USER'S MANUAL

ISA-562LF

Half Size CPU Card
With VGA/Sound/LAN

ISA-562LF M2

ISA-562LF
Half Size CPU Card
With VGA /Sound/LAN

OPERATION MANUAL

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ACKNOWLEDGEMENTS

CE NOTICE

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

FCC NOTICE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any change or modifications to the equipment not expressly approve by the party responsible for compliance could void your authority to operate such equipment.

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APPENDIX A EXPANSION BUS

APPENDIX B TECHNICAL SUMMARY

CHAPTER

1

INTRODUCTION

This chapter gives you the information for ISA-562LF. It also outlines the System specification.

Section includes:

- About This Manual
- System Specifications
- Safety precautions

Experienced users can skip to chapter 2 on page 2-1 for Quick Start.

1-1. ABOUT THIS MANUAL

Thank you for purchasing our ISA-562LF Intel® processor, Half Size Card enhanced with VGA / Sound/ LAN, which is fully PC / AT compatible. ISA-562LF provides faster processing speed, greater expandability and can handle more task than before. This manual is designed to assist you how to install and set up the system. It contains four chapters. The user can apply this manual for configuration according to the following chapters :

Chapter 1 Introduction

This chapter introduces you to the background of this manual, and the specification for this system. Final part of this chapter will indicate you how to avoid damaging this Embedded Card.

Chapter 2 Hardware Configuration

This chapter outlines the component location and their functions. In the end of this chapter, you will learn how to set jumper and how to configure this card to meet your own needs.

Chapter 3 Software Utilities

This chapter contains helpful information for proper installations of the VGA utility, LAN utility, sound utility, and BIOS update. It also describes the Watchdog timer configuration.

Chapter 4 Award BIOS Setup

This chapter indicates you how to set up the BIOS configurations.

Appendix A Expansion Bus

This Appendix introduces you the expansion bus for ISA Bus, PC/104 connector and Compact Flash.

Appendix B Technical Summary

This section gives you the information about the Technical maps.

1-2. SYSTEM SPECIFICATION

- **CPU :**
  Intel® processor
  ULV Celeron® M 1GHz / Intel® Pentium® M L 1.4GHz
  System bus frequency at 400MHz
  Auto detect voltage regulator

- **SYSTEM CHIPSET :**
  Intel® 855GME chipset

- **MEMORY :**
  Supports up to 1GB DDR333 SDRAM.
  One 200-pin DDR SO-DIMM sockets on board

- **CACHE :**
  Built-in CPU

- **REAL-TIME CLOCK / CALENDAR :**
  256-byte battery backed CMOS RAM.
  Hardware implementation to indicate century rollover

- **BIOS :**
  Phoenix-AwardBIOS™ for plug & play function
  Memory size with 4 MB, with VGA BIOS

- **KEYBOARD/MOUSE CONNECTOR :**
  Mini DIN connector, selectable for Keyboard, PS/2 Mouse, or Y-Cable
  One additional 4-pin External keyboard connector

- **UNIVERSAL SERIAL BUS :**
  Universal Serial Bus Connector on board
  Supports up to two USB 2.0 ports.

- **BUS SUPPORT :**
  One ISA Bus
  One PC/104
  One Compact Flash Bus

- **DISPLAY :**
  Integrated Graphic in Intel® 855GME
  Support D-Sub 15 pin VGA connector
  Support 18/24 bit LVDS connector
  Support 3.3V/5V LVDS Panel Power Selection
  Support 12V Panel Backlight

  * 24 bit hardware is ready but Intel does not recommend using.

- **IDE INTERFACE :**
  One IDE ports support up to two IDE devices.
  Supports Ultra DMA 33/66/100.
  Compact Flash is connected at secondary IDE Bus.

- **FLOPPY DISK DRIVER INTERFACE :**
  Supports up to two Floppy Disk Drives, 3.5" and 5.25".

- **LAN INTERFACE :**
  Intel® 82562ET 10/100 Mbps Ethernet.
  Supports Wake-on-LAN with ATX power.

- **SERIAL PORT :**
  Two high speed 16550 Compatible UARTs with Send / Receive 16 Byte FIFOs. COM1 for RS232; COM2 for RS232/422/485.

- **PARALLEL PORT :**
  One port supports SPP / ECP / EPP Function.

- **HARDWARE MONITORING FUNCTION :**
  Monitor Voltage, CPU Temperature and Cooling Fan.

- **IRDA PORT :**
  One 5-pin Infrared connector
  Supports IrDA v1.0 SIR protocol.

- **LED INDICATOR :**
  HDD LED, Power LED.

- **SOUND :**
  Realtek ALC202A (AC' 97 Codec)

- **OPERATING TEMPERATURE :**
  0 to 60°C (32°F to 140°F)

- **INPUT POWER REQUIREMENT :**
  ATX power: +5V, +12, 5VSB.
  AT power: +5V, +12V.

- **BOARD DIMENSION :**
  185mm x 122mm (7.28" x 4.8")

- **BOARD NET WEIGHT :**
  310 grams (0.68 lb)

1-3. EXTRA INDUSTRIAL APPLICATION FEATURES

- **WATCH DOG TIMER :**
  Watchdog Timer controllable by software, customer application 1~255 second watchdog timer time-out value.
  Reset upon mouse/keyboard, SMI or system reset.

1-4. SAFETY PRECAUTIONS

Follow the messages below to avoid your systems from damage:

1. Avoid your system from static electricity on all occasions.

2. Prevent electric shock. Don't touch any components of this card when the card is power-on. Always disconnect power when the system is not in use.

3. Disconnect power when you change any hardware devices. For instance, when you connect a jumper or install any cards, a surge of power may damage the electronic components or the whole system.

HARDWARE CONFIGURATION

CHAPTER

2

*** QUICK START ***

Helpful information describes the jumper & connector settings, and component locations.

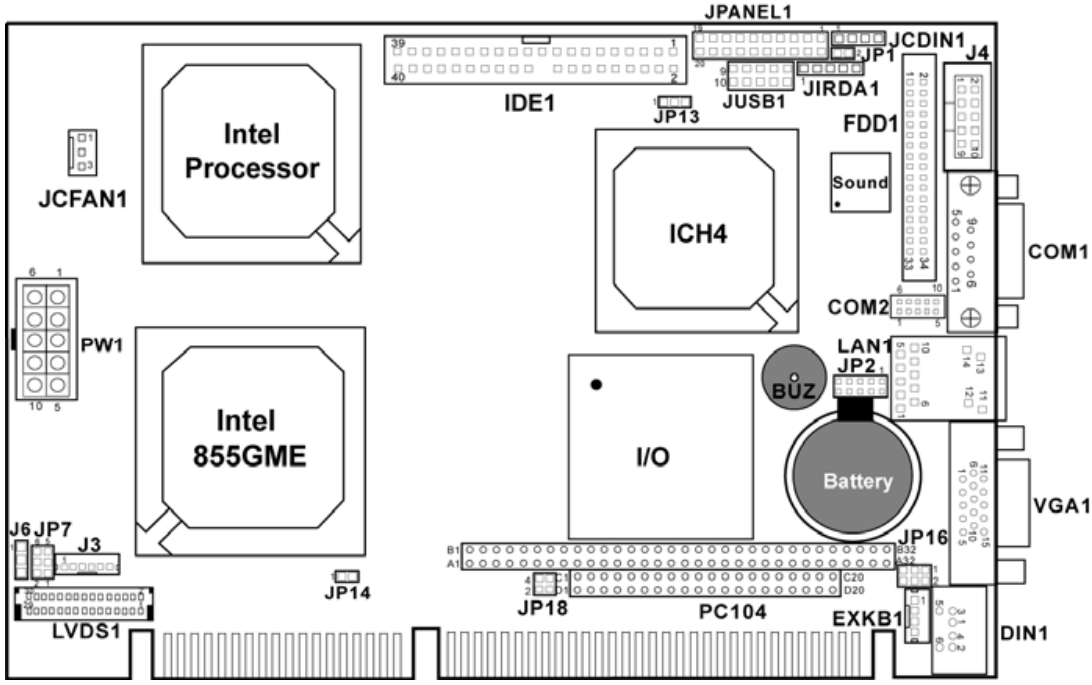
Section includes:

- Jumper & Connector Quick Reference Table
- Component Locations
- Configuration and Jumper settings
- Connector's Pin Assignments

2-1. JUMPER & CONNECTOR QUICK REFERENCE TABLE

COM Port Connector	COM1, COM2
RS232/422/485 (COM2) Selection	JP2
Keyboard/ Mouse Connector	DIN1
External Keyboard Connector	EXKB1
Keyboard/Mouse Selection	JP16
Reset Connector	JPANEL1 (9,11)
Hard Disk Drive LED Connector	JPANEL1 (5,7)
ATX Power Button	JPANEL1 (10,12)
External Speaker Connector	JPANEL1 (1,3)
Power LED Connector	JPANEL1 (4,6,8)
KeyLock Connector	JPANEL1 (13,14)
IrDA Connector	JPANEL1 (17,18,19,20) JIRDA1
CPU Fan Connector	JCFAN1
Clear CMOS Data Selection	JP13
VGA Connector	VGA1
Hard Disk Drive Connector	IDE1
Floppy Disk Drive Connector	FDD1
Printer Connector	LPT1
Universal Serial Bus Connector	JUSB1
LAN Connector	LAN1
ATX Power Connector	PW1
5VSB Connector	J6
AT/ATX Power Selection	JP14, JP1
Reset/NMI Watchdog Selection	JP18
Inverter Connector	J3
CDIN Connector	JCDIN1
Sound Connector	J4
LVDS Connector	LVDS1
LVDS Voltage Selection	JP7

2-2. COMPONENT LOCATIONS



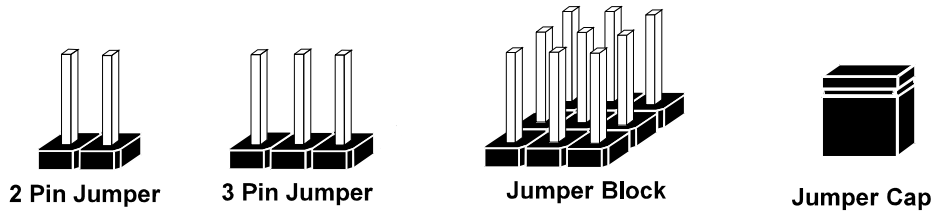
ISA-562LF Connector, Jumper and Component locations

2-3. HOW TO SET THE JUMPERS

You can configure your board by setting jumpers. Jumper is consists of two or three metal pins with a plastic base mounted on the card, and by using a small plastic "cap", Also known as the jumper cap (with a metal contact inside), you are able to connect the pins. So you can set-up your hardware configuration by "open" or "close" pins.

The jumper can be combined into sets that called jumper blocks. When the jumpers are all in the block, you have to put them together to set up the hardware configuration. The figure below shows how this looks like.

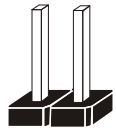
JUMPERS AND CAPS



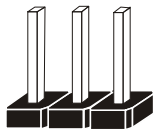
If a jumper has three pins (for examples, labelled PIN1, PIN2, and PIN3), You can connect PIN1 & PIN2 to create one setting and shorting. You can either connect PIN2 & PIN3 to create another setting. The same jumper diagrams are applied all through this manual. The figure below shows what the manual diagrams look and what they represent.

