

USER'S MANUAL

ProX-1650

**For Socket 370 System
Motherboard
With VGA / SOUND / 2LAN**

Prox-1650 M2

***ProX-1650 Socket 370
Main Board
With VGA / SOUND / Dual LAN***

OPERATION MANUAL

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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 prior notice.

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INTRODUCTION

CHAPTER

1

This chapter gives you the information for Prox-1650. It also outlines the System specifications.

Section includes:

- About This Manual
- System Specifications
- Safety precautions

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

1-1. ABOUT THIS MANUAL

Thank you for purchasing our Prox-1650 Socket 370 Mainboard enhanced with VGA/Sound/Dual LAN, which is fully PC / AT compatible. The Prox-1650 provides faster processing speed, greater expandability and can handle more tasks than before. This manual is designed to assist you how to install and set up the system. It contains five 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 specifications for this system. The final page of this chapter will indicate how to avoid damaging this board.

Chapter 2 Hardware Configuration

This chapter outlines the component locations 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 Flash BIOS Update. It also describes the Watchdog-timer configuration.

Chapter 4 Green PC Function

This chapter explains the Green PC functions concisely.

Chapter 5 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 and PCI BUS.

Appendix B Technical Summary

This section gives you the information about the Technical maps.

Appendix C Trouble Shooting

This section outlines the error messages and offers you the methods to solve the problems.

1-2. SYSTEM SPECIFICATIONS

- **CPU :**

- Intel® Celeron™ processors in 370-pin socket.
300A/333/366/400/433/466/500/533/566/600/633/667/700/733/766/800MHz.
- Intel® Pentium® !!! processors in 370-pin socket.
500E/550E/600E/650/700/750/800/850MHz.
- Auto detect voltage regulator.
- Support FSB 66 / 100 MHz.

- **MEMORY :**

- Up to 512MB SDRAM
- Two 168pin DIMM sockets on board.

- **CACHE :**

- Depended on CPU (128/256KB).

- **REAL-TIME CLOCK :**

- 256-byte battery backed CMOS RAM
- Hardware implementation to indicate century roll-over.

- **BIOS :**

- Award Flash BIOS for plug & play function.
- Easy update 512KB flash EEPROM.
- Support Green Function.
- Support S/IO Setup.

- **KEYBOARD CONNECTOR :**

- Mini DIN connector.
- Supports for AT keyboard.

- **MOUSE CONNECTOR :**

- Mini DIN connector.
- Supports for PS/2 Mouse.

- **DISK-ON-CHIPS SOCKET :**

- A 32-pin SSD socket.
- Supports up to 288MB Disk-on-chips.

● **BUS SUPPORT :**

Internal AGP for VGA
Internal PCI for IDE, LAN, and Sound
External 4 ISA Bus and 4 PCI Bus.

● **DISPLAY :**

Built-in GMCH, Support for CRT and PanelLink/TV-Out (optional).
Support 2D/3D engine.
Support a Dynamic Video Memory Technology (DVMT) which allows the entire 3D rendering process to take place in system memory.
Onboard 15-pin connector, support for resolution on SVGA Monitor.
Onboard 20-pin connector, support for PanelLink (optional).
Onboard 2-pin for Composite Video Connector (optional).
Onboard 3-pin for S-video (optional).

● **WATCHDOG :**

I / O port 0443H to Enable watchdog.
I / O port 0441H to Disable watchdog.
Selectable for NMI or Reset function by jumper setting.
Time-out timing select 0 / 8 / 16 / 24 / 32 / 40 / 48 / 56 / 64 / 72 / 80 / 88 / 96 / 104 / 112 / 120 sec +/- 25%.

● **IDE INTERFACE :**

Two IDE port, support Ultra DMA-33/66/100.
2 Channel support 4 devices.

● **FLOPPY DISK DRIVER INTERFACE :**

Support up to two Floppy Disk Drives, 3.5" and 5.25" (360K / 720K / 1.2M / 1.44M / 2.88M).

● **USB CONNECTOR :**

Two sets of USB connector.
Supports up to four USB ports.

● **LAN ADAPTER :**

Dual Port, Intel® 82559 & Intel® 82562 Fast Ethernet
10/100 Base-T PCI-BUS.
Support wake-on-LAN function.

● **SERIAL PORT :**

Four high speed 16550 Compatible UARTs with Send / Receive 16 Byte FIFOs; COM1/3/4:RS-232; COM2:RS-232/422/485.
MIDI Compatible.
Programmable Baud Rate Generator.

● **SOUND :**

Enhanced Analog Device AD1881 (AC'97 Codec).
Fully Compliant AC'97 Analog I/O Component
16-Bit Stereo Full-Duplex Codec
Four Analog Line-level Stereo Inputs for Connection.
High Quality CD Input with Ground Sense
Stereo Line-Level Output
Interface: Line-In, Line-Out, Microphone, and CD Audio-In.

● **HARDWARE MONITORING FUNCTION :**

Monitor Voltage, CPU temperature, & Cooling fan.

● **IRDA PORT :**

5-pin Infrared port, support IrDA v1.0 SIR protocol

● **PARALLEL PORT :**

SPP / ECP / EPP Function.
2 port, Bi-directional parallel port.

● **GREEN FUNCTION :**

Software supported by BIOS setup.

● **LED INDICATOR :**

System power.
Hard Disk access.
LAN LED indicator.

● **DMA CONTROLLER :**

82C37 x 2

● **DMA CHANNELS :**

7

● **INTERRUPT CONTROLLERS :**

82C59 x 2

● **INTERRUPT LEVELS :**

15

● **OPERATING TEMPERATURE :**

0 to 60°C.

● **SYSTEM POWER REQUIREMENT :**

DC Voltage: +5V, minimum +4.75V, maximum 5.25V.

DC Ampere: 15A.

DC Voltage: +12V, minimum +11.4V, maximum 12.6V.

DC Ampere: 500mA.

● **BOARD DIMENSIONS :**

305mm x 244mm

● **BOARD NET WEIGHT :**

0.71 Kgs.

1-3. SAFETY PRECAUTIONS

Follow the messages below to avoid your systems from damage:

1. Keep your system away 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.

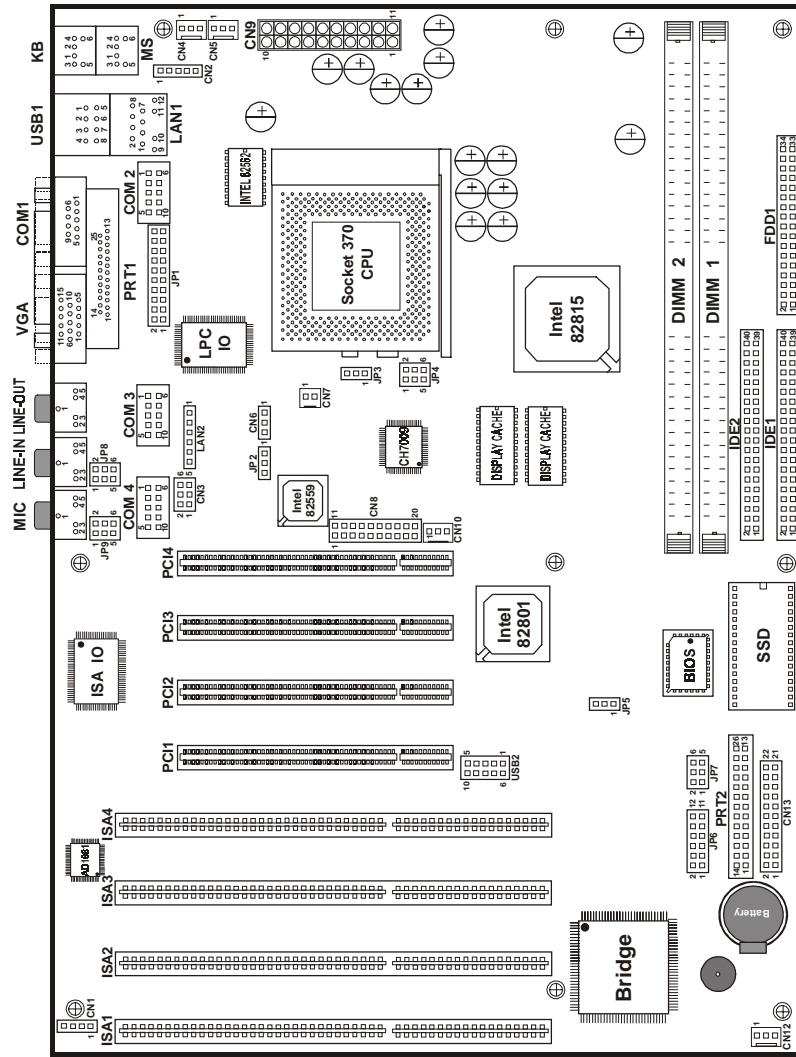
This section includes:

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

2-1. JUMPER & CONNECTOR QUICK REFERENCE TABLE

COM Connector	COM1, COM2 COM3, COM4
RS232/422/485 (COM2) Selection	JP1
COM3 RI & Voltage Selection	JP8
COM4 RI & Voltage Selection	JP9
Solid-State Disk Socket	SSD
SSD Memory Mapping Selection	JP6
Keyboard Connector	KB
PS/2 Mouse Connector	MS
Reset Connector	CN13 (21-22)
External Speaker Connector	CN13 (2,4,6,8)
Hard Disk Drive LED Connector	CN13 (10,12,14,16)
Power LED & KeyLock Connector	CN13 (1,3,5,7,9)
ATX Power Button	CN13 (18,20)
IRDA Connector	CN13 (11,13,15,17,19)
ATX Power Connector	CN9
VGA CRT Connector	VGA
Printer Connector	PRT1, PRT2
Universal Serial Bus Connector	USB1, USB2
LAN Connector	LAN1, LAN2
LAN2 Led Indicator	CN3
LAN Enable/Disable Selection	JP2
Wake-On-Modem Connector	CN6
Reset/NMI/Clear Watchdog Selection	JP7
CPU Fan Connector	CN5
System Fan Connector	CN4, CN12
Hard Disk Drive Connector	IDE1, IDE2
Floppy Disk Drive Connector	FDD1
Line-Out Connector	Line-Out
Line-In Connector	Line-In
Microphone Connector	MIC
CD Audio-In Connector	CN1
S-Video Out Connector	CN10
Composite Video (AV) Connector	CN7
TV-Out Address Setting	JP3
TV or DVI Selection	JP4 (1,3,5)
NTSC or PAL Selection	JP4 (2,4,6)
PanelLink (DFP) Connector	CN8
External Keyboard Connector	CN2
Clear CMOS Connector	JP5
Memory Installation	DIMM1, DIMM2

