AR-B1685
INDUSTRIAL GRADE
CPU BOARD
User' s Guide

Edition: 1.0
Book Number: AR-B1685-02.0911

Table of Contents

0. PREFACE

0.1 COPYRIGHT NOTICE AND DISCLAIMER

0.2 WELCOME TO THE AR-B1685 CPU BOARD

This guide introduces the Acrosser AR-B1685 CPU Board.
Use information provided in this manual describes this card's functions and features. It also helps you start, set up and operate your AR-B1685. General system information can also be found in this publication.

0.3 BEFORE YOU USE THIS GUIDE

Please refer to the Chapter 3, "Setting System," in this guide, if you have not already installed this AR-B1685. Check the packing list before you install and make sure the accessories are completely included.
AR-B1685 CD provides the newest information regarding the CPU card. **Please refer to the README.DOC file of the enclosed utility CD.** It contains the modification and hardware & software information, and adding the description or modification of product function after manual printed.

0.4 RETURNING YOUR BOARD FOR SERVICE

If your board requires any services, contact the distributor or sales representative from whom you purchased the product for service information. If you need to ship your board to us for service, be sure it is packed in a protective carton. We recommend that you keep the original shipping container for this purpose.
You can help assure efficient servicing for your product by following these guidelines:
1. Include your name, address, daytime telephone, facsimile number and E-mail.
2. A description of the system configuration and/or software at the time of malfunction.
3. A brief description of the problem occurred.

0.5 TECHNICAL SUPPORT AND USER COMMENTS

Users comments are always welcome as they assist us in improving the quality of our products and the readability of our publications. They create a very important part of the input used for product enhancement and revision. We may use and distribute any of the information you provide in any way appropriate without incurring any obligation. You may, of course, continue to use the information you provide.
If you have any suggestions for improving particular sections or if you find any errors on it, please send your comments to Acrosser Technology Co., Ltd. or your local sales representative and indicate the manual title and book number.
Internet electronic mail to: Sales@acrosser.com
acrosser@tp.globalnet.com.tw

0.6 STATIC ELECTRICITY PRECAUTIONS

Before removing the board from its anti-static bag, read this section about static electricity precautions.
Static electricity is a constant danger to computer systems. The charge that can build up in your body may be more than sufficient to damage integrated circuits on any PC board. It is, therefore, important to observe basic precautions whenever you use or handle computer components. Although areas with humid climates are much less prone to static build-up, it is always best to safeguard against accidents that may result in expensive repairs. The following measures should be sufficient to protect your equipment from static discharge:

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

1. INTRODUCTION

Welcome to the AR-B1685 socket 370 base Single Board Computer. The AR-B1685 board is PICMG form factor board, which comes equipped with high performance Pentium® III, or economical Celeron Processor with the Intel advanced chipset 815E. This product is designed for the system manufacturers, integrators, or VARs that want to provide all the performance, reliability, and quality at a reasonable price.

In addition, the AR-B1685 provides on chip VGA. The VGA, which provides up to 1600x1200 resolution. The VGA memory is share main memory.

An advanced high performance super AT I/O chip – ITE IT8712 is used in the AR-B1685 board. Which provide two UARTs are compatible with the NS16C550. The parallel port and IDE interface are compatible with IBM PC/AT architecture's.

AR-B1685 have two network controller on board, uses Intel 82801BA integrated LAN controller and National Semiconductor DP83820 controller, a fully integrated 10/100BASE-TX, Gigabit LAN solution with high performance networking functions and Alert-on-LAN features.

AR-B1685 uses the advanced INTEL 815E Chipset, which support up to 133MHz FSB CPU and 133MHz SDRAM memory modules.

1.1 SPECIFICATIONS

- **CPU:** support socket 370 bases CPU,
  Celeron® Processor, 700MHz –1.2GHz or above
  Pentium® III (FC-PGA) Processor, 1.26GHz or above
  VIA C3 up to 800MHz or above
- **DMA channels:** 7
- **Interrupt levels:** 15
- **Chipset:** Intel 815E
- **RAM memory:** Provide two 168 pin DIMM socket. The memory capability is up to 512MB/133MHz.
- **Ultra ATA/33/66/100 IDE Interface:** Two PCI Enhance IDE channel. The south bridge ICH2 supports Ultra ATA/33/66/100 IDE interface. To support Ultra ATA66/100 Hard disk, a specified cable must be available.
- **Floppy disk drive interface:** Single 2.88 MB, 1.44MB, 1.2MB, 720KB, or 360KB floppy disk drive.
- **Compact Flash™ interface:** Supports Compact Flash™ Type II socket for Compact Flash Disk or IBM Micro Drive.
- **Series ports:** Two high-speed 16C550 compatible UARTs ports
- **Parallel Port**: one IEEE1284 compatible Bi-directional ports
- **IrDA port:** Supports Serial Infrared (SIR) and Amplitude Shift Keyed IR (ASKIR) interface.
- **USB port:** Support two USB 1.0 compatible ports.
- **Audio: onboard AC'97Codec,** Supports two channel Left/Right Line IN/OUT, and Left/Right speaker out, MIC IN, CD IN.
- **Watchdog timer:** Time setting form 1 second to 255 second System Reset generate when CPU did not periodically trigger the timer.
- **VGA Controller:** Embedded VGA controller, Screen Resolution: up to 1600x1200 in 256 Colors at 85Hz Refresh.
- **Intel 82801BA embedded LAN and NS Giga Controller:** IEEE 802.3u Auto-Negotiation support for 10BASE-T/100BASE-TX and 1000BASE-TX standard. Fast back-to-back transmission support with minimum interframe spacing. Connected to your LAN through RJ45 connector.
- **Keyboard Controller:** 8042 compatible for keyboard and PS/2 mouse
- **Power Consumption:** 5V/9A and 12V/0.1A, as running by PIII 933MHz and 256MB
- **Operating Temperature:** 0° ~ 55° C (CPU needs Cooler)

1.2 PACKING LIST

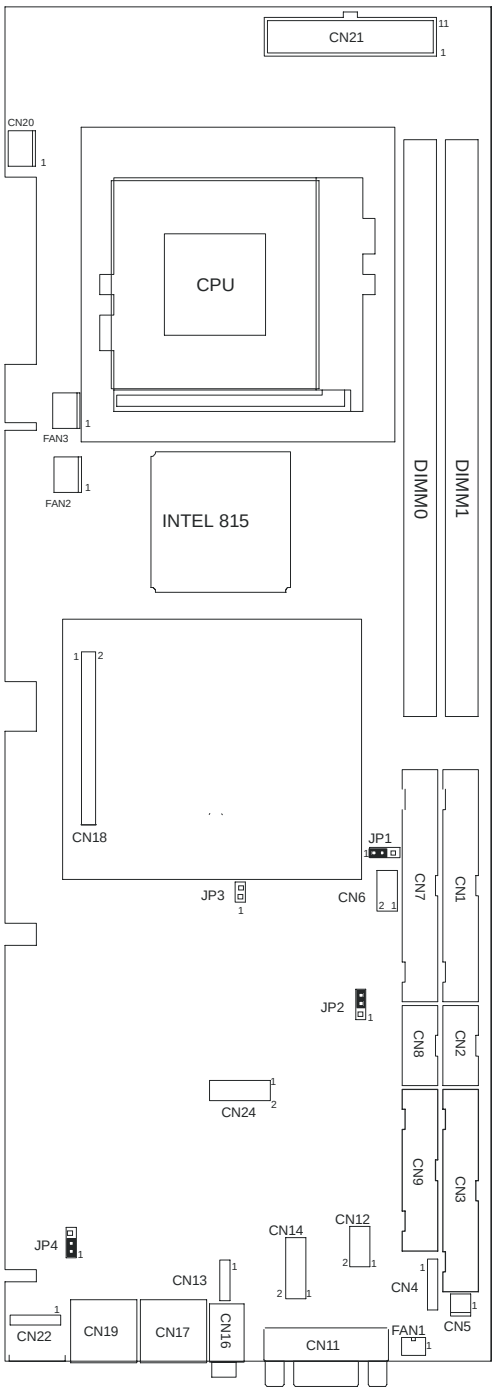
In addition to this *User's Manual*, the AR-B1685 package includes the following items:

- AR-B1685 socket 370 bases Single Board Computer
- One FDD cable
- One IDE Cable
- Keyboard / Mouse Adapter Y Cable
- One Printer Cable with bracket
- Two RS-232 serial ports Cable with bracket

2. INSTALLATION

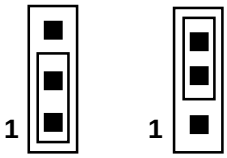
This chapter describes how to install the AR-B1685. At first, the layout of AR-B1685 is shown, and the unpacking information that you should be careful is described. The jumpers and switches setting for the AR-B1685's configuration, such as CPU type selection, system clock setting, and watchdog timer, are also included.

