AR-B1641
<u>INDUSTRIAL GRADE</u>
<u>CPU BOARD</u>
User' s Guide

Table of Contents

0.PREFACE

0.1 COPYRIGHT NOTICE AND DISCLAIMER

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0.2 WELCOME TO THE AR-B1641 CPU BOARD

This guide introduces you to the Acrosser AR-B1641 CPU board.
This information provided in this manual describes this card's functions and features. It also helps you start, set up and operate your AR-B1641. General system information can also be found in this publication.

0.3 BEFORE USE THE GUIDE

Check the packing list before you install and make sure the accessories are completely included.
The AR-B1641 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, hardware & software information, and it has updated to product functions that may not be mentioned here.

0.4 RETURNING YOUR BOARD FOR SERVICE

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

You can assure efficient servicing for your product by following these guidelines:
- Include your name, address, daytime telephone, facsimile numbers and E-mail.
- A description of the system configuration and/or software at the time is malfunction,
- And a brief description of the problem occurred.

0.5 TECHNICAL SUPPORT AND USER COMMENTS

User's comments are always welcome as they assist us in improving the quality of our products and the readability 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: **webmaster@acrosser.com**
Check our FAQ sheet for quick fixes to known technical problems.

1. INTRODUCTION

The AR-B1641 Series is a half-size tualatin Pentium® III/Celeron PIC Single Board Computer. Targeting on the rapid growing networking, and telecommunication markets, the AR-B1641 Series are designed with Intel Dynamic Video memory technology, and One-10/100M Base-TX Ethernet chips. This makes the AR-B1641 Series a perfect solution for not only popular Networking Applications like Firewall, Gateway, and e-Server, but also for CTI (Computer Telephony Integration) equipments such as PBX, Digital Logger, etc.

It accommodates up to 512MB SDRAM for demanding applications. Its 6-layer printed circuit board combining with noise-tolerant and low power consumption CMOS technology enables the AR-B1641 Series to withstand any harsh industrial environments very well.

The AR-B1641 Series SBC comes with hardware monitoring that monitors system and CPU temperature, system voltages, fans Speed and CPU and chassis fan speeds to prevent unexpected system failures by warning the user of adverse conditions.   The power management feature provides power savings by slowing down the CPU clock, turning off the monitor screen and stopping the HDD spindle motor to conserve energy. If the system stays idle for certain period of time

Other standard specification include two serial ports (one RS-232 and one RS-232/422/485 selectable), one multi-mode (ECP/EPP/SPP) parallel port, one floppy drive controller, and one PS/2 keyboard / mouse interface. The built-in PCI Enhanced IDE controller supports up to four IDE devices and Ultra ATA / 100/66/33 bus master modes.

For other more simple application, there is B version with one LAN.

1.1 FEATURES

- PCI Bus
- Support Intel Tualatin CPU up to 1.26GHz
- On-board One Intel 100/100BASE-TX Ethernet controllers
- Built-in AGP VGA, shared system memory up to 4MB
- Built-in Sound function

1.2 PACKING LIST

- AR-B1641 socket 370 bases Single Board Computer
- One FDD cable
- Two IDE Cable
- Keyboard / Mouse Adapter Y Cable
- One Printer Cable with bracket
- Two COM ports, one RS-232 and one RS-232/422/485

1.3 SPECIFICATION

AR-B1641 Series

Processor	: Intel® Tualatin/Coppermine Pentium III / Celeron™ Processor in Socket 370
Chipset	: Intel® 815E chipset
System Memory	: One DIMM socket, support up to 512MB SDRAM
BIOS	: AMI® BIOS
Graphics Controller	: Internal graphic controller with Intel's Dynamic Video Memory Technology, resolution up to 1600 x 1200 x 256 colors @ 85 Hz, with VGA connector
Ethernet Controller	: Intel 82562ET chip, support One-10/100M Base-T Ethernet, Wake On LAN, supported via ATX power supply
IDE Drive Interface	: Two PCI IDE port that support up to Four IDE devices and Ultra ATA/100/66/33
Floppy Drive Interface	: One FDD port, support up to two floppy devices
Serial Port	Two COM ports, one RS-232 and one RS-232/422/485
Parallel Port	: One multi-mode parallel port (SPP / EPP / ECP)
Bus Interface	: PCI bus (Rev. 2.2 compatible) Interface
RTC	: Internal RTC with Li battery
Keyboard/Mouse Connector	: 6-pin mini-Din PS/2 keyboard/mouse connector and 5-pin keyboard header
Watchdog Timer	: 64-level time-out intervals
Universal Serial Bus	: Support 4 USB (Rev. 1.1) ports
Power Connector	: 4-Pin AT Power Connector & 4-Pin ATX function Pin Header
Health Monitoring	: Enhanced hardware monitor functions
Operating Temperature	: 0 °C~60 °C
Storage Temperature	: -10 °C~70 °C
Humidity	: 5 %~95% RH, noncondensing
Dimensions	: 185 x 122 mm ± 0.5 mm
Ording Information	: IAC-H669A: VGA/Dual LAN/Audio
	: IAC-H669B: VGA/LAN
Optional:	: IAC-USB: 4port USB Cable Kit

1.4 UNPACK YOUR AR-B1641 AND ACCESSORY

Before you begin to install your card, please make sure that you received the following materials as listed below:

AR-B1641 Series SBC x 1 pc	Single Board Computer
Keyboard and Mouse Cable x 1 pc	6pin Mini-Din PS/2 connector to 6pin PS/2 K/B+6pin PS/2 Mouse Cable
LPT/COM cable x 1 pc	26-pin to 25-pin with 10-pin to 9-pin D-Sub Cable
ATX Feature Cable x 1 pc	4-pin 40cm cable
IDE Cable x 1 pc	DMA-66 80pin IDE Cable
FDD Cable x 1 pc	34 to 34-pin Standard Header Flat Ribbon Cable
Driver Utility CD-ROM x 1 pc	Drivers & Utilities
User's Manual x 1 pc	This User's Manual

