CRT and LCD (TFT, DSTN, and MONO) displays. Can display both CRT and Flat Panel Simultaneously.
Resolution: up to 1024 x 768 @ 64K colors
- **Ethernet interface:**
Chipset: Realtek RTL8139, supports PCI interface.
Type: Fast Ethernet controller, supports 10/100Base-T.
Connection: RJ-45 connector.
- **Power supply voltage:** +5V, +12 V, -12V, -5V
Operating temperature: 0-60°C
- **Board Size:** 338 mm x 122 mm

2.SYSTEM CONTROLLER

This chapter describes the major structure of the AR-B1683 CPU boards. The following topics are covered:

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

2.1 DMA CONTROLLER

The equivalent of two 8237A DMA controllers are implemented on the AR-B1682V 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 for transfers to 8-bit peripherals (DMA1) and three channels for 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:

Slave with four 8-bit chnls	Master with three 16-bit chnls
DMA Controller 1	DMA Controller 2
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

Table 2-1 DMA Channel Controller

2.2 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 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.

2.3 INTERRUPT CONTROLLER

The equivalent of two 8259 Programmable Interrupt Controllers (PIC) are included on the AR-B1682V 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 interrupt levels:

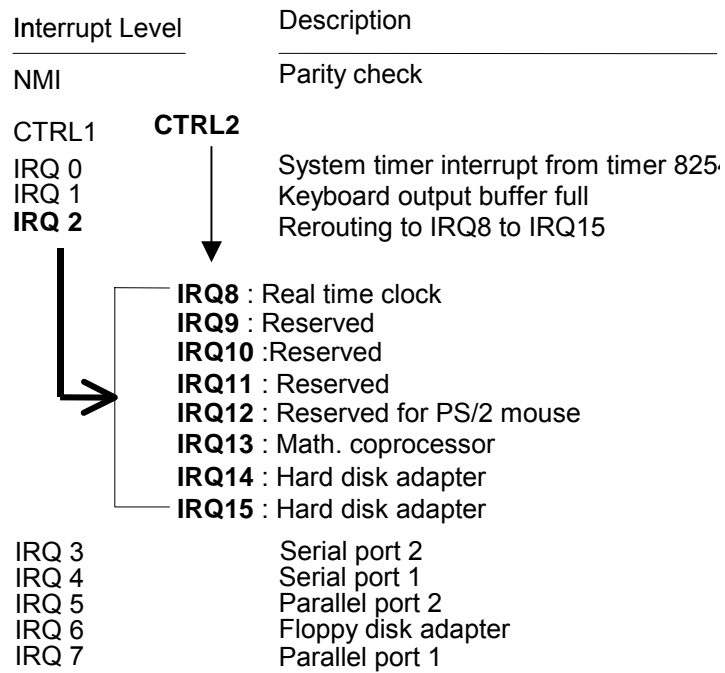


Figure 2-1 Interrupt Controller

2.3.1 I/O Port Address Map

Hex Range	Device
000-01F	DMA controller 1
020-021	Interrupt controller 1
022-023	AR-B1683 :Intel 440BX Chipset Address
040-04F	Timer 1
050-05F	Timer 2
060-06F	8042 keyboard/controller
070-071	Real-time clock (RTC), non-maskable 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	Fixed disk 1
1F0-1F8	Fixed disk 0
201	Game port
208-20A	
218-21A	
278-27F	Parallel printer port 3 (LPT 3)
2E8-2EF	
2F8-2FF	Serial port 2 (COM 2)
300-31F	Prototype card/Streaming Type Adapter
378-37F	Parallel printer port 2 (LPT 2)
380-38F	SDLC, bisynchronous
3A0-3AF	Bisynchronous
3B0-3BF	Monochrome display and printer port 1 (LPT 1)
3C0-3CF	EGA/VGA adapter
3D0-3DF	Color/Graphics monitor adapter
3E8-3EF	
3F0-3F7	Diskette controller
3F8-3FF	Serial port 1 (COM 1)
443-440	Watchdog

Table 2-2 I/O Port Address Map

2.3.2 Real-Time Clock and Non-Volatile RAM

The AR-B1683 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 it uses CMOS technology, it consumes very little power and 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

Table 2-3 Real-Time Clock & Non-Volatile RAM

2.3.3 Timer

The AR-B1683 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.

2.4 SERIAL PORTS

The ACEs (Asynchronous Communication Elements ACE1) are used to convert parallel data to a serial format on the transmit side and convert serial data to parallel on the receiver side. The serial format, in order of 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.

Provisions are also included to use this 16x clock to drive the receiver logic. Also included in the ACE is 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 gives 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)

Table 2-4 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

Table 2-5 Serial Port Divisor Latch

2.5 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

Table 2-6 Registers' Address

(2) Printer Interface Logic

The parallel portion of the W83977 makes the attachment of various devices that accept eight bits of parallel data at standard TTL level possible.

(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:

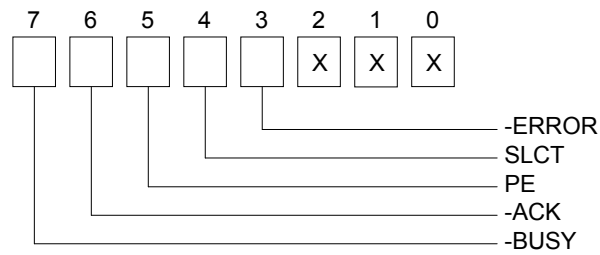


Figure 2-2 Printer Status Buffer

NOTE: X represents 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 can not accept data.