2-2. COMPONENT LOCATIONS



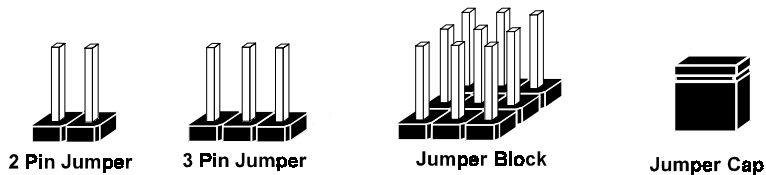
Prox-1650 Connector, Jumper and Component locations

2-3. HOW TO SET THE JUMPERS

You can configure your board by setting the 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 "opening" or "closing" 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

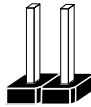


If a jumper has three pins (for example, labelled PIN1, PIN2, and PIN3), You can connect PIN1 & PIN2 to create one setting and shorting. You can either connect PIN2 & PIN3 to create another setting. The same jumper diagrams are applied all through this manual. The figure below shows what the manual diagram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

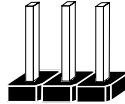
JUMPER DIAGRAMS



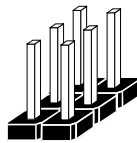
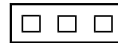
Jumper Cap looks like this



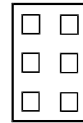
2 pin Jumper looks like this



3 pin Jumper looks like this



Jumper Block looks like this



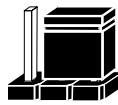
JUMPER SETTINGS



2 pin Jumper close(enabled)
looks like this



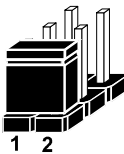
1



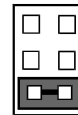
3 pin Jumper
2-3 pin close(enabled)
looks like this



1



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



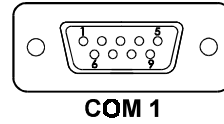
1 2

2-4. COM PORT CONNECTOR

Four COM port is enhanced in this board namely: COM1, COM2, COM3 and COM4. COM1, COM3 and COM4 is fixed for RS-232 while COM2 is selectable for RS-232/422/485.

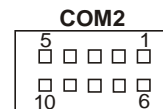
COM1 : COM1 Connector, DB9 male connector
The COM1 Connector assignments are as follows :

PIN	ASSIGNMENT
1	DCD1
2	RXD1
3	NTXD1
4	NDTR1
5	GND
6	NDSR1
7	NRTS1
8	NCTS1
9	NRI1



COM2 : COM2 Connector
The COM2 Connector assignments are as follows :

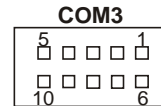
PIN	ASSIGNMENT		
	RS-232	RS-422	RS-485
1	DCD2	TX-	TX-
2	TIN2	TX+	TX+
3	ROUT2	RX+	RX+
4	RDTR2	RX-	RX-
5	GND	GND	GND
6	TDSR2	RTS-	NC
7	TRTS2	RTS+	NC
8	RCTS2	CTS+	NC
9	RIN2	CTS-	NC
10	NC	NC	NC



COM3 : COM3 Connector

The COM3 Connector assignments are as follows :

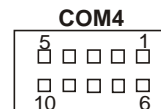
PIN	ASSIGNMENT
1	NDCDA
2	NSINA
3	NSOUTA
4	NDTRA
5	GND
6	NDSRA
7	NRTSA
8	NCTSA
9	NRIAR
10	NC



COM4 : COM4 Connector

The COM4 Connector assignments are as follows :

PIN	ASSIGNMENT
1	NDCDB
2	NSINB
3	NSOUTB
4	NDTRB
5	GND
6	NDSRB
7	NRTSB
8	SCTSB
9	NRIBR
10	NC





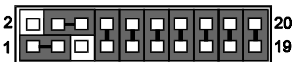
2-5. RS232/422/485 (COM2) SELECTION

JP1 : RS-232/422/485 Selection

COM1, COM3, & COM4 is fixed for RS-232 function only.

COM2 is selectable for RS-232, 422, 485 function.

The jumper settings are as follows :


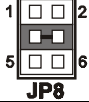
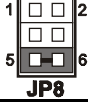
COM 2 Function	Jumper Setting (pin closed)	Jumper Illustration
RS-232	Open	 <p style="text-align: center;">JP1</p>
RS-422	1-2, 5-6, 7-8, 9-10 11-12,13-14,15-16 17-18, 19-20	 <p style="text-align: center;">JP1</p>
RS-485	1-3, 4-6, 7-8, 9-10 11-12,13-14,15-16 17-18, 19-20	 <p style="text-align: center;">JP1</p>


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

2-6. COM3 RI & VOLTAGE SELECTION

JP8: COM3 RI & Voltage Selection

The selections are as follows:

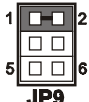
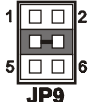
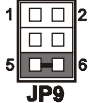
SELECTION	JUMPER SETTINGS (pins closed)	JUMPER ILLUSTRATION
RI	1-2	
VCC 12V	3-4	
VCC 5V	5-6	


 This connector is to set the pin 9 of COM3.

2-7. COM4 RI & VOLTAGE SELECTION

JP9: COM4 RI & Voltage Selection

The selections are as follows:

SELECTION	JUMPER SETTINGS (pins closed)	JUMPER ILLUSTRATION
RI	1-2	
VCC 12V	3-4	
VCC 5V	5-6	

 This connector is to set the pin 9 of COM4.

2-8. SOLID-STATE DISK SOCKET

SSD: 32-pin Disk-on-chip Socket
 The pin assignments are as follows:



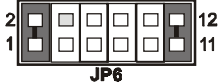




PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	NC	17	SD3
2	NC	18	SD4
3	NC	19	SD5
4	SA12	20	SD6
5	SA7	21	SD7
6	SA6	22	CE
7	SA5	23	SA10
8	SA4	24	OE
9	SA3	25	SA11
10	SA2	26	SA9
11	SA1	27	SA8
12	SA0	28	NC
13	SD0	29	NC
14	SD1	30	VCC
15	SD2	31	WE
16	GND	32	VCC

2-9. SSD MEMORY MAPPING SELECTION

JP6: SSD Memory Mapping Selection

A 32-pin SSD socket supports Disk-on-Chip up to 144MB. This PnP Flash ROM SSD can be install as one of user's hard disk drive.

The SSD Memory Mapping Selections are as follows:

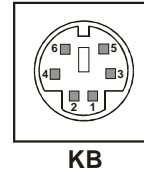
SSD Memory Map	Jumper Settings (pins closed)	JUMPER ILLUSTRATION
CC000h-CDFFFh	1-2 11-12	
D0000h-D1FFFh	3-4 9-10	
D4000h-D5FFFh	3-4 11-12	
D8000h-D9FFFh	5-6 9-10	
DC000h-DDFFFh	5-6 11-12	

*** Manufactory default --- CC000h-CDFFFh

2-10. KEYBOARD CONNECTOR

KB : PC/AT Keyboard Connector
The pin assignments are as follows :

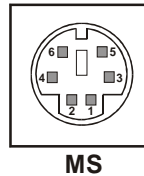
PIN	ASSIGNMENT
1	KB DATA
2	NC
3	GND
4	VCC
5	KB CLK
6	NC



2-11. PS/2 MOUSE CONNECTOR

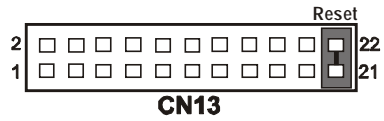
MS : PS/2 Mouse Connector
The pin assignments are as follows :

PIN	ASSIGNMENT
1	MS DATA
2	NC
3	GND
4	VCC
5	MS CLK
6	NC



2-12. RESET CONNECTOR

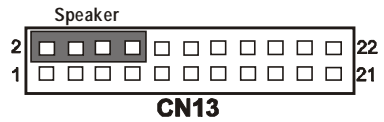
CN13 (21-22) : Reset Connector.
The pin assignments are as follows :



PIN	ASSIGNMENT
21	RST SW
22	GND

2-13. EXTERNAL SPEAKER CONNECTOR

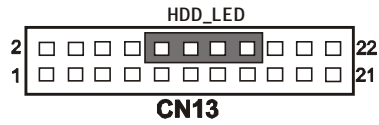
CN13 (2,4,6,8) : External Speaker Connector
The pin assignments are as follows :



PIN	ASSIGNMENT
2	VCC
4	SPEAKER SIGNAL
6	SPEAKER SIGNAL
8	SPEAKER SIGNAL

2-14. HARD DISK DRIVE LED CONNECTOR

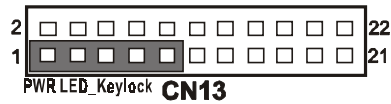
CN13 (10,12,14,16) : Hard Disk Drive LED Connector
 The pin assignments are as follows :



PIN	ASSIGNMENT
10	VCC
12	HDD LED SIGNAL
14	HDD LED SIGNAL
16	HDD LED SIGNAL

2-15. POWER LED & KEYLOCK CONNECTOR

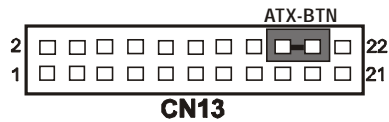
CN13 (1,3,5,7,9) : Power LED & Keylock Connector
 The pin assignments are as follows :



PIN	ASSIGNMENT
1	VCC
3	NC
5	GND
7	KLOCK
9	GND

2-16. ATX POWER BUTTON

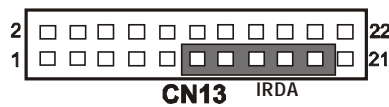
CN13 (18,20) : ATX Power Button
 The pin assignments are as follows :



PIN	ASSIGNMENT
18	PANSWIN
20	GND

2-17. IRDA CONNECTOR

CN13 (11,13,15,17,19) : Infrared Connector
 The pin assignments are as follows :



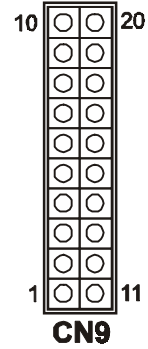
PIN	ASSIGNMENT
11	VCC
13	NC
15	IRRX
17	GND
19	IRTX

2-18. ATX POWER CONNECTOR

CN9 : ATX Power Connector

The pin assignments are as follows :

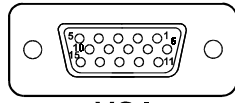
PIN	ASSIGNMENT
1	+3.3V
2	+3.3V
3	GND
4	+5.0V
5	GND
6	+5.0V
7	GND
8	Power Good
9	+5.0V Standby
10	+12.0V
11	+3.3V
12	-12.0V
13	GND
14	Power On
15	GND
16	GND
17	GND
18	-5.0V
19	+5.0V
20	+5.0V