1.5 BOARD LAYOUT
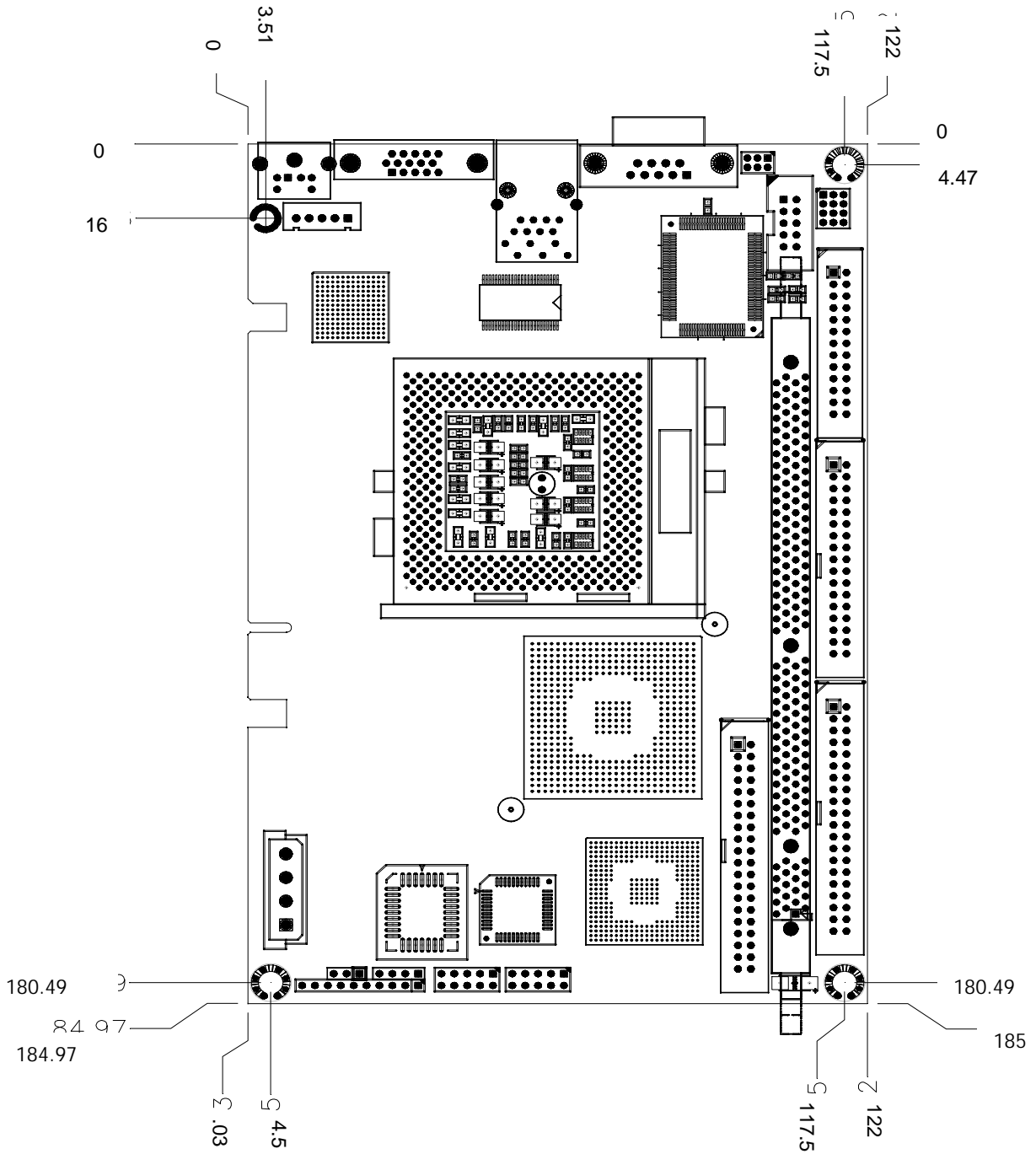
2. JUMPER SETTINGS AND CONNECTORS

2.1 BOARD OUTLINE OF AR-B1641
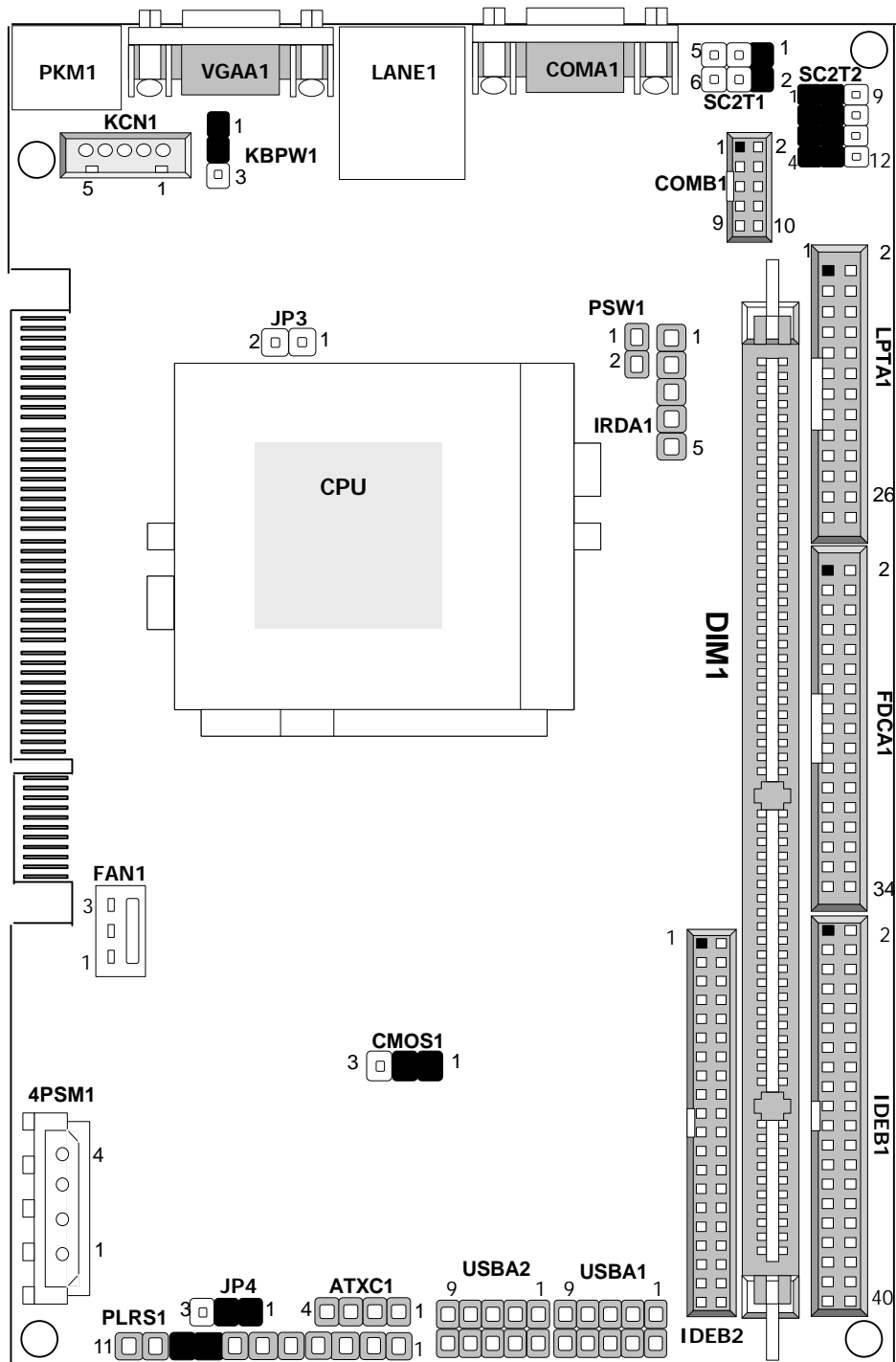
2.2 JUMPER SETTING SUMMARY OF AR-B1641

Location	Function
JP4	For AT & ATX Function
KBPW1	For Keyboard Voltage
JP3	For 82562ET LAN Function
SC2T1 / SC2T2	Select COM2 Type
CMOS1	Clear CMOS

2.2.1 For AT&ATX Function (JP4)

JP4	Description		
1-2	VCC	Default	AT Function
2-3	STB5V		ATX Function
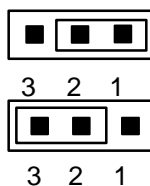
2.2.2 For Keyboard Voltage (KBPW1)

KBPW1	Description
1-2	VCC
2-3	5VSB
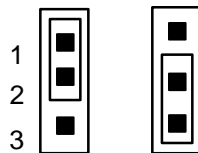
2.2.3 For 82562ET LAN Function (JP3)

JP3	Description
OFF	Enabled
ON	Disabled
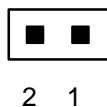
2.2.4 Select COM2 Type (SC2T2/SC2T1)

COM2 Type	SC2T2	SC2T1
RS-232 (Default)	1-5,2-6,3-7,4-8	1-2
RS-422	5-9,6-10,7-11,8-12	3-4
RS-485	5-9,6-10,7-11,8-12	5-6
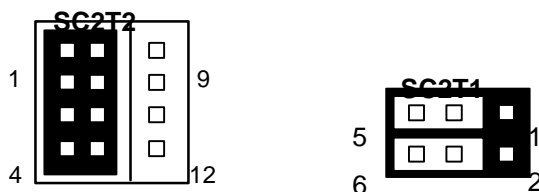
2.2.5 Clear CMOS (CMOS1)

Description	CMOS1
Normal (Default)	1-2
CLEAR CMOS	2-3

```
3   2   1
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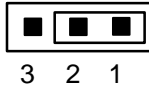
Note: If you forget your password, the only way to solve this problem is to discharge the CMOS memory by turning power off and placing a shunt on the CMOS1 (2-3) for 5 seconds, then removing the shunt.

2.3 I/O CONNECTOR SUMMARY

Connector	Function
ATXC1	ATX Power Expansion (Header)
PLRS1	Connector for Power LED, Reset, Speaker Connector, HD LED
IRDA1	Consumer Remote Control IR (CIR)
PSW1	ATX Power ON Switch (Header)
4PSM1	Power Connector
USBA1	USB Port#1 Connector
USBA2	USB Port#2 Connector
VGAA1	VGA Connector
LPTA1	Parallel Port Connector (Header)
IDEB1/2	IDE Interface Connector
PKM1	PS/2 Keyboard & Mouse Connector (Mini Din)
FAN1	FAN Connector
KCN1	5pin Keyboard Cable Connector
COMA1	RS-232 Serial Port#1 Connector (D-Sub)
COMB1	Serial Port#2 Connector (Header)
FDCA1	Floppy Interface Connector (Header)
LANE1	LAN Connector

2.3.1 ATX Power Expansion Header (ATXC1)

Pin No.	Description
1	Ground
2	5V Standby
3	Ground
4	Power ON

ATXC1

■ ■ ■ ■

4   3   2   1
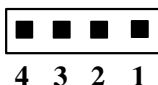
Note: To have full features from ATX power, the ATXC1 should be wired to the connectors with the same function on the Backplane. Please refer to the connector definition and description for more information.

2.3.2 Power LED, HD LED, Reset, Speaker Connector (PLRS1)

PLRS1

■ ■ │ ■ ■ │ ■ ■ ■ ■ ■ ■

11   1
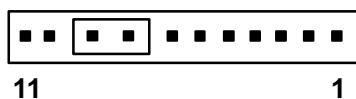
Pin No.	Description
1	Power LED +
2	Power LED +
3	GND
4	HDD LED +
5	HDD LED -
6	RESET SW +
7	RESET SW – (GND)
8	External Speaker -
9	Internal Buzzer -
10	NC
11	External Speaker +

Default: 8-9(ON) Internal Buzzer

2.3.3 Consumer Remote Control IR/CIR (IRDA1)

IRDA1
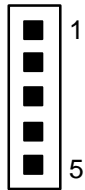
Pin No.	Description
1	+5V
2	NC
3	CIRRX
4	Ground
5	CIRTX

2.3.4 ATX Power ON Switch/Header (PSW1)

PSW1

Pin No.	Description
1	SWON-
2	Ground

2.3.5 4 Pin Power Connector/Big-4P Male (4PSM1)

4PSM1
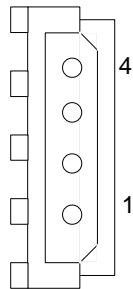
Pin No.	Description
1	+12V
2	Ground
3	Ground
4	+5V

2.3.6 USB Port #1 Connector (USBA1)

USBA1

9   1

10   2
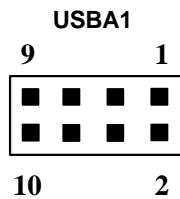
Pin No.	Description	Pin No.	Description
1	USB_VCC	2	USB_VCC
3	USB D0-	4	USB D1-
5	USB D0+	6	USB D1+
7	Ground	8	Ground
9	USB Port#1Ground	10	USB Port#1 Ground

2.3.7 USB Port #2 Connector 2x5 Pin 2.54mm (USBA2)

USBA2

9   1

10   2
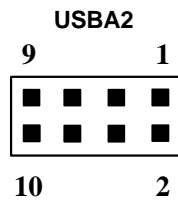
Pin No.	Description	Pin No.	Description
1	USB_VCC	2	USB_VCC
3	USB D2-	4	USB D3-
5	USB D2+	6	USB D3+
7	Ground	8	Ground
9	USB Port#2Ground	10	USB Port#2 Ground

2.3.8 External VGA Connector/15 Pin D-Sub (VGAA1)

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5                    1
10                   6
15                   11
```

VGAA1
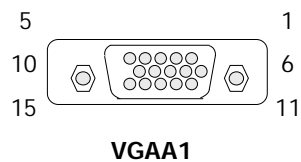
Pin No.	Description
1	Red Color Signal
2	Green Color Signal
3	Blue Color Signal
4	NC
5	Ground
6	Ground
7	Ground
8	Ground
9	NC
10	Ground
11	NC
12	DDC-DATA
13	H-Sync.
14	V-Sync.
15	DDC-CLK