JUMPER DIAGRAMS

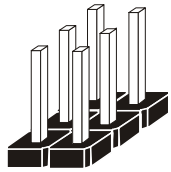
Jumper Cap looks like this



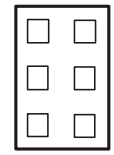
2 pin Jumper looks like this



3 pin Jumper looks like this



Jumper Block looks like this

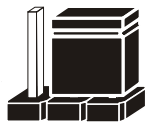


JUMPER SETTINGS

1

2 pin Jumper close(enabled) Looks like this

1



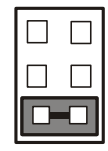
1

3 pin Jumper 2-3 pin close(enabled) Looks like this

1

1 2

Jumper Block 1-2 pin close(enabled) Looks like this

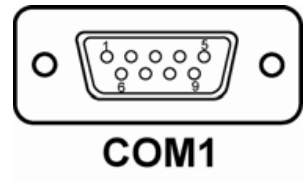


1 2

2-4. COM PORT CONNECTOR

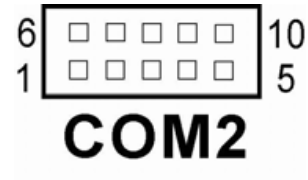
COM1 : COM1 Connector
COM1 is fixed as RS-232.
The pin assignment is as follows :

PIN	ASSIGNMENT
1	COM1_DCD
2	COM1_RXD
3	COM1_TXD
4	COM1_DTR
5	GND
6	COM1_DSR
7	COM1_RTS
8	COM1_CTS
9	COM1_RI
NC	NC



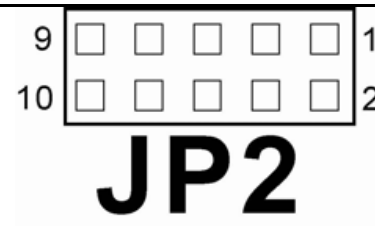
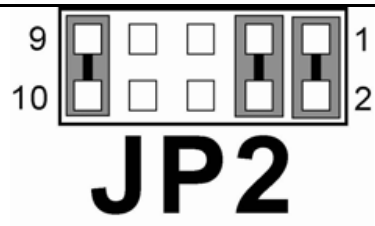
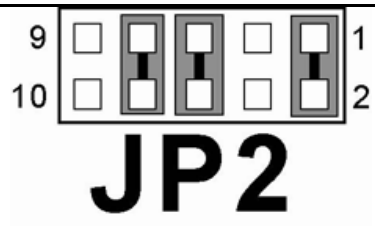
COM2 : COM2 Connector
The COM2 is selectable as RS-232/422/485.
The pin assignment is as follows :

PIN	ASSIGNMENT		
	RS-232	RS-422	RS-485
1	COM2_DCD	TXN	TXN
2	COM2_RXD	TXP	TXP
3	COM2_TXD	RXP	RXP
4	COM2_DTR	RXN	RXN
5	GND	GND	GND
6	COM2_DSR	RTSN	NC
7	COM2_RTS	RTSP	NC
8	COM2_CTS	CTSP	NC
9	COM2_RI	CTSN	NC
10	NC	NC	NC



2-5. RS232/422/485 (COM2) SELECTION

JP2 : RS-232/422/485 (COM2) Selection
This connector is used to set the COM2 function.
The jumper settings are as follows :

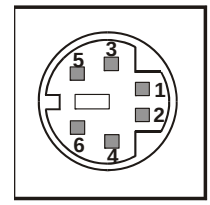
COM 2 Function	Jumper Settings (pin closed)	Jumper Illustrations
RS-232	open	
RS-422	1-2, 3-4, 9-10	
RS-485	1-2, 5-6, 7-8	

*** Manufactory default --- RS-232.

2-6. KEYBOARD OR PS/2 MOUSE CONNECTOR

DIN1 : Keyboard or PS/2 Mouse Connector
DIN connector can support keyboard, Y-cable, or PS/2 Mouse, user may select the right device to used on "Keyboard or PS/2 Mouse Selection". The pin assignments are as follows :

PIN	ASSIGNMENT	
	Keyboard	PS/2 Mouse
1	KDAT	MDAT
2	MDAT	MDAT
3	GND	GND
4	V5SB	V5SB
5	KCLK	MCLK
6	MCLK	MCLK

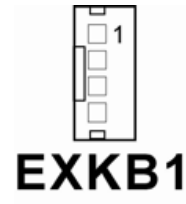


DIN1

2-7. EXTERNAL KEYBOARD CONNECTOR

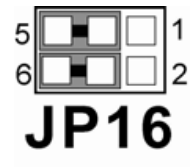
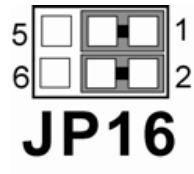
EXKB1 : External Keyboard Connector
The pin assignment is as follows :

PIN	ASSIGNMENT
1	KCLK
2	KDAT
3	GND
4	V5SB



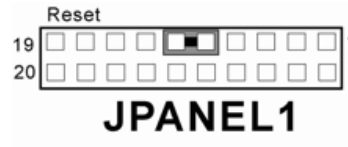
2-8. KEYBOARD OR PS/2 MOUSE SELECTION

JP16 : Keyboard or PS/2 Mouse Selection
For Y-Cable user, please set the jumper same as AT keyboard.
The jumper settings are as follows:

DEVICE TYPE	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
AT KEYBOARD	3-5 4-6	
PS/2 MOUSE	1-3 2-4	

*** Manufactory default -- AT Keyboard.

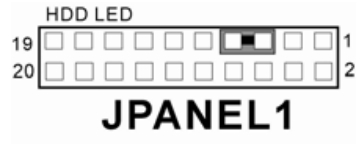
2-9. RESET CONNECTOR



JPAENL1 (9,11) : Reset Connector.
The pin assignment is as follows :

PIN	ASSIGNMENT
9	GND
11	RST_SW

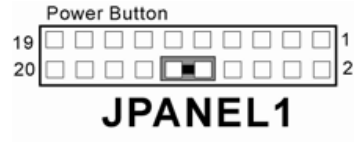
2-10. HARD DISK DRIVE LED CONNECTOR



JPAENL1 (5,7) : Hard Disk Drive LED Connector
The pin assignment is as follows :

PIN	ASSIGNMENT
5	+3.3V
7	HD_LED

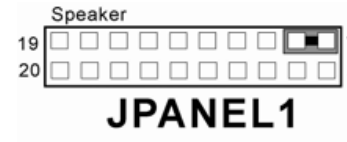
2-11. ATX POWER BUTTON



JPANEL1 (10,12) : ATX Power Button
The pin assignment is as follows :

PIN	ASSIGNMENT
10	V5SB
12	PWB_SIOJ

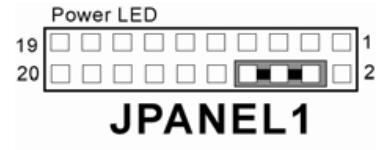
2-12. EXTERNAL SPEAKER CONNECTOR



JPANEL1 (1,3) : External Speaker Connector
The pin assignment is as follows :

PIN	ASSIGNMENT
1	SPK3
3	VCC

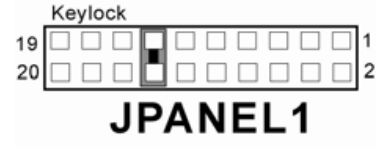
2-13. POWER LED CONNECTOR



JPAENL1 (4,6,8) : Power LED Connector
The pin assignment is as follows:

PIN	ASSIGNMENT
4	VCC
6	VCC
8	PLED

2-14. KEYLOCK CONNECTOR



JPAENL1 (13,14) : Keylock Connector
The pin assignment is as follows:

PIN	ASSIGNMENT
13	KEYLOCKJ
14	GND

2-15. IRDA CONNECTOR

JPANEL1 (17,18,19,20): IrDA (Infrared) Connector
The pin assignments are as follows:

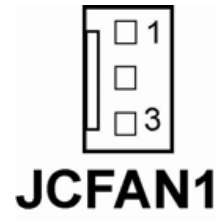
PIN	ASSIGNMENT
17	VCC
18	GND
19	IRTX2
20	IRRX2

JIRDA1: IrDA (Infrared) Connector.
The pin assignments are as follows:

PIN	ASSIGNMENT
1	VCC
2	NC
3	IRRX
4	GND
5	IRTX

2-16. CPU FAN CONNECTOR

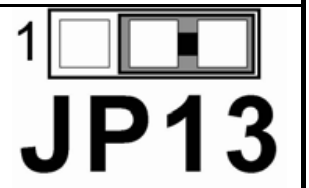
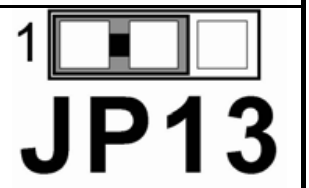
JCFAN1 : CPU Fan connector
The pin assignment is as follows:



PIN	ASSIGNMENT
1	GND
2	+12V
3	FAN1

2-17. CLEAR CMOS DATA SELECTION

JP13 : Clear CMOS Data Selection
The selections are as follows :

FUNCTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
Clear CMOS	2-3	
Normal	1-2	

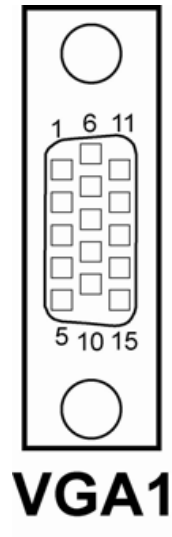
*** Manufacturing Default is set as Normal.

Note: To clear CMOS data, user must power-off the computer and set the jumper to "Clear CMOS" as illustrated above. After five to six seconds, set the jumper back to "Normal" and power-on the computer.

2-18. VGA CONNECTOR

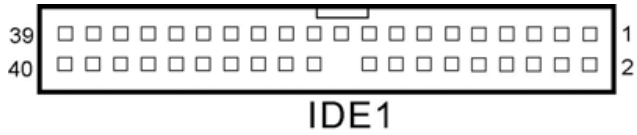
VGA1 : VGA CRT Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	RED
2	GREEN
3	BLUE
4	NC
5	GND
6	GND
7	GND
8	GND
9	VCC
10	GND
11	NC
12	VGA IIC DATA
13	HSYNC
14	VSYNC
15	VGA IIC CLK



2-19. HARD DISK DRIVE CONNECTOR

IDE1: Hard Disk Drive Connector
The pin assignments are as follows:

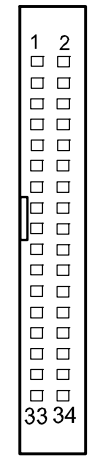


PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	IDERSTJ	2	GND
3	PDD7	4	PDD8
5	PDD6	6	PDD9
7	PDD5	8	PDD10
9	PDD4	10	PDD11
11	PDD3	12	PDD12
13	PDD2	14	PDD13
15	PDD1	16	PDD14
17	PDD0	18	PDD15
19	GND	20	NC
21	PDREQ	22	GND
23	PDIOWJ	24	GND
25	PDIORJ	26	GND
27	PDIORDY	28	PULL LOW
29	PDDACKJ	30	GND
31	IRQ14	32	NC
33	PDA1	34	PD66_DECT
35	PDA0	36	PDA2
37	PDCSJ1	38	PDCSJ3
39	IDEACTPJ	40	GND

2-20. FLOPPY DISK DRIVE CONNECTOR

FDD1 : Floppy Disk Drive Connector
You can use a 34-pin daisy-chain cable to connect two-FDDs. On one end of this cable is a 34-pin flat cable to attach the FDD on the board, and the other side is attaches two FDDs.
The pin assignments are as follows :