2-19. VGA CONNECTOR

VGA : VGA Connector

The pin assignments are as follows:



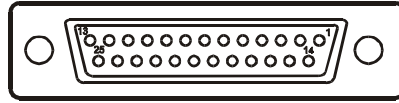
VGA

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

2-20. PRINTER CONNECTOR

PRT1 : Printer Connector

The pin assignments are as follows :

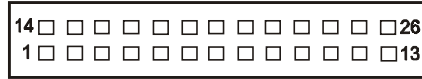


PRT1

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	STB	14	AUTFE
2	P0	15	ERROR
3	P1	16	INIT
4	P2	17	SLCTIN
5	P3	18	GND
6	P4	19	GND
7	P5	20	GND
8	P6	21	GND
9	P7	22	GND
10	ACK	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SLCT		

PRT2 : Printer Connector

The pin assignments are as follows :



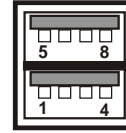
PRT2

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	STB	14	AUTFE
2	P0	15	ERROR
3	P1	16	INIT
4	P2	17	SLCTIN
5	P3	18	GND
6	P4	19	GND
7	P5	20	GND
8	P6	21	GND
9	P7	22	GND
10	ACK	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SLCT	26	NC

2-21. UNIVERSAL SERIAL BUS CONNECTOR

USB1: Universal Serial Bus Connector
 This connector contains two USB ports.
 The pin assignments are as follows:

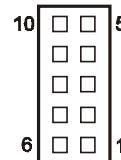
PIN	ASSIGNMENT
1	VCC
2	USBP0-
3	USBP0+
4	GND
5	VCC
6	USBP1-
7	USBP1+
8	GND



USB

USB2: Universal Serial Bus Connector
 This connector contains two USB ports.
 The pin assignments are as follows:

PIN	ASSIGNMENT
1	VCC
2	USBP2-
3	USBP2+
4	GND
5	NC
6	VCC
7	USBP3-
8	USBP3+
9	GND
10	NC



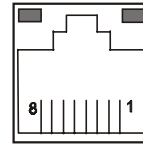
USB2

2-22. LAN CONNECTOR

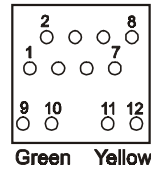
LAN1: LAN Connector

You will find two LAN LED indicator on LAN connector, the green LED is used to detect the 100Mbps speed, while the yellow LED is used to detect “LINK” and “ACTIVE” signal. The pin assignments are as follows:

PIN	ASSIGNMENT
1	TX+
2	TX-
3	RX+
4	ISOLATED GND
5	ISOLATED GND
6	RX-
7	ISOLATED GND
8	ISOLATED GND
9	Pull Hi
10	LED – Yellow
11	Pull Hi
12	LED – Green



LAN1



LAN2: LAN2 Connector

The pin assignments are as follows:

PIN	ASSIGNMENT
1	TX+
2	TX-
3	RX+
4	RX-
5	ISOLATED GND
6	ISOLATED GND



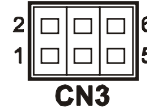
LAN2

2-23. LAN2 LED INDICATOR

CN3 (1-2) : Link Indicator
 CN3 (3-4) : Active Indicator
 CN3 (5-6) : Speed Indicator

The pin assignments are as follows:

PIN	ASSIGNMENT
1	PULL HI
2	LINK LED
3	PULL HI
4	ACTIVE LED
5	PULL HI
6	SPEED LED



2-24. LAN2 ENABLE/DISABLE SELECTION

JP2: LAN2 Enable/Disable Selection

The selections are as follows:

SELECTION	JUMPER SETTINGS (pins closed)	JUMPER ILLUSTRATION
NORMAL	1-2	1
DISABLE	2-3	1

*** Manufactory default --- NORMAL

2-25. WAKE-ON-MODEM CONNECTOR

CN6 : Wake-On-Modem Connector
 The pin assignments are as follows:

PIN	ASSIGNMENT
1	5V STANDBY
2	GND
3	ACTIVE SIGNAL



2-26. RESET/NMI/CLEAR WATCHDOG SELECTION

JP7 : Reset/NMI/Clear Watchdog Selection
 The selections are as follows:

FUNCTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
RESET	1-2	<p>Diagram of JP7 jumper with pins 1 and 2 shorted.</p>
NMI	3-4	<p>Diagram of JP7 jumper with pins 3 and 4 shorted.</p>
CLEAR WATCHDOG	5-6	<p>Diagram of JP7 jumper with pins 5 and 6 shorted.</p>

***Manufacturing Default is set as Reset.

User may select to use the Reset or NMI watchdog. NMI, also known as Non-Maskable Interrupt, is used for serious conditions that demand the processor's immediate attention, it cannot be ignored by the system unless it is shut off specifically. To clear NMI command, user should short the "Clear Watchdog" pin via push button.

2-27. CPU FAN CONNECTOR

CN5 : CPU Fan connector

The pin assignments are as follows:

PIN	ASSIGNMENT
1	GND
2	+12V
3	FAN_DETECT



2-28. SYSTEM FAN CONNECTOR

CN4 : System Fan connector

The pin assignments are as follows:

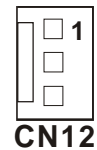
PIN	ASSIGNMENT
1	GND
2	+12V
3	FAN_DETECT



CN12 : System Fan connector

The pin assignments are as follows:

PIN	ASSIGNMENT
1	GND
2	+12V
3	FAN_DETECT

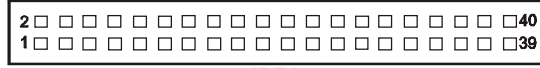


2-29. HARD DISK DRIVE CONNECTOR

The Prox-1650 possesses two HDD connectors, IDE1 and IDE2.

IDE1: Hard Disk Drive Connector

The pin assignments are as follows:

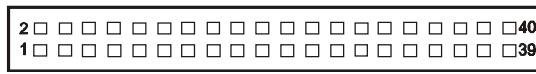


IDE1

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	IDERST	21	IDEREQ0
2	GND	22	GND
3	IDED7	23	IDEIOW
4	IDED8	24	GND
5	IDED6	25	IDEIOR
6	IDED9	26	GND
7	IDED5	27	IDE ORDY
8	IDED10	28	PULL LOW
9	IDED4	29	IDEACK0
10	IDED11	30	GND
11	IDED3	31	IRQ14
12	IDED12	32	NC
13	IDED2	33	IDEA1
14	IDED13	34	P66 DETECT
15	IDED1	35	IDEA0
16	IDED14	36	IDEA2
17	IDED0	37	IDECS1P
18	IDED15	38	IDECS3P
19	GND	39	IDEACTP
20	N.C.	40	GND

IDE2: Hard Disk Drive Connector

The pin assignments are as follows:



IDE2

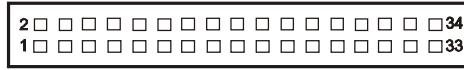
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	IDERST	21	IDEREQ0
2	GND	22	GND
3	IDED7	23	IDEIOW
4	IDED8	24	GND
5	IDED6	25	IDEIOR
6	IDED9	26	GND
7	IDED5	27	IDE ORDY
8	IDED10	28	PULL LOW
9	IDED4	29	IDEACK0
10	IDED11	30	GND
11	IDED3	31	IRQ14
12	IDED12	32	NC
13	IDED2	33	IDEA1
14	IDED13	34	P66 DETECT
15	IDED1	35	IDEA0
16	IDED14	36	IDEA2
17	IDED0	37	IDECS1P
18	IDED15	38	IDECS3P
19	GND	39	IDEACTP
20	NC.	40	GND

2-30. FLOPPY DISK DRIVE CONNECTOR

FDD1 : Floppy Disk Drive Connector

You can use a 34-pin daisy-chain cable to connect two FDD. On one end of this cable there is a 34-pin flat cable to attach the FDD on the board, the other side is attaches to two FDD.

The pin assignments are as follows :



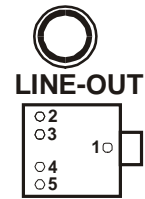
FDD1

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	2	DENSEL
3	GND	4	NC
5	GND	6	NC
7	GND	8	INDEX
9	GND	10	MOTEA
11	GND	12	DRVB
13	GND	14	DRVA
15	GND	16	MOTEB
17	GND	18	DIR
19	GND	20	STEP
21	GND	22	WDATA
23	GND	24	WGATE
25	GND	26	TK00
27	GND	28	WRPRT
29	NC	30	RDATA
31	GND	32	SIDE1
33	NC	34	DSKCHG

2-31. LINE-OUT CONNECTOR

Line-Out : Line-Out (Speaker) Connector
The pin assignments are as follows :

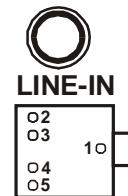
PIN	ASSIGNMENT
1	GND
2	LINE-OUT L
3	GND
4	GND
5	LINE-OUT R



2-32. LINE-IN CONNECTOR

LINE-IN : Line-In Connector
The pin assignments are as follows :

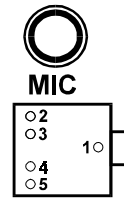
PIN	ASSIGNMENT
1	GND
2	LINE-IN L
3	GND
4	GND
5	LINE-IN R



2-33. MICROPHONE CONNECTOR

MIC : Microphone Connector
 The pin assignments are as follows :

PIN	ASSIGNMENT
1	GND
2	MIC-IN
3	GND
4	GND
5	NC



2-34. CD AUDIO-IN CONNECTOR

CN1 : CD Audio-in Connector
 The pin assignments are as follows:

PIN	ASSIGNMENT
1	CD-IN L
2	GND
3	GND
4	CD-IN R



2-35. S-VIDEO OUT CONNECTOR

CN10 : S-Video Out Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	Y/G
2	GND
3	C/R/V



2-36. COMPOSITE VIDEO CONNECTOR

CN7 : Composite Video (AV) Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	CVBS/B/U
2	GROUND



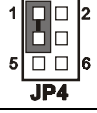
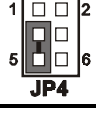
2-37. TV-OUT ADDRESS SETTING

JP3 : TV-Out (CH7009) Address Setting
The setting is as follows:

TV-OUT ADDRESS	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
OX76	1-2	<p>Diagram of JP3 jumper showing pins 1 and 2 connected.</p>

2-38. TV OR DVI SELECTION

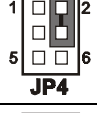
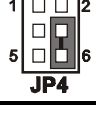
JP4 (1,3,5) : TV or DVI Selection
 The selection are as follows :

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
DVI	1-3	 <p>JP4</p>
TV	3-5	 <p>JP4</p>