2.3.9 Parallel Connector/26 Pin 2.54mm Pitch Header (LPTA1)
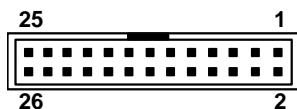
Pin No.	Description	Pin No.	Description
1	Strobe #	2	Auto Form Feed
3	Data0	4	Error #
5	Data1	6	Initialize #
7	Data2	8	Printer Select IN #
9	Data3	10	Ground
11	Data4	12	Ground
13	Data5	14	Ground
15	Data6	16	Ground
17	Data7	18	Ground
19	Acknowledge #	20	Ground
21	Busy	22	Ground
23	Paper Empty	24	Ground
25	Printer Select	26	NC

2.3.10 IDE Interface Connector (IDEB1/2)
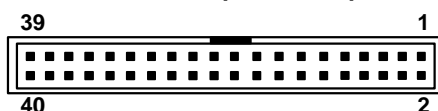
Pin No.	Description	Pin No.	Description
1	Reset #	2	Ground
3	Data 7	4	Data 8
5	Data 6	6	Data 9
7	Data 5	8	Data 10
9	Data 4	10	Data 11
11	Data 3	12	Data 12
13	Data 2	14	Data 13
15	Data 1	16	Data 14
17	Data 0	18	Data 15
19	Ground	20	NC
21	DMA REQ#	22	Ground
23	IOW #	24	Ground
25	IOR #	26	Ground
27	IOCHRDY	28	Ground
29	DMA ACK #	30	Ground
31	Interrupt	32	NC
33	SA1	34	PD80P / SD80P
35	SA0	36	SA2
37	HDC CS0 #	38	HDC CS1 #
39	HDD Active LED #	40	Ground

2.3.11 PS/2 Keyboard & Mouse Connector/Mini Din　Dual Mini Din (PKM1)

PKM1
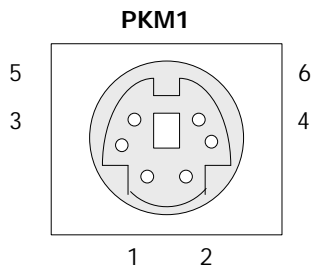
Pin No.	Description
1	PS/2 Keyboard Data
2	PS/2 Mouse Data
3	Ground
4	+5V
5	PS/2 Keyboard Clock
6	PS/2 Mouse Clock

2.3.12 FAN Connector (FAN1)

FAN1
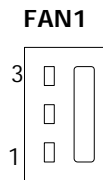
Pin No.	Description
1	Ground
2	+12V
3	FAN Status

2.3.13 Keyboard Cable Connector (KCN1)

KCN1
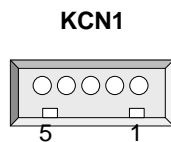
Pin No.	Description
1	Keyboard Clock
2	Keyboard Data
3	NC
4	Ground
5	+5V

2.3.14 RS-232 Serial Port #1 Connector/D-Sub (COMA1)

COMA1
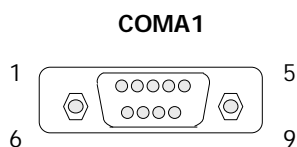
Pin No.	Description
1	Data Carrier Detect (DCDA #)
2	Receive Data (RXDA)
3	Transmit Data (TXDA)
4	Data Terminal Ready (DTRA #)
5	Ground (GND)
6	Data Set Ready (DSRA #)
7	Request To Send (RTSA #)
8	Clear To Send (CTSA #)
9	Ring Indicator (RIA #)

2.3.15 Serial Port #2 Connector/Header (COMB)

COMB1
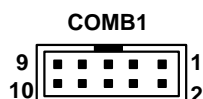
Pin No.	Description		
	RS-232	RS-422	RS-485
1	Data Carrier Detect (DCDB #)	Transmit Data– (TXD-)	Data -
2	Data Set Ready (DSRB #)	NC	NC
3	Receive Data (RXDB)	Transmit Data+ (TXD+)	Data +
4	Request To Send (RTSB #)	NC	NC
5	Transmit Data (TXDB)	Receive Data+ (RXD+)	NC
6	Clear To Send (CTSB #)	NC	NC
7	Data Terminal Ready (DTRB #)	Receive Data- (RXD-)	NC
8	Ring Indicator (RIB #)	NC	NC
9	Ground	NC	NC
10	NC	NC	NC

2.3.16 Floppy Interface Connector (FDCA1)
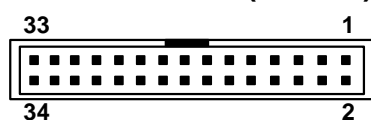
Pin No.	Description	Pin No.	Description
1	Ground	2	Density Select
3	Ground	4	NC
5	Ground	6	DS1
7	Ground	8	Index #
9	Ground	10	Motor Enable A #
11	Ground	12	Drive Select B #
13	Ground	14	Drive Select A #
15	Ground	16	Motor Enable B #
17	Ground	18	Direction #
19	Ground	20	Step #
21	Ground	22	Write Data #
23	Ground	24	Write Gate #
25	Ground	26	Track 0 #
27	Ground	28	Write Protect #
29	NC	30	Read Data #
31	Ground	32	Head Side Select #
33	NC	34	Disk Change #

2.3.17 Type 5/RJ-45+Transformer +2LED (LANE1)

14   1

LANE1
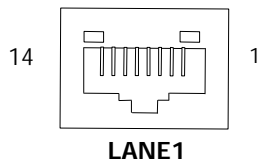
Pin No.	Description
1	TXD+
2	TXD-
3	TCM
4	NC
5	NC
6	RCM
7	RXD+
8	RXD-
9	Link LED- Green
10	Link LED+
11	NC
12	NC
13	Active LED- yellow
14	Active LED+

3. INSTALLATION

3.1 HARDWARE SETUP AND INSTALLATION

3.1.1 CPU Installation and Upgrading
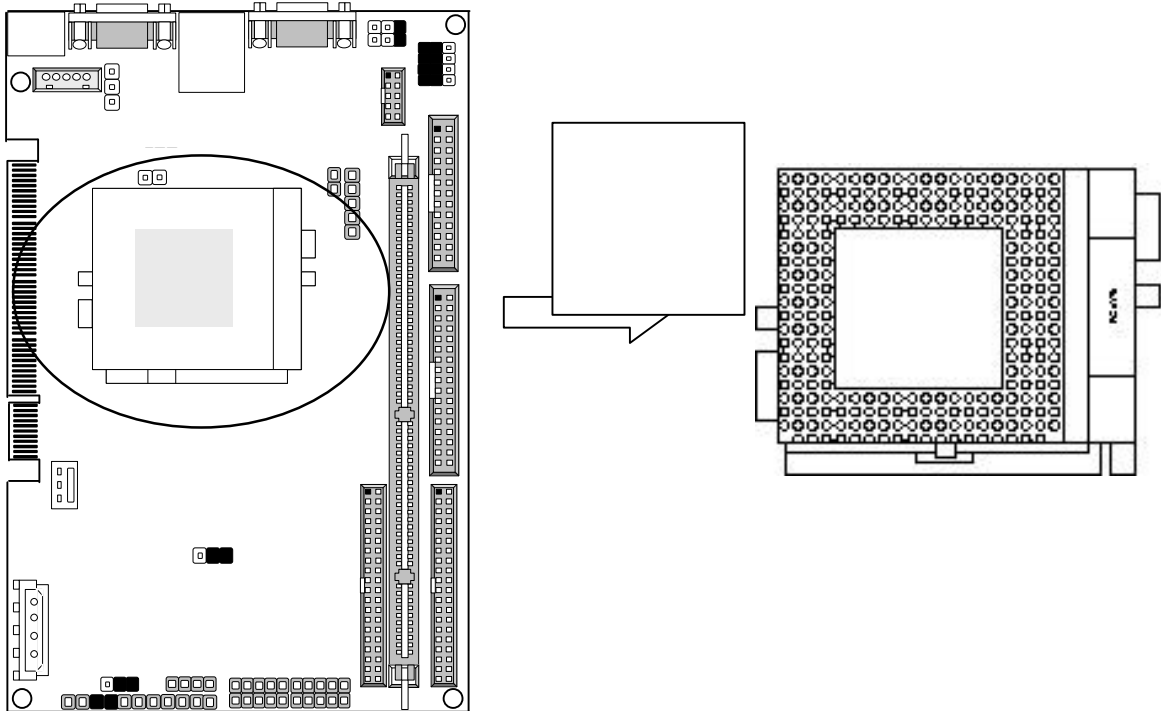
Step 1   Locate the ZIF socket and open it by first pulling the lever of socket upward.
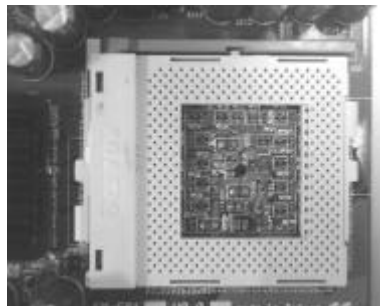
Step 2   Insert the CPU into the socket. Please keep the lever right angle when inserting CPU.

Step 3 When inserting the CPU please note the correct orientation as shown. The notched corner should point toward the end of the lever.
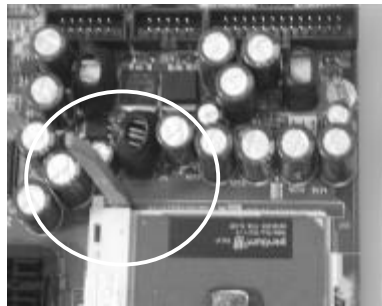
Step 4 Push the lever down to close the socket.
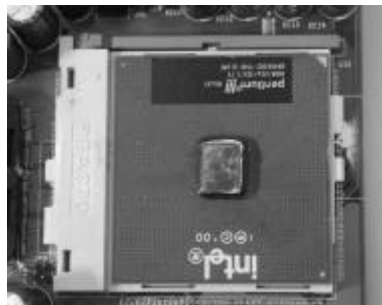
Step 5 Attach the heatsink onto the CPU.

Step 6 Push the clip of heatsink downward to hock the ear of socket firmly.

