

ISA-588LF

Intel® Atom Half Size CPU Card With VGA /Sound/LAN

USER MANUAL

Toll-Free 1-866-590-4288

iBT Technologies inc.
5405 Thimens, Montreal, Qc, Canada H4R 2H4 Tel: (514)832-0808 Fax: (514)832-0128
www.ibt.ca 1-866-590-4288 info@ibt.ca

COPYRIGHT NOTICE

This operation manual is meant to assist both Embedded Computer manufacturers and end users in installing and setting up the system. The information contained in this document is subject to change without any notice.

This manual is copyrighted in August, 2009. (Revised Edition: December 2010) You may not reproduce or transmit in any form or by any means, electronic, or mechanical, including photocopying and recording.

ACKNOWLEDGEMENTS

All trademarks and registered trademarks mentioned herein are the property of their respective owners.

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.

TABLE OF CONTENTS

CHAPTER 1 INTRODUCTION

1-1 About This Manual	1-2
1-2 System Specification	1-3
1-3 Extra Industrial Application Features	1-5
1-4 Safety Precautions	1-5

CHAPTER 2 HARDWARE CONFIGURATION

2-1 Jumper & Connector Quick Reference Table	2-2
2-2 Component Locations	2-3
2-3 How to Set the Jumpers	2-4
2-4 COM Port Connector	2-6
2-5 RS232/422/485(COM2) Selection	2-7
2-6 Keyboard or PS/2 Mouse Connector	2-8
2-7 External Keyboard Connector	2-8
2-8 Keyboard or PS/2 Mouse Selection	2-9
2-9 Reset Connector	2-10
2-10 Hard Disk Drive LED Connector	2-10
2-11 ATX Power Button	2-10
2-12 External Speaker Connector	2-11
2-13 Power LED Connector	2-11
2-14 KeyLock Connector	2-11
2-15 IrDA Connector	2-12
2-16 CPU Fan Connector	2-12
2-17 Clear CMOS Data Selection	2-13
2-18 VGA CRT Connector	2-14
2-19 Hard Disk Drive Connector	2-15
2-20 Floppy Disk Drive Connector	2-16
2-21 Printer Connector	2-17
2-22 Universal Serial Bus Connector	2-18
2-23 LAN Connector	2-19
2-24 ATX Power Connector	2-20
2-25 5VSB Connector	2-20
2-26 AT/ATX Power Selection	2-21

Contents

2-27	Inverter Connector	2-22
2-28	DIO Connector	2-22
2-29	Sound Connector	2-23
2-30	LVDS Connector	2-23
2-31	LVDS Panel Voltage Selection	2-24
2-32	Reset / NMI Watchdog Selection.....	2-25
2-33	CF Master/ Slave Selection	2-26
2-34	For 485 DIR Control Selection	2-27
2-35	AT/ATX Power Mode Selection	2-28
2-36	COM1 RI & Voltage Selection	2-29
2-37	COM2 RI & Voltage Selection	2-30

CHAPTER 3 SOFTWARE UTILITIES

3-1	Introduction	3-2
3-2	VGA Driver Utility	3-3
3-3	Flash BIOS Update	3-4
3-4	LAN Driver Utility	3-6
3-5	Sound Driver Utility	3-7
3-6	Intel Chipset Software Installation Utility	3-8
3-7	Watchdog Configuration	3-9

CHAPTER 4 AWARD BIOS SETUP

4-1	Introduction	4-2
4-2	Entering Setup	4-3
4-3	The Standard CMOS Features	4-4
4-4	The Advanced BIOS Features	4-8
4-5	Advanced Chipset Features	4-13
4-6	Integrated Peripherals	4-16
4-7	Power Management Setup	4-23
4-8	PNP/PCI Configuration	4-25
4-9	PC Health Status	4-27
4-10	Frequency/Voltage Control	4-28
4-11	Load Fail-Safe Defaults	4-29
4-12	Load Optimized Defaults	4-29
4-13	Set Supervisor Password	4-30
4-14	Save & Exit Setup	4-31
4-15	Exit Without Saving	4-32

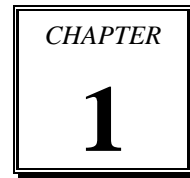
APPENDIX A EXPANSION BUS

ISA Bus Pin Assignment	A-2
PC/104 Connector	A-3
Compact Flash Card Connector Pin Assignment	A-4

APPENDIX B TECHNICAL SUMMARY

Block Diagram	B-2
Interrupt Map	B-4
DMA Channels Map	B-4
I/O Map	B-5
Memory Map	B-6

INTRODUCTION



This chapter gives you the information for ISA-588LF. 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-588LF Intel® Atom Half Size Card enhanced with VGA / Audio / LAN, which is fully PC / AT compatible. ISA-588LF 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® Atom N270 (1.6GHz) CPU on board
 - Auto detect voltage regulator

- **SYSTEM CHIPSET :**
 - Intel® 945GSE + ICH7M + FWH (FSB: 533MHz)

- **MEMORY :**
 - Supports up to 2GB DDR2 400/333 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 four USB 2.0 ports.

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

- **DISPLAY :**
 - Integrated Graphic in Intel® 945GSE
 - Support D-Sub 15 pin VGA connector
 - Support LVDS connector (2CH x 18-bits)
 - Support UXGA (1600x1200)
 - Resolution support: 800*600, 1024*768, 1280*1024

- **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.

- **SATA INTERFACE :**
 - 2 SATA ports.

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

- **LAN INTERFACE :**
 - Intel 1000BaseT Ethernet (Intel 82583V GbE)
 - Supports Wake-on-LAN.

- **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.

- **DIGITAL I/O CONNECTOR :**
 - 4 in/ 4 out (ICH7-M)

- **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 :**
2 Channel (Line-in, Line-out, Mic). Realtek ALC262 (HD Codec)
- **OPERATING TEMPERATURE :**
0 to 60 C (32 F to 140 F)
- **INPUT POWER REQUIREMENT :**
ATX power: +5V, +12.
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.

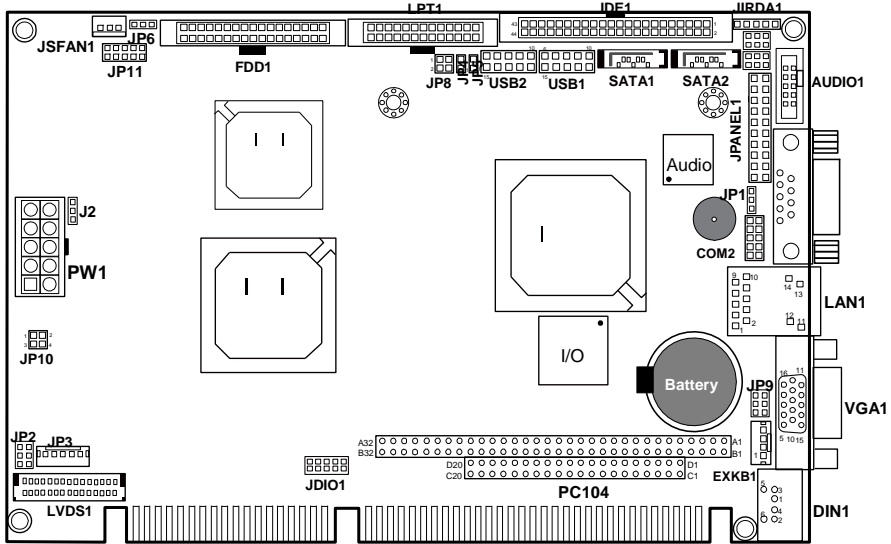
Section includes:

- 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	JP11
Keyboard/ Mouse Connector	DIN1
External Keyboard Connector	EXKB1
Keyboard/Mouse Selection	JP9
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	JSFAN1
Clear CMOS Data Selection	JP1
VGA Connector	VGA1
Hard Disk Drive Connector	IDE1
Floppy Disk Drive Connector	FDD1
Printer Connector	LPT1
Universal Serial Bus Connector	USB1, USB2
LAN Connector	LAN1
ATX Power Connector	PW1
5VSB Connector	J2
AT/ATX Power Selection	JP5
Inverter Connector	JP3
DIO Connector	JDIO1
Sound Connector	AUDIO1
LVDS Connector	LVDS1
LVDS Voltage Selection	JP2
Reset/NMI Watchdog Selection	JP8
CF Master/ Slave Selection	JP4
For 485 DIR Control Selection	JP6
AT/ATX Power Mode Selection	JP10
COM1 RI & Voltage Selection	JP_COM1
COM2 RI & Voltage Selection	JP_COM2

2-2. COMPONENT LOCATIONS



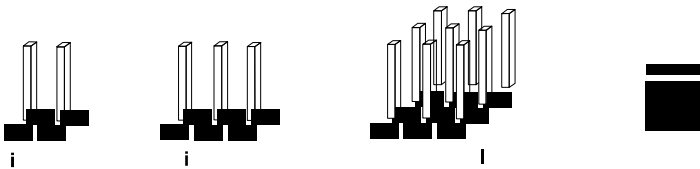
ISA-588LF Connector, Jumper and Component locations

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

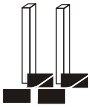


If a jumper has three pins (for examples, labelled PIN1, PIN2, and PIN3), You can connect PIN1 & PIN2 to create one setting and shorting. You can either connect PIN2 & PIN3 to create another setting. The same jumper diagrams are applied all through this manual. The figure below shows what the manual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

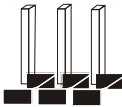
JUMPER DIAGRAMS



Jumper Cap
looks like this



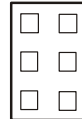
2 pin Jumper
looks like this



3 pin Jumper
looks like this



Jumper Block
looks like this



JUMPER SETTINGS



2 pin Jumper close(enabled)
Looks like this



1

1



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

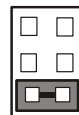


1

1



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



1 2

12

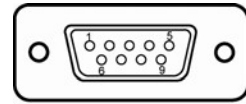
2-4. COM PORT CONNECTOR

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



COM1

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	NC	NC
7	COM2_RTS	NC	NC
8	COM2_CTS	NC	NC
9	COM2_RI	NC	NC
10	NC	NC	NC



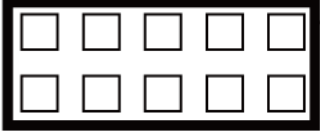
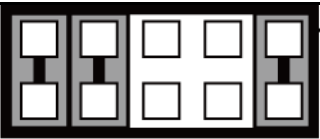

COM2

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

JP11 : 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	 <p style="text-align: center;">JP11</p>
RS-422	1-6, 2-7, 5-10	 <p style="text-align: center;">JP11</p>
RS-485	1-6, 3-8, 4-9	 <p style="text-align: center;">JP11</p>

*** 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



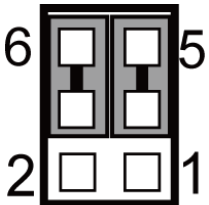
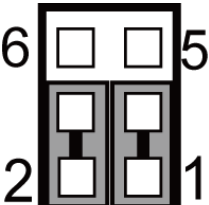
EXKB1

2-8. KEYBOARD OR PS/2 MOUSE SELECTION

JP9 : 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	 <p style="text-align: center;">JP9</p>
PS/2 MOUSE	1-3 2-4	 <p style="text-align: center;">JP9</p>

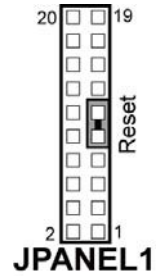
*** Manufactory default -- AT Keyboard.

2-9. RESET CONNECTOR

JPAENL1 (9,11) : Reset Connector.

The pin assignment is as follows :

PIN ASSIGNMENT	
9	GND
11	RST SW

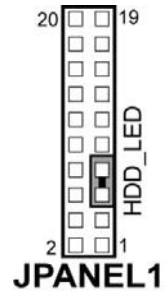


2-10. HARD DISK DRIVE LED CONNECTOR

JPAENL1 (5,7) : Hard Disk Drive LED Connector

The pin assignment is as follows :

PIN ASSIGNMENT	
5	+3.3V
7	HD LED

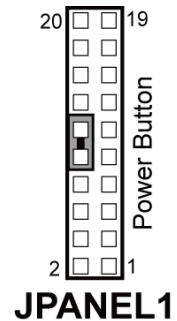


2-11. ATX POWER BUTTON

JPANEL1 (10,12) : ATX Power Button

The pin assignment is as follows :

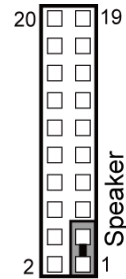
PIN ASSIGNMENT	
10	V5SB
12	PWB_SIOJ



2-12. EXTERNAL SPEAKER CONNECTOR

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

PIN ASSIGNMENT	
1	SPK3
3	VCC

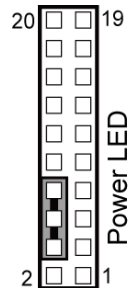


JPANEL1

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

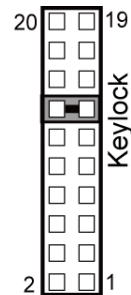


JPANEL1

2-14. KEYLOCK CONNECTOR

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

PIN ASSIGNMENT	
13	KEYLOCKJ
14	GND

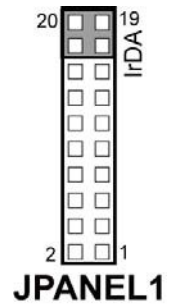


JPANEL1

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:

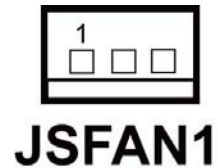
PIN ASSIGNMENT
1 VCC
2 NC
3 IRRX
4 GND
5 IRTX



2-16. CPU FAN CONNECTOR

JSFAN1 : CPU Fan connector
 The pin assignment is as follows:

PIN ASSIGNMENT
1 GND
2 +12V
3 FAN1



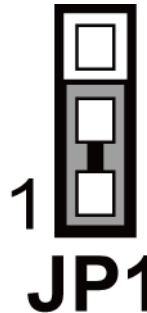
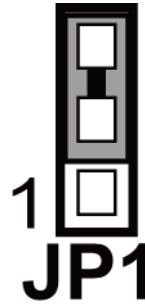
2-17. CLEAR CMOS DATA SELECTION

JP1 : Clear CMOS Data Selection

The selections are as follows :

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

JUMPER ILLUSTRATION



*** Manufacturing Default is set as Normal.

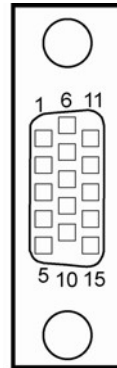
Note: To clear CMOS data, user must power-off the computer and set the jumper to "Clear CMOS" as illustrated above. After five to six seconds, set the jumper back to "Normal" and power-on the computer.