*** Manufacturing Default is set as TV.

2-39. NTSC OR PAL SELECTION

JP4 (2,4,6) : NTSC or PAL Selection
 The selection are as follows :

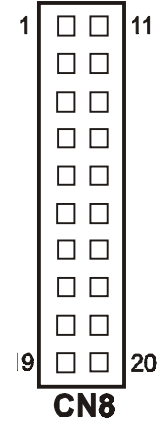
SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
PAL	2-4	 <p>JP4</p>
NTSC	4-6	 <p>JP4</p>

*** Manufacturing Default is set as NTSC.

2-40. PANEL LINK (DFP) CONNECTOR

CN8 ; PanelLink (DFP) Connector
The pin assignments are as follows :


PIN	ASSIGNMENT
1	TX1+
2	TX-
3	GND
4	GND
5	TXC+
6	TXC-
7	GND
8	VCC5
9	NC
10	NC
11	TX2+
12	TX2-
13	GND
14	GND
15	TX0+
16	TX0-
17	NC
18	5VHTPLG
19	5VFTSDA
20	5VFTSCL



2-41. EXTERNAL KEYBOARD CONNECTOR


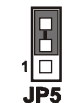
CN2 : External Keyboard Connector
 The pin assignments are as follows :

PIN	ASSIGNMENT
1	KCLKR
2	KDATR
3	NC
4	GND
5	KBPWR



2-42. CLEAR CMOS DATA SELECTION

JP5 : Clear CMOS Data Selection
 The selection are as follows :

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

*** 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.

2-43. MEMORY INSTALLATION

The Prox-1650 Embedded Computer support 2 SDRAM banks.

DRAM BANK CONFIGURATION

DIMM 1	DIMM 2	TOTAL MEMORY
32M		32M
32M	32M	64M
32M	64M	96M
64M		64M
64M	32M	96M
64M	64M	128M
64M	128M	192M
128M		128M
128M	64M	192M
128M	128M	256M
128M	256M	384M
256M		256M
256M	128M	384M
256M	256M	512M

SOFTWARE UTILITIES

CHAPTER
3

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

Section includes:

- VGA Driver Utility
- Flash BIOS Update
- LAN Driver Utility
- SOUND Driver Utility
- Watchdog Timer Configuration

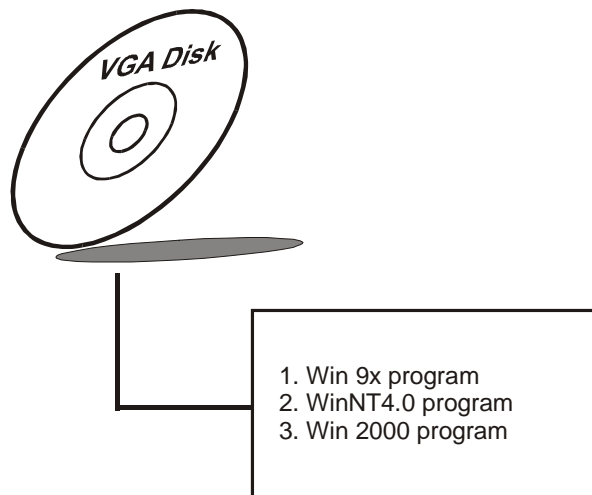
3-1. INTRODUCTION

Enclosed with our Prox-1650 package, you will find a CD ROM disk containing all types of drivers we have. As a Prox-1650 user, you will only need the some of files contained in the CD ROM disk, please take note of the following chart :

File name (Assume that CD ROM drive is D:)	Purpose
D:\VGA\	For VGA driver installation
D:\Flash\Awdf flash.exe	For BIOS update
D:\LAN\	For LAN Driver installation
D:\Sound\	For Sound driver installation
D:\Utility\Infinst_autol.exe	For Intel® Chipset Software Installation Utility
***Install this software first!	Software Update 95/98/98SE/2K.

3-2. VGA DRIVER UTILITY

The VGA interface is embedded with our Prox-1650 system to support CRT display, Panel Link and TV-Out Encoder. The following illustration briefly shows you the content of VGA driver in D:\VGA\:



3-2-1. Installation of VGA Driver

- (1) Start the computer (Win 9x/NT/2K).
 - (2) Insert the Utility Disk into the CD ROM drive or drive A/B.
 - (3) Double-click "D:\VGA\WIN9X\SETUP.EXE
(if D is not your CD ROM drive and substitute D with the right drive) in the text entry area and press OK.
 - (4) Click "Next" on the Welcome screen.
 - (5) Read the license agreement and click "Yes" to continue.
 - (6) The driver files will now be installed. When finished, choose the "Yes" to reboot option, and click "Finished" to restart your computer. The driver should now be loaded.
- ⌚ For more information on VGA driver installation, please refer to the readme.txt found on the sub-directory of the VGA driver utility.

3-3. FLASH BIOS UPDATE

3-3-1. System BIOS Update:

Users of Prox-1650 can use the program "Awdflash.exe" contained in CD ROM for BIOS update. This is found in D:\flash\Awdflash.exe.

3-3-2. To update BIOS :

- (1) Install "Awdflash.exe" from the CD ROM Disk into your system.
- (2) Insert the new BIOS file you have obtained from Prox-1650 vendor.
- (3) Type the pathname to Awdflash.exe and execute the BIOS update with file b50xxxxx.bin
C:\UTIL\AWDFLASH\AWARDFLASH b50xxxxx.
- (4) The screen will display the table below:

FLASH MEMORY WRITER v7.xx (C) Award Software 2000 All Rights Reserved
For i815-ITE8712-6A69RP69C-0 DATE : 05/06/01 Flash Type - INTEL E82802AD /3.3V
File Name to Program : B50xxxxx.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.

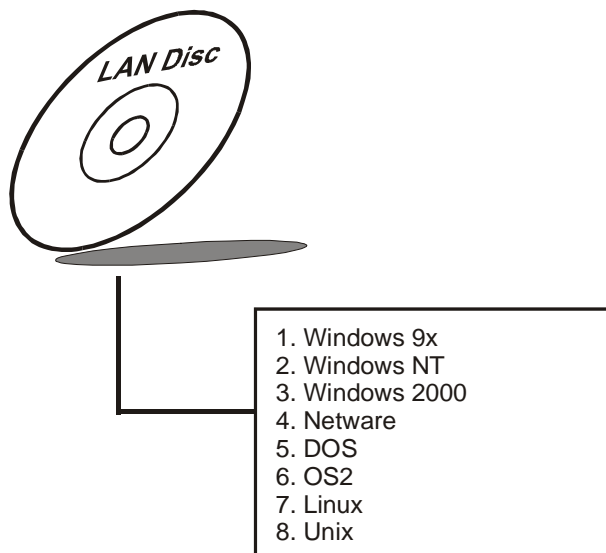
FLASH MEMORY WRITER v7.xx (C) Award Software 2000 All Rights Reserved
For i815-ITE8712-6A69RP69C-0 DATE : 05/06/01 Flash Type - INTEL E82802AD /3.3V
File Name to Program : B50xxxxx.bin Checksum : XXXXX
Error Message : Are You Sure To Program (Y/N)

Select “Y”, and the BIOS will be renewed. When you are refreshing your BIOS, do not turn off or reset the system, or you will damage the BIOS. After you have completed all the programming, you will see the line: “Reset System or power off to accomplish update process!”. Please turn off or reset the system. Then the Flash BIOS is fully implemented.

3-4. LAN DRIVER UTILITY

3-4-1. Introduction

The Prox-1650 Mainboard is enhanced with LAN function that can support various network adapters. The content of the LAN driver is found as follows :



3-4-2. Installation Procedure for Windows 9x

- (1) Insert the LAN Driver disk into Drive A or CD ROM drive.
- (2) In the "My computer", select the "Control Panel" icon.
- (3) In the "Control Panel" windows, select the "System" icon.
- (4) The "System Properties" window will appear, select the "Device Manager" and look for the "Network Adapter – PCI Fast Ethernet Adapter".
- (5) Click "Properties" and then "PCI Fast Ethernet Adapter Properties", choose the "Driver" icon.
- (6) Click "Update Driver" icon, and follow the remaining instruction.

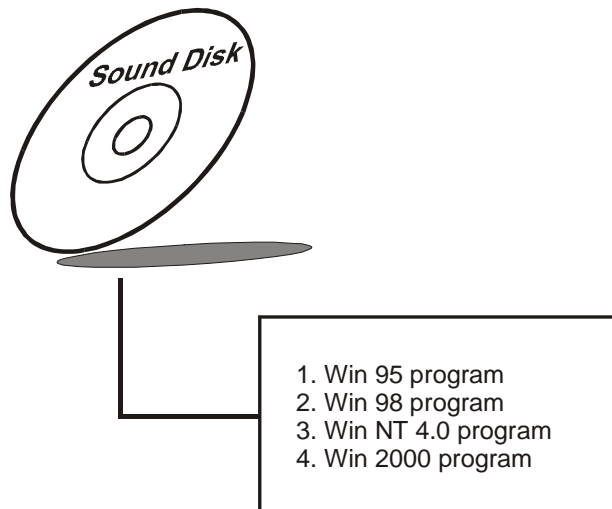
3-4-3. Installation Procedure for Windows NT

1. In the Main group to NT, select the “Control Panel” icon.
2. In the Control Panel window, choose the “Network” icon.
3. In the Network Settings dialog box, choose the “Add adapter” button.
The Add Network Adapter dialog box appears.
4. In the list of network cards, select “<Other> requires disk from manufacturer”, and then press <Enter> button.
5. Insert the LAN Driver disk in Drive A or CDROM drive, and type D:\LAN, and then choose OK button.
6. Follow the remaining instruction, and re-boot your system to complete the installation process.

3-5. SOUND DRIVER UTILITY

3-5-1. Introduction

The AD1881 sound function enhanced in this system is fully compatible with Windows 95/98, Windows NT 4.0, and Windows 2000. Below, you will find the content of the Sound driver :



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

- (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\path" 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. WATCHDOG TIMER CONFIGURATION

This board has watchdog timer function for monitoring whether the system is still work or not after a period of time. The user can select watchdog timer to system reset or NMI (Non Maskable interrupt) depending on the jumper set in "Reset/NMI/Clear Watchdog Selection" as described in chapter 2. This is defined at I/O port **443H**. When you want to enable the watchdog timer, please write I/O port **443H**, then the system will either reset itself or perform the NMI function. Likewise, when you want to disable the function, write I/O port **441H**, the system will run the command to stop the Watchdog function.

In Prox-1650 watchdog function, You must write your program so when it writes I/O port address 443 for enable watchdog and write I/O port address 441 for disable watchdog. The timer's intervals have a tolerance of 25% so you should program an instruction that will refresh the timer about every second.