Step 7 Finally attach the fan cable to the CPU fan header.
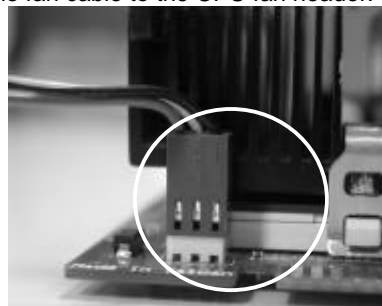
3.1.2 System Memory Installation

Step 1   Open latches of DIMM socket.
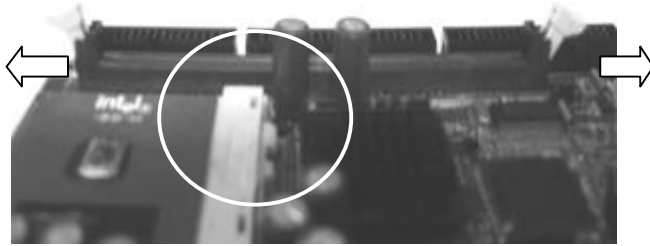
Step 2   Insert the RAM module into the DIMM socket.
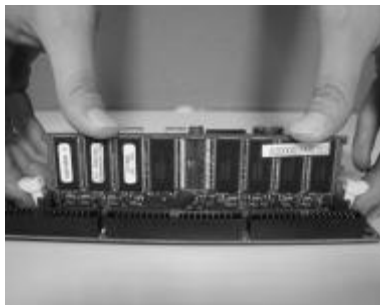
Step 3   Press the latches into the notches of the RAM module.
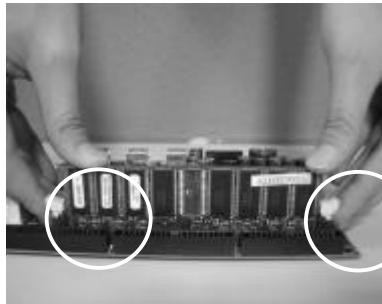
4. BIOS SETUP

The AMI's ROM BIOS provides a built-in Setup program that allows user to modify the basic system configuration and settings. The modified data will be stored in a battery-backed CMOS RAM so that these data will be retained even when the power is turned off.   In general, the information saved in the CMOS RAM stay unchanged unless there is configuration change in the system, such as hard drive replacement or new equipment is installed.   AMI is a registered trademark of the American Megatrends, Inc.

4.1 RUNNING AMI BIOS

The Setup Utility is stored in the BIOS ROM.   When the power of the computer system is turned on, a screen message appears to give you an opportunity to call up the Setup Utility; while the BIOS will enter the Power On Self Test (POST) routines.   The POST routines perform various diagnostic checks while initializing the board hardware.   If the routines encounter an error during the tests, the error will be reported in either of the two different ways – (1) hear a series of short beeps, or (2) see an error message on the screen display.   There are two kinds of error: fatal or non-fatal.   The system can usually continue to boot up sequence with the non-fatal errors.   Non-fatal error messages usually appear on the screen along with the following instructions:

" Press <F1> to RESUME "

Write down the message and press the F1 key to continue the bootup sequence.   After the POST routines are completed, the following message appears:

" Press DEL to enter SETUP "

Entering Setup
Turn on the power of the computer system and press <Del> immediately.   If you don't have the chance to respond, reset the system by simultaneously typing the <Ctrl>, <Alt> and <Delete> keys, or by pushing the ' Reset ' button on the system cabinet.   You can also restart by turning the system OFF then ON.

Note: BIOS versions are regularly updated form time to time without notices. Therefore, the options available in your setup screen may differ from the options shown in this manual.

4.2 AMI BIOS HIFLEX SETUP UTILITY

To access the AMI BIOS HIFLEX SETUP UTILITY program, press the <DEL> key.   The screen display will appears as:

Main Program Screen

AMIBIOS HIFLEX SETUP UTILITY
© 2001 American Megatrends, Inc.   All Rights Reserved
2.3.6.1.1.1.1.1   IAC-H669 Ver.A 2002-06-26 **2.3.6.1.1.1.1.2   Standard CMOS Setup** Advanced CMOS Setup Advanced Chipset Setup Power Management Setup PCI / Plug and Play Setup Peripheral Setup Hardware Monitor Setup Auto-Detect Hard Disks Change User Password Change Supervisor Password Auto Configuration with Optimal Settings Auto Configuration with Fail Safe Settings Save Settings and Exit Exit Without Saving
Standard CMOS setup for changing time, date, hard disk type, etc. ESC : Exit   ↑↓ : Sel   F2/F3 : Color   F10 : Save & Exit

This screen provides access to the utility's various functions.

Listed below is the explanation of the keys displayed at the bottom of the screen:

<ESC> **:** Exit the utility.

↑ ↓ **:** Use arrow keys ↑ ↓ to move cursor to your desired selection.

<F2> / <F3> **:** Changes background and foreground colors.

<F10> **:** Saves all changes made to Setup and exits program.

Standard CMOS Setup: Use this menu for basic system configurations, such as time, date, etc.

Advanced CMOS Setup: Use this menu to specify your settings for Advance CMOS.

Advanced Chipset Setup: Use this menu to change the values in the chipset registers and to optimize your system's performance.

Power Management Setup: Use this menu to specify your settings for power management.

PCI / Plug and Play Setup: Use this menu to specify your settings for PCI/Plug and Play.

Peripheral Setup: Use this menu to specify your settings for integrated peripherals.

Hardware Monitor Setup: This entry shows your PC's current status, and allows you to adjust CPU clock, core voltage, etc.

Auto-Detect Hard Disks: Use this menu to automatically detect the characteristics of most hard drives.

Change User Password: Use this menu to set User Password.

Change Supervisor Password: Use this menu to set Supervisor Password.

Auto Configuration with Optimal Settings: This option allows you to load the default values to your system configuration. These default settings are optimal and enable all high performance features.

Auto Configuration with Fail Safe Settings: This option allows you to load the troubleshooting default values permanently stored in the BIOS ROM. These default settings are non-optimal and disable all high-performance features.

Save Settings and Exit: Save changes to CMOS and exit setup.

Exit Without Saving: Abandon all changes and exit setup.

4.3 STANDARD CMOS SETUP

When you select the "STANDARD CMOS SETUP" on the main program, the screen display will appears as:

Standard CMOS Setup Screen

AMIBIOS SETUP – STANDARD CMOS SETUP
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| | Date (mm/dd/yyyy) | : Tue Apr 04, 2002 | | | | | | | Base Memory | : 639KB |
| Time (hh/mm/ss) | : 11:02:56 | | | | | | | Extd Memory | : 510MB |

Floppy Drive A : 1.44 MB $3^1/_2$
Floppy Drive B : Not Installed

	Type	Size	Cyln	Head	WPcom	Sec	LBA Mode	Blk Mode	PIO Mode	32 Bit Mode
Pri Master	: Auto									On
Pri Slave	: Auto									On
Pri Master	: Auto									On
Pri Slave	: Auto									On
Boot Sector Virus Protection		Disabled								

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

Standard CMOS Setup options are displayed by choosing the Standard field from the AMIBIOS HIFLEX SETUP menu. All Standard Setup options are described below.

Date: This allows you to set the system to the date that you want (usually the current date). The format is <day><month><date><year>.

Day	Day of the week, from Sun to Sat, determined by BIOS. Real-only.
Month	The month from Jan. through Dec.
Date	The date from 1 to 31 can be keyed by numeric function keys.
Year	The year can be adjusted by users.

Time: This allows you to set the system time that you want (usually the current time). The time format is <hour><minute><second>.

Pri Master/ Pri Slave: Press PgUp/<+> or PgDn/<-> to select the hard disk drive type. The specification of hard disk drive will show up on the right hand according to your selection.

Type	Type of the device.
Size	Capacity of the device.
Cyln	Number of cylinders.
Head	Number of heads.
Wpcom	Write precompensation cylinder.
Sec	Number of sectors.
Mode	Access mode.

Floppy Drive A, B : Choose the Floppy Drive A or B field to specify the floppy drive type.   The settings are 360 KB $5^1/_4$", 1.2 MB $5^1/_4$", 720 KB $3^1/_2$", 1.44 MB $3^1/_2$", or 2.88 MB $3^1/_2$".

Boot Sector Virus Protection: The item is to set the Virus Warning feature for IDE Hard Disk boot sector protection. When *Enabled*, BIOS will issue a virus warning message and beep if a write to the boot sector or the partition table of the HDD is attempted. Setting options: *Disabled* and *Enabled.*
Note: This feature only protects the boot sector, not the whole hard disk.

4.4 ADVANCED CMOS SETUP
When you select the "ADVANCED CMOS SETUP" on the main program, the screen display will appears as:

<u>**Advanced CMOS Setup Screen**</u>

AMIBIOS SETUP – ADVANCED CMOS SETUP		
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Quick Boot	Enabled	
1st Boot Device	FLOPPY	
2nd Boot Device	IDE-0	
3rd Boot Device	Disabled	
Try Other Boot Devices	Yes	
Initial Display Mode	BIOS	
Display Mode at Add-On ROM Init	Force BIOS	
Floppy Access Control	Read-Write	
S.M.A.R.T. for Hard Disks	Enabled	
BootUp Num-Lock	On	
Floppy Drive Seek	Disabled	
PS/2 Mouse Support	Enabled	
Primary Display	VGA/EGA	
Password Check	Setup	
L1 Cache	WriteBack	
L2 Cache	WriteBack	
System BIOS Cacheable	Enabled	
C000, 16K Shadow	Enabled	
C400, 16K Shadow	Enabled	
C800, 16K Shadow	Enabled	
CC00, 16K Shadow	Disabled	
D000, 16K Shadow	Disabled	
D400, 16K Shadow	Disabled	ESC : Exit ↑↓ : Sel
D800, 16K Shadow	Disabled	PgUp/PgDn : Modify
DC00, 16K Shadow	Disabled	F1: Help F2/F3: Color

Note: The above page of the Advanced CMOS Setup only shows part of the related options.   To proceed to the next options, please move your cursor downwards.