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	2	RWCJ
3	GND	4	NC
5	NC	6	DS1J
7	GND	8	INDEXJ
9	GND	10	MOAJ
11	GND	12	DSBJ
13	GND	14	DSAJ
15	GND	16	MOBJ
17	GND	18	DIRJ
19	GND	20	STEPJ
21	GND	22	WDJ
23	GND	24	WENJ
25	GND	26	TRAK0J
27	GND	28	WPJ
29	GND	30	RDATAJ
31	GND	32	HEADJ
33	GND	34	DSKCHGJ

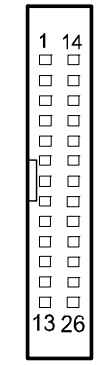


FDD1

2-21. PRINTER CONNECTOR

LPT1 : Printer Connector
As to link the Printer to the card, you need a cable to connect both DB25 connector and parallel port.
The pin assignments are as follows :

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	PRNSTRBJ	14	PRNALFJ
2	PRND0	15	PRNERRORJ
3	PRND1	16	PRNPARINITJ
4	PRND2	17	PRNSLCTINJ
5	PRND3	18	GND
6	PRND4	19	GND
7	PRND5	20	GND
8	PRND6	21	GND
9	PRND7	22	GND
10	PRNACKJ	23	GND
11	PRNBUSY	24	GND
12	PRNPE	25	GND
13	PRNSLCTJ	26	NC

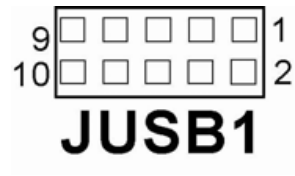


LPT1

2-22. UNIVERSAL SERIAL BUS CONNECTOR

JUSB1: Universal Serial Bus Connector
The pin assignments are as follows:

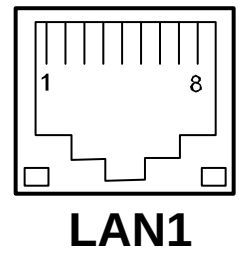
PIN	ASSIGNMENT
1	USBV0
2	USBV1
3	USBC0N
4	USBC1N
5	USBC0P
6	USBC1P
7	GND
8	GND
9	GND
10	GND



2-23. LAN CONNECTOR

LAN1: LAN Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	TXP
2	TXN
3	RXP
4	CGND
5	CGND
6	RXN
7	CGND
8	CGND



LAN LED Indicator:
Left side LED:

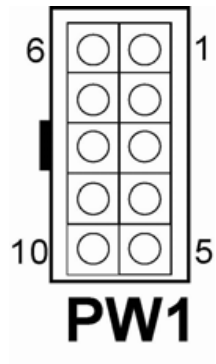
Green Color On	10/100 LAN Speed Indicator
Off	No LAN switch/hub connected

Right side LED:

Yellow Color Blinking	LAN Message Active
Off	No LAN Message Active

2-24. ATX POWER CONNECTOR

PW1 : ATX Power Connector
The pin assignments are as follows:



PIN	ASSIGNMENT
1	VCC
2	VCC
3	GND
4	GND
5	+12V
6	V5SB
7	VCC
8	GND
9	PSON
10	-12V

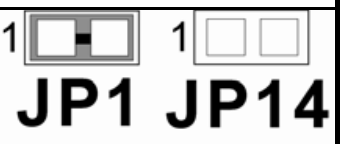
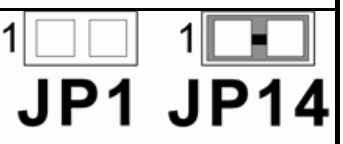
2-25. 5VSB CONNECTOR

J6 : 5VSB Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	V5SB
2	GND
3	PSON

2-26. AT/ATX POWER SELECTION

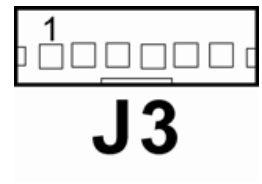
JP1, JP14 : AT/ATX Power Selection
The selections are as follows :

FUNCTION	JUMPER SETTING (pin closed)		JUMPER ILLUSTRATION
	JP1	JP14	
AT	1-2	Open	
ATX	Open	1-2	

*** Manufacturing Default is set as ATX.

2-27. INVERTER CONNECTOR

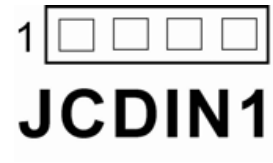
J3 : Inverter Connector
The pin assignment is as follows:



PIN	ASSIGNMENT
1	+12V
2	GND
3	VCC
4	NC
5	BKLTEN

2-28. CDIN CONNECTOR

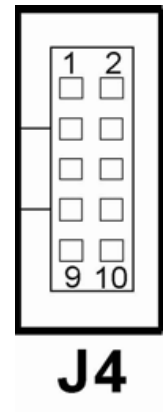
JCDIN1 : CDIN Connector
The pin assignment is as follows:



PIN	ASSIGNMENT
1	CD_L
2	CDGND
3	CDGND
4	CD_R

2-29. SOUND CONNECTOR

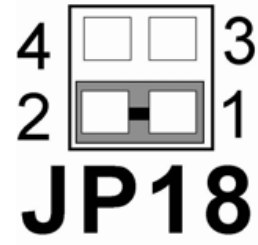
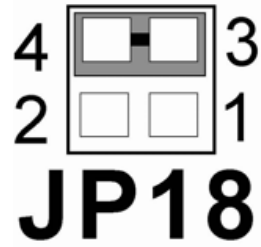
J4 : Sound Connector
The pin assignment is as follows:



PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	MIC_IN	2	NC
3	GND	4	GND
5	LINE_L	6	LINE_R
7	GND	8	GND
9	SPK_L	10	SPK_R

2-30. RESET/NMI WATCHDOG SELECTION

JP18 : Reset/NMI Watchdog Selection
The selections are as follows:

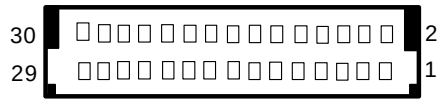
FUNCTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
RESET	1-2	
NMI	3-4	

***Manufacturing Default is set as Reset.

2-31. LVDS CONNECTOR

LVDS1 : LVDS Connector.

The pin assignments are as follows:

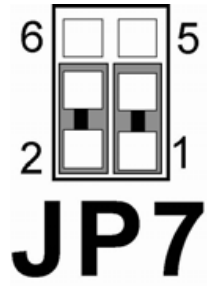
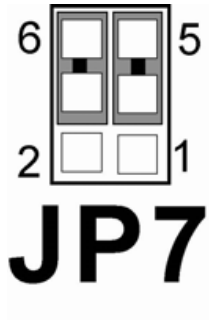


LVDS1

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	LVDS_VCC	2	GND
3	CLKBM	4	CLKBP
5	GND	6	YBM2
7	YBP2	8	GND
9	YBM1	10	YBP1
11	YBP3	12	YBM3
13	YBP0	14	YBM0
15	GND	16	CLKAP
17	CLKAM	18	GND
19	YAP2	20	YAM2
21	GND	22	YAP1
23	YAM1	24	GND
25	YAP0	26	YAM0
27	YAP3	28	YAM3
29	LVDS_VCC	30	LVDS_VCC

2-32. LVDS PANEL VOLTAGE SELECTION

JP7 : LVDS Panel Voltage Selection.
The selections are as follows:

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
LVDS_VCC3	1-3, 2-4	
LVDS_VCC5	3-5, 4-6	

***Manufacturing Default is set as LVDS_VCC3.

SOFTWARE UTILITIES

CHAPTER

3

This chapter comprises the detailed information of VGA driver, LAN driver, and Flash BIOS update. It also describes how to install the watchdog timer configuration.

Section includes:

- VGA Driver Utility
- Flash BIOS Update
- LAN Driver Utility
- Sound Driver Utility
- Intel® Chipset Software Installation Utility
- USB2.0 Chipset Software Installation Utility
- Watchdog Configuration

3-1. INTRODUCTION

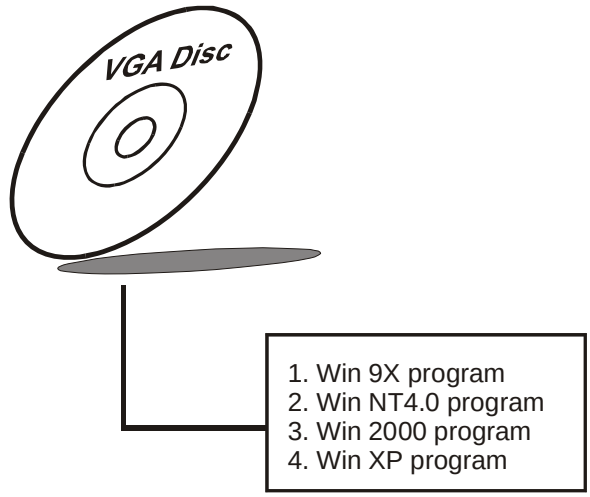
Enclosed with our ISA-562LF package is our driver utility, which may comes in a form of a CD ROM disc or floppy diskettes. For CD ROM disc user, you will only need some of the files contained in the CD ROM disc, please kindly refer to the following chart:

Filename (Assume that CD ROM drive is D:)	**Purpose**
D:\Driver\VGA	Intel 855GME For VGA driver installation
D:\Driver\FLASH	For BIOS update utility
D:\Driver\LAN	For LAN Driver installation
D:\Driver\Sound	Realtel ALC202A AC97 For Sound driver installation
D:\Driver\UTILITY	Intel® Chipset Software Installation Utility For Win 98SE,ME, 2000, XP
D:\Driver\USB 2.0	USB 2.0 Software Installation Utility For Win 98SE, 2000, ME, XP

🔔 User should remember to install the Utility right after the OS fully installed.

3-2. VGA DRIVER UTILITY

The VGA interface embedded with our ISA-562LF can support a wide range of display. You can display CRT, LVDS simultaneously with the same mode.



3-2-1. Installation of VGA Driver:

To install the VGA Driver, simply follow the following steps:

1. Place insert the Utility Disk into Floppy Disk Drive A/B or CD ROM drive.
2. Under Windows 9X/NT4.0/2000/XP system, go to the directory where VGA driver is located.
3. Click **Setup.exe** file for VGA driver installation.
4. Follow the instructions on the screen to complete the installation.
5. Once installation is completed, shut down the system and restart in order for the changes to take effect.

🔔 Under the Windows 98 system, after rebut computer, there will have two error messages appear, “Can’t find ikch8xx.cat and isb8xx.cat”, just skip the messages, they will not cause any effects.

3-3. FLASH BIOS UPDATE

3-3-1. System BIOS Update:

Users of ISA-562LF can use the program “Awdflash.exe” contained in the Utility Disk for system BIOS and VGA BIOS update.

3-3-2. To update VGA BIOS for LCD Flat Panel Display:

As ISA-562LF user, you have to update the VGA BIOS for your specific LCD flat panel you are going to use. For doing this, you need two files. One is the “Awdflash.exe” file and the other is the VGA BIOS for ATI Rage Mobility M6 file for LCD panel display. Both file must be provided by the vendor or manufacturer. When you get these two files ready, follow the following steps for updating your VGA BIOS:

1. Install “Awdflash.exe” from Utility Disk to Drive C.
2. Insert the VGA BIOS file you have obtained from the vendor. Type the path to Awdflash.exe and execute the VGA BIOS update with file H562xxxx.bin
3. C:\UTIL\AWDFLASH>AWDFLASH H562xxxx.bin
4. The screen will display as the table fount on the next page:

FLASH MEMORY WRITER v7.XX (C) Award Software 2001 All Rights Reserved
Flash Type – SST 49LF004A /3.3V File Name to Program: H562xxxx.bin Checksum: XXXXX
Error Message: Do You Want To Save BIOS (Y/N)

If you want to save up the original BIOS, enter "Y" and press < Enter >. If you choose "N", the following table will appear on screen.