Bit 6: This bit represents the current state of the printer's ACK signal. A 0 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: A 1 means the printer has detected the end of the paper.

Bit 4: A 1 means the printer is selected.

Bit 3: A 0 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:

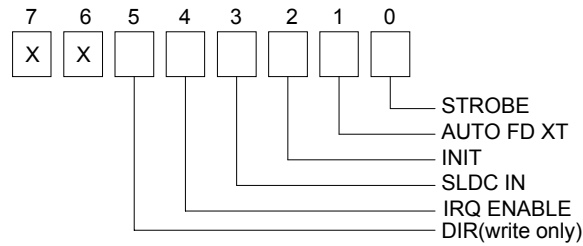


Figure 2-3 Bit's Definition

NOTE: X represents 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 write only.

Bit 4: A 1 in this position allows an interrupt to occur when ACK changes from low state to high state.

Bit 3: A 1 in this bit position selects the printer.

Bit 2: A 0 starts the printer (50 microseconds pulse, minimum).

Bit 1: A 1 causes the printer to line-feed after a line is printed.

Bit 0: A 0.5 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 chapter describes the pin assignments for the system's external connectors and jumper settings.

- Overview
- System Settings

3.1 OVERVIEW

The AR-B1683 Pentium II/III grade single CPU boards. This section provides hardware and jumper settings, connector locations, and pin assignments.

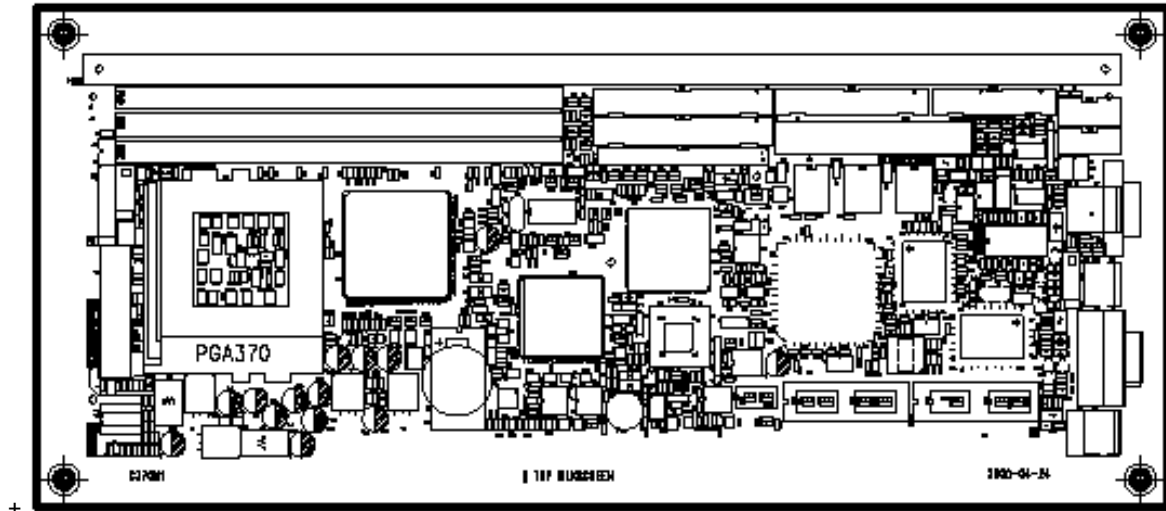


Figure 3-1 External System Location

3.2 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-B1683 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.

3.2.1 Hard Disk (IDE) Connector

A 40-pin header type connector 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.

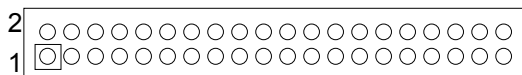


Figure 3-2: Hard Disk (IDE) Connector

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	DMA 33/66
35	SA 0	36	SA 2
37	CS 0	38	CS 1
39	HD LED A	40	GROUND

Table 3-1 HDD Pin Assignment

3.2.2 Keyboard and PS2 Mouse Connector

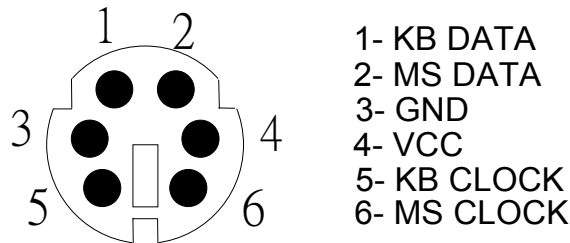
(1) External Keyboard and PS/2(KB/MOUSE)

Figure 3-3 External Keyboard and PS/2 Connector

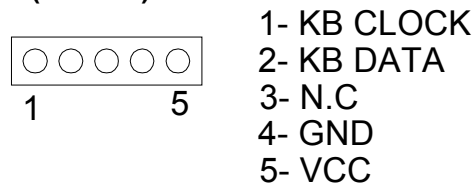
(2) Internal keyboard connector (JP2/JP9)

Figure 3-4 Internal keyboard connector

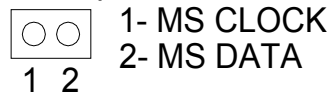
(3) Internal mouse connector (JP10/mouse)

Figure 3-5 Internal mouse connector

3.2.3 FDD Port Connector (FDC1)

The AR-B1683 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.

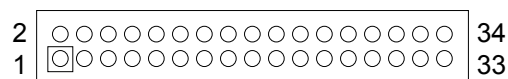


Figure 3-6: FDD Port connector

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 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

Table 3-2 FDD Pin Assignments

3.2.4 Parallel Port Connector (Print1)

To use the parallel port, an adapter cable has to be connected to the print1 (26-pin header type) connector. The connector for the parallel port is a 25-pin D-type female connector.