Advanced Setup options are displayed by choosing the Advanced icon from the WINBIOS Setup main menu.   All Advanced Setup options are described in this section.

Quick Boot: Setting the item to "Enabled" allows the system to boot within 5 seconds by skipping some check items. Settings: Enabled and Disabled.

1st/2nd/3rd Boot Device: The items allow you to set the sequence of boot devices where AMIBIOS attempts to load the operation system. Possible settings are:

IDE-0	The system will boot from the first HDD.
IDE-1	The system will boot from the second HDD.
IDE-2	The system will boot from the third HDD.
IDE-3	The system will boot from the fourth HDD.
Floppy	The system will boot from floppy drive.
ARMD-FDD	The system will boot from any ARMD device, such as LS-120 or ZIP drive, that function as a floppy drive.
ARMD-HDD	The system will boot from ARMD device, such as MO or ZIP drive, that function as hard disk drive.
CDROM	The system will boot from the CD-ROM.
SCSI	The system will boot from the SCSI.
NETWORK	The system will boot from the Network drive.
BBS-0	The system will boot from the first BBS (BIOS Boot Specification) compliant device.
BBS-1	The system will boot from the second BBS (BIOS Boot Specification) compliant device.
BBS-2	The system will boot from the third BBS (BIOS Boot Specification) compliant device.
BBS-3	The system will boot from the fourth BBS (BIOS Boot Specification) compliant device.
Disabled	Disable this sequence.

Note: Available settings for "1st/2nd/3rd Boot Device " vary depending on the bootable devices you have installed. For example, if you did not install a floppy drive, the setting" Floppy" does not show up.

Try Other Boot Devices: Setting the option to yes allow the system to try to boot from other devices if the system fails to boot from the 1st/2nd/3rd Boot Device.

Initial Display Mode: Set this option to Silent to enable the AMIBIOS Silent Boot feature. This option specifies the initial display mode when the system boots. The settings are:

Setting	Description
BIOS	The standard BIOS boot messages displayed before booting the system will appear on the system monitor.
Silent	The standard messages will not appear on the system monitor and the system will boot to the operating system immediately. Only BIOS error messages will appear.

Display Mode at Add-On ROM Init: This option specifies the system display mode that is set at the time that AMIBIOS POST initializes an optional adapter ROM. The settings are:

Setting	Description
Force BIOS	The display mode currently being used by AMIBIOS is used.
Keep Current	The current display mode is used.

Floppy Access Control: This option specifies the read/write access that is set when booting from a floppy drive. The settings are Read/Write or Read-Only. The Optimal and Fail-Safe default settings are Read/Write.

S.M.A.R.T. for Hard Disks: This allows you to activate the S.M.A.R.T. (Self-Monitoring Analysis & Reporting Technology) capability for the hard disks. S.M.A.R.T is a utility that monitors your disk status to predict hard disk failure. This gives you an opportunity to move data to a safe place before the hard disk becomes offline. Settings: Enabled and Disabled.

BootUp Num-Lock: Set this option to *Off* to turn the Num Lock key off when the computer is booted so you can use the arrow keys on both the numeric keypad and the keyboard. The settings are *On* or *Off*. The default setting is *On*.

Floppy Drive Seek: Set this option to *Enabled* to specify that floppy drive A: will perform a Seek operation at system boot. The settings are *Disabled* or *Enabled*. The Optimal and Fail-safe default settings are *Disabled*.

PS/2 Mouse Support: When this option is set *Enabled*, AMIBIOS supports a PS/2 type mouse. The settings are *Enabled* or *Disabled*. The default setting is *Disabled*. System Boot Up Sequence.

Primary Display: This option specifies the type of display monitor and adapter in the computer. The settings are *Mono, CGA40, CGA80, EGA/VGA* or *Absent.* The Optimal and Fail-Safe default settings are EGA/VGA.

Password Check: This option enables password checking every time the computer is powered on or every time WINBIOS Setup is executed.   If *Always* is chosen, a user password prompt appears every time the computer is turned on.   If *Setup* is chosen, the password prompt appears if WINBIOS is executed.   The Optimal and Power-On defaults are *Setup.*

L1 Cache: The option enabled or disabled the internal cache memory in the processor.

L2 Cache: The option enables secondary cache memory. If enabled is selected, external cache memory is enabled. If disabled is selected, external cache memory is disabled.

System BIOS Cacheable: When this option is set to Enabled, the contents of the F0000h system memory segment can be read from or written to L2 secondary cache memory. The contents of the F0000h memory segment are always copied from the BIOS ROM to system RAM for faster execution.

The settings are *Enabled* or *Disabled.* The Optimal default setting is *Enabled*. The Fail-Safe default setting is *Disabled*.

C000,16K Shadow	D000,16K Shadow
C400,16K Shadow	D400,16K Shadow
C800,16K Shadow	D800,16K Shadow
CC00,16K Shadow	DC00,16K Shadow

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

Setting	Description
Shadow	The contents of C0000h - C3FFFh are written to the same address in System memory (RAM) for faster execution.
Cache	The contents of the named ROM area are written to the same address in system memory (RAM) for faster execution, if an adaptor ROM will be using the named ROM area. Also, the contents of the RAM area can be read from and written to cache memory.
Disabled	The video ROM is not copied to RAM. The contents of the video ROM cannot be read from or written to cache memory.

The default setting is Cache.

In the AMIBIOS for the Intel Triton chipset, the E000h page is used as ROM during POST, but shadowing is disabled and the ROM CS# signal is disabled to make the E000h page available on the local bus.

4.5 ADVANCED CHIPSET SETUP

When you select the "ADVANCED CHIPSET SETUP" on the main program, the screen display will appears as:

Advanced Chipset Setup Screen

```
AMIBIOS SETUP – ADVANCED CHIPSET SETUP
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CPU BIST Enable                    Disabled
ICH Delayed Transaction            Enabled
DMA Collection Buffer Enable       Disabled
DRAM Page Closing Policy           Open
Memory Hole                        Disabled
ClkGen Spread Spectrum             Disabled
System memory Frequency            Auto
SDRAM Timing by SPD                Enabled
  DRAM Refresh                     15.6 uS
  DRAM Cycle time (SCLKs)          7/9
  CAS# Latency (SCLKs)             3
  RAS to CAS delay (SCLKs)         3
  SDRAM RAS# Precharge (SCLKs)     3
Internal Graphics Mode Select      1 MB
Display Cache Window Size          64 MB
AGP Aperture Window                64 MB
Initialize Display Cache Memory    Enabled
  Paging Mode Control              Closed
  RAS-to-CAS                       Default
  CAS Latency                      Slow
  RAS Timing                       Slow
  RAS Precharge Timing             Slow
CPU Latency Timer                  Disabled
USB Function                       Disabled
USB Device Legacy Support          Disabled
Port 64/60 Emulation               Disabled


                                              ESC : Exit          ↑↓ : Sel
                                              PgUp/PgDn :         Modify
                                              F1:Help             F2/F3 : Color
```

In the 'Advanced Chipset Setup' page, the system board designer predefines all options.   Any attempts to change the parameter of the fields are not recommended.

ICH Delayed Transaction: The ICH was designed to provide high performance support to PCI peripherals using its data prefetch capabilities. If a PCI master is burst reading and is disconnected by the ICH to prefetch the requested cache line, the ICH will Delay Transaction the cycle while it prefetches more data, and gire the bus to another agent.

DMA Collection Buffer Enable: Enable RMA Collection Buffer for LPC I/F and PC/PCI DMA. Settings are Disabled and Enabled.

DRAM Page Closing Policy: If this setting is open, GMCH will tend to leave the DRAM pages open. Settings are Open and Closed.

Memory Hole: This option allows the end user to specify the location of a memory hole for memory space requirement from ISA-bus cards.

ClkGen Spread Spectrum: This is to enable or disable Clock Generator's Spread Spectrum function, when overclocking the processor, always set it to Disabled.

SDRAM Timing by SPD: Selects whether DRAM timing is controlled by the SPD (Serial Presence Detect) EEPROM on the DRAM module. Setting to SPD enables CAS# Latency. RAS# Precharge, RAS# to CAS# Delay and Precharge Delay automatically to be determined by BIOS based on the configurations on the SPD. Selecting Manual allows users to configure these fields manually.

DRAM Refresh: This option specifies the refresh rate frequency for the installed system memory SDRAM DIMMs. If you have good quality of DRAM, you can choose longer refresh rate to get better system performance.

DRAM Cycle time (SCLKs): Select the number of SCLKs for an access cycle. The setting are:5/7 and 7/9.

CAS# Latency (SCLKs): This controls the timing delay (in clock cycles) before SDRAM starts a read command after receiving it. Settings are 3 Clocks and 2 Clocks. 2 Clocks increases the system performance while 3 Clocks provides more stable performance.

SDRAM RAS# to CAS# Delay (SCLKs): This field allows you to set the number of cycles for a timing delay between the CAS ans RAS strobe signals, used when DRAM is written to , read from or refreshed. Fast speed offers faster performance while slow speed offers more stable performance. Settings: 3 Clocks and 2 Clocks.

SDRAM RAS# Precharge (SCLKs): The field specifies the idle cycles before precharging an idle bank. Settings: 7 Clocks, 6 Clocks and 5 Clocks.

Internal Graphics Mode Select: This setting allows the Internal Graphics mode to be modified. The Optimal and Fail-Safe default settings are Enabled, 1MB.

Option	Description
Enabled, 1MB	This option allows the Internal Graphic controller to allocate 1MB of system memory for video display use. This is the default setting.
Enabled, 512KB	This option allows the Internal Graphic controller to allocate 512KB of system memory for video display use.
Disabled	This option allocates no system memory for video display use.

Display Cache Window Size: This setting allows the Display Cache Window Size to be modified. The Optimal and Fail-Safe default settings are 64MB.

Option	Description
32MB	This option allows caching of up to 32MB.
64MB	This option allows caching of up to 64MB. This is the default setting.

AGP Aperture Window: The field selects the size of the Accelerated Graphics Port(AGP) aperture. Aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation. Settings are 4MB, 8MB, 16MB, 32MB, 64MB, 128MB and 256MB.

