

IAC-F847 SERIES

**Full- size SBC with DDR/VGA
/Dual Gigabit LAN/HISA for
Socket 478 Pentium IV Processor**

User's Manual

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Chapter 1 General Information

1.1 Introduction

The IAC-F847 Series is a Pentium 4 PICMG Single Board Computer specifically designed for 478-pin socket Pentium 4 processor, AGP graphic, two 10/100Base-TX or Giga LAN Ethernet. This makes the IAC-F847 Series a perfect solution for not only popular networking devices like Firewall, Gateway, and e-Server, but also CTI (Computer Telephony Integration) equipments such as PBX, Digital Logger, etc.

IAC-F847, powered by Intel advanced 845 series chipset, and supports 478-pin socket Intel Pentium 4 processor. It supports Ultra DMA-33/66/100 for faster hard drive transmission speeds and contains health monitor hardware. Featured with 533/400MHz FSB (Front-Side-Bus), the IAC-F847 is also capable of providing 3 x the bandwidth than traditional Intel Pentium III platform.

Besides it's outstanding bandwidth and processing capability, the 845GV Integrate with 4 x AGP can provide IAC-F847 with the highest VGA performance available in the market. The IAC-F847 is also proved to be the most reliable and stable networking platform with the on-board server level dual Intel Ethernet chips.

In addition, IAC-F847 features two IDE ports, one FDD port, two COM ports with one selectable RS-232/422/485 and one multi-mode parallel port allows for more devices support and more flexibility. Other standard features include one socket for Compact Flash, six USB headers and one IrDA header. IAC-F847 has also incorporated Watchdog Timer that allows for monitoring ability to ensure system stability.

IAC-F847 Series is a high power & full engine Single Board Computer CPU card, carefully designed to be a feature-rich SBC CPU card at a reasonable price, this board elegantly meets industry needs and saves time and money by waiving the hassle of going through the extra effort and cost of additional I/O cards. Being standards-compliant, it is proved to be a quality product with high performance and stability in a long run.

1.2 Features

- Support high performance Socket 478 Intel® Pentium® 4 processors.
- Intel® 845GV chipset with 533MHz FSB
- Integrate Intel® AGP 4X Graphic that can share memory up to 64M
- Dual Intel® 82540 for GbE; Co-layout Intel 82562(LAN1) and 82551(LAN2) for FE

1.3 Specification

IAC-F847 Series

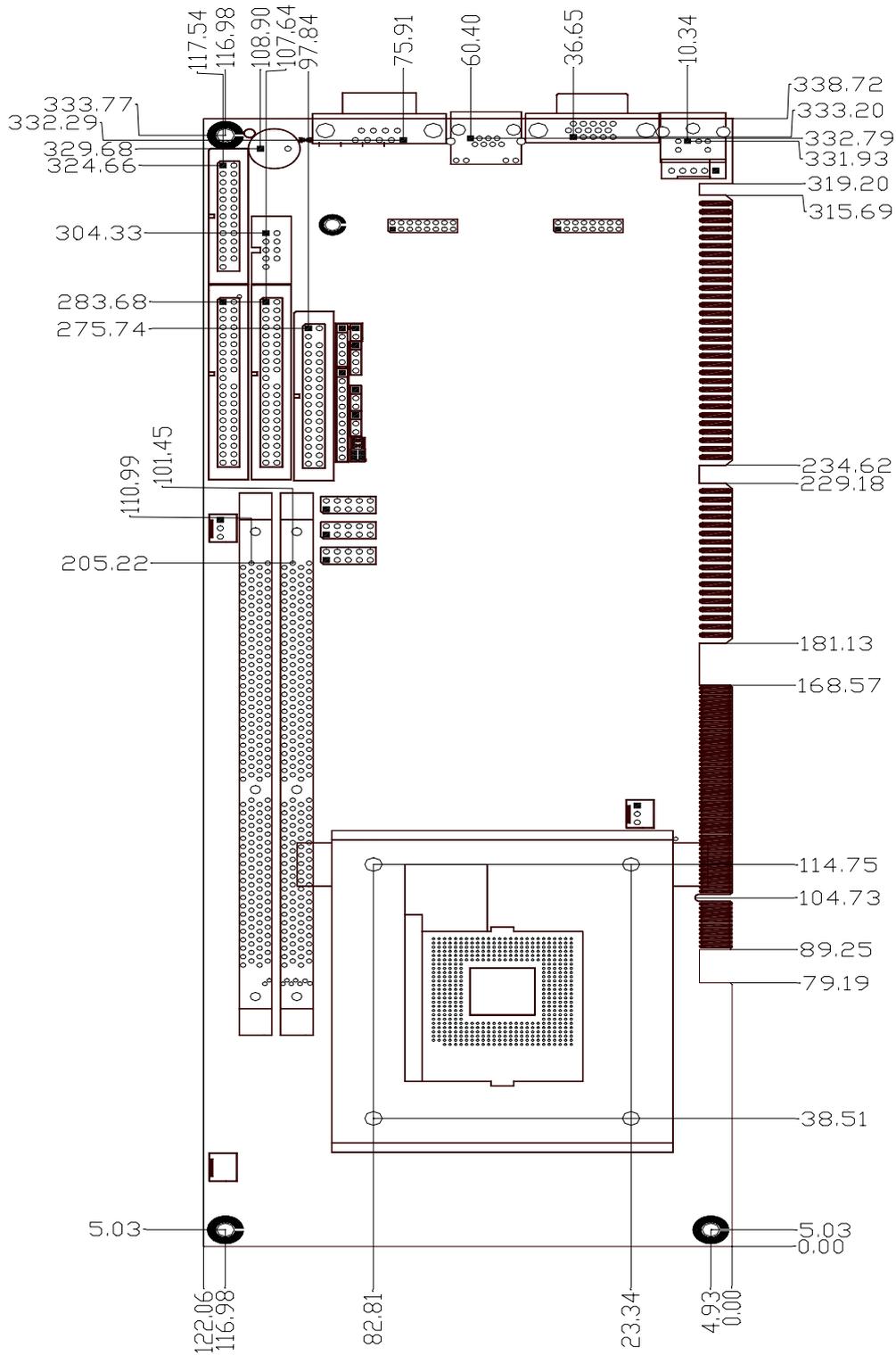
Processor	Intel® Pentium™ 4 / Celeron in Socket 478 processor, supports up to 3.06GHz(with Hyper Threading Technology) and above
Chipset	Intel® 845GV chipset 82845GV 533MHz FSB GMCH + 82801DB ICH4
System Memory / RAM	Two 184-pin DIMM sockets, support up to 2GB DDR 200/266 SDRAM without ECC Function (DDR266)
BIOS	Phoenix Award® BIOS
Flash Memory Disk	CF Type-II at solder side
VGA Controller	Int. Intel® GFX, DB15 connector
IDE Drive Interface	Two 20×2 Box header, support up to four IDE devices / ATA-33/66/100
Floppy Drive Interface	One 17×2 Box header, support up to two floppy devices
Serial Port	One DB9 (COM1: RS-232) and one 5×2 Box header (COM2: RS-232)
Parallel Port	One 13×2 Box header (SPP / EPP / ECP)
Bus Interface	PCI/ISA bus (High-Driver)
RTC	Internal RTC with LI Battery
Keyboard/Mouse Connector	One mini-Din6 PS/2 keyboard/mouse connector and one 5-pin keyboard header
Watchdog Timer	16-level time-out intervals for software
Universal Serial Bus	Support six USB with header
IR Interface	One IrDA compliant Infrared interface
Health Monitoring	System Temperature Alarm Sensor
Operating Temperature	0 °C~60 °C
Storage Temperature	-20 °C~70 °C
Dimensions	338 x 122 mm (13.3"×4.8")

1.4 Unpack your IAC-F847 Series and Accessory

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

- IAC-F847 Series SBC x 1 pc Single Board Computer
- Keyboard and Mouse Cable x 1 pc 6-pin 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 Printer Cable with Bracket and Key
- ATX Feature Cable x 1 pc 4-pin 40cm cable
- FDD Cable x 1 pc 34 to 34-pin Cable with Key
- Power Cable x 1 pc 20AWG Wire 1007 13 cm
- ATA Cable x 1 pc ATA100 40P IDE Impedence with Key
- Heat Sink + Fan Heat Sink + Fan 7 x9 x5.5 cm
- Driver Utility CD-ROM x 1 pc Drivers & Utilities
- User's Manual x 1 pc This User's Manual
- Keyboard Extension Cable x 1 pc 5-pin Cable for Keyboard Extension

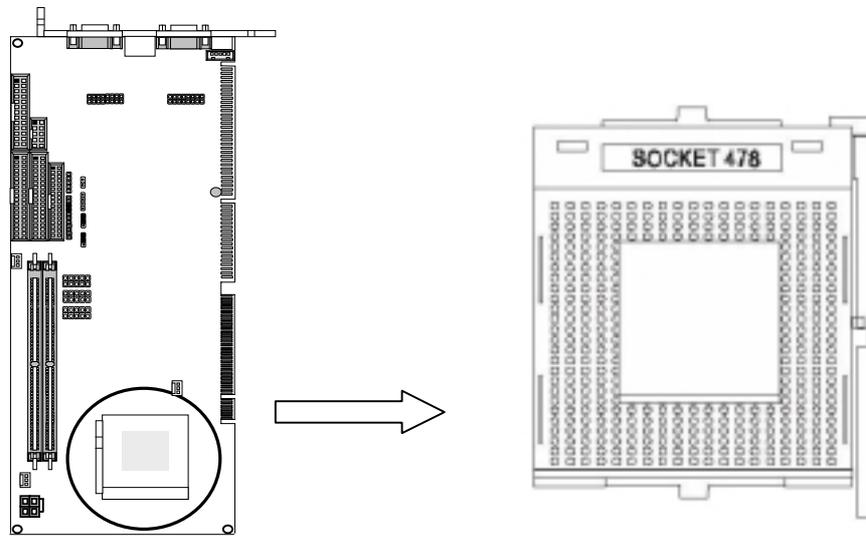
1.5 Board Layout



Chapter 2 Installation

2.1 Hardware Setup and Installation

2.1.1 CPU Installation and Upgrading



Step1: Locate the ZIP Socket and open it by first pulling the lever of socket upward.