FLASH MEMORY WRITER v7.XX (C) Award Software 2001 All Rights Reserved
Flash Type – SST 49LF004A /3.3V File Name to Program: H562xxxx.bin Checksum: XXXXX
Error Message : Are You Sure To Program (Y/N)

Select "Y", and the BIOS will be renewed. When you are refreshing the BIOS, do not turn off or reset the system, or you will damage the BIOS. After you have completed all the programming, the screen displays the table below:

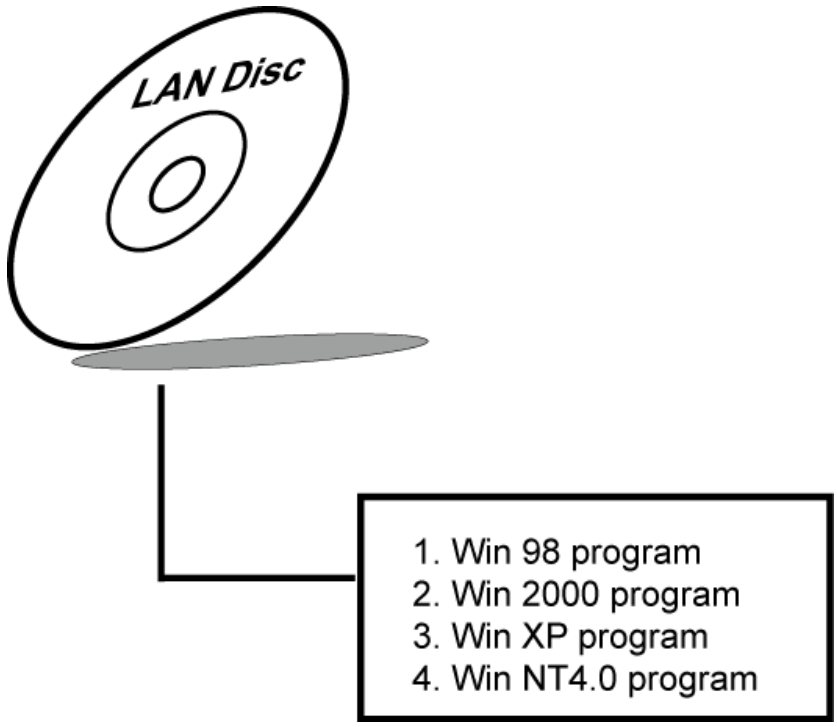
FLASH MEMORY WRITER v7.XX (C) Award Software 2001 All Rights Reserved
Flash Type – SST 49LF004A /3.3V File Name to Program: H562xxxx.bin Checksum: XXXXX Reset System or Power off to accomplish update process!
F1: Reset F10: Exit

Please reset or power off the system, and then the Flash BIOS is fully implemented.

3-4. LAN DRIVER UTILITY

3-4-1. Introduction

ISA-562LF is enhanced with LAN function that can support various network adapters. Installation programs for LAN drivers are listed as follows:

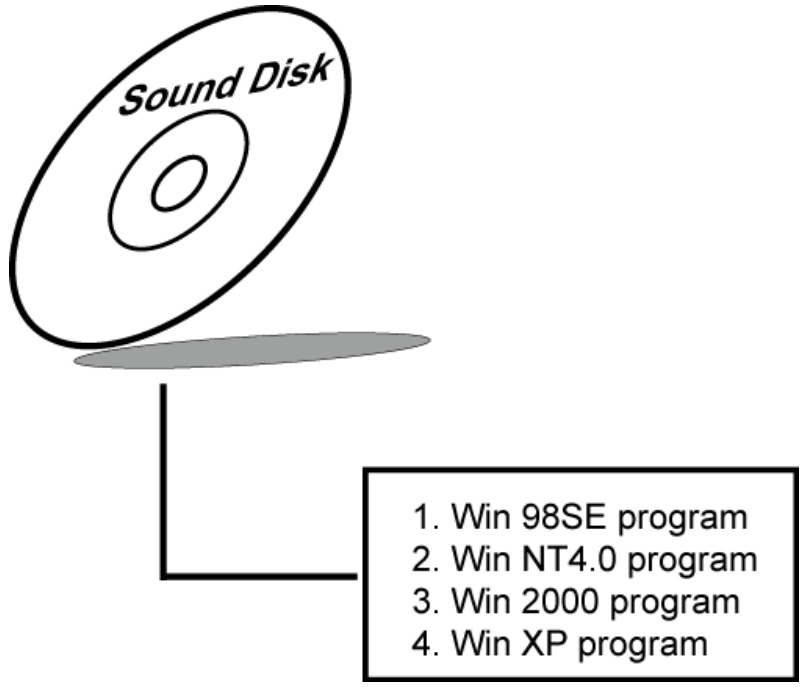


For more details on Installation procedure, please refer to Readme.txt file found on LAN DRIVER UTILITY.

3-5. SOUND DRIVER UTILITY

3-5-1. Introduction

The Realtek ALC202A sound function enhanced in this system is fully compatible with Windows 98, Windows NT 4.0, Windows 2000, Windows XP. Below, you will find the content of the Sound driver :



3-5-2. Installation Procedure for Windows 9x/NT/2000/XP

1. From the task bar, click on Start, and then Run.
2. In the Run dialog box, type D:\Sound\path\setup, where "D:\Sound\pathname" refers to the full path to the source files.
3. Click on the OK button or press the ENTER key.
4. Click on the "Next" and OK prompts as they appear.
5. Reboot the system to complete the driver installation.

3-6. INTEL® CHIPSET SOFTWARE INSTALLATION UTILITY

3-6-1. Introduction

The Intel® Chipset Software Installation Utility installs to the target system the Windows* INF files that outline to the operating system how the chipset components will be configured. This is needed for the proper functioning of the following features:

- Core PCI and ISAPNP Services
- AGP Support
- IDE/ATA33/ATA66/ATA100 Storage Support
- USB Support
- Identification of Intel® Chipset Components in Device Manager

3-6-2. Installation of Utility for Windows 98SE/ME/2000/XP

The Utility Pack is to be installed only for Windows 98SE, Windows ME, Windows 2000 and XP program.
It should be installed right after the OS installation, kindly follow the following steps:

1. Place insert the Utility Disk into Floppy Disk Drive A/B or CD ROM drive.
2. Under Windows 98SE/ME/2000/XP system, go to the directory where Utility Disc is located.
3. Click **Setup.exe** file for utility installation.
4. Follow the instructions on the screen to complete the installation.
5. Once installation is completed, shut down the system and restart in order for the changes to take effect.

3-7. USB2.0 SOFTWARE INSTALLATION UTILITY

3-7-1. Installation of Utility for Windows 98SE/ 2000/XP

Intel USB 2.0 Enhanced Host Controller driver can only be used on Windows 98SE, Windows 2000 and Windows XP on Intel Desktop boards. It should be installed right after the OS installation, kindly follow the following steps:

1. Place insert the Utility Disk into Floppy Disk Drive A/B or CD ROM drive.
2. Under Windows 98SE, 2000, and XP system, go to the directory where Utility Disc is located.
3. Start the "System" wizard in control panel. (Click Start/Settings/Control Panel).
4. Select "Hardware" and click "Device Manager " button.
5. Double Click "USB Root Hub".
6. Select "Driver".
7. Click "Install" to install the driver.
8. Follow the instructions on the screen to complete the installation.
9. Click "Finish" after the driver installation is complete.

3-8. WATCHDOG TIMER CONFIGURATION

The I/O port address of the watchdog timer is 2E(hex) and 2F(hex). 2E (hex) is the address port. 2F(hex) is the data port. User must first assign the address of register by writing address value into address port 2E(hex), then write/read data to/from the assigned register through data port 2F (hex).

Configuration Sequence

To program W83627HF configuration registers, the following configuration sequence must be followed:

(1) Enter the extended function mode
(2) Configure the configuration registers
(3) Exit the extended function mode

(1) Enter the extended function mode

To place the chip into the extended function mode, two successive writes of 0x87 must be applied to Extended Function Enable Registers (EFERs, i.e. 2Eh).

(2) Configurate the configuration registers

The chip selects the logical device and activates the desired logical devices through Extended Function Index Register (EFIR) and Extended Function Data Register (EFDR). EFIR is located at the same address as EFER, and EFDR is located at address (EFIR+1).

First, write the Logical Device Number (i.e.,0x07) to the EFIR and then write the number of the desired logical device to the EFDR. Secondly, write the address of the desired configuration register within the logical device to the EFIR and then write (or read) the desired configuration register through EFDR.

(3) Exit the extended function mode

To exit the extended function mode, one write of 0xAA to EFER is required. Once the chip exits the extended function mode.

Example Program

1. Enable watchdog timer and set 30 sec. as timeout interval

```
;--------------------------------------------------------
Mov dx, 2eh ; Enter to extended function mode
Mov al, 87h
Out dx, al
Out dx, al
;--------------------------------------------------------
Mov al, 07h ; Select Logical Device 8 of watchdog timer
```

```
Out dx,al
Inc dx
Mov al, 08h
Out dx,al
;--------------------------------------------------------
Mov al, 30h ; Enable Watchdog Function
Out dx,al
Inc dx
Mov al, 01h
Out dx,al
;--------------------------------------------------------
Dec dx ; Set second as counting unit
Mov al, 0f5h
Out dx,al
Inc dx
In al,dx
And al,not 08h
Out dx,al
;--------------------------------------------------------
Dec dx ; Set timeout interval as 30seconds and start counting
Mov al, 0f6h
Out dx,al
Inc dx
Mov al, 30
Out dx,al
;--------------------------------------------------------
Dec dx ; Exit the extended function mode
Mov al, 0aah
Out dx,al
```

AWARD BIOS SETUP

CHAPTER

4

This chapter shows how to set up the Award BIOS.

Section includes:

- Introduction
- Entering Setup
- The Standard CMOS Features
- The Advanced BIOS Features
- The Advanced Chipset Features
- Integrated Peripherals
- Power Management Setup
- PNP/PCI Configuration
- PC Health Status
- Frequency Control
- Load Fail-Safe Defaults
- Load Optimized Defaults
- Set Supervisor Password
- Set User Password
- Save and Exit Setup
- Exit Without Saving

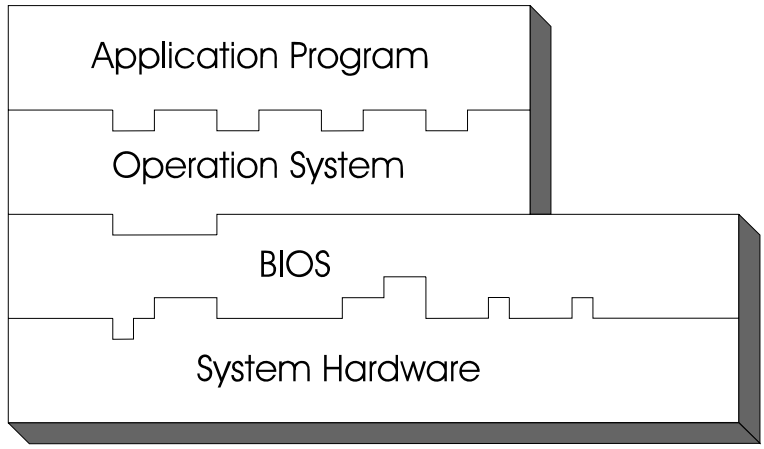
4-1. INTRODUCTION

This chapter will show you the function of the BIOS in managing the features of your system. The ISA-562LF Intel® processor, Half Size Card is equipped with the BIOS for system chipset from Award Software Inc. This page briefly explains the function of the BIOS in managing the special features of your system. The following pages describe how to use the BIOS for system chipset Setup menu.