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

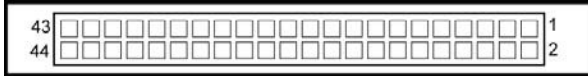


VGA1

2-19. HARD DISK DRIVE CONNECTOR

IDE1: Hard Disk Drive Connector

The pin assignments are as follows:



IDE1

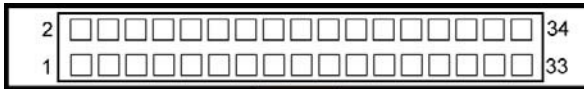
PIN ASSIGNMENT	PIN ASSIGNMENT	
1 IDERST	2 GND	
3 PDD7	4 PDD8	
5 PDD6	6 PDD9	
7 PDD5	8 PDD10	
9 PDD4	10 PDD11	
11 PDD3	12 PDD12	
13 PDD2	14 PDD13	
15 PDD1	16 PDD14	
17 PDD0	18 PDD15	
19 GND	20 NC	
21 PDREQ	22 GND	
23 PDLOW	24 GND	
25 PDORJ	26 GND	
27 PDORDY	28 PULL	LOW
29 PDDACK	30 GND	
31 LRO	32 NC	
33 PDA1	34 PD66 DECT	
35 PDA0	36 PDA2	
37 PDCSI1	38 PDCSI3	
39 IDEACTP	40 GND	
41 NC	42 NC	
43 NC	44 NC	

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 :



FDD1

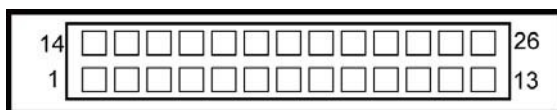
PIN ASSIGNMENT		PIN ASSIGNMENT	
1	GND	2	RWCJ
3	GND	4	NC
5	NC	6	DS1J
7	GND	8	INDEXJ
9	GND	10	MOAJ
11	GND	12	DSBJ
13	GND	14	DSAJ
15	GND	16	MOBJ
17	GND	18	DIRJ
19	GND	20	STEPJ
21	GND	22	WDJ
23	GND	24	WENJ
25	GND	26	TRAK0J
27	GND	28	WPJ
29	GND	30	RDATAJ
31	GND	32	HEADJ
33	GND	34	DSKCHGJ

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 :



LPT1

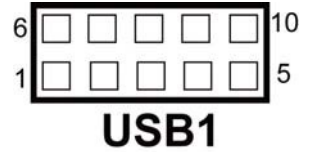
PIN ASSIGNMENT		PIN ASSIGNMENT	
1 PRNSTRBJ	14 PRNALFJ		
2 PRND0	15 PRNERROJ		
3 PRND1	16 PRNPARINTJ		
4 PRND2	17 PRNSLCTINJ		
5 PRND3	18 GND		
6 PRND4	19 GND		
7 PRND5	20 GND		
8 PRND6	21 GND		
9 PRND7	22 GND		
10 PRNACKJ	23 GND		
11 PRNBUSY	24 GND		
12 PRNPE	25 GND		
13 PRNSLCTJ	26 NC		

2-22. UNIVERSAL SERIAL BUS CONNECTOR

USB1: Universal Serial Bus Connector

The pin assignments are as follows:

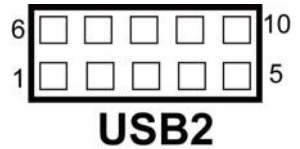
PIN ASSIGNMENT	
1	USBV0
2	USBC0N
3	USBC0P
4	GND
5	GND
6	USBV1
7	USBC1N
8	USBC1P
9	GND
10	GND



USB2: Universal Serial Bus Connector

The pin assignments are as follows:

PIN ASSIGNMENT	
1	USBV0
2	USBC2N
3	USBC2P
4	GND
5	GND
6	USBV1
7	USBC3N
8	USBC3P
9	GND
10	GND

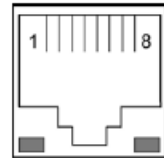


2-23. LAN CONNECTOR

LAN1 : LAN Connector

The pin assignments are as follows:

PIN ASSIGNMENT	
1 P1	MDIP0
2 P1	MDIN0
3 P1	MDIP1
4 P1	MDIN1
5 P1	MDIP2
6 P1	MDIN2
7 P1	MDIP3
8 P1	MDIN3



LAN1

LAN LED Indicator:

Left Side LED

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

Right Side LED

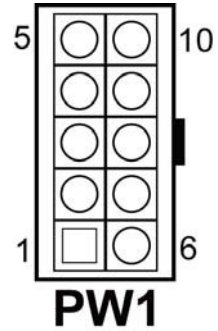
Yellow Color Blinking	LAN Message Active
Off	No LAN Message Active

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 5VSB
7 VCC
8 GND
9 PSON
10 -12V



2-25. 5VSB CONNECTOR

J2 : 5VSB Connector

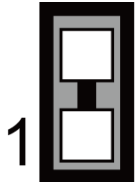

The pin assignments are as follows:

PIN ASSIGNMENT
1 5VSB
2 GND
3 PSON



2-26. AT/ATX POWER SELECTION**JP5** : AT/ATX Power Selection

The selections are as follows :

FUNCTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
AT 1-2		 JP5
ATX Open		 JP5

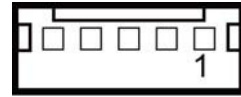
*** Manufacturing Default is set as ATX.

2-27. INVERTER CONNECTOR

JP3 : Inverter Connector

The pin assignment is as follows:

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



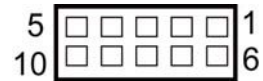
JP3

2-28. DIO CONNECTOR

JDIO1 : DIO Connector

The pin assignment is as follows:

PIN	ASSIGNMENT
1	VCC
2	DIN0
3	DIN1
4	DIN2
5	DIN3
6	GND
7	DCOUT0
8	DCOUT1
9	DCOUT2
10	DCOUT3

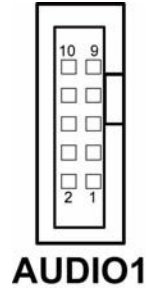


JDIO1

2-29. SOUND CONNECTOR

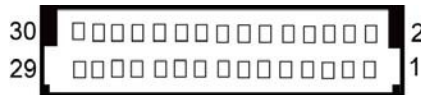
AUDIO1 : Sound Connector
 The pin assignment is as follows:

PIN ASSIGNMENT		PIN ASSIGNMENT	
1 MIC1 L	2 MIC1 R		
3 GND	4 GND		
5 LINE L	6 LINE R		
7 GND	8 GND		
9 LINE OUT L	10 LINE OUT R		



2-30. LVDS CONNECTOR

LVDS1 : LVDS Connector.
 The pin assignments are as follows:



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 NC	12 NC		
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 NC	28 NC		
29 LVDS_VCC	30 LVDS_VCC		

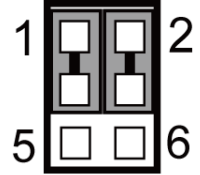
2-31. LVDS PANEL VOLTAGE SELECTION

JP2 : LVDS Panel Voltage Selection.