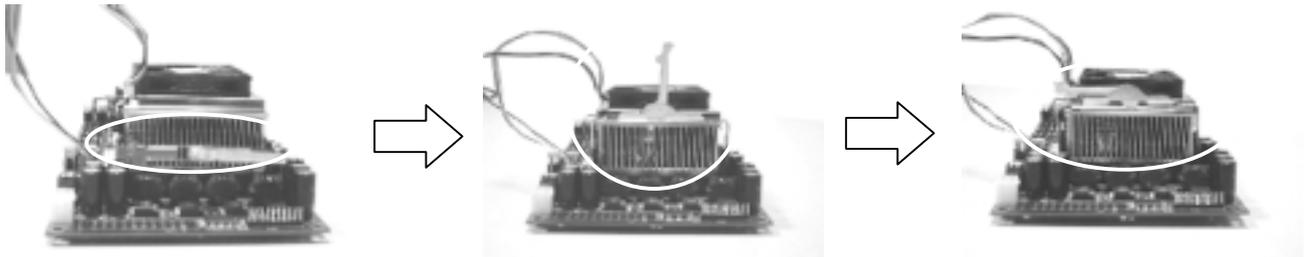
Step2: Inset the CPU into the socket, Please keep the lever right angle when inserting CPU. When inserting the CPU please note the correct orientation as shown. The notched corner should point toward the end of the lever.



Step3: Push the lever down to close the socket.



Step4: Attach the heat sink onto the CPU and close the levers to fix the attachment.



Step5: Finally attach the FAN cable to the CPU FAN header.

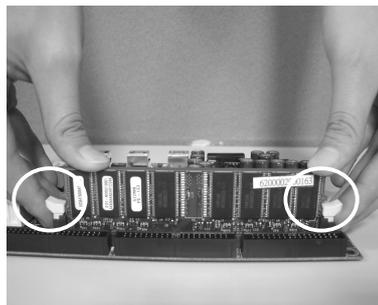


2.1.2 System Memory Installation

Step1: Open latches of DIMM socket.

Step2: Insert the RAM module into the DIMM socket.

Step3: Press the latches into the notches of the RAM module.

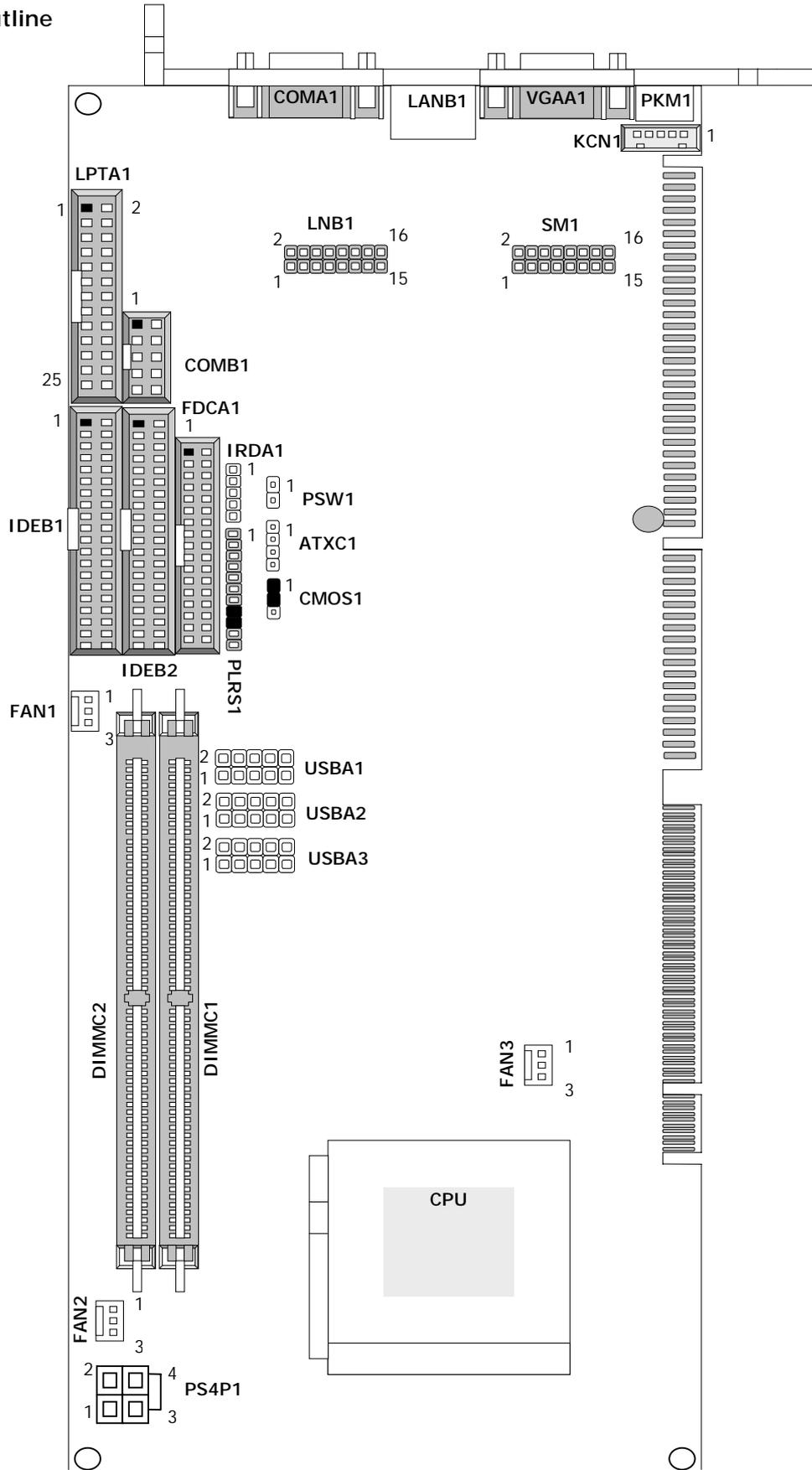


2.1.3 Compact Flash Installation



2.2 Jumper Settings and Connectors

2.2.1 Board outline

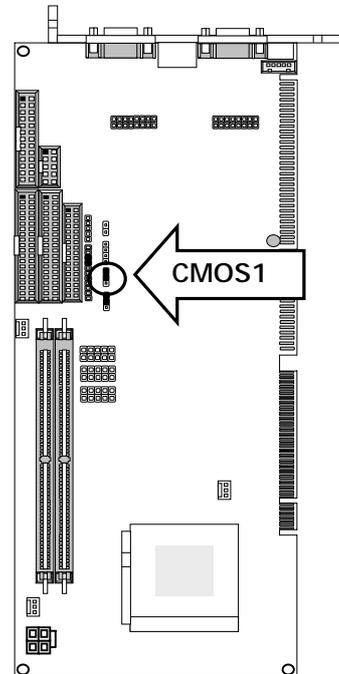
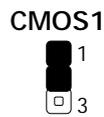


2.2.2 Jumper Settings Summary

Jumper	Function
CMOS1	Clear CMOS Data
SCF1	Master/Slave Select
PLRS1	Power LED,HD LED, Reset, Speaker Connector

●CMOS1: Clear CMOS Data

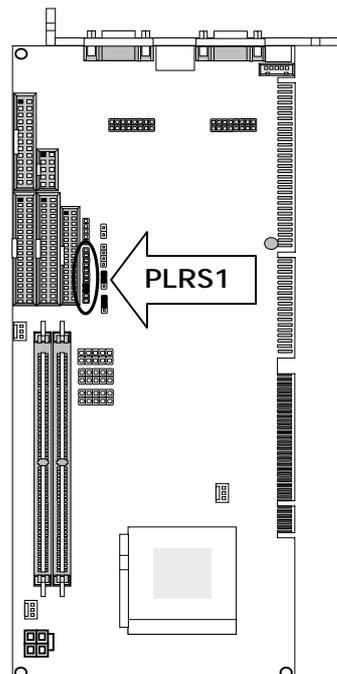
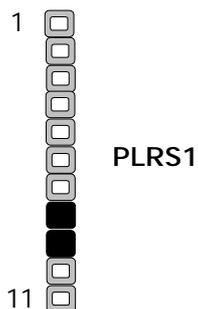
Description	CMOS1
Normal (Default)	1-2
Clear CMOS	2-3