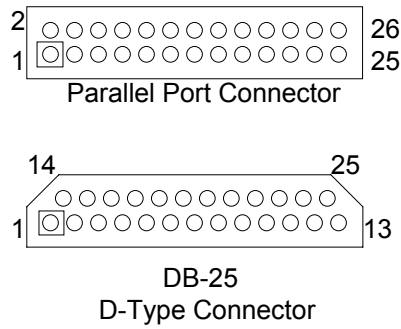


Figure 3-7 : Parallel Port Connector

PRINT1	DB-25	Signal	PRINT1	DB-25	Signal
1	1	-Strobe	2	14	-Auto Form Feed
3	2	Data 0	4	15	-Error
5	3	Data 1	6	16	-Initialize
7	4	Data 2	8	17	-Printer Select In
9	5	Data 3	10	18	Ground
11	6	Data 4	12	19	Ground
13	7	Data 5	14	20	Ground
15	8	Data 6	16	21	Ground
17	9	Data 7	18	22	Ground
19	10	-Acknowledge	20	23	Ground
21	11	Busy	22	24	Ground
23	12	Paper	24	25	Ground
25	13	Printer Select	26	--	No Used

Table 3-3 Parallel Port Pin Assignments

3.2.5 Serial Port

AR-B1683 is equipped with two serial ports. COM1 is a standard RS-232 interface. COM2 serial port can be select as RS-232 or RS-422/485 by setting P1, P2, J11 and JP3.

(1) COM1 10 pin header(or DB9)connector

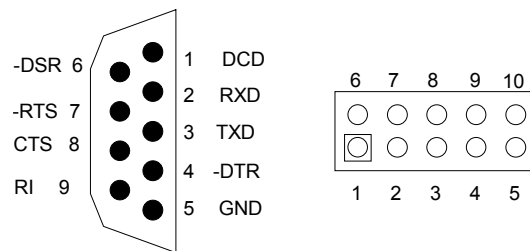


Figure 3-8 : COM1 Port Connector

DB2	Signal	DB2	Signal
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	GND	--	Not Used

(2)COM2 10PIN HEADER (OR) DB9 CONNECTOR [RS232/RS422/RS485 SELECTION]

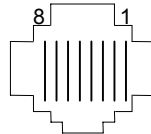
Header	Signal	Header	Signal
1	DCD/422TXD-/485DATA-	2	RXD/422TXD+/485DATA+
3	TXD/422RXD+	4	DTR/422RXD-
5	GND	6	DSR
7	RTS	8	CTS
9	RI	10	N/C

Table 3-4 Serial Port RS-232 Connector Pin Assignments

	P1&P2	JP11&JP3	Description
RS-232			Default
RS-422			Option Only
RS-485			Option Only

Table3-5: COM2 RS-232/422/485**3.2.6 Ethernet RJ-45 Header**

This 100Base-Tx Ethernet connector “LAN” is a standard RJ-45 connector. The onboard Realtek RTL8139B/C fast Ethernet controller supports 10Mb/s and 100Mb/s N-way auto-negotiation operations.

**Figure 3-9 : RJ-45 Header**

RJ45 HEADER	Signal
1	TPTX+
2	TPTX-
3	TPRX+
4	No connection
5	No connection
6	TPRX-
7	No connection

Table 3-6:RJ-45 Pin Assignments**3.2.7 USB Connector**

USB is the abbreviation of Universal Serial Bus. The Universal Serial Bus (USB) standard is a low-to-medium speed interface for the connection of PC peripherals.

The USB standard simplifies the connection of peripherals to PCs with a uniform hardware and software interface. Personal computers equipped with USB allow computer peripherals to be automatically configured as soon as they are physically attached - without the need to reboot or run setup.

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 connector on the CPU board supports two Universal Serial Bus ports. The pins assignment are as follow:

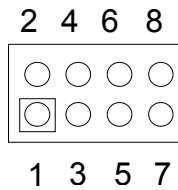


Figure 3-10: USB Connector

Pin	Description	Pin	Description
1	VCC	2	VCC
3	-DATA0	4	-DATA1
5	+DATA0	6	+DATA1
7	GND0	8	GND1

Table 3-7: USB Connector Pin Assignments

3.2.8 Ethernet select (JP7)

The RTL9139 Ethernet can be enable or display by setting the JP7

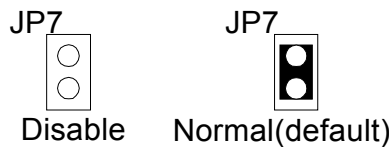


Figure 3-11: Disable/Enable Ethernet Header

3.2.9 Multi-function connector (P3)

The pin 1 and pin 2 of P3 is used for “power on” switch. You can short these two pins to turn on the power when the power direct connects to EXP-1651 “POWER” connector.

The J8 jack is used to connect to an external reset switch. Shorting these two pins will reset the system.



Figure 3-12: Multi-function connector

The pin 3 and pin 4 of P3 is used for reset system. You can short these two pins to reset the system.

The pin7 and pin8 of P3 is used for hard disk drive active LED. You can connect LED to these two pins to indicate HDD active

The pin 9 and pin 15 of P3 is used for speaker connector function. You can connect these two pins to the external speaker. Normal the pin 15 and pin 17 be short for internal buzzer.