The following program shows you how to program the watch timer in your program.

Watchdog enable program:

```
MOV    AX, 000FH      (choose the values you need; start from 0)
MOV    DX, 0443H
OUT    DX, AX
```

Watchdog disable program:

```
MOV    AX, 000FH      (this value can be ignored)
MOV    DX, 0441H
OUT    DX, AX
```

The Watchdog Timer control table is as follows:

Level	Value	Time/sec	Level	Value	Time/sec
1	F	0	9	7	64
2	E	8	10	6	72
3	D	16	11	5	80
4	C	24	12	4	88
5	B	32	13	3	96
6	A	40	14	2	104
7	9	48	15	1	112
8	8	56	16	0	120

GREEN PC FUNCTION

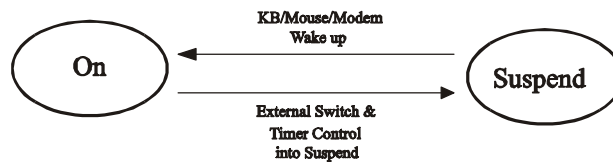
CHAPTER 4

This chapter gives you the concise information for Green PC Function.

Section includes:

- Power Saving Block Diagram
- CPU Doze Mode
- System STANDBY Mode
- System SUSPEND Mode

4-1. POWER SAVING BLOCK DIAGRAM



Timer Control into Suspend

4-2. SYSTEM SUSPEND MODE

1. After timing-out, System enters suspend mode and CPU clock slows down to 0MHz.
2. Flash LED to indicate power saving status.
3. VGA monitor displays blank screen.
4. Fixed disk driver motor will be spin off.
5. Monitor activity according to the setting of Advanced Setup.
6. When system in Suspend mode, only those events set in the Power Management Setup can wake-up system.

AWARD BIOS SETUP

CHAPTER 5

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
- Password Setting
- Save and Exit Setup

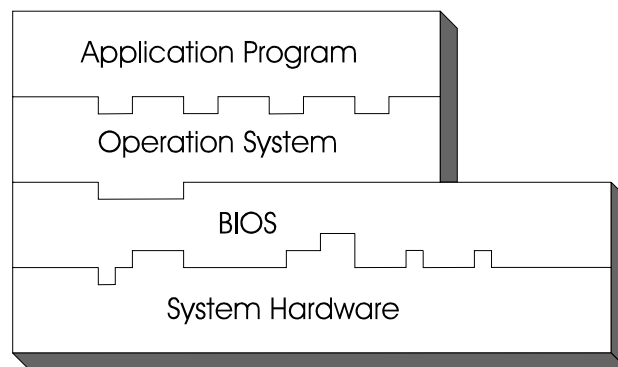
5-1. INTRODUCTION

This chapter will show you the function of the BIOS in managing the features of your system. The Prox-1650 Socket 370 Mainboard 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:



5-2. 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:

CMOS Setup Utility – Copyright (C) 1984-2001 Award Software

<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 Control Load Fail-Safe Defaults Load Optimized Defaults Set Supervisor Password Set User Password Save & Exit Setup Exit Without Saving
Esc : Quit F9 : Menu in BIOS ↑↓→← : 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.

5-3. THE STANDARD CMOS FEATURES

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

CMOS Setup Utility – Copyright (C) 1984-2001 Award Software
Standard CMOS Features

Date (mm:dd:yy)	Mon, Jan 8 2001	Item Help
Time (hh:mm:ss)	20 : 54 : 9	
▶ IDE Primary Master	[None]	Menu Level ▶ Change the day, month, year and century
▶ IDE Primary Slave	[None]	
▶ IDE Secondary Master	[None]	
▶ IDE Secondary Slave	[None]	
Drive A	[1.44M, 3.5 in.]	
Drive B	[None]	
Video	[EGA/VGA]	
Halt On	[All, But Keyboard]	
Base Memory	640K	
Extended Memory	65472K	
Total Memory	1024K	
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Standard 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. Note that as you highlight each item, the description of the selected item is found on the right side of the screen.

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 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:

CMOS Setup Utility – Copyright (C) 1984-2001 Award Software
IDE Primary Master

IDE HDD Auto-Detection	[Press Enter]	Item Help
IDE Primary Master Access Mode	[Auto] [Auto]	Menu Level ►►
Capacity	37511 MB	To auto-detect the HDD's size, head...on this channel
Cylinder	17956	
Head	16	
Precomp	65535	
Landing Zone	17955	
Sector	255	
↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Table 1 – IDE Primary Master sub menu

Descriptions on each item above are as follows:

1. IDE HDD Auto-detection

Press the enter key to auto-detect the HDD on this channel. If detection is successful, it fills the remaining fields on this menu.

2. IDE Primary Master

There are three available option on this category, namely: None, Auto, and Manual. By selecting “Manual”, you can set the remaining fields on this screen, such as -

- a. Cylinder – Set the number of cylinders for this hard disk.
- b. Head – Set the number of read/write heads.
- c. Precomp - *****Warning!** Setting a value of 65535 means no HDD.
- d. Landing Zone
- e. Sector – Set the number of sector per track

3. Access Mode

There are four available options for this item, namely: Normal, LBA, Large and Auto. Choose the access mode for this hard disk.

4. Capacity

Disk Drive capacity (Approximated). Note that this size is usually slightly greater than the size of a formatted disk given by a disk-checking program.

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 Mono, Color 40, VGA/EGA, and Color 80.

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

5-4. THE ADVANCED BIOS FEATURES

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

CMOS Setup Utility – Copyright (C) 1984-2001 Award Software
Advanced BIOS Features

Virus Warning	[Disabled]	Item Help
CPU Internal Cache	[Enabled]	
External Cache	[Enabled]	
CPU L2 Cache ECC Checking	[Enabled]	Menu Level ▶
Processor Number Feature	[Enabled]	
Quick Power On Self Test	[Enabled]	
First Boot Device	[Floppy]	Allows you to choose
Second Boot Device	[HDD-0]	the VIRUS warning
Third Boot Device	[LS120]	feature for IDE Hard
Boot Other Device	[Enabled]	Disk boot sector
Swap Floppy Drive	[Disabled]	protection. If this
Boot Up Floppy Seek	[Enabled]	function is enabled and
Boot Up NumLock Status	[On]	someone attempt to
Gate A20 Option	[Fast]	write data into this area,
Typematic Rate Setting	[Disabled]	BIOS will show a
X Typematic Rate (Chars/Sec)	6	warning message on
X Typematic Delay (Msec)	250	screen and alarm beep
Security Option	[Setup]	
OS Select for DRAM > 64MB	[Non-OS2]	
Report No FDD for WIN 95	[No]	
Small Logo (EPA) Show	[Disabled]	
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Advanced BIOS Features Setup Screen

The "ADVANCED 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 in the BIOS FEATURES SETUP program is given below.

VIRUS WARNING :

This item allows you to choose the Virus Warning feature for IDE Hard Disk boot sector protection. When this function is enabled, the BIOS will supervise the boot sector and partition table of the hard disk drive for any attempt for modification.

CPU INTERNAL CACHE/EXTERNAL CACHE :

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

CPU L2 CACHE ECC CHECKING :

This item allows you to enable or disable CPU L2 Cache ECC checking.

PROCESSOR NUMBER FEATURE :

This option is for Pentium III processor only. During Enabled, this will check the CPU Serial number. Disabled this option if you don't want the system to know the Serial number.

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 load the operating system in a sequence selected by these items.

SWAP FLOPPY DRIVE:

This field is effective only in systems with two floppy drives. Selecting Enabled assigns physical drive B to logical drive A, and physical drive A to logical drive B.

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. The choices are 6, 8, 10, 12, 15, 20, 24, and 30.


TYPEMATIC DELAY (MSEC):

The item sets the delay time after the key is held down before it begins to repeat the keystroke. The choices are 250, 500, 750, and 1000.

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.

REPORT NO FDD FOR WIN 95 :

Select Yes to release IRQ6 when the system contains no floppy drive, for compatibility with Windows 95 logo certification. In the Integrated Peripherals screen, select Disabled for the Onboard FDC Controller field.

5-5. ADVANCED CHIPSET FEATURES

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

CMOS Setup Utility – Copyright (C) 1984-2001 Award Software
Advanced Chipset Features

SDRAM CAS Latency Time	[3]	Item Help
SDRAM Cycle Time Tras/Trc	[Auto]	
SDRAM RAS-to-CAS Delay	[Auto]	
SDRAM RAS Precharge Time	[Auto]	Menu Level ▶
System BIOS Cacheable	[Disabled]	
Video BIOS Cacheable	[Disabled]	
Memory Hole At 15M-16M	[Disabled]	
CPU Latency Timer	[Enabled]	
Delayed Transaction	[Enabled]	
AGP Graphics Aperture Size	[64MB]	
Display Cache Frequency	[100 MHz]	
System Memory Frequency	[Auto]	
On-Chip Video Window Size	[64MB]	
Onboard Display Cache Setting		
CAS# Latency	[3]	
Paging Mode Control	[Open]	
RAS-to-CAS Override	[By CAS# LT]	
RAS# Timing	[Fast]	
RAS# Precharge Timing	[Fast]	
I/O Channel Check 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		

Advanced Chipset Features Setup

The parameters in this setup screen are for system designers, service personnel, and technically competent users only. Do not reset these values unless you understand the consequences of your changes.

SDRAM CAS LATENCY TIME:

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

SDRAM CYCLE TIME TRAS/TRC:

This item set the number of SCLKs for an access cycle.

SDRAM 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.

SDRAM 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.

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 15M-16M:

You may 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.

DELAY TRANSACTION:

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

AGP GRAPHIC APERTURE SIZE:

The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation.

ON-CHIP VIDEO WINDOW SIZE:

Select the on-chip video window size for VGA drive use. The available choices are 32MB, 64MB, and Disabled.

CAS# LATENCY:

Select the local memory clock periods. The choices are 2 & 3.

PAGING MODE CONTROL:

Select the paging mode control. The choices are Fast and Slow.

RAS-TO-CAS OVERRIDE:

Select the display cache clock periods control. The choices are Fast and Slow.

RAS# TIMING:

This item controls RAS# active to Protegra, and refresh to RAS# active delay (in local memory clocks). The choices are Fast and Slow.

RAS# PRECHARGE TIMING:

This item controls RAS# precharge (in local memory clocks). The available choices are Fast and Slow.