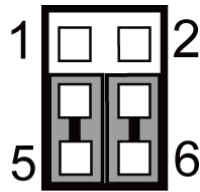
The selections are as follows:

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

JUMPER ILLUSTRATION



JP2





JP2

***Manufacturing Default is set as LVDS_VCC3.

2-32. RESET/NMI WATCHDOG SELECTION

JP8 : Reset/NMI Watchdog Selection

The selections are as follows:

FUNCTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
RESET 1-2		 <p style="text-align: center;">JP8</p>
NMI 3-4		 <p style="text-align: center;">JP8</p>

***Manufacturing Default is set as Reset.

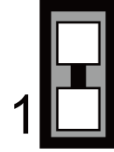
2-33. CF MASTER/ SLAVE SELECTION

JP4 : CF Master/ Slave Selection.

The selections are as follows:

SELECTION	JUMPER SETTING
Master 1-2	
Slave Open	

JUMPER
ILLUSTRATION



JP4





JP4

***Manufacturing Default is set as Master.

2-34. FOR 485 DIR CONTROL SELECTION

JP6 : FOR 485 DIR control Selection

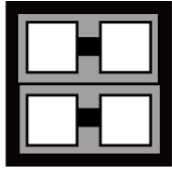
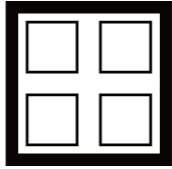
The selections are as follows :

FUNCTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
SOFTWARE 2-3		 <p data-bbox="856 534 979 591">JP6</p>
HARDWARE 1-2		 <p data-bbox="856 701 979 758">JP6</p>

***Manufacturing Default is set as Hardware.

2-35. AT/ ATX POWER MODE SELECTION

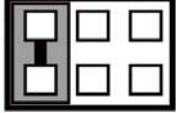
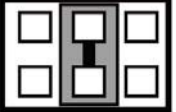
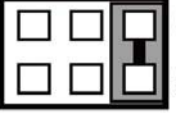
JP10 : AT/ATX Power Mode Selection
The selections are as follows :

FUNCTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
AT	1-2 3-4	 JP10
ATX NC		 JP10

***Manufacturing Default is set as ATX.

2-36. COM1 RI & VOLTAGE SELECTION

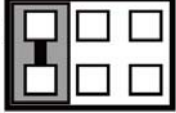
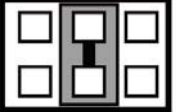
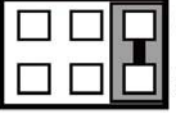
JP_COM1 : COM1 RI & Voltage Selection
 The selections are as follows :

FUNCTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
RI 1-2		 <p>2 6 1 5 JP_COM1</p>
12V 3-4		 <p>2 6 1 5 JP_COM1</p>
5V 5-6		 <p>2 6 1 5 JP_COM1</p>

***Manufacturing Default is set as RI.

2-37. COM2 RI & VOLTAGE SELECTION

JP_COM2 : COM2 RI & Voltage Selection
 The selections are as follows :

FUNCTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
RI 1-2		 <p>JP_COM2</p>
12V 3-4		 <p>JP_COM2</p>
5V 5-6		 <p>JP_COM2</p>

***Manufacturing Default is set as RI.

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
- Watchdog Configuration

3-1. INTRODUCTION

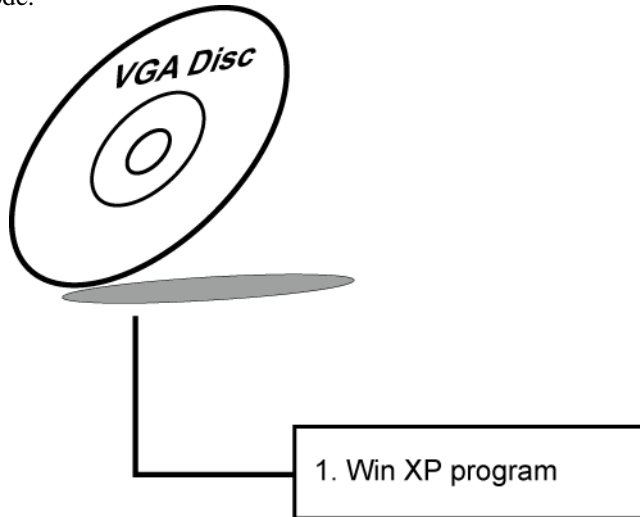
Enclosed with our ISA-588LF package is our driver utility, which may come in a form of a CD ROM disc or floppy diskettes. For CD ROM disc user, you will only need some of the files contained in the CD ROM disc, please kindly refer to the following chart:

Filename (Assume that CD ROM drive is D:)	Purpose
D:\Driver\VGA Intel	945GSE For VGA driver installation
D:\Driver\FLASH	For BIOS update utility
D:\Driver\LAN	Intel® 82583V GbE For LAN Driver installation
D:\Driver\Sound Realtek	ALC262 For Sound driver installation
D:\Driver\UTILITY	Intel® Chipset Software Installation Utility For XP
D:\Driver\ Matrix Storage manager	Matrix Storage manager. For XP
D:\Driver\AHCI	Intel F6 Floppy Utility. For 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-588LF 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 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.

3-3. FLASH BIOS UPDATE

3-3-1. System BIOS Update:

Users of ISA-588LF 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-588LF 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 H15bxxxx.bin
3. C:\UTIL\AWDFLASH>AWDFLASH H20bxxxx.bin
4. The screen will display as the table found 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: H588bxxxx.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: H588bxxxx.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:

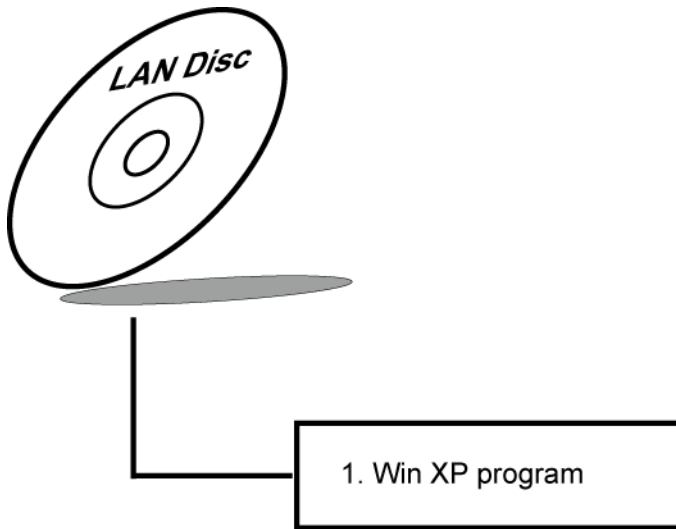
FLASH MEMORY WRITER v7.XX (C) Award Software 2001 All Rights Reserved
Flash Type – SST 49LF004A /3.3V File Name to Program: H588bxxxx.bin Checksum: XXXXX Reset System or Power off to accomplish update process!
F1: Reset F10: Exit

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-588LF is enhanced with LAN function that can support various network adapters. Installation programs for LAN drivers are listed as follows:

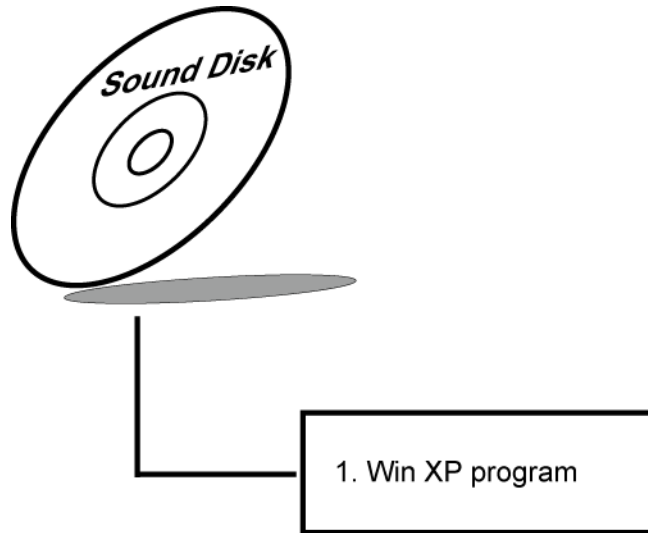


For more details on Installation procedure, please refer to Readme.txt file found on LAN DRIVER UTILITY.