The pin10 and pin 12 of P3 is used for key-lock function. You can use a switch (or a lock) to disable the keyboard so the PC will not respond to any keyboard input. This is useful if you do not want anyone to change or stop a running program.

The pin 14 and pin 18 (or pin 16) is used for “system on” function.You can use an LED to indicate when the CPU

card is on. Pin 18, pin16 are supplying the LED's power, and Pin14 is the ground.

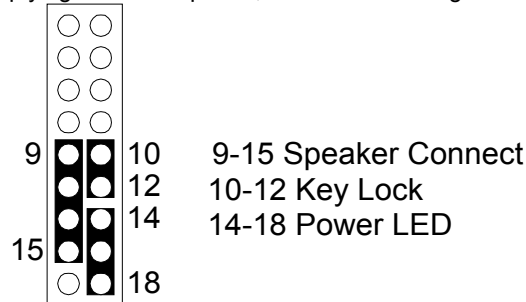


Figure 3-13: Multi-function connector

3.2.10 CPU fan power connector

Plug in the fan cable to the 3-pin fan connector onboard. The fan connector is marked "FAN".

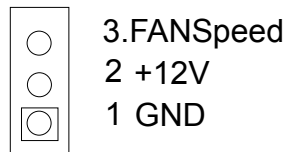


Figure 3-14: CPU Cooling Fan Power Connector

3.2.11 ATX power connector

The power supply uses 20-pin connector shown below. Make sure you plug in the right direction.

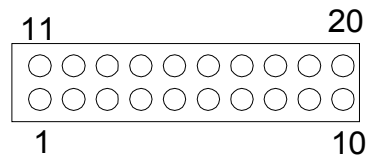


Figure 3-15: ATX Power Connector

Pin No.	Signal	Pin No.	Signal
1	+3v	11	+3V
2	+3v	12	-12V
3	GND	13	GND
4	+5V	14	POWER ON#
5	GND	15	GND
6	+5V	16	GND
7	GND	17	GND
8	POWERGOOD	18	-5V
9	5VSB	19	VCC
10	+12V	20	VCC

Table 3-8: ATX Power Connector Pin assignment

3.2.12 Watchdog counter select (JP14)

The watch dog counter can be selected for IRQ11, NMI or system RESET by setting the JP14.

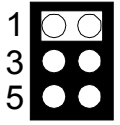
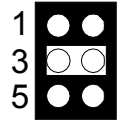
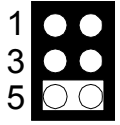
IRQ11	NMI	Reset
		

Table 3-9: Watchdog Counter Select

3.2.13 On board standby power select (JP6)

Before power on the system, have to check the power resource and choice the right standby power select jumper. Must put the jumper on the right position otherwise system will not work.

If the power comes from back-end only, the JP6 (on board standby power select) select "3-4 on".

If the power direct connect to AR-B1683 "POWER" connect, the JP6 (on board standby power) select "3-4 off".

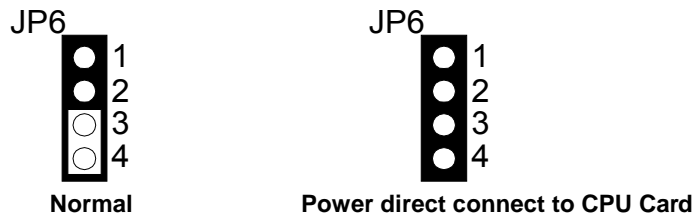


Figure 3-16: On Board Standby Power Select

3.2.14 Clear CMOS (W4&JP11)

(1) W4

When Dallas 12887A on board, you can use W4 to clear the CMOS data if necessary. To reset the CMOS data, set W4 to 1-2 closed for just a few seconds, and then move off the jumper.

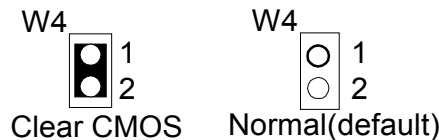


Figure 3-17: Clear CMOS

(2) JP11

You can use JP11 to clear the CMOS when the system with Lithium Battery not Dallas 12887A. To reset the CMOS data, set JP11 to 2-3 for just a few seconds, and then move the jumper back to 1-2.

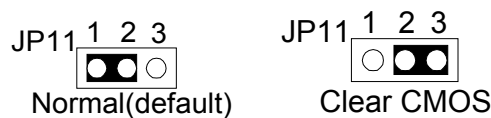


Figure 3-18: Clear CMOS

3.2.15 IrDA connector

The IrDA connector "IrDA" can be configured to support wireless infrared module, with this module and application software such as laplink or Win95 Direct Cable connection, user can transfer files to or from laptops, notebooks, PDA, and printers. This connector supports HPSIR (115.2Kbps, 2 meters) and ASK-IR (56Kbps).

Install infrared module onto "IrDA" connector and enable infrared function from BIOS setup. Make sure to have

correct orientation when you plug onto IrDA connector "IrDA".

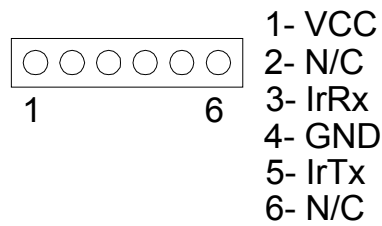


Figure 3-19: IrDA Connector

3.2.16 DOC

The DiskOnChip 2000 family of products provides a single chip solid-state flash disk in a standard 32-pin DIP package. The DiskOnChip 2000 is a solid-state disk with no moving parts, resulting in a significant reduction in power consumption and an increase in reliability. The DiskOnChip is a small plug and play Flash disk. It is easy to use. And it saves integration overhead.