●PLRS1: Power LED,HD LED, Reset, Speaker Connector(11 Pin 2.54mm)

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



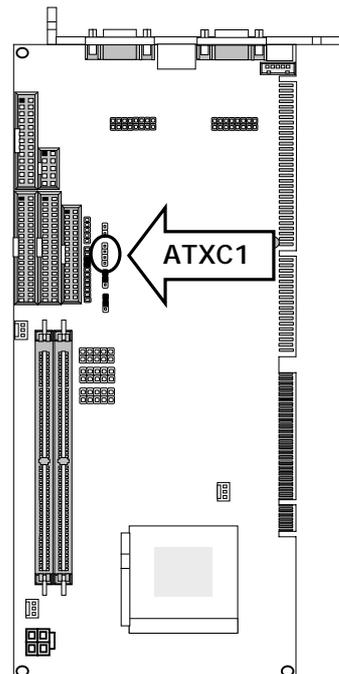
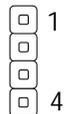
2.2.3 I/O Connector Summary

CONNECTOR	FUNCTION
ATXC1	ATX Power Control connector
PSW1	ATX Power Button
IRDA1	IRDA1 Connector
FAN1,2,3	Pin FAN Connector
PS4P1	4-Pin Power Connector
KCN1	KB Connector (5-Pin Wafer)
PSW1	ATX Power Button
PKM1	Keyboard & Mouse Connector (Min Din)
VGAA1	VGA Connector (D-Sub Connector)
COMB1	RS232 Serial Port #1 Connector (Header)
COMB2	Serial Port #2 Connector (Header)
LPTA1	Parallel Port Connector (Header)
IDEB1 / IDEB2	IDE Connector (Header)
FDCA1	Floppy Interface Connector (Header)
4PSP1	ATX Power Connector for CPU
FAN1/2/3	Fan Connector
LANB1/2	LAN Connector

●ATXC1: For ATX Function

Pin No.	Description
1	GND
2	+5V StandBy
3	GND
4	PSON

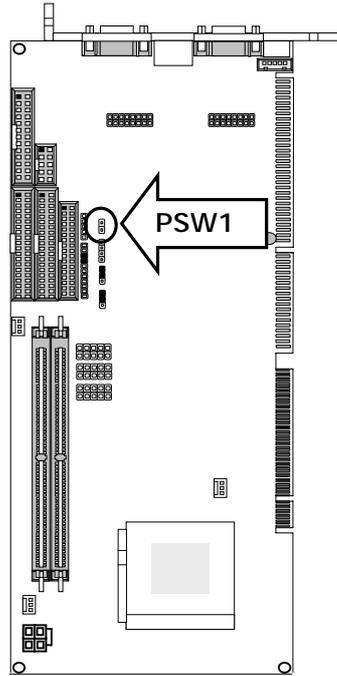
ATXC1



●PSW1: For ATX Power Button

Pin No.	Description
1	PANSW
2	GND

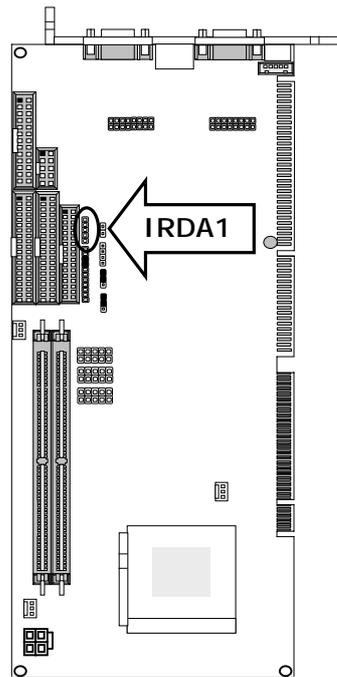
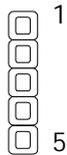
PSW1



●IRDA1: IRDA1 Connector.

Pin No.	Description
1	VCC
2	NC
3	IRRX
4	GND
5	IRTX

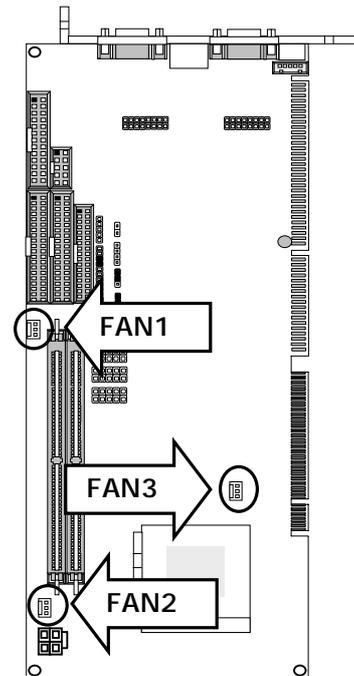
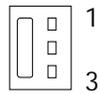
IRDA1



●FAN1/ FAN2 /FAN3: Pin FAN Connector

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

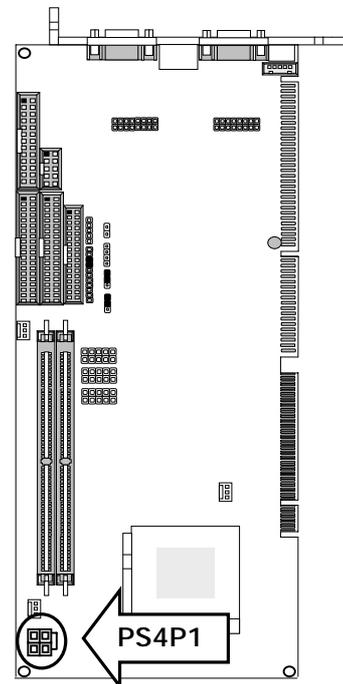
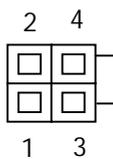
FAN1/2/3



●PS4P1: 4-Pin Power Connector (P4-4P Male)

Pin No.	Description
1	GND
2	GND
3	+12V
4	+12V

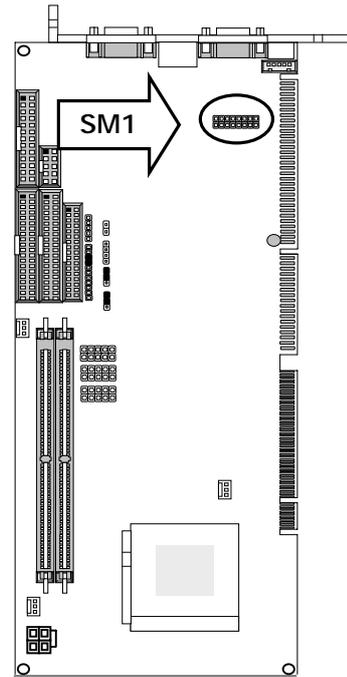
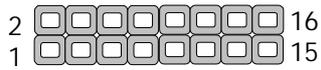
PS4P1



●SM1: Sound/Mouse 2x8 Pin 2.0mm(Female/Male)

Pin No.	Description	Pin No.	Description
1	ICH_SPKR	2	AC97
3	AC_RST-	4	VCC
5	SYNC	6	GND
7	SDINO	8	+3.3V
9	NC	10	GND
11	BITCLK	12	+5V STANDBY
13	SDOUT	14	NC
15	MSDAT	16	MSCLK

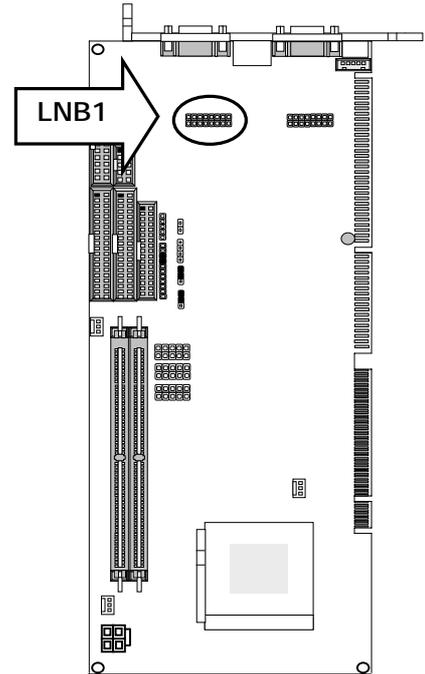
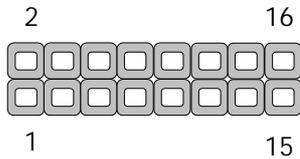
SM1



●LNB1: LAN 2x8 Pin 2.0mm Female (Female/Male)