Your application programs (such as word processing, spreadsheets, and games) rely on an operating system such as DOS or OS/2 to manage such things as keyboard, monitor, disk drives, and memory.

The operating system relies on the BIOS (Basic Input and Output system), a program stored on a ROM (Read-only Memory) chip, to initialize and configure your computer's hardware. As the interface between the hardware and the operating system, the BIOS enables you to make basic changes to your system's hardware without having to write a new operating system.

The following diagram illustrates the interlocking relationships between the system hardware, BIOS, operating system, and application program:



4-2. ENTERING SETUP

When the system is powered on, the BIOS will enter the Power-On Self Test (POST) routines and the following message will appear on the lower screen:

PRESS <DEL> TO ENTER SETUP, ESC TO SKIP MEMORY TEST

As long as this message is present on the screen you may press the <Del> key (the one that shares the decimal point at the bottom of the number keypad) to access the Setup program. In a moment, the main menu of the Award SETUP program will appear on the screen:

Phoenix - AwardBIOS CMOS Setup Utility

►Standard CMOS Features	►Frequency Control
►Advanced BIOS Features	Load Fail-Safe Defaults
►Advanced Chipset Features	Load Optimized Defaults
►Integrated Peripherals	Set Supervisor Password
►Power Management Setup	Set User Password
►PnP/PCI Configurations	Save & Exit Setup
►PC Health Status	Exit Without Saving
Esc : Quit F10 : Save & Exit Setup	↑↓→← : Select Item
Time, Date, Hard Disk Type ….	

Setup program initial screen

You may use the cursor the up/down keys to highlight the individual menu items. As you highlight each item, a brief description of the highlighted selection will appear at the bottom of the screen.

4-3. THE STANDARD CMOS FEATURES

Highlight the〝STANDARD CMOS FEATURES〞and press the <ENTER> key and the screen will display the following table:

Phoenix - AwardBIOS CMOS Setup Utility
Standard CMOS Features

Date (mm:dd:yy)	Thu, Jun 9 2005	Item Help
Time (hh:mm:ss)	18 : 28 : 11	
		Menu Level ►
► IDE Primary Master	[None]	
► IDE Primary Slave	[None]	Change the internal clock.
► IDE Secondary Master	[None]	
► IDE Secondary Slave	[None]	
Drive A	[1.44M, 3.5 in.]	
Drive B	[None]	
Video	[EGA/VGA]	
Halt On	[All, But Keyboard]	
Base Memory	640K	
Extended Memory	489472K	
Total Memory	490496K	

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

CMOS Setup screen

In the above Setup Menu, use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

Date:

< Month >, < Date > and <Year >. Ranges for each value are in the CMOS Setup Screen, and the week-day will skip automatically.

Time:

< Hour >, < Minute >, and < Second >. Use 24 hour clock format, i.e., for PM numbers, add 12 to the hour. For example: 4: 30 P.M. You should enter the time as 16:30:00.

IDE Primary Master / Slave:
IDE Secondary Master / Slave:

The BIOS can automatically detect the specifications and optimal operating mode of almost all IDE hard drives. When you select type AUTO for a hard drive, the BIOS detect its specifications during POST, every time system boots.

If you do not want to select drive type AUTO, other methods of selecting drive type are available:

1. Match the specifications of your installed IDE hard drive(s) with the preprogrammed values for hard drive types 1 through 45.
2. Select USER and enter values into each drive parameter field.
3. Use the IDE HDD AUTO DETECTION function in Setup.

Here is a brief explanation of drive specifications:

Type: The BIOS contains a table of pre-defined drive types. Each defined drive type has a specified number of cylinders, number of heads, write precompensation factor, landing zone, and number of sectors. Drives whose specifications do not accommodate any predefine type are classified as type USER.

- Size: Disk drive capacity (approximate). Note that this size is usually greater than the size of a formatted disk given by a disk-checking program.
- Cyls: number of cylinders.
- Head: number of heads.
- Precomp: write precompensation cylinders.
- Landz: landing zone.
- Sector: number of sectors.
- Mode: Auto, Normal, Large or LBA.

  Auto: The BIOS automatically determines the optimal mode.

  - Normal: Maximum number of cylinders, heads, sectors supported are 1024, 16 and 63.
  - Large: For drives that do not support LBA and have more than 1024 cylinders.

- LBA (Logical Block Addressing): During drive accesses, the IDE controller transforms the data address described by sector, head and cylinder number into a physical block address, significantly improving data transfer rates. For drives greater than 1024 cylinders.

DRIVE A AND DRIVE B:

Select the type of floppy disk drive installed in your system. The available options are 360KB 5.25in, 1.2KB 5.25in, 720KB 3.5in, 1.44MB 3.5in, 2.88MB 3.5in and None.

VIDEO:

This category selects the type of video adapter used for the primary system monitor. Although secondary monitors are supported, you do not have to select the type in Setup. Available Options are as follows:

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

HALT ON:

This category allows user to choose whether the computer will stop if an error is detected during power up. Available options are “All errors”, “No errors”, “All, But keyboard”, “All, But Diskette”, and “All But Disk/Key”.

BASE MEMORY:

Displays the amount of conventional memory detected during boot up.

EXTENDED MEMORY:

Displays the amount of extended memory detected during boot up.

TOTAL MEMORY:

Displays the total memory available in the system.

HARD DISK ATTRIBUTES:

Type	Cylinders	Heads	V-P comp	LZone	Sect	Capacity
1	306	4	128	305	17	10
2	615	4	300	615	17	20
3	615	6	300	615	17	30
4	940	8	512	940	17	62
5	940	6	512	940	17	46
6	615	4	65535	615	17	20
7	642	8	256	511	17	30
8	733	5	65535	733	17	30
9	900	15	65535	901	17	112
10	820	3	65535	820	17	20
11	855	5	65535	855	17	35
12	855	7	65535	855	17	49
13	306	8	128	319	17	20
14	733	7	65535	733	17	42
15	000	0	0000	000	00	00
16	612	4	0000	663	17	20
17	977	5	300	977	17	40
18	977	7	65535	977	17	56
19	1024	7	512	1023	17	59
20	733	5	300	732	17	30
21	733	7	300	732	17	42
22	733	5	300	733	17	30
23	306	4	0000	336	17	10
24	977	5	65535	976	17	40
25	1024	9	65535	1023	17	76
26	1224	7	65535	1223	17	71
27	1224	11	65535	1223	17	111
28	1224	15	65535	1223	17	152
29	1024	8	65535	1023	17	68
30	1024	11	65535	1023	17	93
31	918	11	65535	1023	17	83
32	925	9	65535	926	17	69
33	1024	10	65535	1023	17	85
34	1024	12	65535	1023	17	102
35	1024	13	65535	1023	17	110
36	1024	14	65535	1023	17	119
37	1024	2	65535	1023	17	17
38	1024	16	65535	1023	17	136
39	918	15	65535	1023	17	114
40	820	6	65535	820	17	40
41	1024	5	65535	1023	17	42
42	1024	5	65535	1023	26	65
43	809	6	65535	852	17	40
44	809	6	65535	852	26	61
45	776	8	65335	775	33	100
47			AUTO			

Award Hard Disk Type Table

4-4. THE ADVANCED BIOS FEATURES

Choose the "ADVANCED BIOS FEATURES" in the main menu, the screen shown as below.

Phoenix - AwardBIOS CMOS Setup Utility
Advanced BIOS Features

Virus Warning	[Disabled]	Item Help
CPU L1 & L2 Cache	[Enabled]	
Quick Power On Self Test	[Enabled]	Menu Level ►
First Boot Device	[Floppy]	
Second Boot Device	[HDD-0]	Allows you to choose the VIRUS warming 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
Boot Up Floppy Seek	[Enabled]	
Boot Up NumLock Status	[On]	
Typematic Rate Setting	[Disabled]	
x Typematic Rate (Chars/Sec)	6	
x Typematic Delay (Msec)	250	
Security Option	[Setup]	
OS Select For DRAM > 64MB	[Non-OS2]	

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

BIOS Features Setup Screen

The "BIOS FEATURES SETUP" allow you to configure your system for basic operation. The user can select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.

A brief introduction of each setting is given below.

VIRUS WARNING :

This item 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.

CPU L1 & L2 CACHE :

This item allows you to enable L1 & L2 cache.

QUICK POWER ON SELF-TEST:

This item allows you to speed up Power On Self Test (POST) after power-up the computer. When enabled, the BIOS will shorten or skip some check items during POST.

FIRST/SECOND/ BOOT DEVICE:

The BIOS attempt to load the operating system from the devices in the sequence selected in these items.

BOOT UP FLOPPY SEEK:

You may enable / disable this item to define whether the system will look for a floppy disk drive to boot at power-on, or proceed directly to the hard disk drive.

BOOT UP NUMLOCK STATUS:

Select power on state for NumLock.

TYPEMATIC RATE SETTING:

Enable this item if you wish to be able to configure the characteristics of your keyboard. Typematic refers to the way in which characters are entered repeatedly if a key is held down. For example, if you press and hold down the "A" key, the letter "a" will repeatedly appear on your screen on your screen until you release the key. When enabled, the typematic rate and typematic delay can be selected.

TYPEMATIC RATE (CHARS/SEC):

This item sets the number of times a second to repeat a key stroke when you hold the key down.

TYPEMATIC DELAY (MSEC):

The item sets the delay time after the key is held down before it begins to repeat the keystroke.

SECURITY OPTION:

This category allows you to limit access to the system and Setup, or just to Setup.

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

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

OS SELECT FOR DRAM >64MB :

Select the operating system that is running with greater than 64MB or RAM on the system. You may choose OS2 or Non-OS2.

4-5. ADVANCED CHIPSET FEATURES

Choose the "ADVANCED CHIPSET FEATURES" from the main menu, the screen shown as below.

Phoenix - AwardBIOS CMOS Setup Utility
Advanced Chipset Features

DRAM Timing Selectable	[By SPD]	Item Help
X CAS Latency Time	2	
X Active to Precharge Delay	6	
X DRAM RAS# to CAS# Delay	3	Menu Level ►
X DRAM RAS# Precharge	3	
System BIOS Cacheable	[Enabled]	
Video BIOS Cacheable	[Disabled]	
Memory Hole At 15M-16M	[Disabled]	
Delayed Transaction	[Enabled]	
AGP Aperture Size (MB)	[64]	
** On-Chip VGA Setting **		
On-Chip VGA	[Enabled]	
On-Chip Frame Buffer Size	[32MB]	
Boot Display	[CRT]	
Panel Type	[640x480 18-bits]	
Non-Maskable Interrupt	[Disabled]	

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

Chipset Features Setup Screen

This parameter allows you to configure the system based on the specific features of the installed chipset. The chipset manages bus speed and access to system memory resources, such as DRAM and the external cache.