3-5. SOUND DRIVER UTILITY

3-5-1. Introduction

The Realtek ALC262 sound function enhanced in this system is fully compatible with Windows XP. Below, you will find the content of the Sound driver :



3-5-2. Installation Procedure for Windows 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® C HIPSET 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 XP

The Utility Pack is to be installed only for Windows 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 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. 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 W83627HG 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) Configure 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  
-----
```

Chapter 3 Software Configuration

```
Mov al, 07h ; Select Logical Device 8 of watchdog timer
Out dx,al
Inc dx
Mov al, 08h
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/Voltage Control
- Load Fail-Safe Defaults
- Load Optimized Defaults
- Set Supervisor Password
- Set User Password
- Save and Exit Setup
- Exit Without Saving

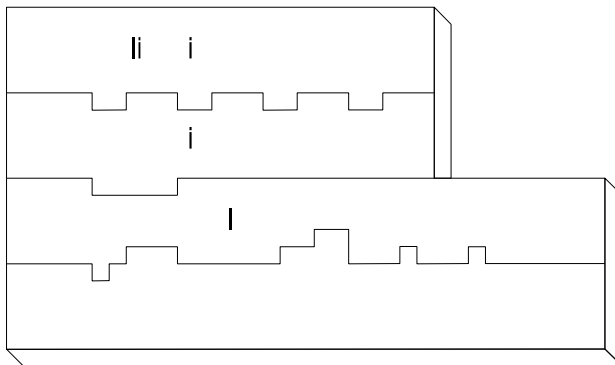
4-1. INTRODUCTION

This chapter will show you the function of the BIOS in managing the features of your system. The ISA-588LF Intel® Atom 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 TO ENTER SETUP, ESC TO SKIP MEMORY TEST

As long as this message is present on the screen you may press the 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

<ul style="list-style-type: none">▶ Standard CMOS Features▶ Advanced BIOS Features▶ Advanced Chipset Features▶ Integrated Peripherals▶ Power Management Setup▶ PnP/PCI Configurations▶ PC Health Status	<ul style="list-style-type: none">▶ Frequency/Voltage ControlLoad Fail-Safe DefaultsLoad Optimized DefaultsSet Supervisor PasswordSet User PasswordSave & Exit SetupExit Without Saving
Esc : Quit	: Select Item
F10 : Save & Exit Setup	
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)	Mon, Jan 1 2007	Item Help
Time (hh:mm:ss)	0 : 13 : 57	Menu Level ▶
▶ IDE Channel 0 Master	[None]	Change the internal clock.
▶ IDE Channel 0 Slave	[None]	
▶ IDE Channel 2 Master	[None]	
▶ IDE Channel 2 Slave	[None]	
▶ IDE Channel 3 Master	[None]	
▶ IDE Channel 3 Slave	[None]	
Drive A	[1.44M, 3.5 in.]	
Video	[EGA/VGA]	
Halt On	[All, But Keyboard]	
Base Memory	640K	
Extended Memory	251904K	
Total Memory	252928K	
: 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 CHANNEL 0/2/3 Master:**IDE CHANNEL 0/2/3 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 predefined 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.

Chapter 4 Award BIOS Setup

- 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:

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				17 10
2	615	4				17 20
3	615	6				17 30
4	940	8				17 62
5	940	6				17 46
6	615	4				17 20
7	642	8				17 30
8	733	5				17 30
9	900	15				17
10	820	3	65535		901	112
11	855	5				17 20
12	855	7				17 35
13	306	8				17 49
14	733	7				17 20
15	000	0				17 42
16	612	4				00 00
17	977	5				17 20
18	977	7				17 40
19	1024	7				17 56
20	733	5				17 59
21	733	7				17 30
22	733	5				17 42
23	306	4				17 30
24	977	5				17 10
25	1024	9				17 40
26	1224	7				17 76
27	1224	11				17 71
28	1224	15				17 111
29	1024	8				17 152
30	1024	11				17 68
31	918	11				17 93
32	925	9			1023	17 83
33	1024	10				17 69
34	1024	12				17 85
35	1024	13				17 102
36	1024	14				17 110
37	1024	2				17 119
38	1024	16				17 17
39	918	15			1023	17 136
40	820	6				17 114
41	1024	5				17 40
42	1024	5				17 42
43	809	6				26 65
44	809	6				17 40
45	776	8				26 61
47						33 100

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

▶ CPU Feature	[Press Enter]	Item Help
▶ Hard Disk Boot Priority	[Press Enter]	
CPU L1 & L2 Cache	[Enabled]	Menu Level ▶
Hyper-Threading Technology	[Enabled]	
Quick Power On Self Test	[Enabled]	
First Boot Device	[Hard Disk]	
Second Boot Device	[Hard Disk]	
Third Boot Device	[LS120]	
Boot Other Device	[Enabled]	
Boot Up Floppy Seek	[Disabled]	
Boot Up NumLock Status	[On]	
Gate A20 Option	[Fast]	
Typematic Rate Setting	[Disabled]	
x Typematic Rate (Chars/Sec)	6	
x Typematic Delay (Msec)	250	
Security Option	[Setup]	
x APIC Mode	Enabled	
MPS Version Control For OS	[1.4]	
: 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 boot-up sequence and security.

A brief introduction of each setting is given below.

CPU FEATURE:

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
CPU Feature

Delay Prior to Thermal	[16 Min]	Item Help
Limit CPUID MaxVal	[Disabled]	
C1E Function	[Enabled]	Menu Level ►
Execute Disable Bit	[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. **DELAY PRIOR TO THERMAL:**
The Delay Prior To Thermal BIOS feature controls the activation of the Thermal Monitor's automatic mode. It allows you to determine when the Pentium-M's Thermal Monitor should be activated in automatic mode after the system boots.
2. **LIMIT CPUID MAXVAL:**
The CPUID instruction of some CPUs will return a value greater than 3.If you are using Windows operating system. Please disable this feature.
3. **C1E FUNCTION:**
This is enabled to reduce power during idle operation.
4. **EXECUTE DISABLE BIT:**
To select enable or disable the No-Execution Page Protection Technology.

HARD DISK BOOT PRIORITY:

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
Hard Disk Boot Priority

1. USB-HDD0 : JetFlashTS512MJF150 2. Bootable Add-in Cards	Item Help
	Menu Level ► Use<↑> or <↓> to select a device, then press <+> to move it up, or <-> to move it down the list. Press <ESC> to exit this menu.
:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults	

Select Hard Disk Boot Device Priority

CPU L1 & L2 CACHE:

This item allows you to enable or disable CPU internal Cache.

HYPER-THREADING TECHNOLOGY:

This item allows you to enable or disable CPU Hyper-Threading Technology function.