2.1 AR-B1685'S LAYOUT



2.2 CLEAR CMOS SETUP (JP1)

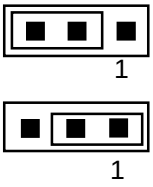
If want to clear the CMOS Setup (for example forgot the password you should clear the setup and then set the password again.), you should close the JP1 about 3 seconds, then open again, set back to normal operation mode, open JP1.



JP1	DESCRIPTION
1-2	**Keep CMOS Setup (Normal Operation)**
2-3	Clear CMOS Setup

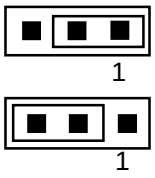
2.3 BIOS PROTECTION SETTING (JP2)

To protect the bios from writing, place the cap on the location 2-3.



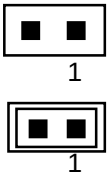
JP2	DESCRIPTION
2-3	**Locked**
1-2	**Unlocked**

2.4 KEYBOARD POWER SELECTION (JP4)



JP4	DESCRIPTION
1-2	**VCC**
2-3	**5VSB**

2.5 COMPACT FLASH CARD MASTER/SLAVE MODE SETTING (JP3)



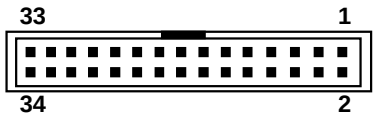
JP3	DESCRIPTION
OPEN	**SLAVE**
SHORT	MASTER

3. CONNECTION

This chapter describes how to connect peripherals, switches and indicators to the AR-B1685 board.

3.1 FLOPPY DISK DRIVE CONNECTOR (CN3)

AR-B1685 board equipped with a 34-pin daisy-chain driver connector cable.

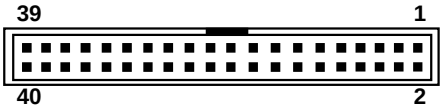


PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GROUND	2	REDUCE WRITE
3	GROUND	4	N/C
5	GROUND	6	N/C
7	GROUND	8	INDEX#
9	GROUND	10	MOTOR ENABLE A#
11	GROUND	12	DRIVE SELECT B#
13	GROUND	14	DRIVE SELECT A#
15	GROUND	16	MOTOR ENABLE B#
17	GROUND	18	DIRECTION#
19	GROUND	20	STEP#
21	GROUND	22	WRITE DATA#
23	GROUND	24	WRITE GATE#
25	GROUND	26	TRACK 0#
27	GROUND	28	WRITE PROTECT#
29	N/C	30	READ DATA#
31	GROUND	32	SIDE 1 SELECT#
33	N/C	34	DISK CHANGE#

3.2 ULTRA ATA33/66/100 IDE DISK DRIVE CONNECTOR

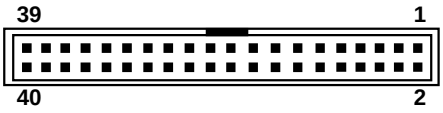
You can attach two IDE (Integrated Device Electronics) hard disk drives to the AR-B1685 IDE controller.

- **CN1 (IDE1): Primary IDE Connector**



PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RESET#	2	GROUND
3	DATA 7	4	DATA 8
5	DATA 6	6	DATA 9
7	DATA 5	8	DATA 10
9	DATA 4	10	DATA 11
11	DATA 3	12	DATA 12
13	DATA 2	14	DATA 13
15	DATA 1	16	DATA 14
17	DATA 0	18	DATA 15
19	GROUND	20	N/C
21	N/C	22	GROUND
23	IOW#	24	GROUND
25	IOR#	26	GROUND
27	N/C	28	BALE - DEFAULT
29	N/C	30	GROUND - DEFAULT
31	INTERRUPT	32	IOCS16#-DEFAULT
33	SA1	34	N/C
35	SA0	36	SA2
37	HDC CS0#	38	HDC CS1#
39	HDD ACTIVE#	40	GROUND

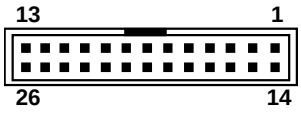
- **CN7 (IDE 2): Primary IDE Connector**



PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RESET#	2	GROUND
3	DATA 7	4	DATA 8
5	DATA 6	6	DATA 9
7	DATA 5	8	DATA 10
9	DATA 4	10	DATA 11
11	DATA 3	12	DATA 12
13	DATA 2	14	DATA 13
15	DATA 1	16	DATA 14
17	DATA 0	18	DATA 15
19	GROUND	20	N/C
21	N/C	22	GROUND
23	IOW#	24	GROUND
25	IOR#	26	GROUND
27	N/C	28	BALE - DEFAULT
29	N/C	30	GROUND - DEFAULT
31	INTERRUPT	32	IOCS16#-DEFAULT
33	SA1	34	N/C
35	SA0	36	SA2
37	HDC CS0#	38	HDC CS1#
39	HDD ACTIVE#	40	GROUND

3.3 PARALLEL PORT CONNECTOR (CN9)

This port is usually connected to a printer, The AR-B1685 includes an on-board parallel port, and accessed through a 26-pin flat-cable connector CN9.Three modes –SPP, EPP and ECP – are supported.



PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	STROBE#	2	DATA 0
3	DATA 1	4	DATA 2
5	DATA 3	6	DATA 4
7	DATA 5	8	DATA 6
9	DATA 7	10	ACKNOWLEDGE
11	BUSY	12	PAPER EMPTY
13	PRINTER SELECT	14	AUTO FORM FEED #
15	ERROR#	16	INITIALIZE
17	PRINTER SELECT LN#	18	GROUND
19	GROUND	20	GROUND
21	GROUND	22	GROUND
23	GROUND	24	GROUND
25	GROUND	26	NC

3.4 SERIAL PORTS

The AR-B1685 offers two high speeds NS16C550 compatible UARTs with Read/Receive 16 byte FIFO serial ports.

CN2: COM1
CN8: COM2

- **CN2: COM1 10-pin Connector**

PIN NO.	DESCRIPTION
1	DATA CARRIER DETECT (DCD)
2	RECEIVE DATA (RXD)
3	TRANSMIT DATA (TXD)
4	DATA TERMINAL READY (DTR)
5	GROUND
6	DATA SET READY (DSR)
7	REQUEST TO SEND (RTS)
8	CLEAR TO SEND (CTS)
9	RING INDICATOR (RI)
10	NC

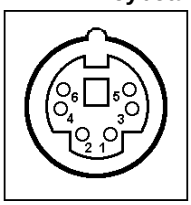
- **CN8: COM2 10-pin Connector**

PIN NO.	DESCRIPTION
1	DATA CARRIER DETECT (DCD)
2	RECEIVE DATA (RXD)
3	TRANSMIT DATA (TXD)
4	DATA TERMINAL READY (DTR)
5	GROUND
6	DATA SET READY (DSR)
7	REQUEST TO SEND (RTS)
8	CLEAR TO SEND (CTS)
9	RING INDICATOR (RI)
10	NC

3.5 KEYBOARD CONNECTOR

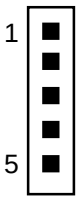
The AR-B1685 provides 5-PIN Header and 6-PIN keyboard/mouse connector.

- **CN23: 6-pin Mini-DIN Keyboard/Mouse Connector**



PIN NO.	DESCRIPTION
1	KEYBOARD DATA
2	MOUSE DATA
3	GROUND
4	+5V
5	KEYBOARD CLOCK
6	MOUSE CLOCK

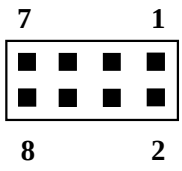
- **CN22: 5-pin Keyboard/Mouse Connector**



PIN NO.	DESCRIPTION
1	KEYBOARD CLK
2	KEYBOARD DATA
3	N/C
4	GROUND
5	+5V

3.6 USB PORT CONNECTOR (CN6)

The AR-B1685 provides Two USB port.