It also coordinates communications between conventional ISA bus and the PCI bus. It must be stated that these items should never need to be altered. The default settings have been chosen because they provide the best operating conditions for the system. The only time you might consider making any changes would be if you discovered that data was being lost while using your system.

DRAM TIMING BY SELECTABLE:

This allows you to select the DRAM timing.

CAS LATENCY TIME:

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing.

ACTIVE TO PRECHARGE DELAY:

This item controls the number of DRAM clocks for TRAS.

DRAM RAS# TO CAS# DELAY:

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

DRAM RAS# PRECHARGE:

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

DRAM DATA INTEGRITY MODE:

Select Parity or ECC (error-correcting code), according to the type of installed DRAM.

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.

VIDEO BIOS CACHEABLE:

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

MEMORY HOLE AT 15M-16M:

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

DELAYED TRANSACTION:

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

AGP APERTURE SIZE:

This field determines the effective size of the Graphic Aperture used for a particular GMCH configuration. It can be updated by the GMCH-specific BIOS configuration sequence before the PCI standard bus enumeration sequence takes place. If it is not updated then a default value will select an aperture of maximum size.

ON-CHIP VGA :

By default, the On-Chip VGA or chipset-integrated VGA is "Enabled".

ON-CHIP FRAME BUFFER SIZE: (depend on chipset)

The On-Chip Frame Buffer Size can be set as 1MB or 8MB. This memory is shared with the system memory.

BOOT DISPLAY: (depend on chipset)

Boot Display determines the display output device where the system boots. The options are CRT and LVDS.

PANEL TYPE: (depend on chipset)

This field allows user to decide the LVDS panel resolution. The available choices are: 640x480 18bits, 800x600 18bits, 1024x768 18bits, 1280x1024 36bits, 1400x1050 36bits, 1600x1200 36bits, and 1024x768 24bits.

4-6. INTEGRATED PERIPHERALS

Choose "INTEGRATED PERIPHERALS" from the main setup menu, a display will be shown on screen as below:

Phoenix - AwardBIOS CMOS Setup Utility
Integrated Peripherals

►OnChip IDE Device	[Press Enter]	Item Help
►Onboard Device	[Press Enter]	
►SuperIO Device	[Press Enter]	Menu Level ►
Watch Dog Timer Select	[Disabled]	
↑↓→←: Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6: Fail-Safe Defaults F7:Optimized Defaults		

Integrated Peripherals Setup Screen

By moving the cursor to the desired selection and by pressing the <F1> key, the all options for the desired selection will be displayed for choice.

🔔 If bios setup menu item supports USB device boot, it will cause Win9x detects the same storages twice when the system is rebooted, and USB HDD will fail. Note: this cause just happen under Win9x, the phenomenon is a limitation.

ONCHIP IDE DEVICE:

The options for these items are found in its sub menu. By pressing the <ENTER> key, you are prompt to enter the sub menu of the detailed options as shown below:

Phoenix – Award CMOS Setup Utility
OnChip IDE Device

OnChip Primary PCI IDE	[Enabled]	Item Help
IDE Primary Master PIO	[Auto]	
IDE Primary Slave PIO	[Auto]	
IDE Primary Master UDMA	[Auto]	Menu Level ►
IDE Primary Slave UDMA	[Auto]	
OnChip Secondary PCI IDE	[Enabled]	
IDE Secondary Master PIO	[Auto]	
IDE Secondary Slave PIO	[Auto]	
IDE Secondary Master UDMA	[Auto]	
IDE Secondary Slave UDMA	[Auto]	
IDE HDD Block Mode	[Enabled]	

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

Descriptions on each item above are as follows:

1. **OnChip Primary PCI IDE**
   The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select Enabled to activate each channel separately.
2. **Primary Master/Slave PIO**
   Secondary Master/Slave PIO
   The four IDE PIO fields allow you to set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.
3. **Primary Master/Slave UDMA**
   Secondary Master/Slave UDMA
   Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If you hard drive and your system software both support Ultra DMA/33, select Auto to enable BIOS support.

4. **OnChip Secondary PCI IDE**
   Enable the secondary IDE channel.
5. **IDE HDD Block Mode**
   Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.

ONBOARD DEVICE:

The options for these items are found in its sub menu. By pressing the <ENTER> key, you are prompt to enter the sub menu of the detailed options as shown below:

Phoenix – Award CMOS Setup Utility
Onboard Device

USB Controller	[Enabled]	Item Help
USB 2.0 Support	[Enabled]	
USB Keyboard Support	[Disabled]	
USB Mouse Support	[Disabled]	Menu Level ►
AC97 Audio	[Auto]	
Onboard LAN	[Enabled]	
Init Display First	[Onboard]	
↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Descriptions on each item above are as follows:

1. **USB Controller**
   This should be enabled if your system has a USB installed on the system board and you want to use it. Even when so equipped, if you add a higher performance controller, you will need to disable this feature.
2. **USB 2.0 Support**
   Enable the USB 2.0 controller.
3. **USB Keyboard Support**
   Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.
4. **USB Mouse Support**
   Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB Mouse.

5. **AC97 Audio**
   This item allows you to enable/disable to support AC97 Audio.
6. **Onboard LAN**
   Enable onboard LAN chip.
7. **Init Display First**
   This item allows you to decide to active whether PCI Slot or on-chip VGA first.

SUPER IO DEVICE:

The options for these items are found in its sub menu. By pressing the <ENTER> key, you are prompt to enter the sub menu of the detailed options as shown below:

Phoenix – Award CMOS Setup Utility
SuperIO Device

Onboard FDC Controller	[Enabled]	Item Help
Onboard Serial Port 1	[3F8/IRQ4]	
Onboard Serial Port 2	[2F8/IRQ3]	
UART Mode Select	[Normal]	Menu Level ►
X RxD, TxD Active	Hi, Lo	
X IR Transmission Delay	Enabled	
X UR2 Duplex Mode	Half	
X Use IR Pins	IR-Rx2Tx2	
Onboard Parallel Port	[378/IRQ7]	
Parallel Port Mode	[SPP]	
X EPP Mode Select	EPP1.7	
X ECP Mode Use DMA	3	
PWRON After PWR-Fail	[Off]	

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

Descriptions on each item above are as follows:

1. **Onboard FDC Controller**
   Select Enabled if the system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install and-in FDC or the system has no floppy drive, select Disabled.
2. **Onboard Serial Port 1/2**
   Select an address and corresponding interrupt for the first and second serial ports.
3. **UART Mode Select**
   This item allows you to select UART mode.

4. **RxD, TxD Active**
   This item allows you to determine the active of RxD, TxD.
5. **IR Transmission Delay**
   This item allows you to enable/disable IR transmission delay.
6. **UR2 Duplex Mode**
   This item allows you to select the IR half/full duplex function.
7. **Use IR Pins**
   This item allows you to select IR transmission routes, one is RxD2m, TxD2 (COM Port) and the other is IR-Rx2Tx2
8. **Onboard Parallel Port**
   This item allows you to determine access onboard parallel port controller with which I/O address.
9. **Parallel Port Mode**
   Select an operating mode for the onboard parallel (printer) port. Select *Normal*, *Compatible*, or *SPP* unless you are certain your hardware and software both support one of the other available modes.
10. **EPP Mode Select**
    Select EPP port type 1.7 or 1.9.
11. **ECP Mode Use DMA**
    Select a DMA channel for the parallel port for use during ECP mode.
12. **PWRON After PWR-Fail**
    This item allows you to select if you want to power on the system after power failure. The choice: Off, On, Former-Sts.

4-7. POWER MANAGEMENT SETUP

Choose "POWER MANAGEMENT SETUP" option on the main menu, a display will be shown on screen as below :

Phoenix - AwardBIOS CMOS Setup Utility
Power Management Setup

	ACPI Function	[Enabled]	Item Help
	Power Management	[User Define]	
	Video Off Method	[DPMS]	Menu Level ►
	Video Off In Suspend	[Yes]	
	MODEM Use IRQ	[3]	
	Suspend Mode	[Disabled]	
	Power-Supply Type	[ATX]	
	Soft-Off by PWR-BTTN	[Instant-Off]	
	Wake-Up by PCI card	[Enabled]	
	Wake Up On LAN	[Disabled]	
	Resume by Alarm	[Disabled]	
x	Date (of Month) Alarm	0	
x	Time (hh:mm:ss) Alarm	0 : 0 : 0	
	** Reload Global Timer Events **		
	Primary IDE 0	[Disabled]	
	Primary IDE 1	[Disabled]	
	Secondary IDE 0	[Disabled]	
	Secondary IDE 1	[Disabled]	
	FDD, COM, LPT Port	[Disabled]	

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

Power Management Setup Screen

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

ACPI FUNCTION:

This item allows the user to set the ACPI suspend type to be used.

POWER MANAGEMENT:

This item allows you to select the Power Management mode.

VIDEO OFF METHOD:

This determines the manner in which the monitor is blanked.

V/H SYNC+Blank	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
Blank Screen	This option only writes blanks to the video buffer.
DPMS	Select this option if your monitor supports the Display Power Management Signalling (DPMS) standard of the Video Electronics Standards to select video power management values.

MODEM USE IRQ:

This item enable you to name the interrupt request (IRQ) line assigned to the modem (if any) on your system. Activity of the selected IRQ always awakens the system.

SUSPEND MODE:

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

POWER SUPPLY TYPE:

It supports the message," **It is now safe to turn off your computer**", to wait for AT power supply shutdown if the setting of the item is **AT**. In addition, it won't show any message if the setting is **ATX**.

SOFT-OFF BY PWR-BTTN:

Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has "hung". The choices are Delay 4 Sec and Instant-Off.

WAKE-UP BY PCI CARD:

An input signal from PME on the PCI card awakens the system from a soft off state.

WAKE UP ON LAN:

When the system enters a Soft-off mode (Standby power exist but system is not working), it will wake up system when specific signals occurred. The BIOS monitors the system for "activity" to determine when to enable power management.

RESUME BY ALARM:

When *Enabled,* your can set the date and time at which the RTC (real-time clock) alarm awakens the system from Suspend mode.

RELOAD GLOBAL TIMER EVENTS:

PM events are I/O events whose occurrence can prevent the system from entering a power saving mode or can awaken the system from such a mode. In effect, the system remains alert for anything, which occurs to a device which is configured as *Enabled*, even when the system is in a power down mode. (1) **Primary IDE 0** (2) **Primary IDE 1** (3) **Secondary IDE 0** (4) **Secondary IDE 1** (5) **FDD, COM, LPT Port**

4-8. PNP/PCI CONFIGURATION

Choose "PNP/PCI CONFIGURATION" from the main menu, a display will be shown on screen as below:

Phoenix - AwardBIOS CMOS Setup Utility
PnP/PCI Configurations

Reset Configuration Data	[Disabled]	Item Help
Resources Controlled By	[Auto (ESCD)]	Menu Level ►
x IRQ Resources	Press Enter	
x DMA Resources	Press Enter	
PCI/VGA Palette Snoop	[Disabled]	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

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

PNP/PCI Configuration Setup Screen

The PNP/PCI Configuration Setup describes how to configure PCI bus system. PCI, also known as Personal Computer Interconnect, is a system, which allows I/O devices to operate at speeds nearing the speed of the CPU itself uses when communicating with its own special components.

This section covers technical items, which is strongly recommended for experienced users only.

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 configuration has caused such a serious conflict that the operating system cannot boot.

RESOURCE CONTROLLED BY:

The Award Plug and Play Bios can automatically configure all of the booth and Plug and Play-compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows 95. By choosing "manual", you are allowed to configure the *IRQ Resources and DMA Resources*.