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/ THIRD/ OTHER 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.

GATE 20A OPTION:

This entry allows you to select how the gate A20 is handled. When Normal was set, a pin in the keyboard controller controls Gate A20. And when Fast was set, the chipset controls Gate A20.

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

Chapter 4 Award BIOS Setup

press <Enter>, it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.

APIC MODE:

To Enable Advanced Programmable Interrupt Controller

MPS VERSION CONTROL FOR OS:

This option is only valid for multiprocessor motherboards as it specifies the version of the Multiprocessor Specification (MPS) that the motherboard will use. The MPS is a specification by which PC manufacturers design and build Intel architecture systems with two or more processors.

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	Auto	
X DRAM RAS# to CAS# Delay	Auto	Menu Level ►
X DRAM RAS# Precharge	Auto	
X Precharge dealy (tRAS)	Auto	
X System Memory Frequency	Auto	
System BIOS Cacheable	[Enabled]	
Video BIOS Cacheale	[Disabled]	
Memory Hole At 15M-16M	[Disabled]	
** VGA Setting **		
On-Chip Frame Buffer Size	[8MB]	
DVMT Mode	[DVMT]	
DVMT/ FIXED Memory Size	[128 MB]	
Boot Display	[CRT]	
Panel Type	[800x600]	
PCI SERR# NMI	[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 TIMEING SELECTABLE:

The value in this field depends on performance parameters of the installed memory chips (DRAM). Do not change the value from the factory setting unless you install new memory that has a different performance rating than the original DRAMs.

CAS LATENCY TIME:

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

DRAM RAS# TO CAS# DELAY:

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

DRAM RAS# PRECHARGE TIME:

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. The choices are 2 & 3.

PRECHARGE DEALY (tRAS):

Precharge Delay This setting controls the precharge delay, which determines the timing delay for DRAM precharge

SYSTEM MEMORY FREQUENCY:

Allow to choose different frequency of memory module.

SYSTEM BIOS CACHEABLE:

This item allows you to enable 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:

This item allows you to enable 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 15-16M:

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

ON-CHIP FRAME BUFFER SIZE:

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

DVMT MODE:

Intel Dynamic Video Memory Technology Mode.

DVMT/FIXED MEMORY SIZE:

DVMT Memory Size Select.

BOOT DISPLAY:

To select the boot-up display type.

PANEL NUMBER:

This field allows user to decide the LVDS panel resolution

PCI SERR# NMI:

To Enable/Disable the PCI SERR# interrupt.

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]	Menu Level ▶
▶ SuperIO Device	[Press Enter]	
▶ Watch Dog Timer Select	[Disabled]	
▶ USB Device Setting	[Press Enter]	
: 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

IDE HDD Block Mode	[Enabled]	Item Help	
IDE DMA transfer access	[Enabled]		
OnChip Primary PCI IDE	[Enabled]	Menu Level ► If your IDE hard drive supports block mode select Enabled for automatic detection of the optional number of block read/writes per sector the drive can support.	
IDE Primary Master PIO	[Auto]		
IDE Primary Slave PIO	[Auto]		
IDE Primary Master UDMA	[Auto]		
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]		
*** On-Chip Serial ATA Setting ***			
SATA Mode	[IDE]		
On-Chip Serial ATA	[Disabled]		
X PATA IDE Mode	Secondary		
SATA Port	P0, P2 is Primary		
: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. **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.
2. **IDE DMA TRANSFER ACCESS:**
To Enable/Disable the IDE DMA transfer access.
3. **ONCHIP PRIMARY/SECONDARY PCI IDE:**
The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select Enabled to activate each channel

separately.

- 4. 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.

- 5. 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.

- 6. SATA MODE:**
Set the Serial ATA configuration. When set in Advanced Host Controller Interface (AHCI) , the SATA controller is set to Native mode. Configuration options: [IDE] [AHCI]

- 7. ON-CHIP SERIAL ATA:**
[Disabled]: Disabled SATA Controller.
[Enhanced Mode]: Enable both SATA and PATA. Max.of 6 IDE drives are supported.
[SATA Only]: SATA is operating in legacy mode.

- 8. PATA IDE MODE:**
To select PATA IDE Mode sequence.

- 9. SATA PORT:**
According PATA IDE Mode to determine SATA sequence.

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

LAN DISABLE	[Enabled]	Item Help
Audio Function	[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		

Descriptions on each item above are as follows:

1. LAN DISABLE:

This item allows you to enable or disable onboard LAN function.

2. AUDIO FUNCTION:

This item allows you to enable or disable onboard Audio function.

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]	Menu Level ►	
UART Mode Select	[Normal]		
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 Rx2Tx2, Tx2 (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.

WATCH DOG TIMER SELECT:

To select watch-dog times.

USB DEVICE SETTING:

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 1.0 Controller	[Enabled]	Item Help
USB 2.0 Controller	[Enabled]	
USB Operation Mode	[High Speed]	Menu Level ► [Enable] or [Disabled] Universal Host Controller Integrate for Universal Serial Bus.
USB Keyboard Function	[Enabled]	
USB Mouse Function	[Enabled]	
USB Storage Function	[Enabled]	
*** USB Mass Storage Device Boot	Setting ***	
JetFlashTS512MJF150 8.07	[Auto mode]	
: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 1.0 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 CONTROLLER:**
Enable the USB 2.0 controller.
3. **USB OPERATION MODE:**
This item allows the user to decide USB device operation mode.
4. **USB KEYBOARD FUNCTION:**
Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.
5. **USB MOUSE FUNCTION:**
Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB Mouse.

- 6. **USB STORAGE FUNCTION:**
Enable the USB Storage Function
- 7. **USB FLASH DISK 2.00:**
Select USB Flash Disk Type.

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
ACPI Suspend Type	[S1(POS)]	Menu Level ►
MODEM Use IRQ	[3]	
Soft-Off by PWR-BTTN	[Instand-Off]	
Resume by Alarm	[Disabled]	
X Date (of Month) Alarm	0	
X Time (hh:mm:ss) Alarm	0 : 0: 0	
: 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:

Users are allowed to enable or disable the Advanced Configuration and Power Management (ACPI).

ACPI SUSPEND TYPE:

This item allows the user to decide ACPI suspend mode

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

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.

RESUME BY ALARM:

When enabled, you can set the date and time at which the RTC alarm awakens the system from Suspend mode.

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	
: 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

Chapter 4 Award BIOS Setup

<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]	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-7 assigned to	[PCI Device]	
IRQ-9 assigned to	[PCI Device]	
IRQ-10 assigned to	[PCI Device]	
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:

1. **IRQ-n Assigned to:**

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

DMA RESOURCES:

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

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

CPU Warning Temperature	[66°C/F51]	Item Help	
Current CPU Temperature	46°C/1314°F	Menu Level ►	
Current System FAN Speed	0 RPM		
Vcore	0.88V		
+1.05V	1.05V		
+3.3V	3.47V		
+5V	4.89V		
+12V	12.88V		
-12V	-12.61V		
-5V	-5.20V		
5VSB(V)	4.96V		
Shutdown Temperature	[70°C/F58]		
: 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.

CPU WARNING TEMPERATURE:

This item allows you to set up the CPU Warning Temperature.

CURRENT CPU TEMPERATURE:

This item shows you the current CPU temperature.

CURRENT SYSTEM FAN SPEED:

This item shows you the current CPU/ SYSTEM /Power FAN speed.