The DiskOnChip 2000 family of products is available in capacities ranging from 2MB up to 288MB, unformatted. In order to manage the disk, the DiskOnChip 2000 includes the TrueFFS, M-Systems Flash File System proprietary software. The DiskOnChip 2000 package is pin-to-pin compatible with a standard 32-pin EPROM device.

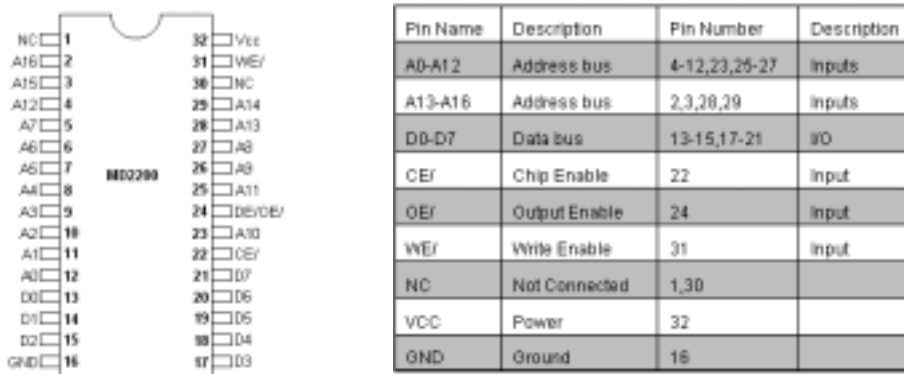


Figure 3-20: DOC

4. 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

4.1 CRT CONNECTOR

The AR-B1682V supports CRT color monitors. AR-B1682V uses an onboard VGA chipset, you can use the VGA RAM 2MB. 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 DB15 connector are as follows:

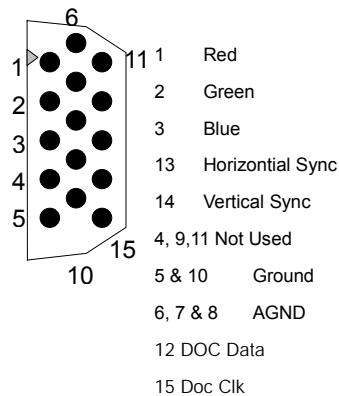


Figure 4-1 : CRT Connector

4.2 LCD FLAT PANEL DISPLAYS

LCD Panel Display Connector a 50-pin connector, which is used for the interface of flat panel display. The pin descriptions are listed in Table 4-1.

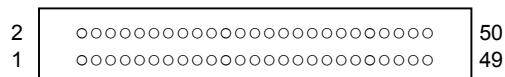


Figure 4-2 : LCD Display Connector

5. BIOS CONSOLE

This chapter describes the AR-B1683 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
- Power Management Setup
- PNP/PCI Configuration
- Load Default Setting
- Load Setup Defaults
- 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 (2A69KADA)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP BIOS FEATURES SETUP CHIPSET FEATURES SETUP POWER MANAGEMENT SETUP PNP/PCI CONFIGURATION LOAD BIOS DEFAULTS LOAD SETUP DEFAULTS	INTEGRATED PERIPHERALS SUPERVISOR PASSWORD USER PASSWORD IDE HDD AUTO DETECTION SAVE & EXIT SETUP EXIT WITHOUT SAVING
Esc: Quit	
↑↓→←: Select Item	
F10: Save & Exit Setup	
(Shift) F2: Change Color	

BIOS Setup Main Menu

- CAUTION:**
1. AR-B1683 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 (2A69KE6B)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

Date(mm:dd:yyyy) : Tue, Mar 16, 2000							
Time(hh:mm:ss) : 16:39:30							
HARD DISK	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR MODE
Primary master	:	0	0	0	0	0	0 CHS
Primary slave	:	0	0	0	0	0	0 CHS
Secondary master	:	0	0	0	0	0	0 CHS
Secondary slave	:	0	0	0	0	0	0 CHS
Drive A						: None	
Drive B						: None	
LCD&CRT						: EGA/VGA	
Halt On						: All Errors	
						BASE MEMORY:640K	
						EXTENDED MEMORY:	
						OTHER MEMORY	
						TOTAL MEMORY:	
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 four 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 detects 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 error, it will stop for all other errors.
All, But Diskette	The system boot will not stop for a disk error, it will stop for all other errors.
All, But Disk/Key	The system boot will not stop for a keyboard or disk error, it will stop for all other errors.

5.3 BIOS FEATURES SETUP

The <BIOS FEATURES 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 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 (2A69KADA)

BIOS FEATURES SETUP

AWARD SOFTWARE, INC.

Virus Warning	: Disable	Video BIOS Shadow	: Enabled
CPU Internal Cache	: Enabled	C8000-CBFFF Shadow	: Disable
External Cache	: Disable	CC000-CFFFF Shadow	: Disable
CPU L2 Cache ECC cheking	: Enable	D0000-D3FFF Shadow	: Disable
Processor Number Feature	: Enable	D4000-D7FFF Shadow	: Disable
Quick Power On Self Test	: Enabled	D8000-DBFFF Shadow	: Disable
Boot Sequence	: C, CDROM, A	DC000-DFFFF Shadow	: Disable
Swap Floppy Drive	: Disable		
Boot Up Floppy Seek	: Disable		
Boot Up NumLock Status	: On		
Boot Up System Speed	: High		
Gate A20 Option	: Fast		
Memory Parity Check	: Disabled		
Typematic Rate Setting	: Enabled		
Typematic Rate (Chars/Sec)	: 30		
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: Change Color
Report No FDD for WIN 95	: No	F6: Load BIOS Defaults	
		F7: Load Setup Defaults	

BIOS Features Setup

Virus Warning

This option may flash on the screen. During and after the system boots up, any attempt to write to the boot sector or partition table of the hard disk drive will halt the system and the following error message will appear, in the mean time, you can run an anti-virus program to locate the problem.