IRQ RESOURCES:

The options for these items are found in its sub menu. By pressing the <ENTER> key, you are prompt to enter the sub menu of the detailed options as shown below:

Phoenix – Award CMOS Setup Utility
IRQ Resources

IRQ-3 assigned to	[PCI Device]	Item Help
IRQ-4 assigned to	[PCI Device]	
IRQ-5 assigned to	[PCI Device]	
IRQ-7 assigned to	[PCI Device]	Menu Level ►
IRQ-9 assigned to	[PCI Device]	
IRQ-10 assigned to	[PCI Device]	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-11 assigned to	[PCI Device]	
IRQ-12 assigned to	[PCI Device]	
IRQ-14 assigned to	[PCI Device]	
IRQ-15 assigned to	[PCI Device]	
↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Descriptions on each item above are as follows:

13. IRQ-n Assigned to:

You may assign each system interrupt a type, depending on the type of device using the interrupt.

PCI/VGA PALETTE SNOOP:

Leave this field at Disabled.

4-9. PC HEALTH STATUS

Choose "PC HEALTH STATUS" from the main menu, a display will be shown on screen as below:

Phoenix - AwardBIOS CMOS Setup Utility
PC Health Status

Current Warning Temperature	[Disabled]	Item Help
Current CPU Temperature	47℃/116℉	Menu Level ►
Current CPU Fan Speed	0 RPM	
Current SYSTEM Fan Speed	0 RPM	
Vcore	0.99V	
Vccp	1.02V	
3.3 V	3.34V	
+ 5 V	4.97V	
+12 V	11.97V	
-12 V	-11.62V	
VBAT (V)	3.24V	
5VSB (V)	4.96V	
Shutdown Temperature	[Disabled]	

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

PC Health Status Setup Screen

The PC Health Status Setup allows you to select whether to choose between monitoring or to ignore the hardware monitoring function of your system.

CURRENT WARNING TEMPERATURE:

Select the combination of lower and upper limits for the CPU temperature. If the CPU temperature extends beyond either limit, any warning mechanism programmed into your system will be activated.

CURRENT CPU TEMPERATURE:

This item shows you the current CPU temperature.

CURRENT CPU FAN SPEED:

This item shows you the current CPUFAN speed.

CURRENT SYSTEM FAN SPEED:

This item shows you the current System FAN speed.

VCORE:

This item shows you the current system voltage.

3.3V / +5V / +12V / -12V/VBAT/5VSB:

Show you the voltage of 3.3V/+5V/+12V/-12V/VBAT/5VSB.

SHUTDOWN TEMPERATURE:

This item allows you to set up the CPU shutdown Temperature. This function is only effective under Windows 98 ACPI mode.

4-10. FREQUENCY CONTROL

Choose "FREQUENCY CONTROL" from the main menu, a display will be shown on screen as below:

Phoenix - AwardBIOS CMOS Setup Utility
Frequency Control

Auto Detect PCI Clk	[Enabled]	Item Help
Spread Spectrum	[Enabled]	Menu Level ►
↑↓→←: Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6: Fail-Safe Defaults F7:Optimized Defaults		

Frequency Control Setup Screen

This setup menu allows you to specify your settings for frequency control.

AUTO DETECT PCI CLK:

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

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.

4-11. LOAD FAIL-SAFE DEFAULTS

By pressing the <ENTER> key on this item, you get a confirmation dialog box with a message similar to the following:

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

To use the BIOS default values, change the prompt to "Y" and press the <Enter > key. CMOS is loaded automatically when you power up the system.

4-12. LOAD OPTIMIZED DEFAULTS

When you press <Enter> on this category, you get a confirmation dialog box with a message similar to the following:

```
Load Optimized Defaults ( Y/N ) ? N
```

Pressing "Y" loads the default values that are factory setting for optimal performance system operations.

4-13. SET SUPERVISOR PASSWORD

User is allowed to set either supervisor or user password, or both of them. The difference is that the supervisor password can enter and change the options of the setup menus while the user password can enter only but do not have the authority to change the options of the setup menus.

TO SET A PASSWORD

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

Enter Password:

Type the password up to eight characters in length, and press < Enter >. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press the < Enter > key. You may also press < Esc > to abort the selection and not enter a password.

🔔 User should bear in mind that when a password is set, you will be asked to enter the password everything you enter CMOS setup Menu.

TO DISABLE THE PASSWORD

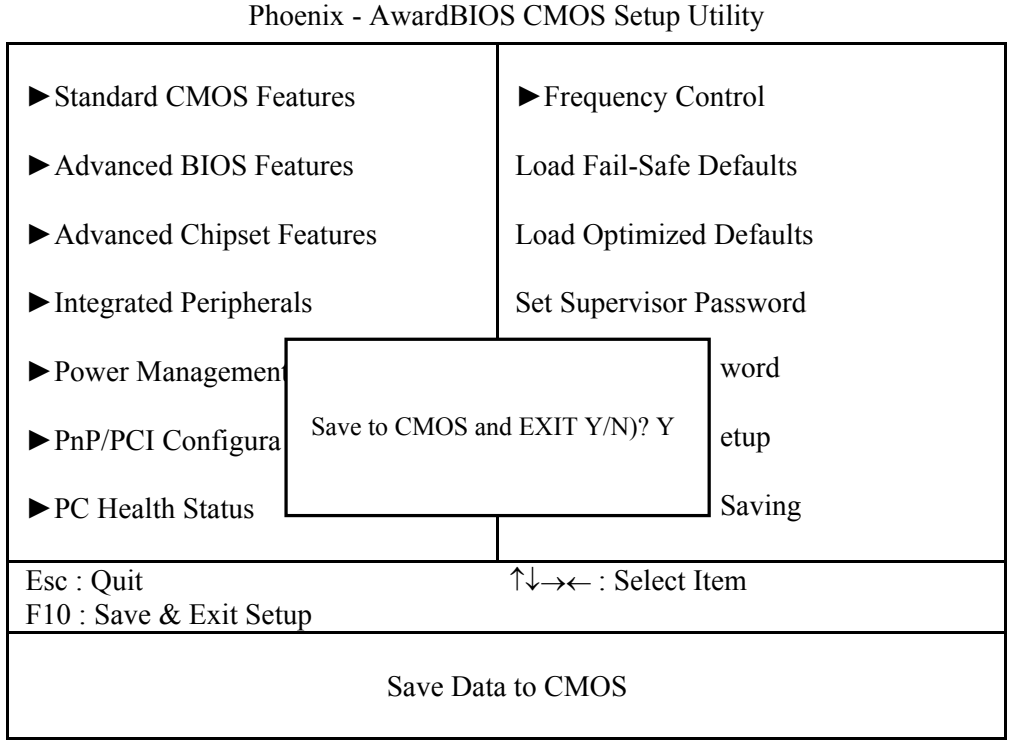
To disable the password, select this function (do not enter any key when you are prompt to enter a password), and press the <Enter> key and a message will appear at the center of the screen:

PASSWORD DISABLED!!! Press any key to continue...

Press the < Enter > key again and the password will be disabled. Once the password is disabled, you can enter Setup freely.

4-14. SAVE & EXIT SETUP

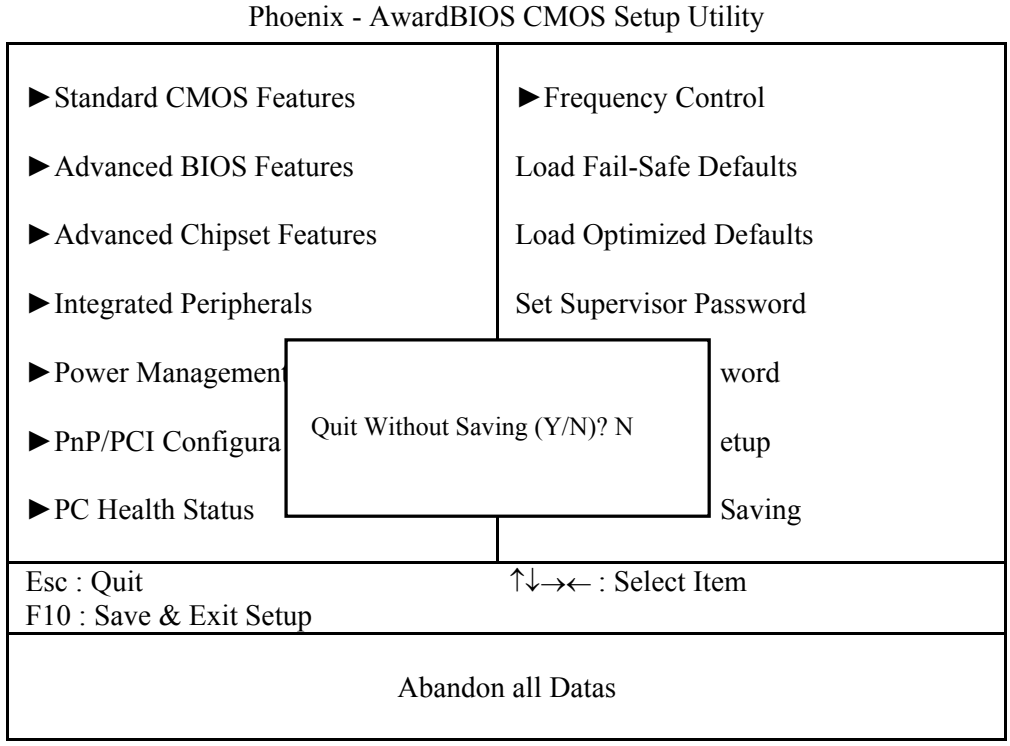
After you have completed adjusting all the settings as required, you must remember to save these setting into the CMOS RAM. To save the settings, select "SAVE & EXIT SETUP" and press <Enter>, a display will be shown as follows:



When you confirm that you wish to save the settings, your system will be automatically restarted and the changes you have made will be implemented. You may always call up the setup program at any time to adjust any of the individual items by pressing the <Del> key during boot up.

4-15. EXIT WITHOUT SAVING

If you wish to cancel any changes you have made, you may select the "EXIT WITHOUT SAVING" and the original setting stored in the CMOS will be retained. The screen will be shown as below:



EXPANSION BUS

APPENDIX

A

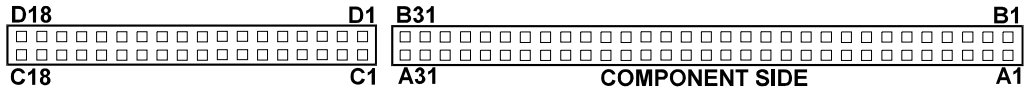
This appendix indicates the pin assignments.