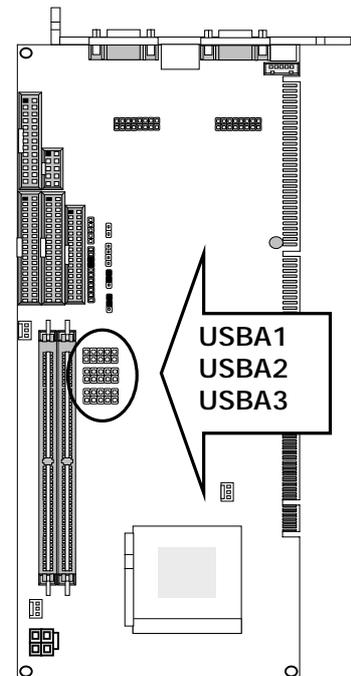
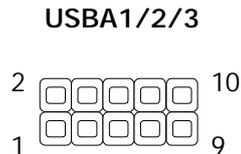
Pin No.	Description	Pin No.	Description
1	AMDIO+	2	ACTLD
3	AMDIO-	4	Vcc2_5
5	GND	6	3VSB
7	AMD11+	8	GND
9	AMD11-	10	LNKLD
11	AMD12+	12	AMD13+
13	AMD12-	14	AMD13-
15	LNK1G	16	LNK100

LNB1



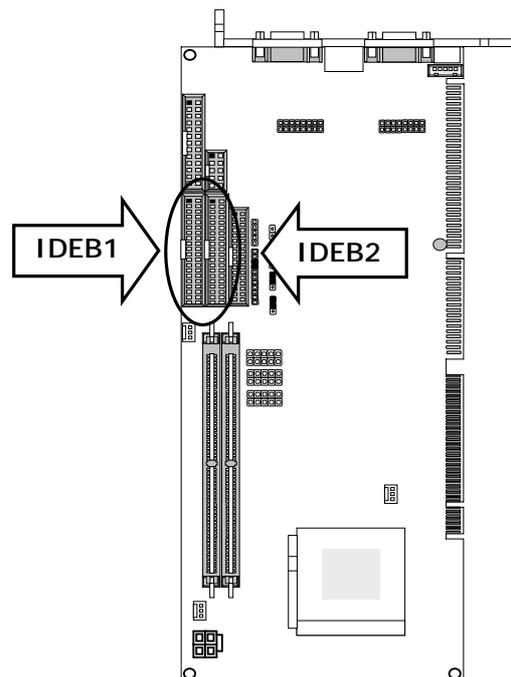
●USB A1, 2, 3: USB Port #1 ~ #6 Connector 2x5 Pin 2.54mm

Pin No.	Description	Pin No.	Description
1	USB_VCC	2	USB_VCC
3	USBD0-	4	USBD1-
5	USBD0+	6	USBD1+
7	Ground	8	Ground
9	USB Port#1Ground	10	USB Port#2 Ground



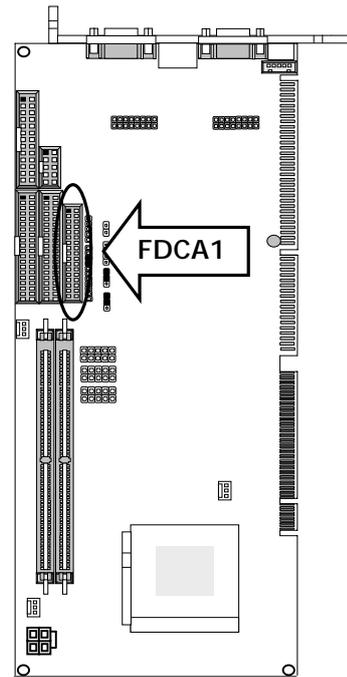
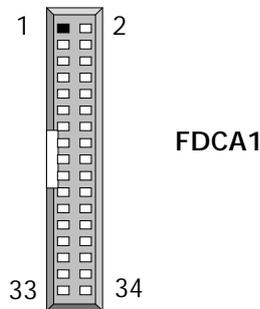
●IDE B1, 2: IDE Interface Connector (40Pin 2.54mm Pitch Header)

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	Key
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



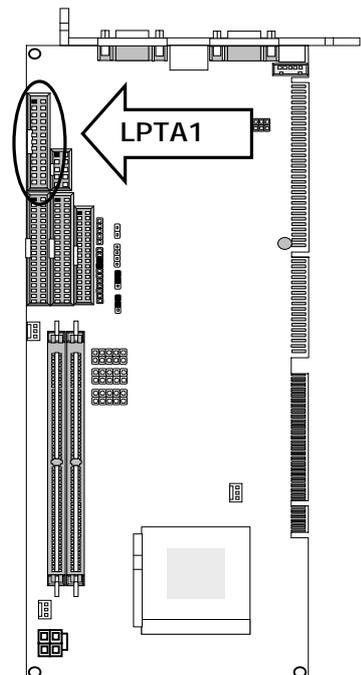
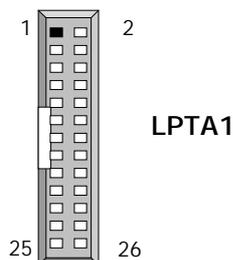
●FDCA1: Floppy Interface Connector (Header)

Pin No.	Description	Pin No.	Description
1	Ground	2	Density Select
3	Ground	4	KEY
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 #



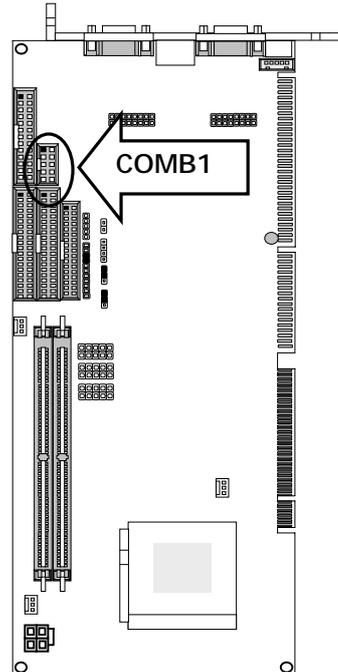
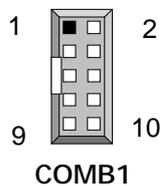
●LPTA1 : Parallel Connector (26 Pin 2.54mm Pitch Header)

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	KEY



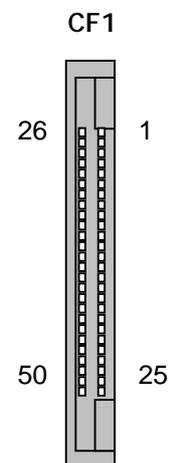
●COMB1: Serial Port #2 Connector (Header)

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



●CF1: Compact Flash Connector

Pin	Description	Pin	Description
1	GND	26	CD1-
2	DATA3	27	DATA11
3	DATA4	28	DATA12
4	DATA5	29	DATA13
5	DATA6	30	DATA14
6	DATA7	31	DATA15
7	CE1#	32	CE2#
8	A10	33	VS1#
9	OE#	34	IOR#
10	A9	35	IOW#
11	A8	36	WE#
12	A7	37	READY#
13	CFVCC3	38	CFVCC3
14	A6	39	CSEL
15	A5	40	VS2#
16	A4	41	RESET
17	A3	42	WAIT#
18	A2	43	INPACK#
19	A1	44	REG#
20	A0	45	DASP#
21	DATA0	46	DIAG#
22	DATA1	47	DATA8
23	DATA2	48	DATA9
24	WP	49	DATA10
25	CD2-	50	GND

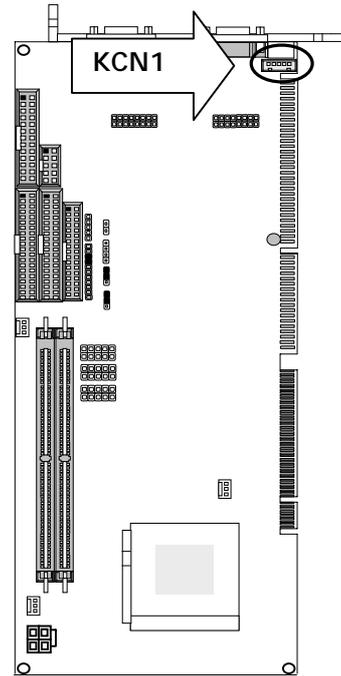
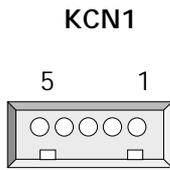


* CF1 is on the solder side

* Compact Flash supports "Master" only.