<p>! WARNING !</p> <p>Disk boot sector is to be modified</p> <p>Type " Y " to accept write or " N " to abort write</p> <p>Award Software, Inc.</p>

The best remedy is to boot from the floppy drive and run a program to check for viruses. Then you may choose " Y " to accept.

Enabled	Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table.
Disabled	No warning message to appear when anything attempts to access the boot sector or hard disk partition table. Windows 95/98 should choose this option.

Note: This function is available only for DOS and other OSes that do not trap INT13. This means that it can not be used on Windows 95/98.

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.

CPU L2 Cache ECC checking

This option is used to active the CPU L2 Cache Error Correction Code function

Processor Number Feature

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.

Swap Floppy Drive

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

Floppy Drive Seek

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

Boot Up NumLock Status

This item is used to activate the NumLock function upon system boot. If the setting is on, after a boot, the NumLock 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 a keyboard controller or chipset hardware. The selection is "Fast" Port 92 or a chipset specific method controls means the A20 signal.

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 the keyboard controls these 2 items and the default.

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 accesses to Setup will be 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.

Report No FDD for WIN95

If the user chooses "Yes" then Windows 95/98 searches. If "NO" then BIOS searches for the FDD.

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.

C8000 – CFFFF Shadow/D8000 – DFFFF Shadow

The option determines whether optional ROM will be copied to RAM by 16K byte or 32K byte per/unit and the size depends on chipset. There are two blocks with 16K each. This may slow some systems with less memory.

- Note:**
1. For C8000-DFFFF option-ROM on PCI BIOS, BIOS will automatically enable the shadow RAM. User does not have to select the item.
 2. IDE second channel control:
 - Enable: Enable secondary IDE port and BIOS will assign IRQ15 for this port.
 - Disable: Disable secondary IDE port and IRQ15 is available for other devices. The item is optional only for PCI BIOS.
 3. Some of the sound cards have an onboard CD-ROM controller which uses IDE Secondary Port. In order to avoid PCI IDE conflict, the IDE secondary channel control has to select <Disable> then CD-ROM can work.

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 (2A69KE6B)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

Auto configuration	: Disable	Auto Detect DIMM/PCI Clk	: Enable
EDO CAS# MA Wait State	: 1	Spread Spectrum	: Disable
EDO RAS# Wait State	: 1	CPU Host/PCI Clock	: Default
SDRAM RAS-to CAS Delay	: 3	CPU Warning Temperature	: Disable
SDRAM RAS Precharge Time	: 3	Current System Temp.	:
SDRAM CAS latency Time	: 2	Current CPU1 Temperature	:
SDRAM Precharge control	: Disable	Current CPUFAN1 Speed	:
DRAM Data Integrity Mode	: Non-ECC	Current CPUFAN2 Speed	:
System BIOS Cacheable	: Disable	Current CPUFAN3 Speed	:
Video BIOS Cacheable	: Disable	IN0(V) :	IN1(V) :
Video RAM Cacheable	: Disable	IN2(V) :	+5 V :-
8 bit I/O Recovery Time	: NA	+12V :	-12V :
16 bit I/O Recovery Time	: NA	-5V :-	:
Memory Hole At 15M-16M	: Disable	Esc: Quit	↑↓→←: Select Item
Passive Release	: Disable	F1: Help	PU/PD/+/-: Modify
Delayed Transaction	: Disable	F5: Old Values (Shift)	F2: Color
AGP Aperture Size(MB)	: 4	F6: Load BIOS Defaults	
		F7: Load Setup Defaults	

Chipset Features Setup

Auto Configuration

The system can auto adjust memory according to the data to reach the best situation. The available choices are Enable and Disable.

EDO CAS# MA wait state

EDO RAS# Wait State

This items are used to set up the CAS#,RAS# signal of EDO RAM.

SDRAM RAS to CAS delay:

When DRAM is refreshed, both rows and columns are addressed separately. This field allows you to determine the timing of transition from Row Address Strobe (RAS) to Column Address Strobe(CAS). The default setting is **3**.

SDRAM RAS Precharge Time:

The recharge time is the number of cycles it takes for the RAS to accumulate is its charge before DRAM refresh. If insufficient time is allowed, refresh may be incomplete and the DRAM may fail to retain data. The default setting is **3**.

SDRAM CAS latency Time

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. Do not reset this field from the default value specified by the system designer. The default setting is **3**.

DRAM Precharge Control

The item is to enable the precharge control function or not.

DRAM Data Integrity Mode

This option sets the data integrity mode of the DRAM installed in the system. The default setting is **Non-ECC**

System BIOS Cacheable

When enabled, access to the system BIOS ROM addressed at F000H-FFFFH is cached, provided that the cache controller is disabled.

Video BIOS Cacheable

When enabled, access to video BIOS addressed at C000H to C7FFFFH is cached,

Video RAM Cacheable

Selecting Enable allows caching of the video BIOS ROM at C0000h to C7FFFh, resulting in better video performance. However, if any program writes to this memory area, a memory access error may result.