IO CHANNEL CHECK NMI:

This field enable or disable IO channel check NMI. Before selecting this function, the user should check first that NMI function is enabled as described in chapter 2 (Reset/NMI/Clear Watchdog Selection)

5-6. INTEGRATED PERIPHERALS

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

CMOS Setup Utility – Copyright (C) 1984-2001 Award Software
Integrated Peripherals

On-Chip Primary PCI IDE	[Enabled]	Item Help
On-Chip Secondary PCI IDE	[Enabled]	
IDE Primary Master PIO	[Auto]	Menu Level ▶
IDE Primary Slave PIO	[Auto]	
IDE Secondary Master PIO	[Auto]	
IDE Secondary Slave PIO	[Auto]	
IDE Primary Master UDMA	[Auto]	
IDE Primary Slave UDMA	[Auto]	
IDE Secondary Master UDMA	[Auto]	
IDE Secondary Slave UDMA	[Auto]	
USB Controller	[Enabled]	
USB Keyboard Support	[Disabled]	
USB Mouse Support	[Disabled]	
Init Display First	[PCI Slot]	
AC97 Audio	[Auto]	
IDE HDD Block Mode	[Enabled]	
Onboard FDC Controller	[Enabled]	
Onboard Serial Port 1	[3F8/IRQ4]	
Onboard Serial Port 2	[2F8/IRQ3]	
UART Mode Select	[Normal]	
UR2 Duplex Mode	[Half]	
Onboard Parallel Port	[378/IRQ7]	
Parallel Port Mode	[SPP]	
ECP Mode Use DMA	[3]	
PWRON after PWR-Fail	[Off]	
Onboard Serial Port 3	[3E8H]	
Serial Port 3 Use IRQ	[IRQ10]	
Onboard Serial Port 4	[2E8H]	
Serial Port 4 Use IRQ	[IRQ11]	
Onboard Parallel Port 2	[278H]	
Parallel Port 2 Use IRQ	[IRQ7]	
Parallel Port 2 Mode	[Normal]	
X LPT2 ECP Mode Use DMA	3	
↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

INTEGRATED PERIPHERALS

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

ON-CHIP PRIMARY PCI IDE

ON-CHIP SECONDARY PCI IDE:

The Integrated peripheral controller contains an IDE interface with support for two IDE channels. Select Enabled to activate each channel separately.

IDE PRIMARY MASTER/SLAVE PIO:

IDE 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.

IDE PRIMARY MASTER/SLAVE UDMA:

IDE SECONDARY MASTER/SLAVE UDMA:

UDMA (Ultra DMA) is a DMA data transfer protocol, that utilizes ATA commands and the ATA bus to allow DMA commands to transfer data at a maximum burst rate of 33 MB/s. The implementation of UDMA 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.

USB CONTROLLER:

Select enabled if the system contains a Universal Serial Bus (USB) controller and you have USB peripherals.

USB KEYBOARD SUPPORT:

Select enabled if the system contains a Universal Serial Bus (USB) controller and you have a USB Keyboard.

USB MOUSE SUPPORT:

Select enabled if the system contains a Universal Serial Bus (USB) controller and you have a USB Mouse.

INIT DISPLAY FIRST:

This item allows you to decide to active whether PCI Slot or on-chip VGA first.

AC97 AUDIO:

This item allows you to decide to enable or disable the 810 chipset family to support AC97 Audio.

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 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.

ONBOARD SERIAL PORT 1

ONBOARD SERIAL PORT 2:

Select an address and corresponding interrupt for the first and second serial ports.

UART MODE SELECT:

Select an operating mode for the second serial port. The choices are IrDA, Normal and ASK IR.

UR2 DUPLEX MODE:

This item allows you to select the IR half/full duplex function.

ONBOARD PARALLEL PORT:

ONBOARD PARALLEL PORT 2:

This field determine access onboard parallel port controller with which I/O address.

PARALLEL PORT MODE:

Select an operating mode for the onboard parallel port. The available choices are *SPP*, *EPP*, *ECP*, or *ECP+EPA* modes.

PARALLEL PORT 2 MODE:

Select an operating mode for the onboard parallel port. The available choices are *Normal*, *EPP*, *ECP*, or *ECP+EPA* modes.

ECP MODE USE DMA:

This item allows you to configure the parallel port DMA channel for the selected ECP mode. This selection is only available when ECP or ECP+EPP is selected in *Parallel Port mode*.

PWRON AFTER PWR-FAIL:

This item allows you to select if you want to power on the system after power failure.

ONBOARD SERIAL PORT 3:

ONBOARD SERIAL PORT 4:

Select a logical COM port name and matching address for the third and fourth serial ports. Select an address and corresponding interrupt for third and fourth serial port.

PARALLEL PORT 2 USE IRQ:

This item sets the IRQ address of the second parallel port.

5-7. POWER MANAGEMENT SETUP

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

CMOS Setup Utility – Copyright (C) 1984-2001 Award Software
Power Management Setup

ACPI Function	[Enabled]	Item Help
ACPI Suspend Type	[S1(POS)]	
Power Management	[User Define]	Menu Level ▶
Video Off Method	[DPMS]	
Video Off In Suspend	[Yes]	
Suspend Type	[Stop Grant]	
MODEM Use IRQ	[NA]	
Suspend Mode	[Disabled]	
HDD Power Down	[Disabled]	
Soft-Off by PWR-BTTN	[Instant-Off]	
Wake-Up by PCI card	[Disabled]	
Power On by Ring	[Enabled]	
USB KB Wake-up from S3	[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]	
PCI PIRQ[A-D]#	[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:

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

POWER MANAGEMENT:

This item allows the user to select the type or degree of power saving and is directly related to the following modes:

- a. HDD Power Down
- b. Suspend Mode

VIDEO OFF METHOD:

This category determines the manner in which the monitor is blanked.

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

VIDEO OFF IN SUSPEND:

This field determines the manner in which the monitor is blanked.

SUSPEND TYPE:

Select the Suspend type. The choices are PWRON Suspend and Stop Grant.

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.

HDD POWER DOWN:

When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

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 on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) awakens the system from the soft-off state.

POWER ON BY RING:

When enabled, the computer will power-up when the modem receives a call while the computer is in Soft-Off mode.

USB KB WAKE-UP FROM S3:

This item will enable you to wake-up the system by USB keyboard when you shut down the computer in S3 mode.

RESUME BY ALARM:

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

PM EVENTS:

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

- | | |
|----------------------|-------------------|
| ❶ Primary IDE 0 | ❷ Primary IDE 1 |
| ❸ Secondary IDE 0 | ❹ Secondary IDE 1 |
| ❺ FDD, COM, LPT Port | ❻ PCI PIRQ[A-D]# |

5-8. PNP/PCI CONFIGURATION

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

CMOS Setup Utility – Copyright (C) 1984-2001 Award Software
PnP/PCI Configurations

PNP OS Installed	[No]	Item Help
Reset Configuration Data	[Disabled]	
Resources Controlled By	[Auto(ESCD)]	Menu Level ►
X IRQ Resources	Press Enter	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
X DMA Resources	Press Enter	
PCI/VGA Palette Snoop	[Disabled]	
↑↓→←: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

This section 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.

PNP OS INSTALLED:

This item allows you to determine install PnP OS or not.

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 can not 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*, *DMA Resources* and *Memory Resources*. The choices are Auto(ESCD) and Manual.

IRQ RESOURCES:

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

IRQ3/4/5/7/9/10/11/12/14/15 ASSIGNED TO:

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

DMA RESOURCES:

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

DMA 0/1/3/5/6/7 ASSIGNED TO:

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.

PCI/VGA PALETTE SNOOP:

Leave this field at disabled.

5-9. PC HEALTH STATUS

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

CMOS Setup Utility – Copyright (C) 1984-2001 Award Software
PC Health Status

Shutdown Temperature	[60C/140F]	Item Help
Voltage 0		Menu Level ▶
Voltage 1		
Voltage 2		
Voltage 3		
Voltage 4		
Voltage 5		
Voltage 6		
Voltage 7		
Voltage Battery		
Temperature 1		
Fan 1 Speed		
↑↓→←: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

SHUTDOWN TEMPERATURE:

User is allowed to set the temperature on which the system automatically shutdown when reaches or exceeds the temperature set.

5-10. FREQUENCY/VOLTAGE CONTROL

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

CMOS Setup Utility – Copyright (C) 1984-2001 Award Software
Frequency/Voltage Control

Auto Detect DIMM/PCI Clk	[Enabled]	Item Help
Spread Spectrum	[Disabled]	
CPU Host/PCI Clock/PC133	[Default]	
CPU Clock Ratio	[X 3]	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

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

AUTO DETECT DIMM/PCI CLK:

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

SPREAD SPECTRUM:

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

CPU HOST / PCI CLOCK / PC133:

Select Default or select a timing combination for the CPU and the PCI bus. When set to Default, the BIOS uses the actual CPU and PCI bus clock values.

CPU CLOCK RATIO:

This item allows you to select the CPU ratio.

5-11. 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.

5-12. 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.

5-13. 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

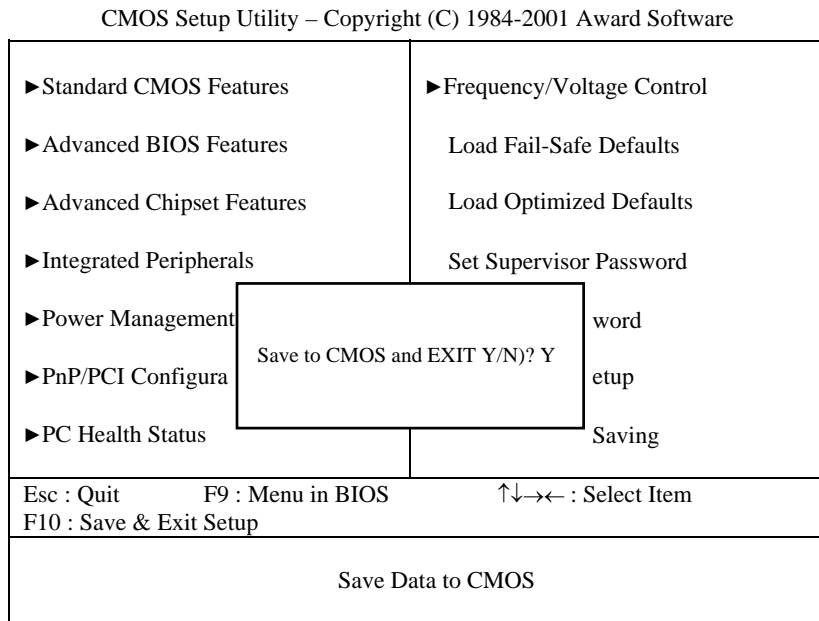
To disable the password, select this function (do not enter any key when you are prompt to enter a password), and press the <Enter> key and a message will appear at the center of the screen:

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.