1.	VCC
2.	GROUND
3.	DATA-
4.	DATA+
5.	DATA+
6.	DATA-
7.	GROUND
8.	VCC

3.7 IRDA INFRARED INTERFACE PORT (CN4)

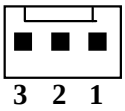
The AR-B1685 built-in a IrDA port which support Serial Infrared (SIR) or Amplitude Shift Keyed IR (ASKIR) interface. When use the IrDA port have to set SIR or ASKIR model in the BIOS's Peripheral Setup's COM 2. Then the normal RS-232 COM 2 will be disabled.

PIN NO.	DESCRIPTION
1	VCC5V
2	N/C
3	IR-RX
4	Ground
5	IR-TX

3.8 FAN CONNECTOR

The AR-B1685 provides CPU cooling fan connector and Giga LAN fan connector. CPU connectors can supply 12V/500mA and Giga connectors can supply 5V/500mA to the cooling fan. The Fan's rotation is in full speed.

- **FAN2/FAN3: CPU Fan Connector**

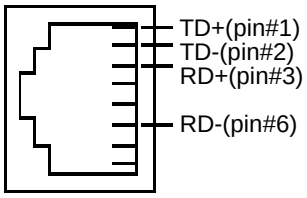


PIN NO.	DESCRIPTION
3	Sensor
2	12V
1	Ground

3.9 LAN RJ45 CONNECTOR

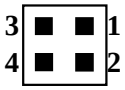
AR-B1685 is equipped with built-in Giga and 10/100Mbps Ethernet Controller. You can connect it to your LAN through RJ45 LAN connector. The pin assignments are as following:

- **CN17: LAN RJ45 Connector**



PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	TX+	5.	N/C
2	TX-	6.	RX-
3.	RX+	7.	N/C
4.	N/C	8.	N/C

- **CN12: LAN LED Connector**

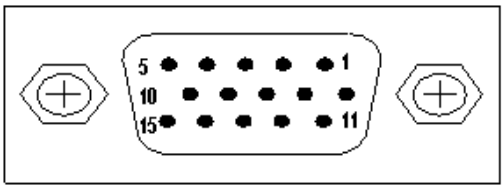


1	100ACT+	2.	100ACT-
3	100LINK+	4.	100LINK-

3.10 VGA CONNECTOR

AR-B1685 built-in 15-pin VGA connector directly to your CRT monitor.

- **CN11: 15-pin Female Connector**

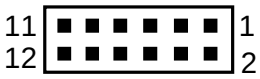


1	RED	2	GREEN
3	BLUE	4	NC
5	GROUND	6	GROUND
7	GROUND	8	GROUND
9	NC	10	GROUND
11	NC	12	DDC DAT
13	HSYNC	14	VSYNC
15	DDCCLK		

3.11 AUDIO CONNECTORS

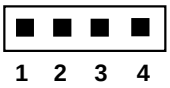
The AC'97 compliant CODEC support several audio functions. The connector is described as below.

- **CN14: AUDIO CONNECTOR**



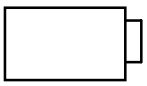
1.	LEFT SPEAKER OUT SIGNAL (*WITH OP AMPLIFIER*)
2.	RIGHT SPEAKER OUT SIGNAL (*WITH OP AMPLIFIER*)
3.	GROUND (*FOR SPK CONNECTOR*)
4.	GROUND (*FOR LINE OUT CONNECTOR*)
5.	LEFT LINE OUT SIGNAL
6.	RIGHT LINE OUT SIGNAL
7.	LEFT LINE IN SIGNAL
8.	RIGHT LINE IN SIGNAL
9.	GROUND (*FOR LINE IN CONNECTOR*)
10.	GROUND *(NO USE)*
11.	MIC IN
12.	GROUND (*FOR MIC IN CONNECTOR*)

- **CN13: CD-IN**



1.	CD LEFT SIGNAL
2.	GROUND
3.	GROUND
4.	CD RIGHT SIGNAL

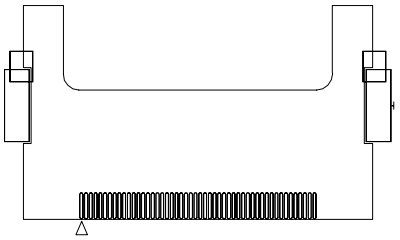
- **CN16: Left/Right Audio Line Output Connector for Headphone**



1.	GROUND
2.	LEFT SIGNAL (SPK LEFT)
3.	NC
4.	RIGHT SIGNAL (SPK RIGHT)
5.	NC

3.12 COMPACT FLASH STORAGE CARD SOCKET/OPTION (CN25)

AR-B1685 configures Compact Flash Storage Card in IDE Mode. This type II Socket is compatible with IBM Micro Drive.

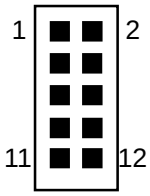


PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GROUND	26	CARD DETECT1
2	D3	27	D11
3	D4	28	D12
4	D5	29	D13
5	D6	30	D14
6	D7	31	D15
7	CS1#	32	CS3#
8	N/C	33	N/C
9	GROUND	34	IOR#
10	N/C	35	IOW#
11	N/C	36	OBLIGATORY TO PULL HIGH
12	N/C	37	IRQ15
13	VCC	38	VCC
14	N/C	39	MASTER/SLAVE
15	N/C	40	N/C
16	N/C	41	RESET#
17	N/C	42	IORDY
18	A2	43	N/C
19	A1	44	OBLIGATORY TO PULL HIGH
20	A0	45	ACTIVE#
21	D0	46	PDIAG#
22	D1	47	D8
23	D2	48	D9
24	N/C	49	D10
25	CARD DETECT2	50	GROUND

3.13 EXTERNAL SWITCHES AND INDICATORS

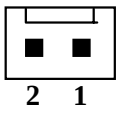
There are several external switches and indicators for monitoring and controlling your CPU board. All the functions are in the CN24 connector.

- **CN24: Multi Panel**



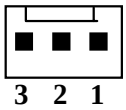
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1.	POWER-LED +	2	SPEAKER -
3.	N/C	4	N/C
5.	POWER-LED -	6	N/C
7.	N/C	8	SPEAKER +5V
9.	HDD LED +	10	RESET SW
11.	HDD LED -	12	RESET SW GND

- **CN5: ATX Power Switch Connector**



PIN NO.	DESCRIPTION
1	PWR_BUTTON+
2	Ground

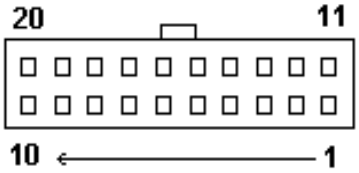
- **CN20: ATX Power +5VSB and PSON# Connector**



PIN NO.	DESCRIPTION
3	Ground
2	PSON#
1	+5VSB

3.14 ATX POWER CONNECTOR (CN21)

The AR-B1685 can work without backplane, while attaching external power to this ATX power connector.



CN21 is a 20-pin ATX Power Supply Connector. Please refer to the following table for the pin assignments.

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
11	3.3V	1	3.3V
12	-12V	2	3.3V
13	GND	3	GND
14	PSON#	4	+5V
15	GND	5	GND
16	GND	6	+5V
17	GND	7	GND
18	-5V	8	Power good
19	+5V	9	+5VSB
20	+5V	10	+12V

4. AWARD BIOS SETUP

4.1 INTRODUCTION

This chapter discusses the Setup program built into the BIOS. The Setup program allows users to configure the system. This configuration is then stored in battery-backed CMOS RAM so that it retains the Setup information while the power is off.

4.2 STARTING SETUP

The BIOS is immediately active when you turn on the computer. While the BIOS is in control, the Setup program can be activated in one of two ways:

(1) By pressing <Del> immediately after switching the system on, or

(2) By pressing the <Del> key when the following message appears briefly at the bottom of the screen during the POST (Power On Self-Test).

Press DEL to enter SETUP.

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to...