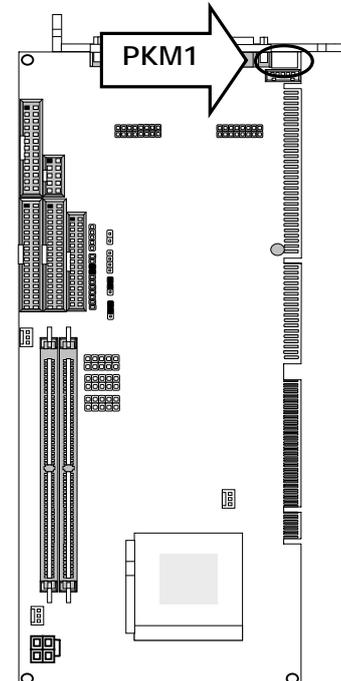
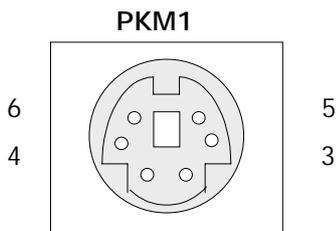
●KCN1: 5 Pin Keyboard Cable Connector

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



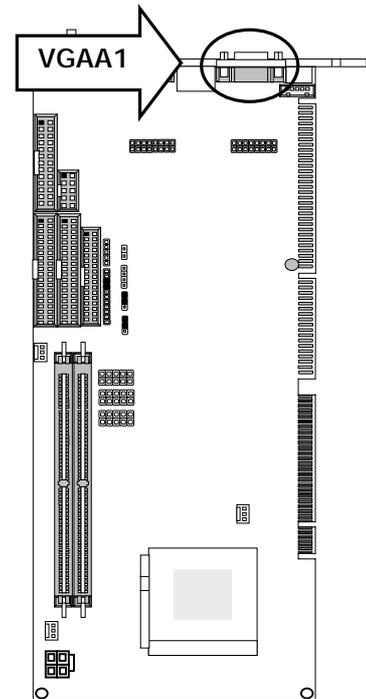
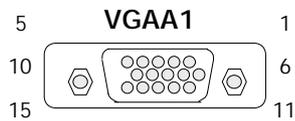
●PKM1: Keyboard & Mouse Connector (Mini Din)

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



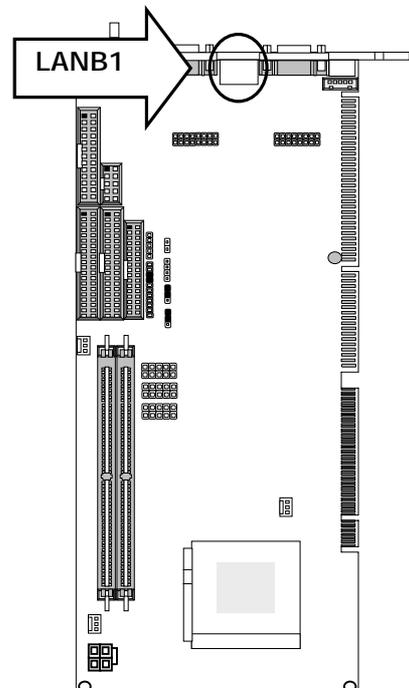
●VGAA1: VGA Connector

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



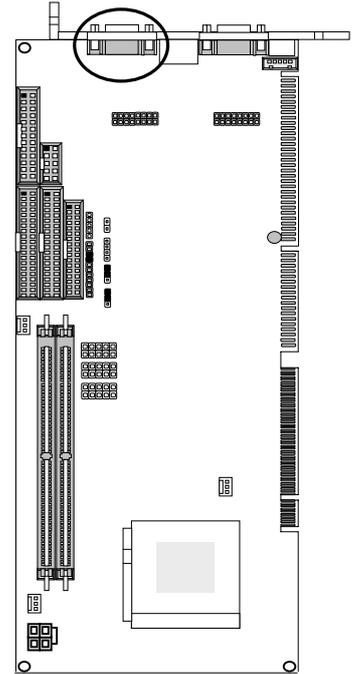
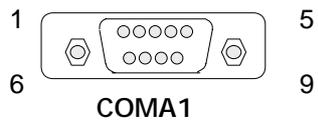
●LANB1: Lan Connector (RJ-45 with LED)

Pin No.	Description	
	Fast E-Net	Giga Net
1	TX+	MD0+
2	TX-	MD0-
3	RX+	MD1+
4	T45	MD2+
5	T45	MD2-
6	RX-	MD1-
7	T78	MD3+
8	T78	MD3-
9	10-/100-/1000+	
10	10+/100+/1000-	
11	Link+/ACT-	
12	Link-/ACT+	



●COMA1: RS-232 Serial Port #1 Connector (D-Sub)

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 #)



Chapter 3 BIOS Setup

Phoenix Award's ROM BIOS provides a built-in Setup program that allows users to modify the basic system configuration and settings. The modified data will be stored in a battery-backed CMOS RAM so that this data will be retained even when the power is turned off. In general, the information saved in the CMOS RAM remains unchanged unless there is a configuration change in the system, such as hard drive replacement or new equipment installment.

3.1 Running Phoenix AWARD BIOS

The Setup Utility is stored in the BIOS ROM. When the power of the computer system is turned on, a screen message will appear 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 one of two ways, a series of short beeps or an error message on the screen. There are two kinds of errors, fatal and non-fatal. The system can usually continue the boot up sequence with 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 boot up 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 immediately. If you don't have the chance to respond, reset the system by simultaneously pressing 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.

Standard CMOS Features: Use this menu for basic system configurations.

Advanced BIOS Features: Use this menu to set the Advanced Features available on your system.

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

Integrated Peripherals: Use this menu to specify your settings for integrated peripherals.

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

PnP/PCI Configurations: This entry appears if your system supports PnP/PCI.

PC Health Status: This entry shows your PC health status. If Hardware Monitor Chipset is installed.

Load Optimized Defaults: Use this menu to load the BIOS default values that are factory settings for optimal performance system operations.

Set Supervisor Password: Use this menu to set Supervisor Passwords.

Set User Password: Use this menu to set User Passwords.

Save & Exit Setup: Save CMOS value changes to CMOS and exit setup.

Exit Without Saving: Abandon all CMOS value changes and exit setup.

3.3 Standard CMOS Setup

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

Standard CMOS Setup Screen

Phoenix - Award BIOS CMOS Setup Utility

Standard CMOS Features

Date (mm:dd:yy)	Mon, Feb 17, 2003	Item Help
Time (hh:mm:ss)	13 : 28 : 5	Menu Level ►
► IDE Primary Master	[None]	Change the day, month, year and century
► IDE Primary Slave	[None]	
► IDE Secondary Master	[None]	
► IDE Secondary Slave	[None]	
Drive A	[1.44M, 3.5 in.]	
Drive B	[None]	
Halt On	[All , But Keyboard]	
Base Memory	640K	
Extended Memory	515072K	
Total Memory	516096K	
↑ ↓ → Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

The Standard CMOS Setup utility is used to configure the following components such as date, time, hard disk drive, floppy drive, display and memory. Once a field is highlighted, on-line help information is displayed in the left bottom of the Menu screen.

Set Date : Month, Date, Year.

Set Time : Hour, Minute and Second. Use 24-hour clock format (for p.m. time, add 12 to the hour number, e.g. you would enter 4:30 p.m. as 16:30).

Primary Master / Primary Slave

Secondary Master / Secondary Slave: Press PgUp / <+> or PgDn / <-> to select Manual, None, Auto type. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use Manual to define your own drive type manually.

If you select Manual, related information is asked to be entered to the following items. Enter the information directly from the keyboard. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.

If the controller of HDD interface is SCSI, the selection shall be [None]

If the controller of HDD interface is CD-ROM, the selection shall be [None]

Here is a brief explanation of drive specifications:

- **Access Mode:** The settings are Auto, CHS, Large, LBA.
- **Cylinder:** Number of cylinders
- **Head:** Number of heads
- **Precomp:** Write precom
- **Landing Zone:** Landing Zone
- **Sector:** Number of sectors

Drive A and Drive B: Select the correct specifications for the diskette drive(s) installed in the computer.

None	No diskette drive installed
360K, 5.25 in	5-1/4 inch PC-type standard drive; 360 kilobyte capacity
1.2M, 5.25 in	5-1/4 inch AT-type high-density drive; 1.2 megabyte capacity
720K, 3.5 in	3-1/2 inch double-sided drive; 720 kilobyte capacity
1.44M, 3.5 in	3-1/2 inch double-sided drive; 1.44 megabyte capacity
2.88M, 3.5 in	3-1/2 inch double-sided drive; 2.88 megabyte capacity

- Note:
1. Not Installed could be used as an option for diskless workstations..
 2. Highlight the listing after each drive name and select the appropriate entry.

Halt On: During the power-on-self-test (POST), the computer stops if the BIOS detect a hardware error. You can tell the BIOS to ignore certain errors POST and continue the boot-up process. These are the selections:

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

3.4 BIOS Features Setup

When you select the BIOS FEATURES SETUP on the main program, the screen display will appear as:

BIOS Features Setup Screen

Phoenix - Award BIOS CMOS Setup Utility

Advanced BIOS Features

		Item Help
Virus Warning	[Disabled]	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
Hyper-Threading Technology	[Enabled]	
Quick Power On Self Test	[Enabled]	
First Boot Device	[Floppy]	
Second Boot Device	[HDD-0]	
Third Boot Device	[CDROM]	
Boot Other Device	[Enabled]	
Swap Floppy Drive	[Disabled]	
Hard Disk Write Protect	[Disabled]	
Floppy Disk Access Control	[R/W]	
Boot Up NumLock Status	[On]	
Security Option	[Setup]	
PS2 Mouse Function Control	[Enabled]	
HDD S.M.A.R.T Capability	[Enabled]	
Video BIOS Shadow	[Enabled]	
C8000 – CBFFF Shadow	[Disabled]	
CC000 – CFFFF Shadow	[Disabled]	
D0000 – D3FFF Shadow	[Disabled]	
D4000 – D7FFF Shadow	[Disabled]	
D8000 – DBFFF Shadow	[Disabled]	
DC000 – DFFFF Shadow	[Disabled]	
Full Screen LOGO Show	[Disabled]	

↑ ↓ → Move Enter: Select +/-/PU/PD: Value F10: Save Esc: Exit F1: General Help
 F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

The following explains the options for each of the features as listed in the above menu:

Virus Warning: The default setting of Virus Warning is Disabled. When it is enabled, any attempt to write the boot sector and partition table will halt the system and cause a warning message to appear. If this happens, you can use an anti-virus utility on a virus free, bootable floppy diskette to reboot, to clean and to investigate your system.