Local memory Frequency: This item allows you to select the Memory Frequency.

Initialize Display Cache Memory: This option will enable or disable Local Memory (Display Cache) and UMA capable. Settings are Enabled and Disabled.

Paging Mode Control: Display cache paging mode. Settings are Open and Closed.

RAS-to-CAS: This field allows you to set the number of cycles for a timing delay between the CAS and RAS strobe signals, used when DRAM is written to , read from or refreshed. Fast speed offers faster performance while slow speed offers more stable performance.

CAS Latency: This controls the timing delay before SDRAM starts a read command after receiving it.

RAS Timing: This item controls the timing for RAS. Settings are Fast and Slow.

RAS Precharge Timing: This item controls the number of cycles for RAS to be allowed to precharge. Settings are Fast and Slow.

CPU Latency Timer: During Enabled, A deferrable CPU cycle will only be Deferred after it has been in a Snoop Stall for 31 clocks and another ADS# has arrived. During Disabled, A deferrable CPU cycle will be Deferred immediately after the GMCH receives another ADS#.

USB Function: This option will enable on-chip USB function to support USB (Universal Serial Bus) peripheral devices if user chooses the "Enabled" setting.

USB Device Legacy Support: This field supports Universal Serial Bus (USB) devices. If detected, USB controller legacy mode will be enabled. If not detected, USB controller legacy mode will be disabled.

Port 64/60 Emulation: Setting this option to allow a USB keyboard to act like a legally keyboard.

4.6 POWER MANAGEMENT SETUP

The "Power Management Setup" controls the CPU card's "Green" features.   When you select the   "POWER MANAGEMENT SETUP" on the main program, the screen display will appears as:

Power Management Setup Screen

AMIBIOS SETUP – POWER MANAGEMENT SETUP		
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ACPI Function	Disabled	
Power Management /APM	Enabled	
Video Power Down Mode	Stand By	
Hard Disk Power Down Mode	Stand By	
Standby Time Out	Disabled	
Keyboard & PS/2 Mouse	Monitor	
FDC / LPT/ COM Ports	Monitor	
Primary Master IDE	Monitor	
Primary Slave IDE	Ignore	
Secondary Master IDE	Monitor	
Secondary Slave IDE	Ignore	
Power Button Function	On/Off	
Restore on AC/ Power Loss	Power On	
Wake Up On PME/Lan	Enabled	
Resume By Alarm	Disabled	
Alarm Date	15	
Alarm Hour	12	ESC : Exit ↑↓ : Sel
Alarm Minute	30	PgUp/PgDn : Modify
Alarm Second	30	F1:Help F2/F3 : Color

Power Management Setup options are displayed by choosing the Power Management field from the WINBIOS Setup main menu.   All Power Management Setup options are described in this section.

ACPI Function: This item is to activate the ACPI (Advanced Configuration and Power Management Interface) Function. If your operating system is ACPI-aware, such as Windows 98SE/2000/ME, select Yes. Settings: Yes and No.

Power Management /APM: Setting to Enabled will activate the Advanced Power Management (APM) feature to enhance power saving modes. Settings: Enabled and Disabled.

Video Power Down Mode: This option specifies the power conserving state that the VESA VGA video subsystem enters after the specifies period of display inactivity has expired.

Hard Disk Power Down Mode: This option specifies the power conserving state that the hard disk drive enters after the specified period of hard drive inactivity has expired. The setting is Standby, or Suspend.

Standby Time Out: This option specifies the length of the period of system inactivity while the computer is in Full-On power state before the computer is placed in Standby mode. When this length of the time expires, the computer enters Standby Timeout state. In Standby mode, some power use is curtailed.

Keyboard & PS/2 Mouse: The item controls keyboard and PS/2 mouse to power on the system. Settings are Monitor and Ignore.

FDC / LPT/ COM Ports, Primary Master IDE, Primary Slave IDE: These items specify if the BIOS will monitor the activity of the listed hardware peripheral or component. If set to Monitor, any activity detected on the specified hardware peripheral or component will wake up the system or prevent the system from entering the power saving modes. Settings: Monitor and Ignore.

Primary Master IDE: The item controls Primary Master IDE to power on the system. Settings are Monitor and Ignore.

Primary Slave IDE: The item controls Primary Slave IDE to power on the system. Settings are Monitor and Ignore.

Secondary Master IDE: The item controls Secondary Master IDE to power on the system. Settings are Monitor and Ignore.

Secondary Slave IDE: The item controls Secondary Slave IDE to power on the system. Settings are Monitor and Ignore.

Power Button Function: This feature sets the function of the power button. Settings:

On/Off   The power button functions as normal on/off button.
Suspend   When you press the power button, the computer enters the suspend/sleep mode, but if the
                button is pressed for more than four seconds, the computer is turned off.

Restore on AC/ Power Loss: This item specifies whether your system will reboot after a power failure. Available options:

Power Off   Leaves the computer in the power off before state.
Power On   Reboots the computer.
Last State   Restores the system to the previous status before the power failure.

Wake Up On PME/LAN: When setting to Enabled, this feature allow your system to be awakened from the power saving modes through an incoming can from a signal from the LAN, or any event on PME(Power Management Event). Settings: Enabled and Disabled.
Note: You need to install a LAN card supporting power on function for Resume On PME/ LAN function.

Resume By Alarm: This is used to enable or disable the feature of booting up the system on a schedule time/ date. Settings: Enabled and Disabled.

Alarm Date/Hour/Minute/Second: If Resume On RTC Alarm is set to Enabled, the system will automatically resume (boot up) on a specific date/hour/minute/second specified in these fields. Available settings for each item are:

Alarm Date   01~31, Every Day
Alarm Hour   00~23
Alarm Minute   00~59
Alarm Second   00~59

4.7 PCI PLUG AND PLAY SETUP

Both the ISA and PCI buses on the CPU card use system IRQs & DMAs. You must set up the IRQ and DMA assignments correctly through the PCI / Plug and Play Setup utility, otherwise the SBC will not work properly.
When you select the "PCI / PLUG AND PLAY SETUP" on the main program, the screen display will appears as:

PCI / Plug and Play Setup Screen

AMIBIOS SETUP – PCI / PLUG AND PLAY SETUP		
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Plug and Play Aware O/S	No	
Reset Configuration Data	No	
PCI Latency Timer (PCI Clocks)	64	
Primary Graphics Adapter	External PCI	
Allocate IRQ to PCI VGA	Yes	
DMA Channel 0	PnP	
DMA Channel 1	PnP	
DMA Channel 3	PnP	
DMA Channel 5	PnP	
DMA Channel 6	PnP	
DMA Channel 7	PnP	
IRQ3	ISA / EISA	
IRQ4	ISA / EISA	
IRQ5	PCI / PnP	
IRQ7	ISA / EISA	
IRQ9	PCI / PnP	
IRQ10	PCI / PnP	
IRQ11	PCI / PnP	
IRQ14	PCI / PnP	ESC : Exit ↑↓ : Sel
IRQ15	PCI / PnP	PgUp/PgDn : Modify
		F1: Help F2/F3 : Color

PCI/PnP Setup options are displayed by choosing the PCI/PnP Setup icon from the WINBIOS Setup main menu. All PCI/PnP Setup options are described in this section.

Plug and Play Aware O/S: Set this option to " Yes" if the operation system installed in the computer is Plug and Play-aware. BIOS only detect and enable PnP ISA adapter cards that are required for system boot. The Windows 95 operating system detects and enables all other PnP-aware adapter cards. Windows 95 is PnP-aware. Set this option to " No" if the operating system (such as DOS, OS/2, Windows 3.x) does not use PnP.

Reset Configuration Data: This option allows the BIOS to rest the Configuration Data in the BIOS. The Optimal and Fail-Safe default setting is No.

Option	Description
No	This setting preserves the PnP data. It does not force the PnP data to be cleared on boot. This is the default setting.
Yes	This option allows the PnP data to be rebuilt by the BIOS at every boot.

PCI Latency Timer (PCI Clocks): This option is used to control PCI latency timer period (follow PCI clocks). Based on PCI specification 2.1 or later and PCI bus frequency in system, user can select different timer to meet their PCI bus environment.

Primary Graphics Adapter: Initialize the PCI video display card on PCI slot before initializing any other display device on the system. Thus the PCI slot display card becomes the primary display. Available options are [PCI] and [AGP].
Allocate IRQ to PCI VGA: This option will be used to allocate IRQ for PCI VGA card. In general, some of PCI VGA cards needs IRQ support.

DMA Channel 0/1/3/5/6/7: These items specify the bus that the system DMA (Direct Memory Access) channel is used. The settings determine if AMIBIOS should remove a DMA from the available DMAs passed to devices that are configurable by the system BIOS. The available DMA pool is determined by reading the ESCD NVRAM. If more DMAs must be removed from the pool, the end user can reserve the DMA by assigning an ISA/EISA setting to it.

IRQ3/4/5/7/9/10/11/14/15: These items specify the bus where the specified IRQ line is used. The settings determine if AMIBIOS should remove an IRQ from the pool of available IRQs passed to devices that are configurable by the system BIOS. The available IRQ pool is determined by reading the ESCD NVRAM. If more IRQs must be removed from the IRQ pool, the end user can use these settings to reserve the IRQ by assigning an ISA/EISA setting to it. Onboard I/O is configures by AMIBIOS. All IRQs used by onboard I/O are configured as PCI/PnP. If all IRQs are set to ISA/EISA, and IRQ14/15 are allocated to the onboard PCI IDE, IRQ9 will still be available for PCI and PnP devices. Settings: ISA/EISA and PCI/PnP.

Reserved Memory Size: This option specifies the size of the memory area reserved for legacy ISA adapter cards. The settings are Disabled, 16K, 32K, or 64K. The optimal and Fail-Safe default settings are Disabled.

Reserved Memory Address: This option specifies the beginning address (in hex) of the reserved memory area. The specified ROM memory area is reserved for use by legacy ISA adapter cards. The settings are C0000, C4000, C8000, CC000, D4000, D8000, or DC000. The Optimal and Fail-safe default settings are C0000.