PRESS F1 TO CONTINUE, DEL TO ENTER SETUP

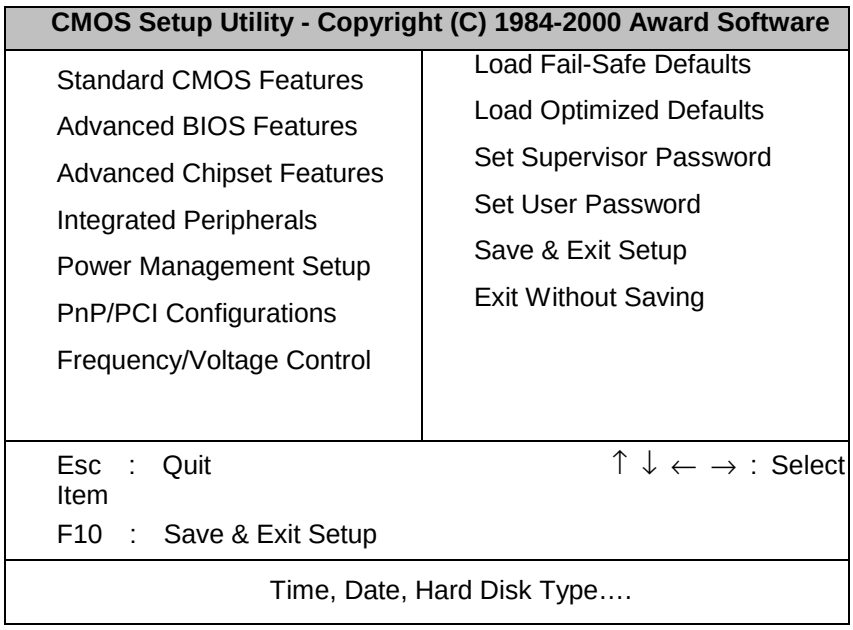
4.3 USING SETUP

In general, you can use the arrow keys to highlight items, press <Enter> to select, use the PageUp and PageDown keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more details about how to navigate in the Setup program using the keyboard.

Key	Function
Up Arrow	Move to the previous item
Down Arrow	Move to the next item
Left Arrow	Move to the item on the left (menu bar)
Right Arrow	Move to the item on the right (menu bar)
Esc	Main Menu: Quit without saving changes Submenus: Exit Current page to the next higher level menu
Move Enter	Move to the item you desired
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
Esc key	Main Menu -- Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
F1 key	General help on Setup navigation keys
F5 key	Load previous values from CMOS
F6 key	Load the fail-safe defaults from BIOS default table
F7 key	Load the optimized defaults
F10 key	Save all the CMOS changes and exit

4.4 MAIN MENU

Once you enter the AwardBIOS™ CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.



Note that a brief description of each highlighted selection appears at the bottom of the screen.

4.4.1 Setup Items

The main menu includes the following main setup categories. Recall that some systems may not include all entries.

Standard CMOS Features
Use this menu for basic system configuration. See Section 4.5 for the details.

Advanced BIOS Features
Use this menu to set the Advanced Features available on your system. See Section 4.6 for the details.

Advanced Chipset Features
Use this menu to change the values in the chipset registers and optimize your system's performance. See section 4.7 for the details.

Integrated Peripherals
Use this menu to specify your settings for integrated peripherals. See section 4.8 for the details.

Power Management Setup
Use this menu to specify your settings for power management. See section 4.9 for the details.

PnP / PCI Configuration
This entry appears if your system supports PnP / PCI. See section 4.10 for the details.

Frequency/Voltage Control
Use this menu to specify your settings for frequency/voltage control. See section 4.11 for the details.

Load Fail-Safe Defaults
Use this menu to load the BIOS default values for the minimal/stable performance for your system to operate. See section 4.12 for the details.

Load Optimized Defaults
Use this menu to load the BIOS default values that are factory settings for optimal performance system operations. While Award has designed the custom BIOS to maximize performance, the factory has the right to change these defaults to meet their needs. See section 4.12 for the details.

Supervisor / User Password
Use this menu to set User and Supervisor Passwords. See section 4.13 for the details.

Save & Exit Setup
Save CMOS value changes to CMOS and exit setup. See section 4.14 for the details.

Exit Without Save
Abandon all CMOS value changes and exit setup. See section 4.14 for the details.

4.5 STANDARD CMOS SETUP

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

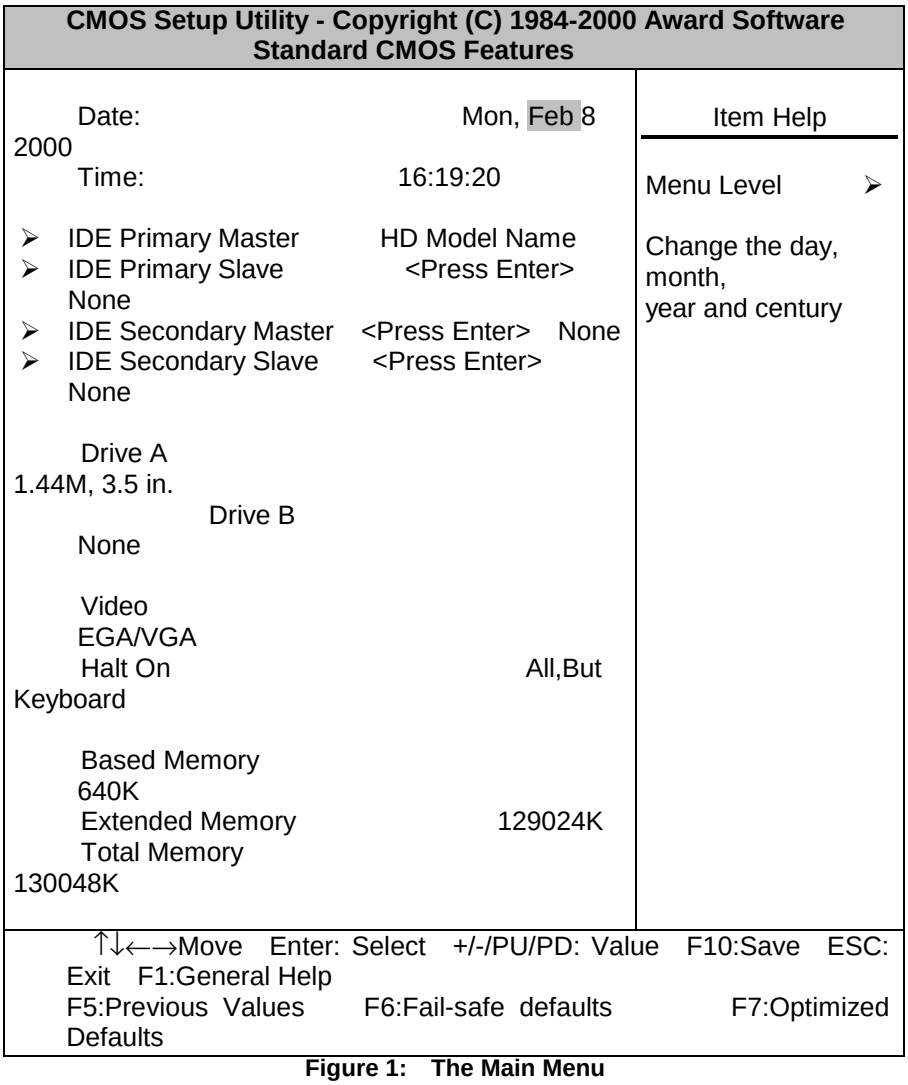


Figure 1: The Main Menu

Main Menu Selections

Item	Options	Description
Date	MM DD YYYY	Set the system date.
Time	HH : MM : SS	Set the system time
IDE Primary Master	Options are in its sub menu (described in Table 3)	Press <Enter> to enter the sub menu of detailed options
IDE Primary Slave	Options are in its sub menu (described in Table 3)	Press <Enter> to enter the sub menu of detailed options
IDE Secondary	Options are in its sub menu (described in Table 3)	Press <Enter> to enter the sub menu of detailed options
IDE Secondary Slave	Options are in its sub menu (described in Table 3)	Press <Enter> to enter the sub menu of detailed options
Drive A Drive B	None 360K, 5.25 in 1.2M, 5.25 in 720K, 3.5 in 1.44M, 3.5 in 2.88M, 3.5 in	Select the type of floppy disk drive installed in your system
Video	EGA/VGA CGA 40 CGA 80 MONO	Select the default video device
Halt On	All Errors No Errors All, but Keyboard All, but Diskette All, but Disk/Key	Select the situation in which you want the BIOS to stop the POST process and notify you
Base Memory	N/A	Displays the amount of conventional memory detected during boot up
Extended Memory	N/A	Displays the amount of extended memory detected during boot up
Total Memory	N/A	Displays the total memory available in the system

Table 2 Main Menu Selections

IDE Adapters

The IDE adapters control the hard disk drive. Use a separate sub menu to configure each hard disk drive. Figure 2 shows the IDE primary master sub menu.