Hyper-Threading Technology: Hyper-Threading technology enables a single physical processor to execute two separate code streams (called threads) concurrently.

Architecturally, an IA-32 processor with Hyper-Threading technology consists of two logical processors, each of which has its own IA-32 architectural state¹. Unlike a traditional dual processor (DP) configuration that uses two separate physical IA-32 processors, the logical processors in a processor with Hyper-Threading technology share the execution resources of the processor core, which include

the execution engine, the caches, the system bus interface, and the firmware. Hyper-Threading technology is designed to improve the performance of IA-32 processors by exploiting the multi-threaded nature of contemporary operating systems, server applications, and workstation applications in such a way as to increase the use of the on-chip execution resources available in the Intel NetBurst microarchitecture.

Quick Power On Self Test: The default setting is Enabled. This speeds up the Power On Self Test (POST) by skipping some items that are normally checked during the full POST. If your system is functioning normally, you can choose this feature to speed up the booting process.

First / Second / Third / Other Boot Device: The BIOS attempts to load the operating system from the devices in the sequence selected in these items. The settings are Floppy, LS/ZIP, HDD-0/ HDD-1/ HDD-2/ HDD-3, SCSI, CDROM, LAN, and Disabled.

Swap Floppy Drive: The default setting is Disabled. This setting gives you an option to swap A and B floppy disks. Normally, the floppy drive A is the one at the end of the cable and drive B is at the other end. If you set this option to Enabled, the Drive A will function as Drive B, and vice-versa under the DOS.

Hard Disk Write Protect: This option specifies the write protect function of Hard Disk Drive.

Floppy Disk Access Control: This option specifies the read/write access that is set when booting from a floppy drive.

Boot Up NumLock Status: The default setting is On. If it set Off, the cursor controls will function on the numeric keypad.

Security Option: This setting controls the password in the main screen. The options are Setup and System. Select Setup and it will protect the Setup Utility settings from being tampered with. Select System if you want to use password feature every time the system boots up. The default setting is Setup. You can create your password by using the SUPERVISOR/USER PASSWORD utility on the main program screen.

PS/2 mouse function control: The default setting is Enabled. If your system has a PS/2 mouse port and you install a serial pointing device, select Disabled.

HDD S.M.A.R.T Capability: SMART (Self-Monitoring, Analysis, and Reporting Technology) is a technology developed to manage disk drive reliability by predicting device failures. Award BIOS can warn of possible device failure, allowing time for backups or drive replacement.

Video BIOS Shadow: The default setting is Enabled which will copy the VGA display card BIOS into system DRAM to improve performance.

C8000-CBFFF Shadow to DC000-DFFFF Shadow: The default setting for the shadow feature is Disabled. When enabled, the ROM with the specific address is copied into system DRAM. It will also reduce the size of memory available to the system. After you have made your selection in the BIOS FEATURES SETUP, press the <ESC> key to go back to the main program screen.

3.5 Chipset Features Setup

When you select the CHIPSET FEATURES SETUP on the main program, the screen display will appear as:

Chipset Features Setup Screen

Phoenix - Award BIOS CMOS Setup Utility

Advanced Chipset Features

Spread Spectrum	[Disabled]	Item Help
DRAM Timing Selectable	[By SPD]	Menu Level ►
CAS Latency Time	[1.5]	
Active to Precharge Delay	[7]	
DRAM RAS# to CAS# Delay	[3]	
DRAM RAS# Precharge	[3]	
Turbo Mode	[Enabled]	
Memory Frequency For	[Auto]	
System BIOS Cacheable	[Enabled]	
Video BIOS Cacheable	[Enabled]	
Memory Hole At 15M-16M	[Disabled]	
Delayed Transaction	[Enabled]	
Delay Prior to Thermal	[16 Min]	
AGP Aperture Size (MB)	[64]	
** On-Chip VGA Setting**		
On-Chip VGA	[Enabled]	
On-Chip Frame Buffer size	[8MB]	

↑ ↓ → Move Enter: Select +/-/PU/PD: Value F10: Save Esc: Exit F1: General Help
 F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Spread Spectrum: When the system clock generator pulses, the extreme values of the pulse generate excess EMI. Enabling pulse spectrum spread modulation changes the extreme values from spikes to flat curves, thus reducing EMI. This benefit may in some cases be outweighed by problems with timing-critical devices, such as a clock-sensitive SCSI device.

DRAM Timing Selectable: This item allows you to select the value in this field, depending on whether the board has paged DRAMs or EDO (extended data output) DRAMs.

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

Active to Precharge Delay: In the BIOS tRAS is often called something like Active to Precharge, and can usually be set to 5T, 6T, or 7T. tRAS is the minimum bank active time from active to precharge of same bank, not that probably means much to most people.

Turbo Mode: This item allows you to enable or disable the memory turbo mode. Configuration options: [Disabled][Enabled]

Memory Frequency For: Select the Onboard Display Cache frequency. The default Setting is Auto.

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 settings are Enabled and Disabled.

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

Memory Hole At 15M-16M: The default setting is Disabled. Set to Enabled when the system memory size is equal to or greater than 16M bytes, then the physical memory address from 15M to 16M will be passed to PCI or ISA. Thus, there will be 1M Bytes hole in your system memory. This option is designed for some OS with special add-on cards which need 15M-16M memory space.

Delayed Transaction: The default setting is Enabled. 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.

Delay Prior to Thermal: Set active CPU Thermal function after booting min.
Configuration options: [4Min][8Min] [16Min] [32Min]

AGP Aperture Size (MB): Select the size of the Accelerated Graphics Port (AGP) aperture. The aperture is 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.

On-Chip VGA: This field allows you to select the primary graphics card. Configuration options: Disabled, Enabled.

On-Chip Frame Buffer Size: This item allows you to select the size of memory shared to the onboard VGA. Configuration options: 1MB, 8MB.

3.6 Integrated Peripherals

When you select the INTEGRATED PERIPHERALS on the main program, the screen display will appear as:

Integrated Peripherals Setup Screen

Phoenix - Award BIOS CMOS Setup Utility

Integrated Peripherals

	Item Help
On-Chip Primary PCI IDE [Enabled]	Menu Level ►
On-Chip Secondary PCI IDE [Enabled]	
USB Controller [Enabled]	
USB 2.0 Controller [Enabled]	
USB Keyboard Support [Disabled]	
AC97 Audio [Auto]	
Init Display First [Add-On Card]	
OnBoard LAN1 control [Enabled]	
OnBoard LAN2 control [Enabled]	
Onboard FDC Controller [Enabled]	
Onboard Serial Port 1 [3F8/IRQ4]	
Onboard Serial Port 2 [2F8/IRQ3]	
UART Mode Select [Normal]	
UR2 Duplex Mode [Half]	
Onboard Parallel Port [378/IRQ7]	
Parallel Port Mode [SPP]	
ECP Mode Use DMA 3	

↑ ↓ → Move Enter: Select +/-/PU/PD: Value F10: Save Esc: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

On-Chip Primary PCI IDE: The chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the primary IDE interface. Select Disabled to deactivate this interface. The settings are Enabled and Disabled.

On-Chip Secondary PCI IDE: The chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the secondary IDE interface. Select Disabled to deactivate this interface. The settings are Enabled and Disabled.

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

USB 2.0 Controller: Select Enabled if your system contains a Universal Serial Bus (USB) 2.0 controller and you have USB peripherals

USB Keyboard Support: Set this option to Enabled or Disabled the USB keyboard/ mouse support. The default setting is Disabled.

AC97 Audio: This option sets the AC97 Audio.

Init Display First: This item allows you to decide to active whether PCI Slot of VGA card or AGP first. The settings are Add-on Card and Onboard.

OnBoard LAN1 control: This field allows you to enable or disable the onboard LAN1 controller. Configuration options: Disabled, Enabled

OnBoard LAN2 control: This field allows you to enable or disable the onboard LAN2 controller. Configuration options: Disabled, Enabled

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

Onboard Serial Port 1 / Port 2: Select an address and corresponding interrupt for the first and second serial ports. The settings are 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.

UART Mode Select: This item allows you to determine which InfraRed(IR) function of the onboard I/O chip, this functions uses.

Onboard Parallel Port: This item allows you to determine onboard parallel port controller I/O address setting. The settings are 378H/IRQ7, 278H/IRQ5, 3BC/IRQ7, Disabled.

Parallel Port Mode: There are four options SPP (default), ECP, EPP and ECP+EPP. Change the mode from SPP to the enhanced mode only if your peripheral device can support it.

ECP Mode Use DMA: Select a DMA channel for the parallel port for use during ECP mode. The settings are 3 and 1.