4.8 PERIPHERAL SETUP

When you select the "PERIPHERAL SETUP" on the main program, the screen display will appears as:

Peripheral Setup Screen

```
┌──────────────────────────────────────────────────────────────────────────────┐
│                    AMIBIOS SETUP – PERIPHERAL SETUP                            │
│              © 2001 American Megatrends, Inc.   All Rights Reserved            │
├────────────────────────────────────────────────┬───────────────────────────────┤
│ OnBoard FDC                       Enabled        │                               │
│ OnBoard Serial Port 1             3F8/COM1       │                               │
│ OnBoard Serial Port 2             2F8/COM2       │                               │
│  Serial Port 2 Mode               Normal         │                               │
│    IR Duplex Mode                 Half Duplex    │                               │
│    IR Pin Select                  IRRX/IRTX      │                               │
│ OnBoard Parallel Port             378            │                               │
│   Parallel Port Mode              Normal         │                               │
│   EPP Version                     N/A            │                               │
│   Parallel Port IRQ               7              │                               │
│   Parallel Port DMA Channel       N/A            │                               │
│ Keyboard PowerOn Function         Disabled       │ ESC : Exit        ↑↓ : Sel    │
│ Mouse PowerOn Function            Disabled       │ PgUp/PgDn :       Modify      │
│ On-Chip IDE                       Both           │ F1:Help           F2/F3 : Color│
└────────────────────────────────────────────────┴───────────────────────────────┘
```

Peripheral Setup options are displayed by choosing the Peripheral Setup icon from the WINBIOS Setup main menu. All Peripheral Setup options are described in this section.

Onboard FDC: This option enables the floppy drive controller on the motherboard. The settings are Enabled or Disabled. The Optimal default setting is Enabled.   The Fail-Safe default setting is Disabled.

Onboard Serial Port1: This option enables serial port 1 on the motherboard and specifies the base I/O port address for serial port 1.   The settings are 3F8h, 3E8h, or Disabled. The Optimal default setting is 3F8h. The Fail-Safe default setting is Disabled.

Onboard Serial Port2: This option enables serial port 2 on the motherboard and specifies the base I/O port address for serial port 2.   The settings are 2F8h, 2E8h, or Disabled. The Optimal default setting is 2F8h. The Fail-Safe default setting is Disabled.

Serial Port2 Mode: This item sets the operation mode for Serial Port 2 (COM 2). Settings: Normal, 1.6 uS,3/16 Baud and ASKIR.

Select Duplex Mode: Two options are available: Full and Half. The default setting is Full. This item lets you choose the operation mode for your IR KIT. Some IR device only can work at half duplex mode. Refer to your IR KIT user's guide to find out which setting is correct.

IR Pin Select: Selection of EPP Version

Onboard Parallel Port: This option enables the parallel port on the motherboard and specifies the parallel port base I/O port address. The settings are 378h, 278h, or Disabled.   The Optimal default setting is 378h. The Fail-Safe default setting is Disabled.

Parallel Port Mode : This option specifies the parallel port mode. ECP and EPP are both bidirectional data transfer schemes that adhere to the IEEE P1284 specifications.   The default setting is *Normal*.   The other settings are:

Setting	Description
Normal	Normal The normal parallel port mode is used. This is the default setting.
Cache	Bi-Dir Use this setting to support bidirectional transfers on the parallel port.
EPP	The parallel port can be used with devices that adhere to the Enhanced Parallel Port (EPP) specification. EPP uses the existing parallel port signals to provide asymmetric bidirectional data transfer driven by the host device.
ECP	The parallel port can be used with devices that adhere to the Extended Capabilities Port (ECP) specification. ECP uses the DMA protocol to Achieve transfer rates of approximately 2.5 Mbs. ECP provides symmetric Bidirectional communications.

EPP Version: Selection of EPP Version

Parallel Port IRQ: This option specifies the IRQ used by the parallel port. The Optimal and Fail-Safe default setting is 7.

Option	Description
5	This option allows the serial port to use Interrupt 3.
7	This option allows the serial port to use Interrupt 7. This is the default setting. The majority of parallel ports on computer systems use IRQ7 and I/O Port 378H as the standard setting.

Parallel Port DMA Channel: This option is only available if the setting for the **Parallel Port Mode** option is ECP.   The settings are Disabled, DMA CH (channel) 0, DMA CH 1, or DMA CH 3. The default setting is N/A.

Keyboard Power-on Function: The item controls which button on the PS/2 keyboard can power on the system. Settings are Disabled, PowerKey, Any Key, and Specific Key.

Mouse Power-on Function: The item controls which button on the PS/2 mouse can power on the system. Settings are Disabled, Left button and Right button.

On-Chip IDE: This allows you to enable or disable on-chip IDE controller. Settings are Disabled, Primary, Secondary and Both.

4.9 HARDWARE MONITOR SETUP

When you select the "Hardware Monitor Setup" on the main program, the screen display will appears as:

Hardware monitor Setup Screen

AMIBIOS SETUP – HARDWARE MONITOR SETUP		
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CPU Temperature Detected by	CPU	
CPU Temperature	20 /68	
Fan1 Speed	4218 RPM	
Vcore	1.664 V	
Vtt	1.504 V	
+3.3V	3.280 V	
+5V	4.756 V	
+12V	11.802 V	
-12V	-12.482 V	
+3.3V Standby	3.312 V	ESC : Exit ↑↓ : Sel
		PgUp/PgDn : Modify
		F1:Help F2/F3 : Color

Shut Down Temperature: This option is for setting the Shutdown temperature level for the processor. When the processor reach the temperature you set, this will shutdown the system.

CPU Temperature, Fan1 Speed, Fan2 Speed, VCORE, +3.3V Standby, +3.3V, +5V, +1.85V, -5V, -12V, +12V: These items display the current status of all monitored hardware devices/components such as system voltages, temperatures and fan speeds.

4.10 SET SUPERVISOR/USER PASSWORD

When you select this function, a message as below will appear on the screen:

AMIBIOS HIFLEX SETUP UTILITY
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| 3.9.1.1.1.1.1.1 | IAC-H669 Ver.A 2002-06-26 |
| 3.9.1.1.1.1.1.2 | Standard CMOS Setup |

Advanced CMOS Setup
Advanced Chipset Setup
Power Management Setup

Enter new supervisor password:

Auto Configuration with Optimal Settings
Auto Configuration with Fail Safe Settings
Save Settings and Exit
Exit Without Saving

Standard CMOS setup for changing time, date, hard disk type, etc.
ESC : Exit   ↑↓ : Sel   F2/F3 : Color   F10 : Save & Exit

Type the password, up to six characters in length, and press<Enter>. The password typed now will replace any previously set password from CMOS memory. You will be prompted to confirm the password. Retype the password and press<Enter>. You may also press<Esc> to abort the selection and not enter a password.

To clear a set password, just press<Enter> when you are prompted to enter the password. A message will show up confirming the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup without entering any password.

When a password has been set, 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 have AMIBIOS to request a password each time the system is booted. This would prevent unauthorized use of your computer. The setting to determine when the password prompt is required is the PASSWORD CHECK option of the ADVANCED BIOS FEATURES menu. If the PASSWORD CHECK option is set to Always, the password is required both at boot and at entry to Setup. If set to Setup, password prompt only occurs when you try to enter Setup.

Note: About Supervisor Password & User Password
  Supervisor Password   : Can enter and change the settings of the setup menu.
  User Password   : Can only enter but do not have the right to change the settings of the setup menu.

4.11 HIGH PERFORMANCE SETUP DEFAULTS

The options on the main menu allow users to restore all of the BIOS settings to High Performance defaults. The High Performance Defaults are the default values set by the manufacturer for the best system performance but probably will cause a stability issue.

When you select High Performance Defaults, a message as below appears:

AMIBIOS HIFLEX SETUP UTILITY - VERSION 1.38
© 2001 American Megatrends, Inc.   All Rights Reserved
3.9.1.1.1.1.1.3   IAC-H669 Ver.A 2002-06-26   3.9.1.1.1.1.1.4   Standard CMOS Setup Advanced CMOS Setup Advanced Chipset Setup Power Management Setup Load high Performance Settings (Y/N)? N   Auto Configuration with Optimal Settings Auto Configuration with Fail Safe Settings Save Settings and Exit Exit Without Saving
Load configuration settings giving highest performance ESC : Exit   ↑↓ : Sel   F2/F3 : Color   F10 : Save & Exit

Pressing "Y" loads the defaults BIOS values that enable the best system performance but may lead to a stability issue.

4.12 LOAD FAIL-SAFE DEFAULTS

When you press "Enter" on this item, you get a confirmation dialog box with a message similar to:

AMIBIOS HIFLEX SETUP UTILITY
© 2001 American Megatrends, Inc.   All Rights Reserved
3.9.1.1.1.1.1.5   IAC-H669 Ver.A 2002-06-26   3.9.1.1.1.1.1.6   Standard CMOS Setup Advanced CMOS Setup Advanced Chipset Setup Power Management Setup Load failsafe Settings (Y/N)? N   Auto Configuration with Optimal Settings Auto Configuration with Fail Safe Settings Save Settings and Exit Exit Without Saving
Load failsafe configuration settings ESC : Exit   ↑↓ : Sel   F2/F3 : Color   F10 : Save & Exit

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

4.13 SAVE & EXIT SETUP

When you want to quit the Setup menu, you can select this option to save the changes and quit. A message as below will appear on the screen.

AMIBIOS HIFLEX SETUP UTILITY
© 2001 American Megatrends, Inc.   All Rights Reserved
3.9.1.1.1.1.1.7   IAC-H669 Ver.A 2002-06-26   3.9.1.1.1.1.1.8   Standard CMOS Setup Advanced CMOS Setup Advanced Chipset Setup Power Management Setup Save Current settings and exit (Y/N)? Y   Auto Configuration with Optimal Settings Auto Configuration with Fail Safe Settings Save Settings and Exit Exit Without Saving
Write the current settings to CMOS and exit ESC : Exit   ↑↓ : Sel   F2/F3 : Color   F10 : Save & Exit

Typing Y will allow you to quit the Setup Utility and save the user setup changes to RTC CMOS.
Typing N will return to Setup Utility.