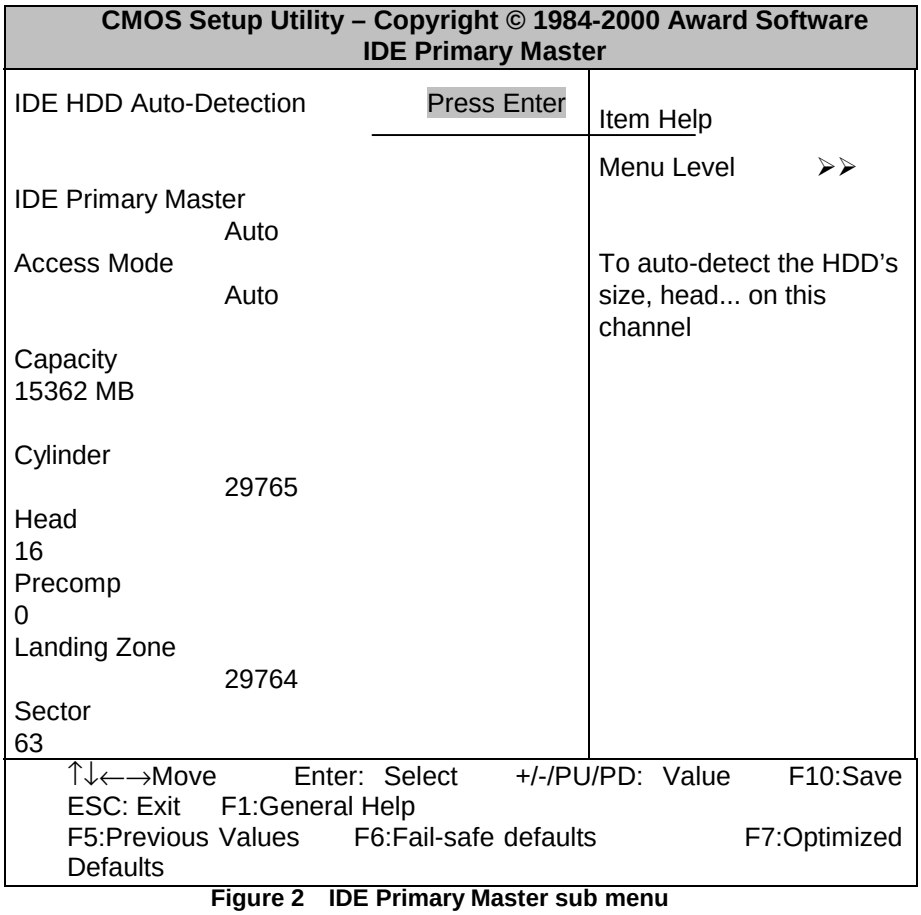


Figure 2 IDE Primary Master sub menu

Use the legend keys to navigate through this menu and exit to the main menu. Use Table 3 to configure the hard disk.

Item	Options	Description
IDE HDD Auto-detection	Press Enter	Press Enter to auto-detect the HDD on this channel. If detection is successful, it fills the remaining fields on this menu.
IDE Primary Master	None Auto Manual	Selecting 'manual' lets you set the remaining fields on this screen. Selects the type of fixed disk. "User Type" will let you select the number of cylinders, heads, etc. Note: PRECOMP=65535 means NONE !
Capacity	Auto Display your disk drive size	Disk drive capacity (Approximated). Note that this size is usually slightly greater than the size of a formatted disk given by a disk checking program.
Access Mode	CHS LBA Large Auto	Choose the access mode for this hard disk

Table 3 Hard disk selections

4.6 ADVANCED BIOS FEATURES

This section allows you to configure your system for basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.

CMOS Setup Utility – Copyright © 1984 – 2000 Award Software Advanced BIOS Features	
Virus Warning Disabled CPU Internal Cache Enabled External Cache Enabled CPU L2 Cache ECC Checking Enabled Process Number feature Enabled Quick Power On Self Test Disabled First Boot device Floppy Second Boot device HDD-0 Third Boot device LS120 Boot other device Enabled Swap Floppy Drive Disabled Boot Up Floppy Seek Enabled Boot Up NumLock Status On Gate A20 Option Fast Typematic Rate Setting Disabled Typematic Rate (Chars/Sec) 6 Typematic Delay (Msec) 250 Security Option Setup OS Select For DRAM > 64MB Non-OS2 Report NO FDD For Win 95 No	Item Help Menu Level ➢ Allows you to choose the VIRUS warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep
↑↓←→Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults	

Virus Warning

It allows you to choose the VIRUS Warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep.

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 will appear when anything attempts to access the boot sector or hard disk partition table.

CPU Internal Cache/External Cache

These two categories speed up memory access. However, it depends on CPU/chipset design.

Enabled	Enable cache
Disabled	Disable cache

CPU L2 Cache ECC Checking

This item allows you to enable/disable CPU L2 Cache ECC checking.
The choice: Enabled, Disabled.

Processor Number Feature

This item allows you to enable/disable support KLAMATH.
The choice: Enabled, Disabled.

Quick Power On Self Test

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

Enabled	Enable quick POST
Disabled	Normal POST

First/Second/Third/Other Boot Device

The BIOS attempt to load the operating system from the devices in the sequence selected in these items.
The Choice: Floppy, LS120, HDD0-3, SCSI, CDROM, ZIP 100 , LAN, Disabled.

Swap Floppy Drive

If the system has two floppy drives, you can swap the logical drive name assignments.

The choice: Enabled/Disabled.

Boot Up Floppy Seek

Seeks disk drives during boot up. Disabling speeds boot up.

The choice: Enabled/Disabled.

Boot Up NumLock Status

Select power on state for NumLock.
The choice: On/Off.

Gate A20 Option

Select if chipset or keyboard controller should control GateA20.

Normal	A pin in the keyboard controller controls GateA20
Fast	Lets chipset control GateA20

Typematic Rate Setting

Keystrokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected.
The choice: Enabled/Disabled.

Typematic Rate (Chars/Sec)

Sets the number of times a second to repeat a keystroke when you hold the key down.
The choice: 6, 8, 10, 12, 15, 20, 24, 30.

Typematic Delay (Msec)

Sets the delay time after the key is held down before it begins to repeat the keystroke.
The choice: 250, 500, 750, 1000.

Security Option

Select whether the password is required every time the system boots or only when you enter setup.

System	The system will not boot and access 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.

OS Select For DRAM > 64MB

Select the operating system that is running with greater than 64MB of RAM on the system.

The choice: Non-OS2, OS2.

Report No FDD For Win 95

Whether report no FDD for Win 95 or not.
The choice: Yes, No.

4.7 ADVANCED CHIPSET FEATURES

CMOS Setup Utility – Copyright © 1984 – 2000 Award Software Advanced Chipset Features	
SDRAM CAS Latency Time 3	Item Help
SDRAM Cycle Time Tras/Trc 7/9	Menu Level ➢
SDRAM RAS-to-CAS Delay 3	
SDRAM RAS Precharge Time 3	
System BIOS Cacheable Disabled	
Video BIOS Cacheable Disabled	
Memory Hole At 15M-16M Disabled	
CPU Latency Timer Disabled	
Delay Transaction Enabled	
AGP Graphics Aperture Size 64MB	
Use VGA BIOS In VBU Block Enabled	
On-Chip Video Window Size 64MB	
Output Device Priority CRT/FP/TV	
↑↓←→Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults	

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache. It also coordinates communications between the conventional ISA bus and the PCI bus. It must be stated that these items should never need to be altered. The default settings have been chosen because they provide the best operating conditions for your system.

DRAM Settings

The first chipset settings deal with CPU access to dynamic random access memory (DRAM). The default timings have been carefully chosen and should only be altered if data is being lost. Such a scenario might well occur if your system had mixed speed DRAM chips installed so that greater delays may be required to preserve the integrity of the data held in the slower memory chips.

SDRAM CAS Latency Time

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing.
The Choice: 2, 3

SDRAM Cycle Time Tras/Trc

Select the number of SCLKs for an access cycle.

The Choice: 5/7, 6/8.

SDRAM RAS-to-CAS Delay

These fields let you insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed. *Fast* gives faster performance; and *Slow* gives more stable performance. This field applies only when synchronous DRAM is installed in the system.
The Choice: 2, 3.

SDRAM RAS Precharge Time

If an insufficient number of cycles are allowed for the RAS to accumulate its charge before DRAM refresh, the refresh may be incomplete and the DRAM may fail to retain data. *Fast* gives faster performance; and *Slow* gives more stable performance. This field applies only when synchronous DRAM is installed in the system.