3.7 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 appear as:

Power Management Setup Screen

Phoenix - Award BIOS CMOS Setup Utility

Power Management Setup

		Item Help
ACPI function	[Disabled]	Menu Level ►
Power Management	[Min Saving]	
Video Off Method	[DPMS]	
Video Off In Suspend	[Yes]	
Suspend Type	[Stop Grant]	
Suspend Mode	[1 Hour]	
HDD Power Down	[15Min]	
Soft-Off by PWR-BTTN	[Instant-Off]	
FDD, COM, LPT Port	[Disabled]	
***** Power On Event *****		
Power On by LAN/PME#	[Disabled]	
Power On by Ring	[Disabled]	
Power On by RTC Alarm	[Disabled]	
X Date (of Month) Alarm	0	
X Time (hh:mm:ss) Alarm	0 : 0 : 0	
PWRON After AC Power Loss	[On]	

↑ ↓ → Move Enter: Select +/-/PU/PD: Value F10: Save Esc: Exit F1: General Help
 F5: Previous Values F7: Optimized Defaults

ACPI Function: This item allows you to enable or disable the Advanced Configuration and Power Management (ACPI). The settings are Enabled and Disabled.

Power Management:

Min. Power Saving	Minimum power management. Doze Mode=1hr. Standby Mode =1hr., Suspend Mode=1hr., and HDD Power Down=15min.
Max. Power Saving	Maximum power management. –Only available for SL CPU's. Doze Mode=1min., Standby Mode=1min., Suspend Mode=1min., and HDD Power Down=1min.
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 disabled.

Video Off Method: This determines the manner in which the monitor is blanked. The default setting is V/H SYNC+Blank.

V/H SYNC+Blank	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blank 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 in which the monitor is blanked. The setting are YES and NO.

Suspend Type: Select the Suspend Type. The settings are: PwrOn Suspend, Stop Grant.

Suspend Mode: Power saving by suspends mode setting.

HDD Power Down: Options are from 1 Min. to 15 Min. and Disable. The IDE hard drive will spin down if it is not accessed within a specified length of time.

Soft-Off by PWR-BTTN: Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state. The settings are: Delay 4 Sec., Instant-Off.

FDD, COM, LPT Port: When FDD, LPT & COM is On, any activity from one of the listed system peripheral devices or IRQs wakes up the system.

Power On by LAN/PME#: This option let you enable or disable the function to wake up the system by PCI PME#.

Power On by Ring: When Enabled, an input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) awakens the system from a soft off state.

Power On by RTC Alarm: Power-on interval by RTC setting.

Date (of Month) Alarm: This option specifies the time of RTC Alarm.

Time (hh:mm:ss) Alarm: This option specifies the time of RTC Alarm.

PWROn After AC Power Loss: This option specifies the Power ON/OFF Status after AC power loss.

3.8 PnP/PCI Configuration

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 PnP/PCI Configuration Setup utility; otherwise the motherboard will not work properly.

PnP/PCI Configuration Setup Screen

Phoenix - Award BIOS CMOS Setup Utility

PnP/PCI Configurations

		Item Help
PNP OS Installed	[No]	Menu Level ► Select Yes if you are using a Plug and Play capable operating system. Select No if you need the BIOS to configure non-boot devices.
Reset Configuration Data	[Disabled]	
Resources Controlled By	[Manual]	
► IRQ Resources	[Press Enter]	
► DMA Resources	[Press Enter]	
► Memory Resources	[Press Enter]	
PCI/VGA Palette Snoop	[Disabled]	
PCI Latency Timer (CLK)	[32]	
INT Pin 1 Assignment	[Auto]	
INT Pin 2 Assignment	[Auto]	
INT Pin 3 Assignment	[Auto]	
INT Pin 4 Assignment	[Auto]	
INT Pin 5 Assignment	[Auto]	
INT Pin 6 Assignment	[Auto]	
INT Pin 7 Assignment	[Auto]	
INT Pin 8 Assignment	[Auto]	

↑ ↓ → Move Enter: Select +/-/PU/PD: Value F10: Save Esc: Exit F1: General Help
 F5: Previous Values F6: Fail-safe Defaults F7: Optimized Defaults

PNP OS Installed: When set to Yes, BIOS will only initialize the PnP cards used for booting (VGA, IDE, SCSI). The rest of the cards will be initialized by the PnP operating system like Windows® 95 or 98. When set to No, BIOS will initialize all the PnP cards. So, for non-PnP operating system (DOS, Netware®), this option must set to Yes.

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 settings are: Enabled and 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®98. 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 proceeded by a ►). The settings are Auto (ESCD), Manual.

IRQ Resources: When resources are controlled manually, assign each system interrupt as one of the following types, depending on the type of device using the interrupt.

			Item Help
IRQ-3	assigned to	[Legacy ISA]	Menu Level ►►► 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.
IRQ-4	assigned to	[Legacy ISA]	
IRQ-5	assigned to	[PCI /ISA PNP]	
IRQ-7	assigned to	[Legacy ISA]	
IRQ-9	assigned to	[PCI /ISA PNP]	
IRQ-10	assigned to	[PCI /ISA PNP]	
IRQ-11	assigned to	[PCI /ISA PNP]	
IRQ-12	assigned to	[PCI /ISA PNP]	
IRQ-14	assigned to	[PCI /ISA PNP]	
IRQ-15	assigned to	[PCI /ISA PNP]	

DMA Resources: The sub menu can let you control the DMA resource.

			Item Help
DMA-0	assigned to	[PCI /ISA PnP]	Menu Level ►►► 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.
DMA-1	assigned to	[PCI /ISA PnP]	
DMA-3	assigned to	[PCI /ISA PnP]	
DMA-5	assigned to	[PCI /ISA PnP]	
DMA-6	assigned to	[PCI /ISA PnP]	
DMA-7	assigned to	[PCI /ISA PnP]	

Memory Resources: This option specifies the size of the memory area reserved for legacy ISA adapter cards.

PCI/VGA Palette Snoop: Leave this field at Disabled. The settings are Enabled, Disabled.

PCI Latency Timer (CLK): This option specifies the latency timings (in PCI clocks) for PCI devices installed in the PCI expansion slots.

The Latency Timer limits the time that device can hold the PCI bus. The timer starts when the device gains bus ownership, and counts down at the rate of the PCI clock. When the counter reaches zero, the device is required to release the bus.

INT Pin 1/2/3/4/5/6/7/8 Assignment: These options specify the IRQ priority for PCI devices installed in the PCI expansion slots.

3.9 PC Health Status (Optional)

This section helps you to get more information about your system including CPU temperature, FAN speed and voltages. It is recommended that you contact your motherboard supplier to get proper value about your setting of the CPU temperature.

Phoenix - Award BIOS CMOS Setup Utility

PC Health Status

Vcore	1.69V	Item Help
+2.5V	2.48V	Menu Level ►
+3.3V	3.26V	
+5V	4.70V	
+12V	11.52V	
-12V	(-)11.95V	
-5V	(-) 5.25V	
+1.5V	1.47V	
System Temperature.	32°C	
CPU Temperature	32°C	
FAN 1 Speed	0 RPM	
FAN 2 Speed	4963RPM	
FAN 3 Speed	0 RPM	

↑ ↓ → Move Enter: Select +/-/PU/PD: Value F10: Save Esc: Exit F1: General Help
 F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Vcore: This item shows the current system voltage.

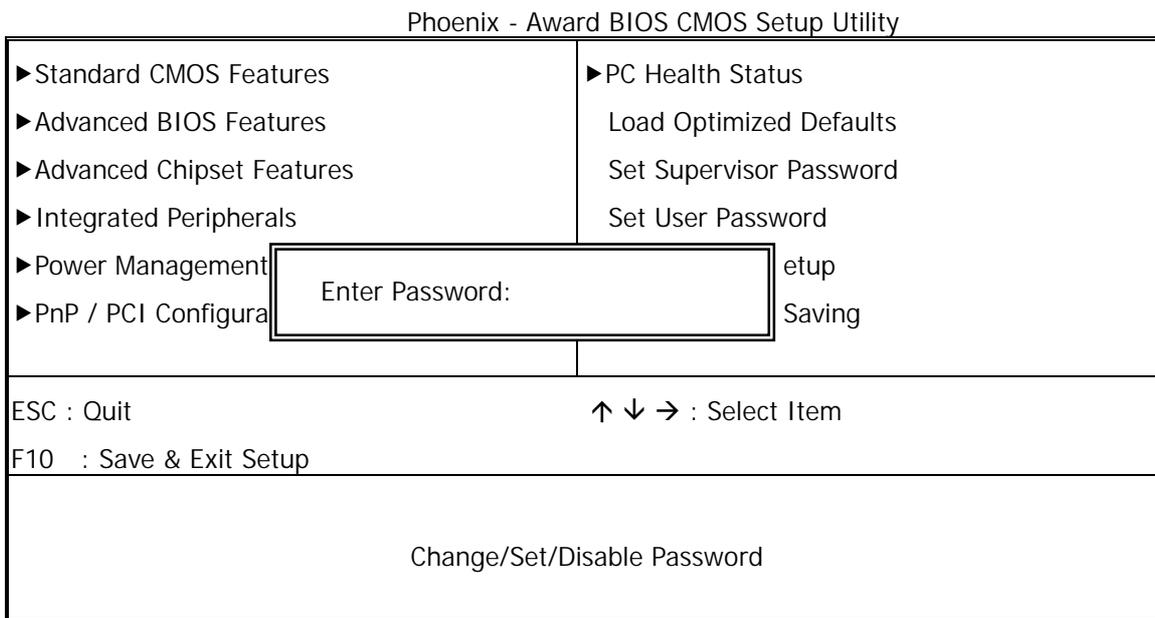
System Temperature: This item displays the value of system temperature.