Section includes:

- ISA BUS Pin Assignment
- PC/104 Connector Pin Assignment
- Compact Flash Card Connector Pin Assignment

ISA BUS PIN ASSIGNMENT

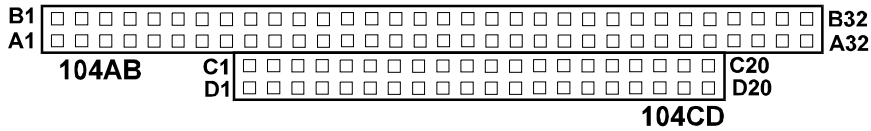
There are two edge connector (called "gold fingers") on this CPU Card, on the right hand is the connector of ISA Bus, followed up by PCI BUS connector. The ISA-bus connector is divided into two sets : one consists of 62 pins; the other consists of 36 pins. The pin assignment is as follows:



B		A		D		C	
PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT
B1	GND	A1	-I/O CH CHK	D1	-MEMCS16	C1	SBHE
B2	RESET	A2	SD07	D2	-I/OCS16	C2	LA23
B3	+5V	A3	SD06	D3	IRQ10	C3	LA22
B4	IRQ9	A4	SD05	D4	IRQ11	C4	LA21
B5	-5V	A5	SD04	D5	IRQ12	C5	LA20
B6	DRQ2	A6	SD03	D6	IRQ15	C6	LA19
B7	-12V	A7	SD02	D7	IRQ14	C7	LA18
B8	OWS	A8	SD01	D8	-DACK0	C8	LA17
B9	+12V	A9	SD00	D9	DRQ0	C9	-MEMR
B10	GND	A10	-I/O CH RDY	D10	-DACK5	C10	-MEMW
B11	-SMEMW	A11	AEN	D11	DRQ5	C11	SD08
B12	-SMEMR	A12	SA19	D12	-DACK6	C12	SD09
B13	-IOW	A13	SA18	D13	DRQ6	C13	SD10
B14	-IOR	A14	SA17	D14	-DACK7	C14	SD11
B15	-DACK3	A15	SA16	D15	DRQ7	C15	SD12
B16	-DRQ3	A16	SA15	D16	+5V	C16	SD13
B17	-DACK1	A17	SA14	D17	-MASTER	C17	SD14
B18	-DRQ1	A18	SA13	D18	GND	C18	SD15
B19	-REFRESH	A19	SA12				
B20	BCLK	A20	SA11				
B21	IRQ7	A21	SA10				
B22	IRQ6	A22	SA09				
B23	IRQ5	A23	SA08				
B24	IRQ4	A24	SA07				
B25	IRQ3	A25	SA06				
B26	-DACK2	A26	SA05				
B27	T/C	A27	SA04				
B28	BALE	A28	SA03				
B29	+5V	A29	SA02				
B30	OSC	A30	SA01				
B31	GND	A31	SA00				

PC-104 CONNECTOR PIN ASSIGNMENT

104AB, 104CD : PC-104 Connector



The PC-104 can support multi-pieces of PC-104 modules. It has two connectors : one (104AB) consists of 64 pin; the other one (104CD) consists of 40 pin, both of them are dual-in-line headers

The pin assignments for connector 104AB & 104CD are as follow:

PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT
A1	IOCHK	B1	GND	C1	GND	D1	GND
A2	D7	B2	REST	C2	SBHE	D2	MEMCS16
A3	D6	B3	VCC	C3	LA23	D3	IOCS16
A4	D5	B4	IRQ9	C4	LA22	D4	IRQ10
A5	D4	B5	-5V	C5	LA21	D5	IRQ11
A6	D3	B6	DRQ2	C6	LA20	D6	IRQ12
A7	D2	B7	-12V	C7	LA19	D7	IRQ15
A8	D1	B8	OWS	C8	LA18	D8	IRQ14
A9	D0	B9	+12V	C9	LA17	D9	DACK0
A10	IOCHRDY	B10	GND	C10	MEMR	D10	DRQ0
A11	AEN	B11	SMEMW	C11	MEMW	D11	DACK5
A12	A19	B12	SMEMR	C12	D8	D12	DRQ5
A13	A18	B13	IOW	C13	D9	D13	DACK6
A14	A17	B14	IOR	C14	D10	D14	DRQ6
A15	A16	B15	DACK3	C15	D11	D15	DACK7
A16	A15	B16	DRQ3	C16	D12	D16	DRQ7
A17	A14	B17	DACK1	C17	D13	D17	VCC
A18	A13	B18	DRQ1	C18	D14	D18	MASTER
A19	A12	B19	REFRESH	C19	D15	D19	GND
A20	A11	B20	CLK	C20	KEY PIN	D20	GND
A21	A10	B21	IRQ7				
A22	A9	B22	IRQ6				
A23	A8	B23	IRQ5				
A24	A7	B24	IRQ4				
A25	A6	B25	IRQ3				
A26	A5	B26	DACK2				
A27	A4	B27	TC				
A28	A3	B28	BALE				
A29	A2	B29	VCC				
A30	A1	B30	OSC				
A31	A0	B31	GND				
A32	GND	B32	GND				

COMPACT FLASH CARD CONNECTOR PIN ASSIGNMENT

The pin assignments of Compact Flash Card connector are stated below.

PIN	ASSIGNMENT	PIN	Assignment
1	GND	26	-CD1
2	D03	27	D111
3	D04	28	D121
4	D05	29	D131
5	D06	30	D141
6	D07	31	D151
7	-CS0	32	-CS11
8	A102	33	-VS1
9	-ATASEL	34	-IORD
10	A092	35	-IOWR
11	A082	36	-WE3
12	+3.3V	37	INTRQ
13	VCC	38	VCC
14	A062	39	-CSEL
15	A052	40	-VS2
16	A042	41	-RESET
17	A032	42	IORDY
18	A02	43	-INPACK
19	A01	44	-REG3
20	A00	45	-DASP
21	D00	46	-PDIAG
22	D01	47	D081
23	D02	48	D091
24	-IOCS16	49	D101
25	-CD2	50	GND

TECHNICAL SUMMARY

APPENDIX

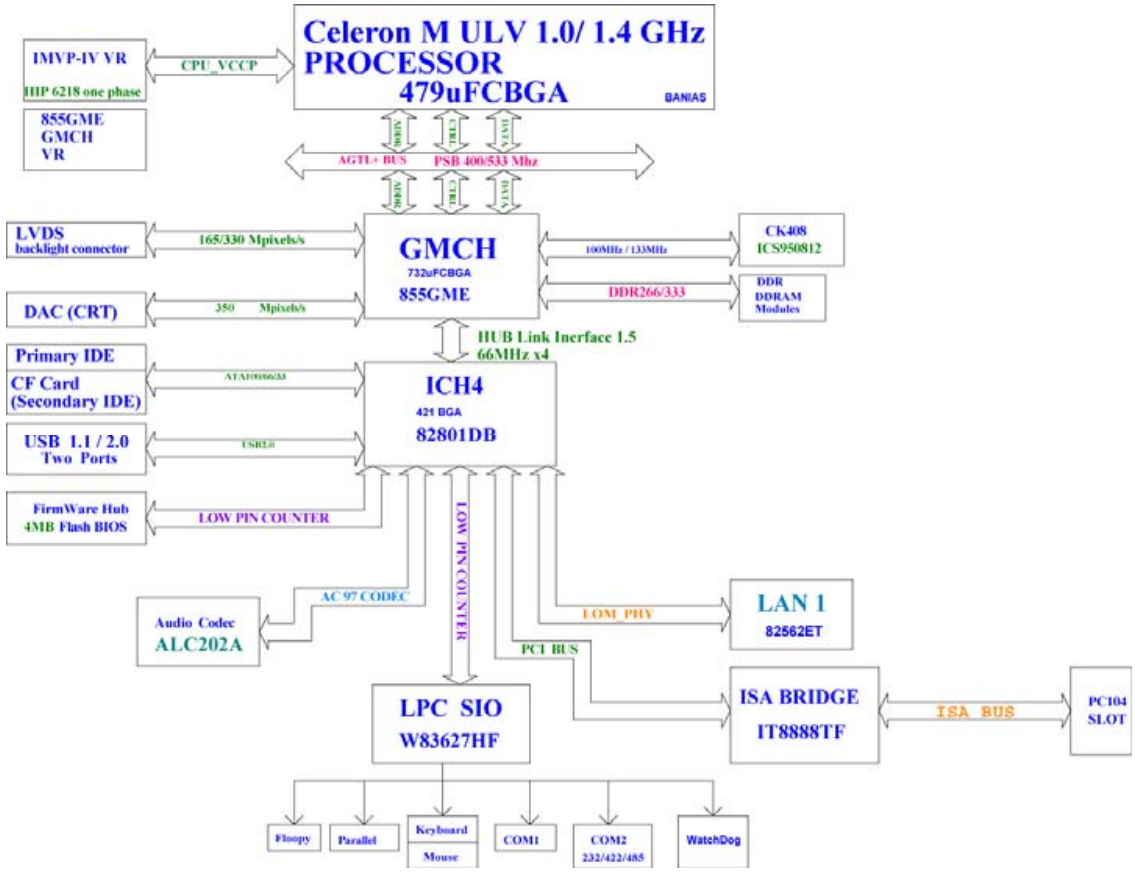
B

This section introduce you the maps concisely.

Section includes:

- Block Diagram
- Interrupt Map
- RTC & CMOS RAM Map
- Timer & DMA Channels Map
- I / O & Memory Map

BLOCK DIAGRAM



INTERRUPT MAP

IRQ	ASSIGNMENT
0	System TIMER
1	Keyboard
2	Cascade
3	Serial port 2
4	Serial port 1
5	Available
6	Floppy
7	Parallel port 1
8	RTC clock
9	Available
10	Available
11	Available
12	PS/2 Mouse
13	Math coprocessor
14	IDE1
15	IDE2

RTC & CMOS RAM MAP

CODE	ASSIGNMENT
00	Seconds
01	Second alarm
02	Minutes
03	Minutes alarm
04	Hours
05	Hours alarm
06	Day of week
07	Day of month
08	Month
09	Year
0A	Status register A
0B	Status register B
0C	Status register C
0D	Status register D
0E	Diagnostic status byte
0F	Shutdown byte
10	Floppy Disk drive type byte
11	Reserve
12	Hard Disk type byte
13	Reserve
14	Equipment byte
15	Base memory low byte
16	Base memory high byte
17	Extension memory low byte
18	Extension memory high byte
30	Reserved for extension memory low byte
31	Reserved for extension memory high byte
32	Date Century byte
33	Information Flag
34-3F	Reserve
40-7f	Reserved for Chipset Setting Data

TIMER & DMA CHANNELS MAP

Timer Channel Map :

Timer Channel	Assignment
0	System timer interrupt
1	DRAM Refresh request
2	Speaker tone generator

DMA Channel Map :

DMA Channel	Assignment
0	Available
1	Available
2	Floppy
3	Available
4	Cascade
5	Available
6	Available
7	Available

I/O & MEMORY MAP

Memory Map :

MEMORY MAP	ASSIGNMENT
0000000-009FFFF	System memory used by DOS and application
00A0000-00BFFFF	Display buffer memory for VGA/ EGA / CGA / MONOCHROME adapter
00C0000-00DFFFF	Reserved for I/O device BIOS ROM or RAM buffer.
00E0000-00EFFFF	Reserved for PCI device ROM
00F0000-00FFFFF	System BIOS ROM
0100000-FFFFFFF	System extension memory

I/O Map :

I/O MAP	ASSIGNMENT
000-01F	DMA controller (Master)
020-021	Interrupt controller (Master)
022-023	Chipset controller registers I/O ports.
040-05F	Timer control regsiters.
060-06F	Keyboard interface controller (8042)
070-07F	RTC ports & CMOS I/O ports
080-09F	DMA register
0A0-0BF	Interrupt controller (Slave)
0C0-0DF	DMA controller (Slave)
0F0-0FF	Math coprocessor
1F0-1F8	Hard Disk controller
278-27F	Parallel port-2
2B0-2DF	Graphics adapter controller
2F8-2FF	Serial port-2
360-36F	Net work ports
378-37F	Parallel port-1
3B0-3BF	Monochrome & Printer adapter
3C0-3CF	EGA adapter
3D0-3DF	CGA adapter
3F0-3F7	Floppy disk controller
3F8-3FF	Serial port-1