The Choice: 2, 3.

System BIOS Cacheable

Selecting *Enabled* allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

The choice: Enabled, Disabled.

Video BIOS Cacheable

Select Enabled allows caching of the video BIOS, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

The Choice: Enabled, Disabled.

Memory Hole At 15M-16M

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

The Choice: Enabled, Disabled.

CPU Latency Timer

Enabled: CPU cycle will only be deferred after in has been in a "Snoop Stall" for 31 clocks and another ADS# has arrived.

Disabled: CPU cycle will only be deferred immediately after the GMCH receives another ADS#.

The Choice: Enabled, Disabled.

Delay 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 Choice: Enabled, Disabled.

On-Chip Video Window Size

Select the on-chip video window sizes for VGA drive use.
The Choice: 32MB, 64MB, Disabled.

4.8 INTEGRATED PERIPHERALS

CMOS Setup Utility – Copyright © 1984 – 2000 Award Software Integrated Peripherals	
On-Chip Primary PCI IDE Enabled On-Chip Secondary PCI IDE Enabled IDE Primary Master PIO Auto IDE Primary Slave PIO Auto IDE Secondary Master PIO Auto IDE Secondary Slave PIO Auto IDE Primary Master UDMA Auto IDE Primary Slave UDMA Auto IDE Secondary Master UDMA Auto IDE Secondary Slave UDMA Auto USB Controller Disabled USB Keyboard Support Disabled AC97 Audio Auto IDE HDD Block Mode Enabled Onboard FDC Controller Enabled Onboard Serial Port 1 3F8/IRQ4 Onboard Serial Port 2 2F8/IRQ3 UART Mode Select Normal Onboard Parallel Port 378/IRQ7 Parallel Port Mode SPP Watch Timer Unit Select Second	Item Help Menu Level ➢ If your IDE hard drive supports block mode select Enabled for automatic detection of the optimal number of block read/write per sector the drive can support
↑↓←→ Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults	

There are some items in bottom of scroll.

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.

The choice: Enabled, Disabled.

IDE Primary/Secondary Master/Slave PIO

The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

The choice: Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

IDE Primary/Secondary Master/Slave UDMA

Ultra DMA-33/66 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA-33/66, select Auto to enable BIOS support.

The Choice: Auto, Disabled.

USB Controller

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

The Choice: Enabled, Disabled.

USB Keyboard Support

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

The Choice: Enabled, Disabled.

AC97 Audio

This item allows you to decide to enable/disable the 810E chipset family to support AC97 Audio.
The choice: Auto, Disabled.

IDE HDD Block Mode

Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.
The choice: Enabled, Disabled

Onboard FDC Controller

Select Enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install and-in FDC or the system has no floppy drive, select Disabled in this field.
The choice: Enabled, Disabled

Onboard Serial Port 1/Port 2

Select an address and corresponding interrupt for the first and second serial ports.
The choice: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto

UART Mode Select

Select a serial port 2 operations mode.
The choice: Normal, IrDA, ASKIR, SCR

Onboard Parallel Port

Select an address and corresponding interrupt for the parallel ports.
The choice: 378/IRQ7, 278/IRQ5, 3BC/IRQ7, Disabled,

Parallel Port Mode

Select a parallel operation mode.
The choice: SPP, EPP, ECP,ECP+EPP

Watchdog Timer Unit Select

Select the WatchDog Timer unit.

The choice: Second, Minute

4.9 POWER MANAGEMENT SETUP

The Power Management Setup allows you to configure you system to most effectively save energy while operating in a manner consistent with your own style of computer use.

CMOS Setup Utility – Copyright © 1984 – 2000 Award Software Power Management Setup	
Power Management User Define Video Off Method DPMS Video Off In Suspend Yes Suspend Type Stop Grant Suspend Mode Disabled HDD Power Down Disabled ** Reload Global Timer Events ** Primary IDE 0 Disabled Primary IDE 1 Disabled Secondary IDE 0 Disabled Secondary IDE 1 Disabled FDD,COM,LPT Port Disabled PCI, PIRQ[A-D]# Disabled	Item Help Menu Level ➢
↑↓←→Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults	

Power Management

This category allows you to select the type (or degree) of power saving and is directly related to the following modes:

1. HDD Power Down
2. Doze Mode
3. Suspend Mode

There are four selections for Power Management, three of which have fixed mode settings.

Disable (default)	No power management. Disables all four modes
Min. Power Saving	Minimum power management. Doze Mode = 1 hr. Standby Mode = 1 hr., Suspend Mode = 1 hr., and HDD Power Down = 15 min.
Max. Power Saving	Maximum power management -- **ONLY AVAILABLE FOR SL CPU's**. Doze Mode = 1 min., Standby Mode = 1 min., Suspend Mode = 1 min., and HDD Power Down = 1 min.
User Defined	Allows you to set each mode individually. When not disabled, each of the ranges is from 1 min. to 1 hr. except for HDD Power Down, which ranges from 1 min. to 15 min. and disable.

Video Off Method

This determines the manner in which the monitor is blanked.

V/H SYNC+Blank	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
Blank Screen	This option only writes blanks to the video buffer.
DPMS	Initial display power management signaling.

Video Off In Suspend

This determines the manner in which the monitor is blanked.
The choice: Yes, No.

Suspend Type

Select the Suspend Type.
The choice: PWRON Suspend, Stop Grant.

Suspend Mode

When enabled and after the set time of system inactivity, all devices except the CPU will be shut off.
The choice: 1Min, 2Min, 4Min, 8Min, 12Min, 20Min, 30Min, 40Min, 1Hour, Disabled.

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.
The choice: 1Min, 2Min, 3Min, 4Min, 5Min, 6Min, 7Min, 8Min, 9Min, 10Min, 11Min, 12Min, 13Min, 14Min, 15Min, Disabled.

PM EVENTS

PM events are I/O events whose occurrence can prevent the system from entering a power saving mode or can awaken the system from such a mode. In effect, the system remains alert for anything which occurs to a device which is configured as *Enabled* , even when the system is in a power down mode.

Primary IDE 0
Primary IDE 1
Secondary IDE 0
Secondary IDE 1
FDD, COM, LPT Port
PCI PIRQ[A-D] #

4.10 PNP/PCI CONFIGURATION SETUP

This section describes configuring the PCI bus system. PCI, or **P**ersonal **C**omputer **I**nterconnect, is a system, which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

CMOS Setup Utility – Copyright © 1984-2000 Award Software PnP/PCI Configurations	
Reset Configuration Data Disabled Resources Controlled By Auto(ESCD) x IRQ Resources Press Enter PCI/VGA Palette Snoop Disabled	Item Help --- Menu Level ➢ Default is Disabled. Select Enabled to reset Extended System Configuration Data(ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS cannot boot
↑↓←→Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults	

Reset Configuration Data

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system cannot boot.

The choice: Enabled, Disabled.

Resource controlled by

The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows®95. If you set this field to "manual" choose specific resources by going into each of the sub menu that follows this field (a sub menu is preceded by a "➢").

The choice: Auto (ESCD), Manual.

IRQ Resources

When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.

IRQ3/4/5/7/9/10/11/12/14/15 assigned to

This item allows you to determine the IRQ assigned to the ISA bus and is not available to any PCI slot. Legacy ISA for devices compliant with the original PC AT bus specification, PCI/ISA PnP for devices compliant with the Plug and Play standard whether designed for PCI or ISA bus architecture.

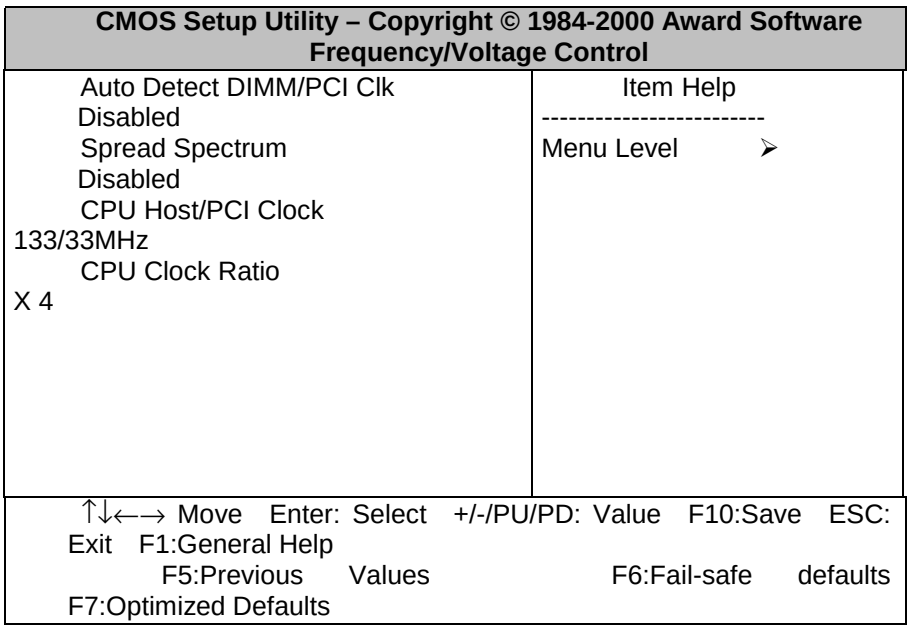
The Choice: PCI Device, Reserved.