CPU Temperature: This item shows the CPU temperature.

FAN 1/2/3 Speed: This item displays the value of FAN1/2/3 speed.

3.11 Set Supervisor / User Password

The SUPERVISOR/USER PASSWORD utility sets the password. The SBC is shipped with the password disabled. If you want to change the password, you must first enter the current password, then at the prompt -- enter your new password. The password is case sensitive, and can be up to 8 alphanumeric characters. Press <Enter> after you have finished typing in the password. At the next prompt, confirm the new password by re-typing it and pressing <Enter> again. When you are done, the screen automatically reverts to the main screen. Remember that when you use this feature, the Security Option line in BIOS FEATURES SETUP will determine when entering the password will be required.



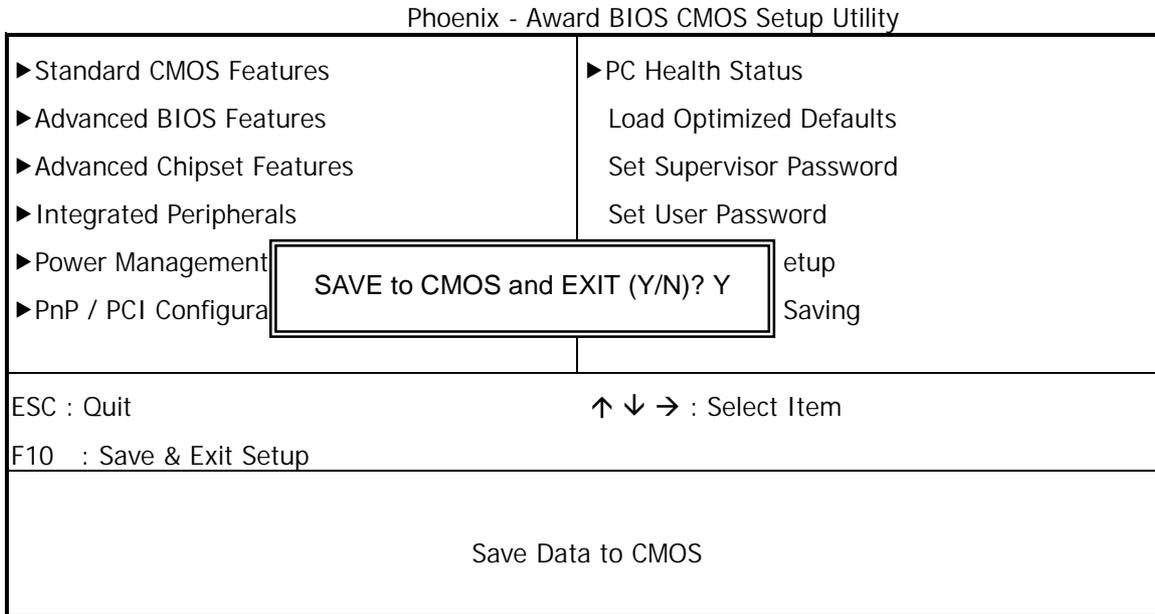
To disable the password, press the <Enter> key instead of entering a new password when the Enter Password in the dialog box appears. A message will appear confirming that the password is disabled.

If you have set both supervisor and user password, only the supervisor password allows you to enter the BIOS SETUP PROGRAM.

Note : If you forget your password, the only way to solve this problem is to discharge the CMOS memory.

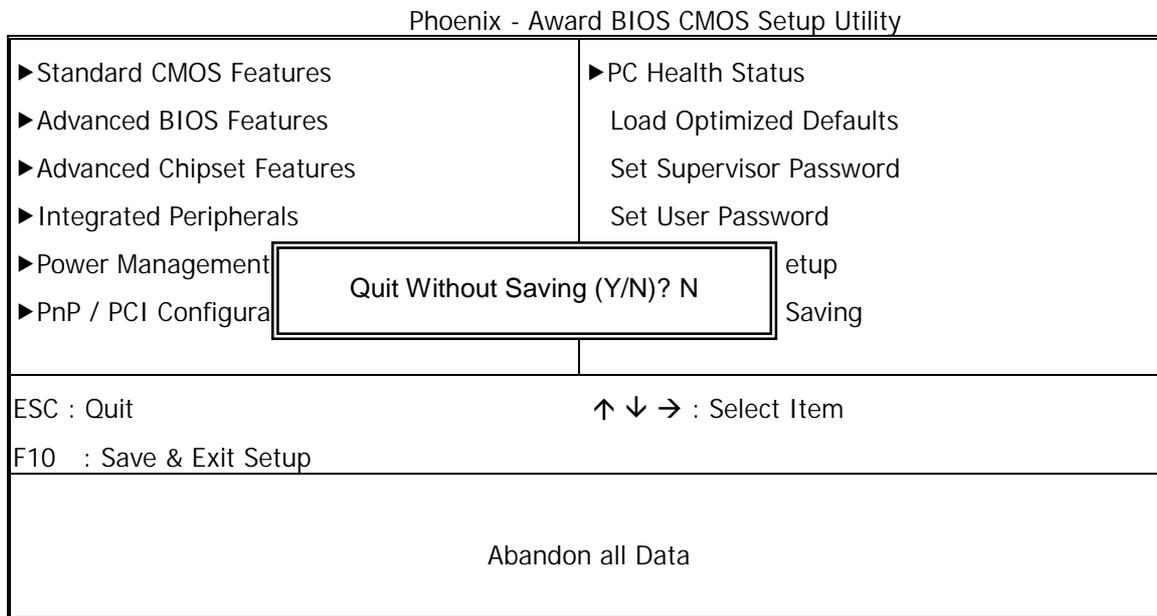
3.12 Save & Exit Setup

Select this option and press the <Enter> key to save the new setting information in the CMOS memory and continue with the booting process.



3.13 Exit Without Saving

Select this option and press the <Enter > key to exit the Setup Utility without recording any new values or changing old ones.



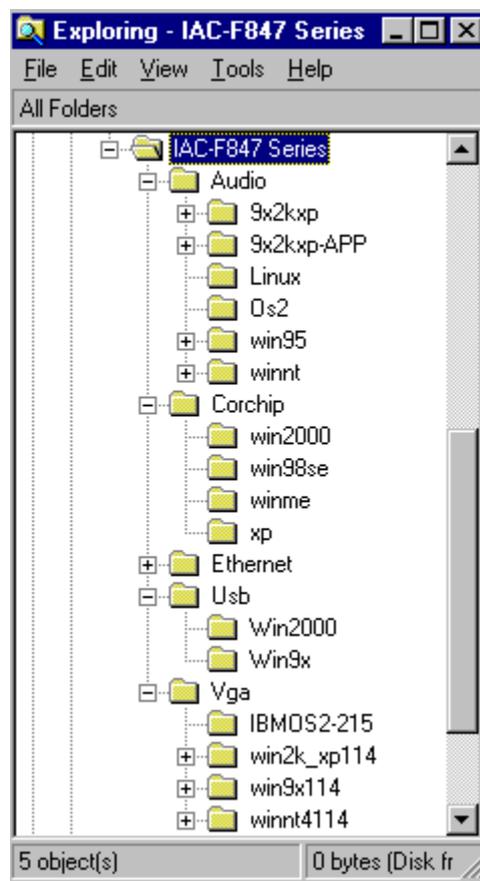
Chapter 4 Drivers Support

4.1 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.

4.2 File Directory



APPENDIX A Watch-Dog Timer

You can enable the watch-dog 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 watch-dog. Decide the way you want to set the period for reset by selecting hardware or software watch-dog (if both of them are available). For hardware setting period, select period by jumper. For software setting period, normally setting hardware watch-dog timer period to 2 sec.

Software watch-dog using example

EX.1: For DOS

Enable	Disable
C:\DOS> DEBUG -o443 D	C:\DOS>DEBUG -o441 F

EX.2: For assemble Language

Enable :	Disable :
MOV DX, 443H	MOV DX, 441H
MOV AL, 0FH	MOV AL, 0FH
OUTDX, AL	OUT DX, AL

Note: F is the period of software watch-dog timer (normally F indicated 0 sec.). 0 to 9 and A to F are used for represent different period. Normally, the step is 2 sec. That means E is 2, D is 4, 2 is 26, 1 is 28 and 0 is 30 seconds.

Terms and Conditions

Date:2003.05.09

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: <input type="checkbox"/> Repair(Please include failure details) <input type="checkbox"/> Testing Purpose
Company: Phone No. Fax No.:	Contact Person: Purchased Date: Applied Date:
Return Shipping Address: _____	
Shipping by: <input type="checkbox"/> Air Freight <input type="checkbox"/> Sea <input type="checkbox"/> Express :_____ <input type="checkbox"/> 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

 Authorized Signatures / Date

 Authorized Signatures / Date