VCORE:

This item shows you the current system voltage.

1.05V/3.3V/+5V /+12V/-12V/-5V/5VSB :

Show you the voltage of 1.05V/3.3V/+5V/+12V/-12V/-5V/5VSB.

SHUTDOWN TEMPERATURE:

This item allows you to set up the CPU Warning Temperature.

4-10. FREQUENCY/VOLTAGE CONTROL

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

Phoenix – AwardBIOS CMOS Setup Utility
Frequency/Voltage Control

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

Frequency / Voltage Control Setup Screen

SPREAD SPECTRUM:

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

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. PASSWORD SETTING


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

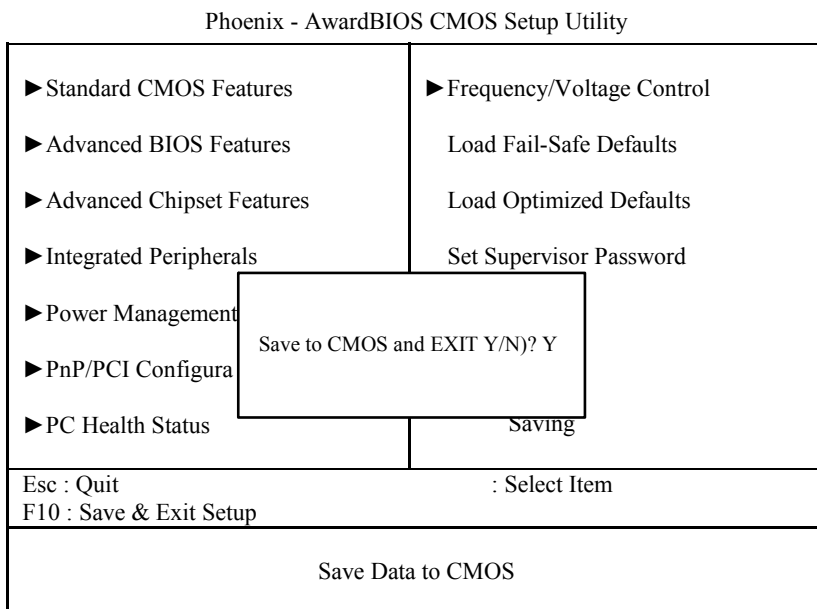
To disable the password, select this function (do not enter any key when you are prompt to enter a password), and press the <Enter> key and a message will appear at the center of the screen:

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

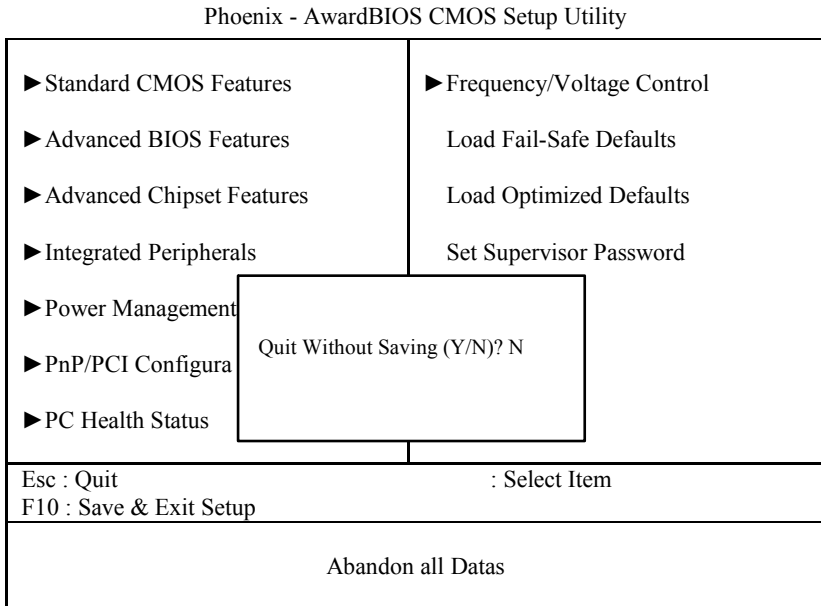
After you have completed adjusting all the settings as required, you must remember to save these setting into the CMOS RAM. To save the settings, select “SAVE & EXIT SETUP” and press <Enter>, a display will be shown as follows:



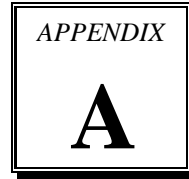
When you confirm that you wish to save the settings, your system will be automatically restarted and the changes you have made will be implemented. You may always call up the setup program at any time to adjust any of the individual items by pressing the key during boot up.

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



This appendix indicates the pin assignments.

Section includes:

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

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	IR09	C4	LA22	D4	IR010
A5	D4	B5	-5V	C5	LA21	D5	IR011
A6	D3	B6	DRQ2 C6 LA20			D6	IR012
A7	D2	B7	-12V	C7	LA19	D7	IR015
A8	D1	B8	OW/S	C8	LA18	D8	IR014
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	A9	B12	SMEMR C12		D8 D12		DRQ5
A13	A8	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		IR07				
A22	A9 B22		IR06				
A23	A8 B23		IR05				
A24	A7 B24		IR04				
A25	A6 B25		IR03				
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 -ICRD
10	A092	35 -ICWR
11	A082	36 -WE3
12	+3.3V	37 INTRO
13	VCC	38 VCC
14	A062	39 -CS2L
15	A052	40 -VS2
16	A042	41 -RESET
17	A032	42 JORDY
18	A02	43 -INPACK
19	A01	44 -REG3
20	A00	45 -DASP
21	D00	46 -PD1AG
22	D01	47 D081
23	D02	48 D091
24	-ICCS16	49 D101
25	-CD2	50 GND

TECHNICAL SUMMARY

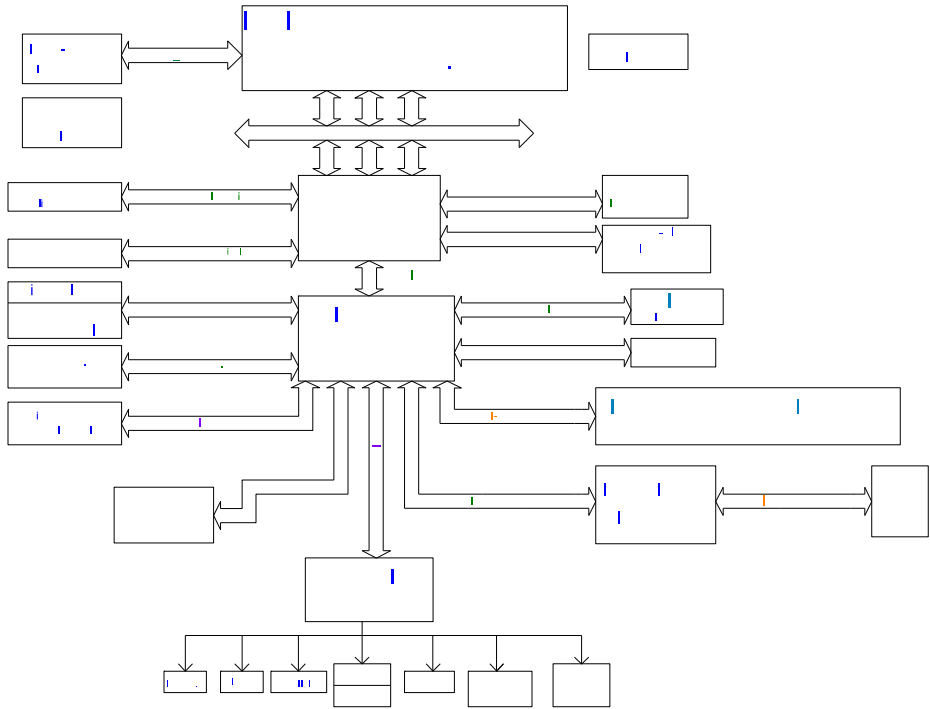


This section introduce you the maps concisely.