PCI/VGA Palette Snoop

Leave this field at *Disabled*.

Choices are Enabled, Disabled.

4.11 FREQUENCY/VOLTAGE CONTROL



Auto Detect DIMM/PCI Clk

This item allows you to enable/disable auto detect DIMM/PCI Clock.

The choice: Enabled, Disabled.

Spread Spectrum

This item allows you to enable/disable the spread spectrum modulate.

The choice: Enabled, Disabled.

CPU Host / PCI Clock

This item allows you to select CPU Host and PCI clock.

The choice: Default, 130/33,133/33,137/34,140/35,145/36,150/38 (M)

CPU Clock Ratio

This item allows you to select CPU clock ratio.

The choice: 4, 4.5, 5, 5.5, 6, 6.5, 7, 7.5, 8,8.5,9,9.5,10,10.5,11,11.5,12.

4.12 DEFAULTS MENU

Selecting "Defaults" from the main menu shows you two options, which are described below

Load Fail-Safe Defaults
When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Fail-Safe Defaults (Y/N) ? N

Pressing 'Y' loads the BIOS default values for the most stable, minimal-performance system operations.

Load Optimized Defaults
When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N) ? N

Pressing 'Y' loads the default values that are factory settings for optimal performance system operations.

4.13 SUPERVISOR/USER PASSWORD SETTING

You can set either supervisor or user password, or both of then. The differences between are:

Supervisor password:
Can enter and change the options of the setup menus.

User password:
Just can only enter but do not have the right to changethe options of the setup menus. When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:
Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password. To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

PASSWORD DISABLED.
When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.
Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.
You determine when the password is required within the BIOS Features Setup Menu and its Security option (see Section 3). If the Security option is set to password will be required both at boot and at entry to Setup. If we set to "Setup", prompting only occurs when trying to enter Setup.

4.14 EXIT SELECTING

Save & Exit Setup

Pressing <Enter> on this item asks for confirmation:

Save to CMOS and EXIT (Y/N)? Y

Pressing "Y" stores the selections made in the menus in CMOS – a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values the system is restarted again.

Exit Without Saving

Pressing <Enter> on this item asks for confirmation:

Quit without saving (Y/N)? Y

This allows you to exit Setup without storing in CMOS any change. The previous selections remain in effect. This exits the Setup utility and restarts your computer.

APPENDIX A. WATCHDOG TIMER

The Watchdog Timer is provided to ensure that standalone systems can always recover from catastrophic conditions that cause the CPU to crash. This condition may have occurred by external EMI or a software bug. When the CPU stops working correctly, hardware on the board will either perform a hardware reset (cold boot) or a Non-Maskable Interrupt (NMI) to bring the system back to a known state.

A BIOS function call (INT 15H) is used to control the Watchdog Timer:

INT 15H:

AH – 6FH
Sub-function: **AL – 2** : Set the Watchdog Timer's period **BL** : Time-out value(Its unit--second or minute, is dependent on the item "Watchdog Timer unit select" in CMOS setup).

You have to call sub-function 2 to set the time-out period of Watchdog Timer first. If the time-out value is not zero, the Watchdog Timer will start counting down. While the timer value reaches zero, the system will reset. To ensure that this reset condition does not occur, calling sub-function 2 must periodically refresh the Watchdog Timer. However the Watchdog timer will be disabled if you set the time-out value to be zero.

A tolerance of at least 10% must be maintained to avoid unknown routines within the operating system (DOS), such as disk I/O that can be very time-consuming.

Note: when exiting a program it is necessary to disable the Watchdog Timer, otherwise the system will reset.

Example program:

```
; INITIAL TIMER PERIOD COUNTER
;
W_LOOP:

        MOV     AX, 6F02H           ;setting the time-out value
        MOV     BL, 30              ;time-out value is 48 seconds
        INT     15H
 ;
; ADD YOUR APPLICATION PROGRAM HERE
;
        CMP     EXIT_AP, 1          ;is your application over?
        JNE     W_LOOP              ;No, restart your application

        MOV     AX, 6F02H           ;disable Watchdog Timer
        MOV     BL, 0               ;
        INT     15H
;
; EXIT
;
```

APPENDIX B. ADDRESS MAPPING

IO ADDRESS MAP

I/O address Range	Description
000-01F	DMA Controller #1
020-021	Interrupt Controller #1, Master
040-05F	8254 timer
060-06F	8042 (Keyboard Controller)
070-07F	Real time Clock, NMI Mask
080-09F	DMA Page Register
0A0-0BF	Interrupt Controller #2
0C0-0DF	DMA Controller #2
0F0	Clear Math Coprocessor Busy
0F1	Reset Math Coprocessor
0F2	Core logic programming configuration
0F8-0FF	Math Coprocessor
1F0-1F8	Fixed Disk
200-207	Game I/O
278-27F	Parallel Printer Port 2 (LPT3)
2E8-2EF	Serial Port 4
2F8-2FF	Serial Port 2
300-31F	Prototype Card
360-36F	Reserved
378-37F	Parallel Printer Port 1 (LPT2)
3B0-3BF	Monochrome Display and Printer Adapter (LPT1)
3C0-3CF	Reserved
3D0-3DF	Color/Graphics Monitor Adapter
3E8-3EF	Serial Port 3
3F0-3F7	Diskette Controller
3F8-3FF	Serial Port 1

1ST MB MEMORY ADDRESS MAP

Memory address	Description
000-9FFFF	System memory
000-BFFFF	VGA buffer
000-C7FFF	VGA BIOS
000-FFFFF	System BIOS
00000-	Extend BIOS

*Default setting

IRQ MAPPING TABLE

Q0	System Timer	Q8	RTC clock
Q1	Keyboard	Q9	Available
Q2	Cascade to IRQ Controller	Q10	AC'97 CODEC
Q3	COM2	Q11	Intel 82562ET LAN
Q4	COM1	Q12	PS/2 mouse
Q5	Available	Q13	FPU
Q6	FDC	Q14	Primary IDE
Q7	Printer	Q15	Secondary IDE

DMA CHANNEL ASSIGNMENTS

Channel	Function
0	Available
1	Available
2	Floppy disk (8-bit transfer)
3	Available
4	Cascade for DMA controller 1
5	Available
6	Available
7	Available

APPENDIX C. HOW TO UPGRADE A NEW BIOS

You can install an upgrade BIOS for the AR-B1685 that you can download from the manufacturer's web site (www.e-icp.com.tw). New BIOS may provide support for new peripherals, improvements in performance or fixes to address known bugs.

BIOS Update Procedure:

1. Make a boot disk. Go to the DOS command prompt in MS-DOS or Windows 9x and, with an available floppy disk in "A", type "format A: /s" That will format the floppy and transfer the needed system files to it.

NOTES:

A. This procedure will erase any prior data on that floppy, so please Proceed accordingly.
B. Typically four files will be transferred, only COMMAND.COM being visible when running a simple directory listing.
C. Please leave the CD UN-write protected for the balance of this procedure.

2. Download the BIOS upgrade file and awdflash.exe utility from a ICP web site to a temp directory on your hard drive, or directly to the floppy you made in step 1.

3. Copy (BIOS file and awdflash.exe) two files to the boot floppy.

4. Reboot the system to the DOS command prompt using the boot CD you just made.

5. At the DOS command prompt type , "awdflash filename.xxx", where filename.xxx is the file name of the BIOS file . Hit enter.

6. Your first option, in sequence, will be to save the old BIOS. We recommend that you do that in case, for whatever reason, you decide you don't wish to use the new version once it is installed.