4.14 EXIT WITHOUT SAVING

When you want to quit the Setup menu, you can select this option to abandon the changes. A message as below will appear on the screen.

AMIBIOS HIFLEX SETUP UTILITY
© 2001 American Megatrends, Inc.   All Rights Reserved
3.9.1.1.1.1.1.9   IAC-H669 Ver.A 2002-06-26 3.9.1.1.1.1.1.10   Standard CMOS Setup Advanced CMOS Setup Advanced Chipset Setup Power Management Setup Quit without saving (Y/N)? N   Auto Configuration with Optimal Settings Auto Configuration with Fail Safe Settings Save Settings and Exit Exit Without Saving
Exit without saving the current settings ESC : Exit   ↑↓ : Sel   F2/F3 : Color   F10 : Save & Exit

Typing Y will allow you to quit the Setup Utility without saving any changes to RTC CMOS.
Typing N will return to the Setup Utility.

5 DRIVERS SUPPORT

5.1 USE YOUR DRIVER CD-ROM

This chapter provides information on how to install the drivers in generally and related directory that come with the CD-ROM in the package. Please follow the instructions set forth on the screen carefully.

1. Find the directory for your O/S accordingly.
2. Always read the README.TXT. before installation.
3. Run the *.EXE., and follow the installation prompt step by step.

5.2 FILE DIRECTORY
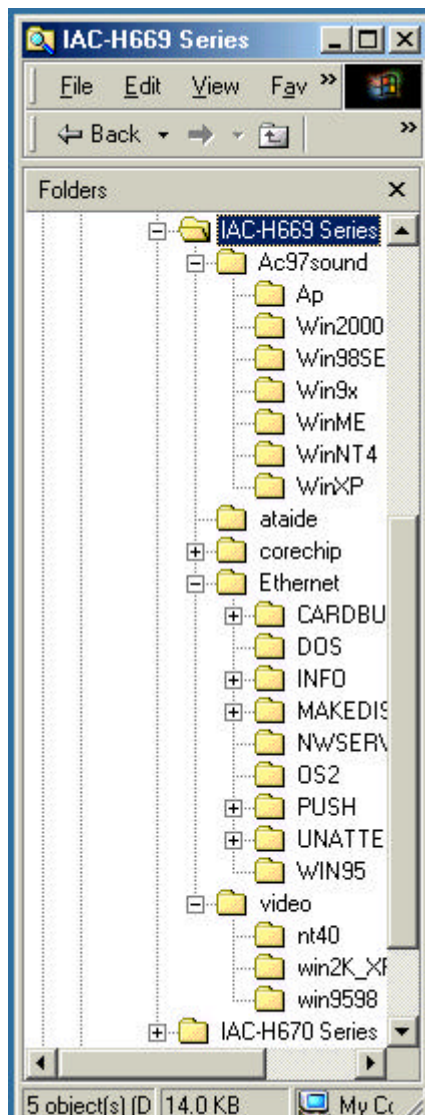
APPENDIXA. WATCHDOG TIMER

You can enable the watchdog when your application software monitors an unexpected or not respond, then the timer generates a reset to reboot your system. During the period of enable to reset, you could still cancel reset by disabling the watchdog. Decide the way you want to set the period for reset by selecting hardware or software watch-dog (if both of them are available). Software setting period, normally setting watchdog timer period to 64 level.

Software watchdog using example
EX: For DOS

C:\ DEBUG
    - O   450   0~3F ↵   …….Enable
    - O   444   0~3F ↵   …….Disable

0~F

Hex	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
Sec	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17

10~1F

Hex	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
Sec	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

20~2F

Hex	20	21	22	23	24	25	26	27	28	29	2A	2B	2C	2D	2E	2F
Sec	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48

30~3F

Hex	30	31	32	33	34	35	36	37	38	39	3A	3B	3C	3D	3E	3F
Sec	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64

APPENDIX A. ADDRESS MAPPING

IO Address Map

I/O MAP	ASSIGNMENT
0x0022-0x003F	PCI bus
0x0044-0x0047	PCI bus
0x004C-0x006F	PCI bus
0x0072-0x007F	PCI bus
0x0090-0x0091	PCI bus
0x0093-0x009F	PCI bus
0x00A2-0x00BF	PCI bus
0x00E0-0x00EF	PCI bus
0x0100-0x0CF7	PCI bus
0x0D00-0xFFFF	PCI bus
0x03B0-0x03BB	Intel(R) 82815 Graphics Controller
0x03C0-0x03DF	Intel(R) 82815 Graphics Controller
0xCF00-0xCF3F	Intel(R) PRO/100 VE Network Connection
0x0A79-0x0A79	ISAPNP Read Data Port
0x0279-0x0279	ISAPNP Read Data Port
0x0274-0x0277	ISAPNP Read Data Port
0xFF00-0xFF0F	Intel(r) 82801BA Ultra ATA Controller
0x01F0-0x01F7	Primary IDE Channel
0x03F6-0x03F6	Primary IDE Channel
0x0170-0x0177	Secondary IDE Channel
0x0376-0x0376	Secondary IDE Channel
0x0020-0x0021	Programmable interrupt controller
0x00A0-0x00A1	Programmable interrupt controller
0x0040-0x0043	System timer
0x0000-0x000F	Direct memory access controller
0x0080-0x0090	Direct memory access controller
0x0094-0x009F	Direct memory access controller
0x00C0-0x00DE	Direct memory access controller
0x0060-0x0060	PC/AT PS/2 Keyboard (84-Key)
0x0064-0x0064	PC/AT PS/2 Keyboard (84-Key)
0x0378-0x037F	Printer Port (LPT1)
0x02F8-0x02FF	Communications Port (COM2)
0x03F8-0x03FF	Communications Port
0x03F0-0x03F5	Standard floppy disk controller
0x03F7-0x03F7	Standard floppy disk controller
0x0061-0x0061	System speaker
0x0070-0x0071	SystemCMOS/real time clock
0x00F0-0x00FF	Numeric data processor

Memory Map:

MEMORY MAP	ASSIGNMENT
0xA0000-0xBFFFF	PCI bus
0xA0000-0xBFFFF	Intel(R) 82815 Graphics Controller
0xCC000-0xDFFFF	PCI bus
0xE1000-0xEFFFF	PCI bus
0x20000000-0xFFFDFFFF	PCI bus
0xE8000000-0xEBFFFFFF	Intel(R) 82815 Graphics Controller
0xEFF80000-0xEFFFFFFF	Intel(R) 82815 Graphics Controller
0xEFDFF000-0xEFDFFFFF	Intel(R) PRO/100 VE Network Connection
0xFFB80000-0xFFBFFFFF	Intel(r) 82802 Firmware Hub Device
0x0000-0x9FBFF	System board
0x9FC00-0x9FFFF	System board
0xF0000-0xFFFFF	System board
0x100000-0x1FEFFFFF	System board
0x1FF00000-0x1FFFFFFF	System board
0xFFFE0000-0xFFFFFFFF	System board

APPENDIX B. INTERRUPT REQUEST (IRQ)

SETTING	HARDWARE USING THE SETTING
01	PC/AT PS/2 Keyboard (84-Key)
02	
03	Communications Port (COM2)
04	Communications Port (COM1)
05	
06	Standard floppy disk controller
07	
08	System CMOS/real time clock
09	
10	Intel(R) PRO/100 VE Network Connection
11	
12	Logitech PS/2 Port Mouse
13	Numeric data processor
14	Primary IDE Channel
15	Secondary IDE Channel

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

TERMS AND CONDITIONS

Warranty Policy

1. All products are warranted against defects in materials and workmanship for a period of two years from the date of purchase by the customer.

2. The buyer will bear the return freight charges for goods that are returned for repair within the warranty period whereas manufacturer will bear the return to user freight charges after repair.

3. The buyer will pay for repair (for the replaced materials plus service time) and transportation charges (both ways) for items after the expiration of the warranty period.

4. If the RMA Service Request Form does not meet the stated requirement as listed on "RMA Service " , RMA goods will be returned at the customer expense.

5. The following conditions are excluded from this warranty

    A. Improper or inadequate maintenance by the customer.

    B. Unauthorized modification or misuse.

    C. Operation outside of the environmental specifications for the product.

RMA Service

1. Request a RMA#:

Complete and fax to Supplier the "RMA Request Form" to obtain a RMA number.

2. Shipping:

    A. The customer is requested to fill up the problem code as listed. If none of the code is selected, please write the symptom description on the remark.

    B. Ship the defective units with freight prepaid.

    C. Mark the RMA # clearly on the box.

    D. Shipping damage as a result of inadequate packing is the customer's responsibility.

    E. Use the original packing materials whenever possible.

3. All RMA# are valid for 30 days only:

When RMA goods are received after valid RMA# period, the goods will be rejected.

When requesting RMA service, please fill out this **"RMA Service Request Form"**.
Without this form your RMA will be REJECTED!!!

RMA No:	Reasons to Return:	Repair(Please include failure details)	Testing Purpose

Company: Contact Person:

Phone No.   Purchased Date:

Fax No.:   Applied Date:

Return Shipping Address: _____

Shipping by: Air Freight   Sea   Express : _____   Others:_____

Item	Model Name	Serial Number	Configuration

Item	Problem Code	Failure Status

*Problem Code:

01:D.O.A.	07: BIOS Problem	13: SCSI	19: DIO
02: Second Time R.M.A.	08: Keyboard Controller Fail	14: LPT Port	20: Buzzer
03: CMOS Data Lost	09: Cache RMA Problem	15: PS2	21: Shut Down
04: FDC Fail	10: Memory Socket Bad	16: LAN	22: Panel Fail
05: HDC Fail	11: Hang Up Software	17: COM Port	23: CRT Fail
06: Bad Slot	12: Out Look Damage	18: Watchdog Timer	24: Others (Pls specify)

Request Party   *Confirmed By Supplier*

4.1.1.1 _____

_____

Authorized Signatures / Date   **Authorized Signatures / Date**

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