5-14. SAVE & EXIT SETUP

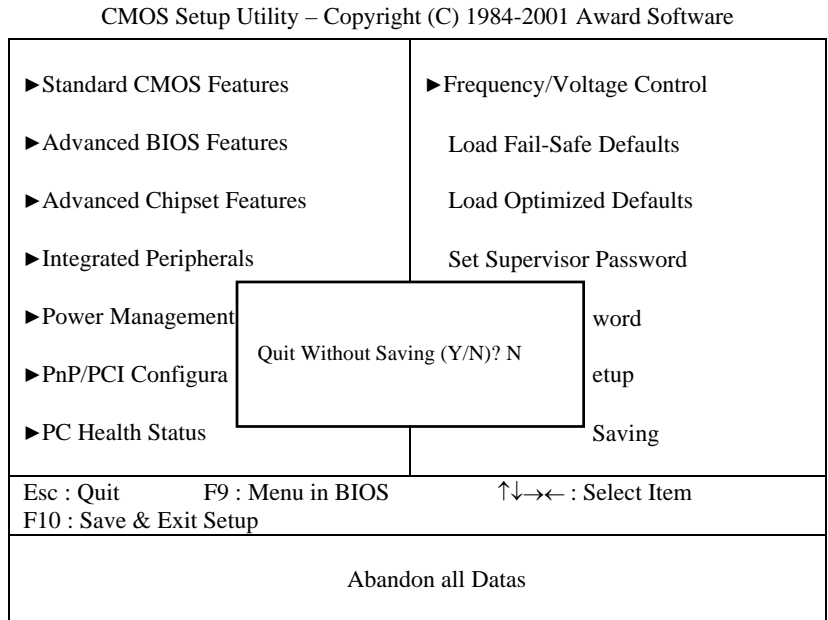
After you have completed adjusting all the settings as required, you must remember to save these setting into the CMOS RAM. To save the settings, select “SAVE & EXIT SETUP” and press <Enter>, a display will be shown as follows:



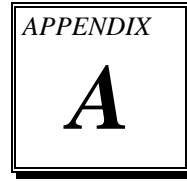
When you confirm that you wish to save the settings, your system will be automatically restarted and the changes you have made will be implemented. You may always call up the setup program at any time to adjust any of the individual items by pressing the key during boot up.

5-14. 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



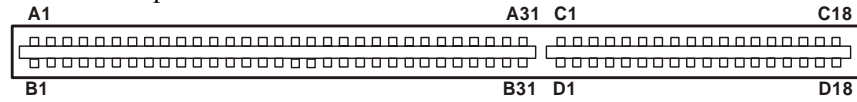
This appendix indicates the pin assignments.

Section includes:

- ISA BUS Pin Assignment
- PCI BUS Pin Assignment

ISA BUS PIN ASSIGNMENT

The ISA-bus connector is divided into two sets : one consists of 62 pins; the other consists of 36 pins.



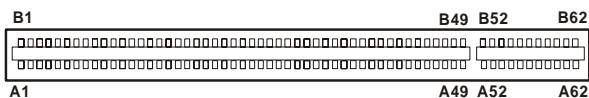
The pin assignments as follows :

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				

PCI BUS PIN ASSIGNMENT

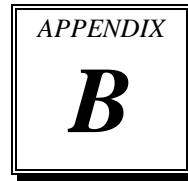
Like ISA-BUS connector, the PCI-BUS edge connector is also divided into two sets: one consists of 98-pin; the other consists of 22-pin.

The pin assignments are as follows :



B		A		B		A	
PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT
B1	-12V	A1	TRST#	B31	+3.3V	A31	AD18
B2	TCK	A2	+12V	B32	AD17	A32	AD16
B3	GND	A3	TMS	B33	C/BE2#	A33	+3.3V
B4	TDO	A4	TDI	B34	GND	A34	FRAME#
B5	+5V	A5	+5V	B35	IRDY#	A35	GND
B6	+5V	A6	INTA#	B36	+3.3V	A36	TRDY#
B7	INTB#	A7	INTC#	B37	DEVSEL#	A37	GND
B8	INTD#	A8	+5V	B38	GND	A38	STOP#
B9	REQ3#	A9	CLKC	B39	LOCK#	A39	+3.3V
B10	REQ1#	A10	+5V(I/O)	B40	PERR#	A40	SDONE
B11	GNT3#	A11	CLKD	B41	+3.3V	A41	SB0#
B12	GND	A12	GND	B42	SERR#	A42	GND
B13	GND	A13	GND	B43	+3.3V	A43	PAR
B14	CLKA	A14	GNT1#	B44	C/BE1#	A44	AD15
B15	GND	A15	RST#	B45	AD14	A45	+3.3V
B16	CLKB	A16	+5V(I/O)	B46	GND	A46	AD13
B17	GND	A17	GNT0#	B47	AD12	A47	AD11
B18	REQ0#	A18	GND	B48	AD10	A48	GND
B19	+5V(I/O)	A19	REQ2#	B49	GND	A49	AD09
B20	AD31	A20	AD30	B52	AD08	A52	C/BE0#
B21	AD29	A21	+3.3V	B53	AD07	A53	+3.3V
B22	GND	A22	AD28	B54	+3.3V	A54	AD06
B23	AD27	A23	AD26	B55	AD05	A55	AD04
B24	AD25	A24	GND	B56	AD03	A56	GND
B25	+3.3V	A25	AD24	B57	GND	A57	AD02
B26	C/BE3#	A26	GNT2#	B58	AD01	A58	AD00
B27	AD23	A27	+3.3V	B59	+5V(I/O)	A59	+5V(I/O)
B28	GND	A28	AD22	B60	ACK64#	A60	REQ64#
B29	AD21	A29	AD20	B61	+5V	A61	+5V
B30	AD19	A30	GND	B62	+5V	A62	+5V

TECHNICAL SUMMARY

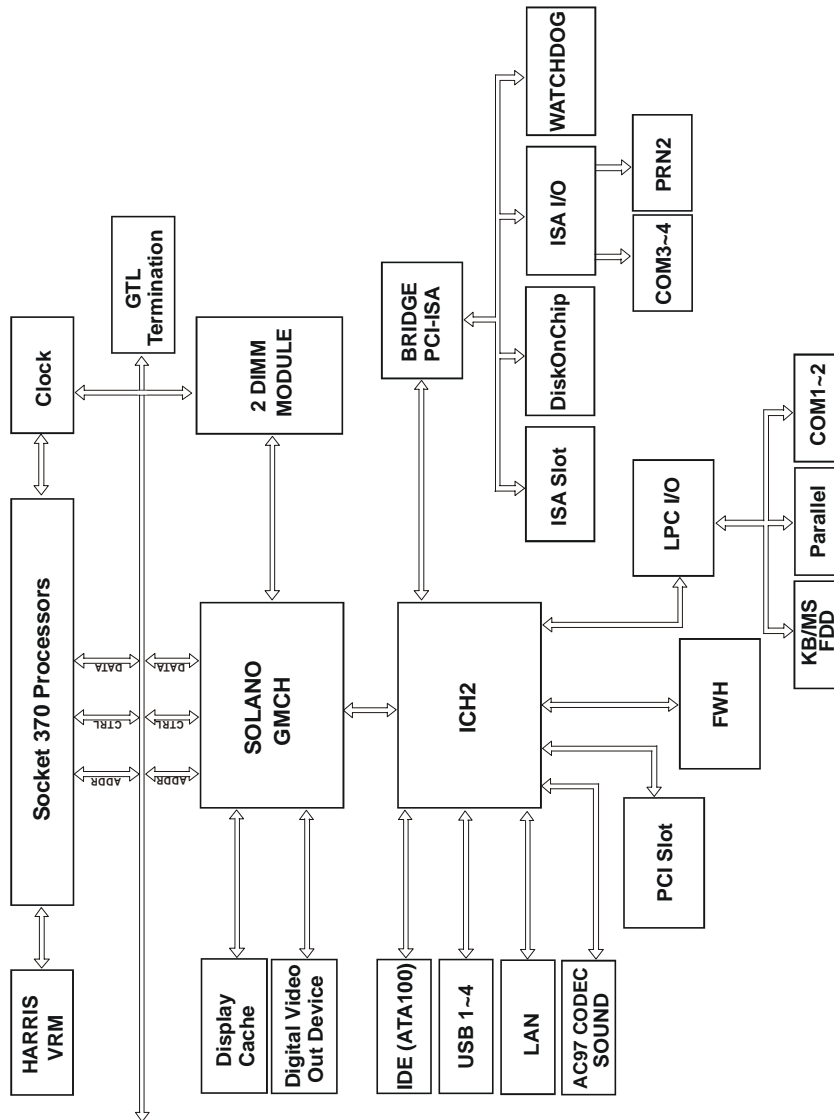


This section introduce you the maps concisely.

Sections include:

- Block Diagram
- Interrupt Map
- RTC (Standard) RAM Bank
- Timer & DMA Channels Map
- I / O & Memory Map

BLOCK DIAGRAM



INTERRUPT MAP

IRQ	ASSIGNMENT
0	System TIMER interrupt from TIMER-0
1	Keyboard output buffer full
2	Cascade for IRQ 8-15
3	Serial port 2
4	Serial port 1
5	Parallel Port 2
6	Floppy Disk adapter
7	Parallel port 1
8	RTC clock
9	Available
10	Serial port 3
11	Serial port 4
12	Available
13	Math coprocessor
14	Hard Disk adapter
15	Available

RTC (STANDARD) RAM BANK

CODE	ASSIGNMENT
00h	Seconds
01h	Second alarm
02h	Minutes
03h	Minutes alarm
04h	Hours
05h	Hours alarm
06h	Day of week
07h	Day of month
08h	Month
09h	Year
0Ah	Status register A
0Bh	Status register B
0Ch	Status register C
0Dh	Status register D
0Eh-7Fh	114 Bytes of User RAM

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 Disk adapter
3	Available
4	Cascade
5	Available
6	Available
7	Available