16-Bit I/O Cycle Recovery Time

This option specifies the length of the delay (in sysclks) inserted between consecutive 16-bit I/O operations. The settings are 1,2,3,4,5,6,7 or 8. The default setting is 2.

8-Bit I/O Cycle Recovery Time

This option specifies the length of the delay (in sysclks) inserted between consecutive 16-bit I/O operations. The settings are 1,2,3,4,5,6,7 or 8. The default setting is 3.

Memory Hole At 15M-16M

In order to improve performance, certain space in memory can be reserved for ISA cards. This field allows you to reserve 15MB to 16MB of memory address space to ISA expansion cards. This makes memory from 15MB and up unavailable to the system. Expansion cards can only access memory up to 16MB. By default, this field is set to **Disabled**

Passive Release

When enabled, CPU to PCI bus accesses are allowed during passive release. Otherwise, the arbiter only accepts another PCI master access to local DRAM.

Delayed Transaction

The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select **Enabled** to support compliance with PCI specification version 2.1. The default setting is **Disabled**.

AGP Aperture Size(MB)

The field sets aperture size of the graphics. The aperture is a portion of the PCI memory address range dedicated for graphic memory address space. Host cycles that hit the aperture rang are forwarded to the AGP without any translation. The options available are 4M,8M,16M,32M,64M,128M and 256M. The default setting is **64M**.

Auto Detect DIMM/PCI Clk

The item is to active the function of "Auto Detect DIMM/PCI Clk". The available function is Enable and Disable.

Spread Spectrum**CPU Host/PCI Clock**

The CPU Host/PCI Clock can be manually chose in this item, you can also choose the **Default** option item

CPU Warning Temperature

This field sets the threshold temperature at which an alert is sounded through the system's speaker. The onboard thermal sensor to prevent the CPU from overheating monitors the CPU temperature.

Current System Temp.**Current CPUFAN1 Speed**

This items will show the work condition of the CPU

5.5 POWER MANAGEMENT SETUP

ROM PCI/ISA BIOS (2A69KE6B)
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

ACPI Function	: Enable	IRQ[3-7,9-15],NMI	: Disable
Power Management	: User define	Primary IDE 0	: Disable
PM Control by APM	: No	Primary IDE 1	: Disable
Video Off Method	: Blank Screen	Secondary IDE 0	: Disable
Video Off After	: NA	Secondary IDE 1	: Disable
MODEM Use IRQ	: NA	Floppy Disk	: Disable
Doze Mode	: Disable	Serial Port	: Disable
Standby Mode	: Disable	Parallel Port	: Disable
Suspend Mode	: Disable		
HDD Power Down	: Disable		
Throttle Duty Cycle	: 12.5%		
PCI/VGA Act-Monitor	: Disable		
Soft-off by PWR-BTTN	: Instant-off	Esc: Quit	↑↓→←: Select Item
PowerOn by Ring	: Disable	F1: Help	PU/PD/+/-: Modify
IRQ 8 Break Suspend	: Disable	F5: Old Values	(Shift) F2: Color
		F6: Load BIOS Defaults	
		F7: Load Setup Defaults	

Power Management

This field allows you to select the type of power saving management modes. There are four selections for Power Management.

Min.Power Saving	Minimum power management
Max.Power Saving	Maximum power management
User Define	Each of the ranges is from 1 min. to 1hr. Except for HDD Power Down which ranges from 1min. to15 min.(Default)

NOTE: In order to enable the CPU overheat protection feature, the Power Management field should not be set to Disabled.

PM Control by APM

This field allows you to use the Advanced Power Management device to enhance the Max. Power Saving mode and stop the CPU's internal clock. If the MAX. Power Saving is not enabled, this will be preset to **No**.

Video Off Method

This field defines the Video Off features. There are three options.

V/H SYNC + Blank Default setting. Blank the screen and turn off vertical and horizontal scanning.

DPMS	Allows the BIOS to control the video display card if it supports the DPMS feature.
Blank Screen	This option only writes blanks to the video buffer.

Video Off After

As the system moves from lesser to greater power-saving modes, select the mode in which you want the monitor to blank.

MODEM Use IRQ

This field names the interrupt request (IRQ) line assigned to the modem (if any) on your system. Activity of the selected IRQ always awakens the system. By default, the IRQ is set to **3**.

Doze Mode

When enabled, and after the set time of system inactivity, the CPU clock will run at a slower speed while all other devices still operate at full speed.

Standby Mode

After the selected period of system inactivity, the fixed disk drive and the video and the video shut off while all other devices still operate at full speed.

Suspend Mode

When enabled, and after the set time of system inactivity, all devices except the CPU will be shut off.

HDD Power Down

When enabled, and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

Throttle Duty Cycle

When the system enters Doze mode, the CPU clocks runs only part of the time. You may select the percent of time that the clock runs.

PCI/VGA Act-Monitor

When enabled, any video activity restarts the global timer for Standby mode. The default setting is **Enabled**.

Soft-Off by PWR-BTTN

This field defines the power-off mode when using an ATX power supply. The Instant-Off mode allows powering off immediately upon pressing the power button. In the Delay 4 Sec mode, the system powers off when the power button is pressed more than four seconds or places the system in a very low-power-usage state, with only enough circuitry receiving power to detect power button activity or Resume by Ring activity (see next field) when pressed for less than 4 seconds. The default value is **Instant-off**.

PowerOn by Ring

An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) will power the system.

IRQ 8 Break Suspend

You can enable or disable the monitoring of IRQ 8 (Real Time Clock) so it does not awaken the system from Suspend mode.