NOTES:

A. If you decide to save the old BIOS, PLEASE make sure you do NOT save it to the same file name as the new BIOS - if you use the same BIOS name the old file will be written over the new file with NO warning prompt. A simple file name to save the old BIOS to is OLDBIOS.BIN.
B. If you do NOT decide to save the old BIOS, PLEASE at least write down the version number of the old BIOS and store that information with your important computer documents. Enter N (for "no") and skip to step 9.

7. To save the old BIOS, hit Y (for "yes")

8. Enter a name for the OLD BIOS file and hit enter.

NOTES: PLEASE be sure you do NOT save the old BIOS file to the same file name as the new BIOS - if you use the same BIOS name, the old file will write over the new BIOS file WITHOUT a warning prompt. A simple file name for saving the old BIOS to is OLDBIOS.BIN.

9. Your second option, in sequence, will be whether you want to flash your BIOS. Enter Y (for "yes").
NOTE: This is the critical step. Once you kit the enter key, do NOT touch the keyboard, the reset button, or power switch while the flashing is in progress. There will be bar progressing across the screen while the flashing is progressing.

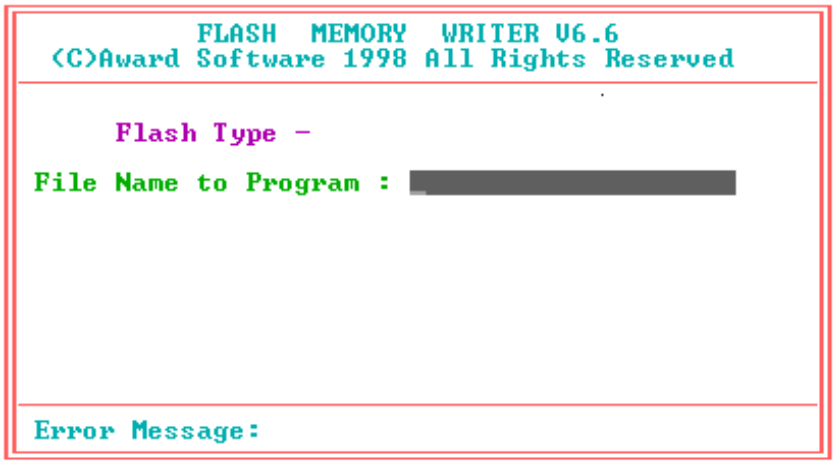
10. When the flashing process is complete, you will be asked to reset or power off the system. Remove the floppy CD from the floppy drive and either hit the reset button or the power button.

11. Reboot the system and note that the BIOS version on the initial boot-up screen has changed to the new BIOS version. Your BIOS upgrade is now complete.

Recovering Your Old BIOS:
1. Assuming you have the floppy made during the upgrade procedure noted above, boot the system with that CD in the floppy drive. If you do not have floppy made during the upgrade procedure noted above, you will need to repeat steps 1 though 3 (above) for the version of the BIOS you wish to recover to.

2. Complete steps 4, 5, 6B, 9, 10, and 11 (above) substituting the name of the BIOS you wish to recover for the upgrade BIOS at step 5.

Install screen:



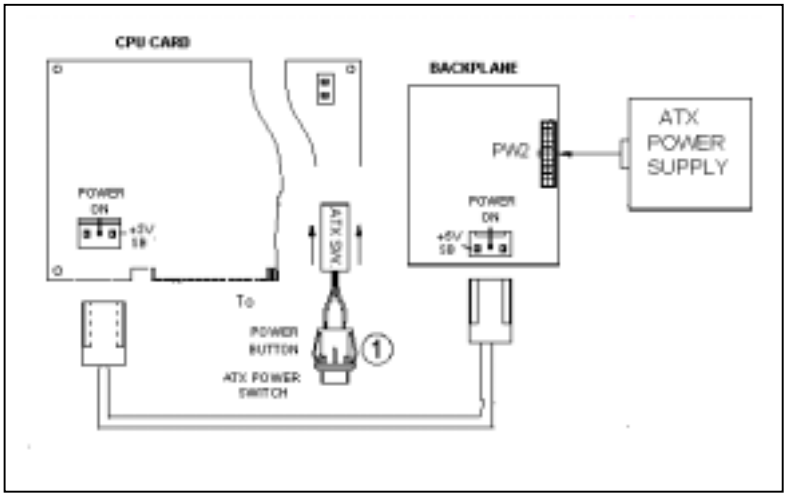
APPENDIX D. ATX POWER SUPPLY

The following notes show how to connect ATX Power Supply to the backplanes and / or the ISBC card.

A. For backplanes with ATX Connector

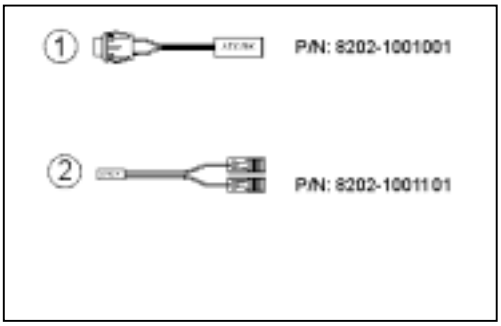
1. Please, disconnect the AC cord of the Power Supply from the AC source to prevent sudden electric surge to the board.
2. Please, check the type of your CPU board. All CPU board listed on the next page support ATX power supply but has two types of power switch connection:

2.1. AR-B1685 (through Power Button & GND):



Connect the ATX power button switch to the CN5 (power button). And connect the power cable from Backplane to CN20 of CPU card.

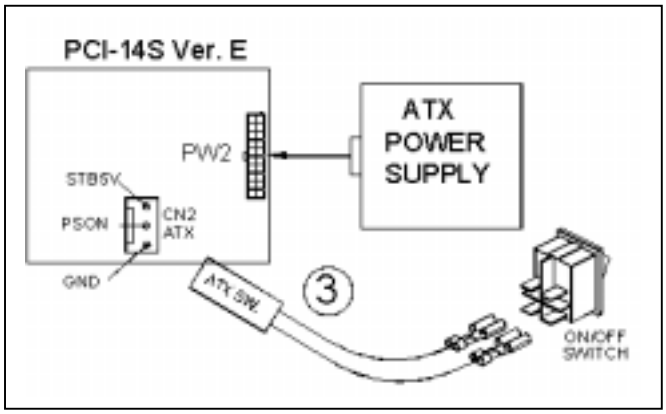
If you want to turn ON the system, just press the button once.
And if you want to turn off the power supply, please press the ATX power switch button for about 4 seconds.



B. For the backplanes with ATX power supply connector

For some SBC without ATX power ON/OFF function, then you can control the ATX power supply through backplane's PS ON connector. Refer to the figure below: for the backplanes with ATX connector, the connection can be made simply as following:

1. Connect the ON/OFF (ordinary one) switch to Pin 2 (PS ON) and Pin 3 (GND) of connector CN2
2. You may now turn the power ON/OFF by the power switch

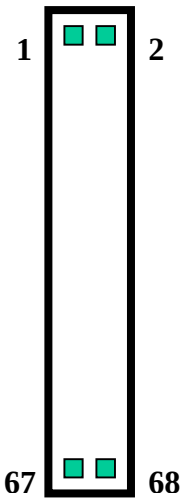


APPENDIX E. PCI SPECIAL EXTENSION CONNECTOR

AR-B1685 is equipped with one special PCI connector for extension.

- **CN18: Special Extension PCI Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC5	2	AD0
3	AD1	4	AD2
5	AD3	6	AD4
7	AD5	8	AD6
9	AD7	10	GND
11	VCC5	12	AD8
13	AD9	14	AD10
15	AD11	16	AD12
17	AD13	18	AD14
19	AD15	20	GND
21	VCC5	22	AD16
23	AD17	24	AD18
25	AD19	26	AD20
27	AD21	28	AD22
29	AD23	30	GND
31	VCC5	32	AD24
33	AD25	34	AD26
35	AD27	36	AD28
37	AD29	38	AD30
39	AD31	40	GND
41	VCC5	42	C/BE#0
43	C/BE#1	44	C/BE#2
45	C/BE#3	46	PAR
47	FRAME#	48	TRDY#
49	IRDY#	50	GND
51	VCC5	52	STOP#
53	DEVSEL#	54	PERR#
55	SERR#	56	PREQ#
57	GNT#	58	IDSEL
59	GND	60	GND
61	PCLK	62	N/C
63	RESET	64	LOCK#
65	INTA#	66	INTB#
67	INTC#	68	INTD#



Note:

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