Section includes:

- Block Diagram
- Interrupt Map
- DMA Channels Map
- I / O Map
- Memory Map

BLOCK DIAGRAM



INTERRUPT MAP

IRQ ASSIGNMENT	
0	System timer
1	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
3	Communications Port (COM2)
4	Communications Port (COM1)
6	Standard floppy disk controller
8	System CMOS/real time clock
9	Microsoft ACPI-Compliant System
12	PS/2 Compatible Mouse
13	Numeric data processor
14	Primary IDE Channel
15	Intel(R) 82801G (ICH7 Family) SMBus Controller - 27DA
16	Mobile Intel(R) 945 Express Chipset Family
16	Microsoft UAA Bus Driver for High Definition Audio
16	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D0
16	Intel(R) 82574L Gigabit Network Connection
16	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CB
18	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CA
19	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C9
19	Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
23	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C8
23	Intel(R) 82801G (ICH7 Family) USB2 Enhanced Host Controller - 27CC

DMA CHANNELS MAP

DMA Channel	Assignment
Channel 2	Standard floppy disk controller
Channel 4	Direct memory access controller

I/O MAP

I/O MAP	ASSIGNMENT
0x00000000-0x00000CF7	PCI bus
0x00000000-0x00000CF7	Direct memory access controller
0x00000010-0x0000001F	Motherboard resources
0x00000020-0x00000021	Programmable interrupt controller
0x00000022-0x0000003F	Motherboard resources
0x00000040-0x00000043	System timer
0x00000044-0x0000005F	Motherboard resources
0x00000060-0x00000060	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
0x00000061-0x00000061	System speaker
0x00000062-0x00000063	Motherboard resources
0x00000064-0x00000064	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
0x00000065-0x0000006F	Motherboard resources
0x00000070-0x00000073	System CMOS/real time clock
0x00000074-0x0000007F	Motherboard resources
0x00000080-0x00000090	Direct memory access controller
0x00000091-0x00000093	Motherboard resources
0x00000094-0x0000009F	Direct memory access controller
0x000000A0-0x000000A1	Programmable interrupt controller
0x000000A2-0x000000BF	Motherboard resources
0x000000C0-0x000000DF	Direct memory access controller
0x000000E0-0x000000EF	Motherboard resources
0x000000F0-0x000000FF	Numeric data processor
0x000001F0-0x000001F7	Primary IDE Channel
0x00000274-0x00000277	ISAPNP Read Data Port
0x00000279-0x00000279	ISAPNP Read Data Port
0x00000294-0x00000297	Motherboard resources
0x000002F8-0x000002FF	Communications Port (COM2)
0x00000378-0x0000037F	Printer Port (LPT1)

I/O MAP	ASSIGNMENT
0x000003B0-0x000003BB	Mobile Intel(R) 945 Express Chipset Family
0x000003C0-0x000003DF	Mobile Intel(R) 945 Express Chipset Family
0x000003F0-0x000003F5	Standard floppy disk controller
0x000003F6-0x000003F6	Primary IDE Channel
0x000003F7-0x000003F7	Standard floppy disk controller
0x000003F8-0x000003FF	Communications Port (COM1)
0x00000400-0x000004BF	Motherboard resources
0x000004D0-0x000004D1	Motherboard resources
0x00000500-0x0000051F	Intel(R) 82801G (ICH7 Family) SMBus Controller - 27DA
0x00000680-0x000006FF	Motherboard resources
0x00000778-0x0000077B	Printer Port (LPT1)
0x00000880-0x0000088F	Motherboard resources
0x00000A78-0x00000A7B	Motherboard resources
0x00000B78-0x00000B7B	Motherboard resources
0x00000BBC-0x00000BBF	Motherboard resources
0x00000D00-0x0000FFFF	PCI bus
0x00000E78-0x00000E7B	Motherboard resources
0x00000F78-0x00000F7B	Motherboard resources
0x00000FBC-0x00000FBF	Motherboard resources
0x0000D000-0x0000DFFF	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D0
0x0000DF00-0x0000DF1F	Intel(R) 82574L Gigabit Network Connection
0x0000F500-0x0000F50F	Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
0x0000F600-0x0000F603	Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
0x0000F700-0x0000F707	Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
0x0000F800-0x0000F803	Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
0x0000F900-0x0000F907	Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
0x0000FA00-0x0000FA0F	Intel(R) 82801G (ICH7 Family) Ultra ATA Storage Controllers - 27DF
0x0000FB00-0x0000FB1F	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CB
0x0000FC00-0x0000FC1F	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CA

Appendix B Technical Summary

I/O MAP	ASSIGNMENT
0x0000FD00-0x0000FD1F	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C9
0x0000FE00-0x0000FE1F	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C8
0x0000FF00-0x0000FF07	Mobile Intel(R) 945 Express Chipset Family

MEMORY MAP

MEMORY MAP	ASSIGNMENT
0xFDE80000-0xFDEFFFFFF	Mobile Intel(R) 945 Express Chipset Family
0xD0000000-0xDFFFFFFF	Mobile Intel(R) 945 Express Chipset Family
0xFDF80000-0xFDEBFFFF	Mobile Intel(R) 945 Express Chipset Family
0xFE800000-0xFEBFFFFF	Mobile Intel(R) 945 Express Chipset Family
0xFDF80000-0xFDFBFFFF	Microsoft UAA Bus Driver for High Definition Audio
0xFD000000-0xFDDFFFFF	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D0
0xFDA00000-0xFDAFFFFF	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D0
0xFDDC0000-0xFDDDDFFF	Intel(R) 82574L Gigabit Network Connection
0xFDDFC000-0xFDDFFFFF	Intel(R) 82574L Gigabit Network Connection
0xFDFFF000-0xFDFFF3FF	Intel(R) 82801G (ICH7 Family) USB2 Enhanced Host Controller - 27CC
0xFEB80000-0xFEBFFFFF	Intel(R) 82802 Firmware Hub Device
0xFDFFE000-0xFDFFE3FF	Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
0xE0000000-0xEFFFFFFF	Motherboard resources
0x0000-0x9FFF	System board
0xFEC00000-0xFEC0FFFF	System board
0xFED13000-0xFED1DFFF	System board
0xFED20000-0xFED8FFFF	System board
0xFEE00000-0xFEE0FFFF	System board
0xFFB00000-0xFFB7FFFF	System board
0xFFFF0000-0xFFFFFFFF	System board
0xA0000-0xBFFF	PCI bus
0xA0000-0xBFFF	Mobile Intel(R) 945 Express Chipset Family
0xC0000-0xDFFF	PCI bus
0xE0000-0xEFFF	System board
0xF0000-0xFFFF	System board

MEMORY MAP	ASSIGNMENT
0x100000-0x3F6DFFFF System	board
0x3F6E0000-0x3F6FFFFFFF System	board
0x3F700000-0xFEFFFFFFF PC	bus