5.6 PNP/PCI CONFIGURATION

ROM PCI/ISA BIOS (2A69KE6B)
PNP/PCI CONFIGURATION
AWARD SOFTWARE, INC.

PNP OS Installed	: NO	Assign IRQ For VGA	: Disable
Resources Controlled By	: Auto	Slot 1 Use IRQ No.	: Auto
Reset Configuration Data	: Disabled	Slot 2 Use IRQ No.	: Auto
		Slot 3 Use IRQ No.	: Auto
		Slot 4 Use IRQ No.	: Auto
		Assign IRQ For USB	: Disable
		Esc: Quit	↑↓→←: Select Item
		F1: Help	PU/PD/+/-: Modify
		F5: Old Values	(Shift) F2: Color
		F6: Load BIOS Defaults	
		F7: Load Setup Defaults	

PNP/PCI CONFIGURATION**PNP OS Installed**

This field allows you to specify if the operating system installed in your system is plug and play aware.

Resources Controlled By

This Pnp BIOS can configure all of the boot and compatible devices automatically. However, this capability need you to use a PnP operating system such as Windows 95. The default value is **Manual**.

Reset Configuration Data

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

Assign IRQ For VGA

Slot 1 Use IRQ No.

Slot 2 Use IRQ No.

Slot 3 Use IRQ No

Slot 4 Use IRQ No.

Assign IRQ For USB

This items are used to assign the for devices.

5.7 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.

5.7.1 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)?

5.7.2 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 fail safe settings (Y/N)?

5.8 INTEGRATED PERIPHERALS

This section is designed to configure the peripheral features.

ROM PCI/ISA BIOS (2A69KE6B)
INTEGRATED PERIPHERALS
AWARD SOFTWARE, INC.

IDE HDD Block Mode	: Disable	Onboard Serial Port 2	: Disabled
		UART Mode Select	: IrDA
		UART2 Duplex Mode	: Full
		RxD . Txd Active	: Hi, Hi
IDE Primary Master UDMA	: Disable	IR Transmission delay	: Disabled
IDE Primary Slave UDMA	: Disable	Onboard Parallel Port	: Disabled
IDE Secondary Master UDMA	: Disable	Parallel Port Mode	: SPP
On-chip Primary PCI IDE	: Disable	ECP Mode Use DMA	: 1
On-chip Secondary PCI IDE	: Disable	EPP Mode Select	: EPP 1.9
USB Keyboard Support	: Disable		
Init Display First	: Disable		
Power ON Function	: Password		
KB Power ON Password	: Enter	Esc: Quit	↑↓→←: Select Item
Hot key Power ON	: Ctrl-F1	F1: Help	PU/PD/+/-: Modify
KBC input clock	: 6 MHz	F5: Old Values	(Shift) F2: Color
Onboard FDC Controller	: Disable	F6: Load BIOS Defaults	
Onboard Serial Port 1	: Disable	F7: Load Setup Defaults	

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 Primary/Secondary Master/Slave UDMA

These fields allow your system to improve disk I/O throughput to 33Mb/sec with Ultra DMA/33 feature. The options are each channel separately.

On-chip Primary/ Secondary PCI IDE

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select **Enabled** to activate each channel separately.

USB Keyboard Support

Select **Enabled** if your system contains a Universal Serial Bus(USB) controller and you have a USB keyboard

Init Display First

This field allows the system to initialize first the display interface when system is turned on.

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 effect 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 themselves. 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

This 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).

Power ON Function

KB Power ON Password

Hot key Power ON

KBC input clock

Onboard FDC Controller

Select **Enabled** if system has a floppy disk controller(FDC) installed on the system board and you wish to use it .If you installed an add-in FDC or the system has no floppy driver, select **Disabled** in this field. This option allows you to select the onboard FDD port

Onboard Serial Port/Parallel Port

These fields allow you select the onboard serial and parallel ports and their addresses.

UART Mode Select

This field determines the UART mode in your computer. The setting are **Normal**, **IrDA** and **ASKIR**. The default

value is **Normal**.

UART2 Duplex Mode

This field determines the UART2 Duplex mode in your computer. The settings are **Full** and **Half**.

RxD . Txd Active

This item is used to Active the RxD, Txd function or not.

IR Transmission delay

This option will enable the Infra-Red transmission function.

Parallel Port Mode

This option specifies the parallel port mode. ECP and EPP are both bi-directional data transfer schemes that adhere to the IEEE 1284 specifications.

ECP Mode Use DMA

This item is used to determine the ECP Mode Use DMA.

EPP Mode Select

This item is used to select the EPP Mode ,EPP 1.7 and EPP 1.9 are the available choices.

5.9 SUPERVISOR /USER PASSORD

Supervisor Password sets a password that will be used to protect the system and setup utility.

5.10 USER PASSWORD

User Password sets a password that will be used exclusively on the system.

5.11 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.

5.12 SAVE & EXIT SETUP

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

Save current settings and exit (Y/N) ?

5.13 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) ?

5.14 BIOS UPDATE

The BIOS program instructions are contained within computer chips called FLASH ROMs that are located on your system board. The chips can be electronically reprogrammed, allowing you to upgrade your BIOS firmware without removing and installing chips.

The AR-B1683 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 a 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 FLASH812 program.

```
A:\>FLASH812
```

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

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

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

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

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

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

NOTE: 1 The BIOS Flash disk is not a standard accessory. Now that the onboard BIOS is updated to the newest version, if you need to add some functions in the future please contact the technical support (FAE) engineers. They will provide the newest known BIOS for updating.