I/O & MEMORY MAP**Fixed I/O Ranges Decoded by ICH2 :**

I/O Address	Read Target	Write Target	Internal Unit
00h-08h	DMA Controller	DMA Controller	DMA
09h-0Eh	Reserved	DMA Controller	DMA
0Fh	DMA Controller	DMA Controller	DMA
10h-18h	DMA Controller	DMA Controller	DMA
19h-1Eh	Reserved	DMA Controller	DMA
1Fh	DMA Controller	DMA Controller	DMA
20h-21h	Interrupt Controller	Interrupt Controller	Interrupt
24h-25h	Interrupt Controller	Interrupt Controller	Interrupt
28h-29h	Interrupt Controller	Interrupt Controller	Interrupt
2Ch-2Dh	Interrupt Controller	Interrupt Controller	Interrupt
2Eh-2Fh	LPC SIO	LPC SIO	Forwarder to LPC
30h-31h	Interrupt Controller	Interrupt Controller	Interrupt
34h-35h	Interrupt Controller	Interrupt Controller	Interrupt
38h-39h	Interrupt Controller	Interrupt Controller	Interrupt
3Ch-3Dh	Interrupt Controller	Interrupt Controller	Interrupt
40h-42h	Timer/Counter	Timer/Counter	PIT (8254)
43h	Reserved	Timer/Counter	PIT
4E-4F	LPC SIO	LPC SIO	Forwarder to LPC
50h-52h	Timer/Counter	Timer/Counter	PIT
53h	Reserved	Timer/Counter	PIT
60h	Microcontroller	Microcontroller	Forwarder to LPC
61h	NMI Controller	NMI Controller	Processor I/F
62h	Microcontroller	Microcontroller	Forwarder to LPC
63h	NMI Controller	NMI Controller	Processor I/F
64h	Microcontroller	Microcontroller	Forwarder to LPC
65h	NMI Controller	NMI Controller	Processor I/F
66h	Microcontroller	Microcontroller	Forwarder to LPC
67h	NMI Controller	NMI Controller	Processor I/F
70h	Reserved ⁵	NMI & RTC controller	RTC
71h	RTC Controller	RTC Controller	RTC
72h	RTC Controller	NMI & RTC controller	RTC
73h	RTC Controller	RTC Controller	RTC
74h	RTC Controller	NMI & RTC controller	RTC
75h	RTC Controller	RTC Controller	RTC
76h	RTC Controller	NMI & RTC controller	RTC
77h	RTC Controller	RTC Controller	RTC

I/O Address	Read Target	Write Target	Internal Unit
80h	DMA Controller	DMA controller & LPC/PCI	DMA
81h-83h	DMA Controller	DMA Controller	DMA
84h-86h	DMA Controller	DMA Controller & LPC or PCI	DMA
87h	DMA Controller	DMA Controller	DMA
88h	DMA Controller	DMA Controller & LPC or PCI	DMA
89h-8Bh	DMA Controller	DMA Controller	DMA
8Ch-8Eh	DMA Controller	DMA Controller & LPC or PCI	DMA
08Fh	DMA Controller	DMA Controller	DMA
90h-91h	DMA Controller	DMA Controller	DMA
92h	Reset Generator	Reset Generator	Processor I/F
93h-9Fh	DMA Controller	DMA Controller	DMA
A0h-A1h	Interrupt Controller	Interrupt Controller	Interrupt
A4h-A5h	Interrupt Controller	Interrupt Controller	Interrupt
A8h-A9h	Interrupt Controller	Interrupt Controller	Interrupt
ACh-ADh	Interrupt Controller	Interrupt Controller	Interrupt
B0h-B1h	Interrupt Controller	Interrupt Controller	Interrupt
B2h-B3h	Power Management	Power Management	Power Management
B4h-B5h	Interrupt Controller	Interrupt Controller	Interrupt
B8h-B9h	Interrupt Controller	Interrupt Controller	Interrupt
BCh-BDh	Interrupt Controller	Interrupt Controller	Interrupt
C0h-D1h	DMA Controller	DMA Controller	DMA
D2h-DDh	Reserved	DMA Controller	DMA
DEh-DFh	DMA Controller	DMA Controller	DMA
F0h	See Note 3	FERR# /IGNNE#/ Interrupt Controller	Processor interface
170h-177h	IDE Controller ¹	IDE Controller ¹	Forwarded to IDE
1F0h-1F7h	IDE Controller ²	IDE Controller ²	Forwarded to IDE
376h	IDE Controller ¹	IDE Controller ¹	Forwarded to IDE
3F6h	IDE Controller ²	IDE Controller ²	Forwarded to IDE
4D0h-4D1h	Interrupt Controller	Interrupt Controller	Interrupt
CF9h	Reset Generator	Reset Generator	Processor interface

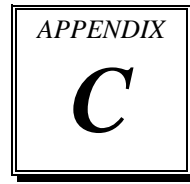
Notes:

1. Only if IDE Standard I/O space is enabled for Primary Drive. Otherwise, the target is PCI.
2. Only if IDE Standard I/O space is enabled for Secondary Drive. Otherwise, the target is PCI.
3. If POS_DEC_EN bit is enabled, reads from F0h will not be decoded by the ICH2. If POS_DEC_EN is not enabled, reads from F0h will forward to LPC.

Memory Decode Ranges From Processor Perspective :

Memory Range	Target	Dependency/Comments
0000 0000h-000D FFFFh 0010 0000-TOM (Top of Memory)	Main Memory	TOM registers in Host Controller
000E 0000h-000F FFFFh	FWH	Bit 7 in FWH Decode Enable Register is set
FEC0 0000h-FEC0 0100h	I/O APIC inside ICH2	
FFC0 0000h-FFC7 FFFFh FF80 0000h-FF87 FFFFh	FWH	Bit 0 in FWH Decode Enable Register
FFC8 0000h-FFCF FFFFh FF88 0000h-FF8F FFFFh	FWH	Bit 1 in FWH Decode Enable Register
FFD0 0000h-FFD7 FFFFh FF90 0000h-FF97 FFFFh	FWH	Bit 2 in FWH Decode Enable Register is set
FFD8 0000h-FFDF FFFFh FF98 0000h-FF9F FFFFh	FWH	Bit 3 in FWH Decode Enable Register is set
FFE0 0000h-FFE7 FFFFh FFA0 0000h-FFA7 FFFFh	FWH	Bit 4 in FWH Decode Enable Register is set
FFE8 0000h-FEF7 FFFFh FFA8 0000h-FFAF FFFFh	FWH	Bit 5 in FWH Decode Enable Register is set
FFF0 0000h-FFF7 FFFFh FFB0 0000h-FFB7 FFFFh	FWH	Bit 6 in FWH Decode Enable Register is set
FFF8 0000h-FFFF FFFFh FFB8 0000h-FFBF FFFFh	FWH	Always Enabled. The top two 64K blocks of this range can be swapped as described in Section 6.4.1.
FF70 0000h-FF7F FFFFh FF30 0000h-FF3F FFFFh	FWH	Bit 3 in FWH Decode Enable 2 Register is set
FF60 0000h-FF6F FFFFh FF20 0000h-FF2F FFFFh	FWH	Bit 2 in FWH Decode Enable 2 Register is set
FF50 0000h-FF5F FFFFh FF10 0000h-FF1F FFFFh	FWH	Bit 1 in FWH Decode Enable 2 Register is set
FF40 0000h-FF4F FFFFh FF00 0000h-FF0F FFFFh	FWH	Bit 0 in FWH Decode Enable 2 Register is set
Anywhere in 4GB range	D110 LAN Controller	Enable via BAR in Device 29:Function 0 (D110 LAN Controller)
All Other	PCI	None

TROUBLE SHOOTING



This section outlines the error messages that may occur when you operate the system. It also gives you the suggestions on solving the problems.

Section includes:

- Trouble Shooting for Error Messages
- Trouble Shooting for POST Code

TROUBLE SHOOTING FOR ERROR MESSAGES

The following information gives you the error messages and the trouble-shooting. Please adjust your systems according to the messages below. And make sure all the components and connectors are in proper position and firmly attached. If the errors still encountered, please contact with your distributor for maintenance.

POST BEEP :

Currently there are two kinds of beep codes in BIOS. One code indicates that a video error has occurred and the BIOS cannot initialize the video screen to display any additional information. This beep code consists of a single long beep followed by two short beeps. The other code indicates that your DRAM error has occurred. This beep code consists of a single long beep repeatedly.

CMOS BATTERY HAS FAILED :

This message informs you that the CMOS battery is no longer functional. The user should replace it.

CMOS CHECKSUM ERROR :

This message informs you that the CMOS is incorrect. This error may have caused by a weak battery. Check the battery and replace if necessary.

DISK BOOT FAILURE, INSERT SYSTEM DISK AND PRESS ENTER :

No boot device was found. This could mean that either a boot drive was not detected or the drive does not contain proper system boot files. Insert a system disk into Drive A: and press < Enter >. If you assumed the system would boot from the hard drive, make sure the controller is inserted correctly and all cables are properly attached. Also make sure the disk is formatted as a boot device. Then reboot the system.

DISKETTE DRIVES OR TYPES MISMATCH ERROR - RUN SETUP :

Type of diskette drive installed in the system is different from the CMOS definition. Run Setup to reconfigure the drive type correctly.

DISPLAY SWITCH IS SET INCORRECTLY :

Display switch on the motherboard can be set to either monochrome or color. This indicates the switch is set to a different setting than indicated in Setup. Determine which setting is correct, and then either turn off the system and change the jumper, or enter Setup and change the VIDEO selection.

DISPLAY TYPE HAS CHANGED SINCE LAST BOOT :

Since last powering off the system, the display adapter has been changed. You must configure the system for the new display type.

**EISA CONFIGURATION CHECKSUM ERROR
PLEASE RUN EISA CONFIGURATION UTILITY :**

The EISA non-volatile RAM checksum is incorrect or cannot correctly read the EISA slot. This can indicate either the EISA non-volatile memory has become corrupt or the slot has been configured incorrectly. Also be sure the card is installed firmly in the slot.

**EISA CONFIGURATION IS NOT COMPLETE
PLEASE RUN EISA CONFIGURATION UTILITY :**

The slot configure information stored in the EISA non-volatile memory is incomplete.

Note: When either of these errors appear, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

ERROR ENCOUNTERED INITIALIZING HARD DRIVE :

Hard drive cannot be initialized. Be sure the adapter is installed correctly and all cables are correctly and firmly attached. Also be sure the correct hard drive type is selected in Setup.

ERROR INITIALIZING HARD DISK CONTROLLER :

Cannot initialize controller. Make sure the cord is correctly and firmly installed in the bus. Be sure the correct hard drive is selected in Setup. Also check to see if any jumper needs to be set correctly on the hard drive.

FLOPPY DISK CNTRLR ERROR OR NO CNTRLR PRESENT :

Cannot find or initialize the floppy drive controller. Make sure the controller is installed correctly and firmly. If there are no floppy drives installed, be sure the Diskette Drive selection in Setup is set to NONE.

INVALID EISA CONFIGURATION

PLEASE RUN EISA CONFIGURATION UTILITY :

The non-volatile memory containing EISA configuration information was programmed incorrectly or has become corrupt. Re-run EISA configuration utility to correctly program the memory.

Note: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

KEYBOARD ERROR OR NO KEYBOARD PRESENT :

Cannot initialize the keyboard. Make sure that the keyboard is properly attached and no keys being pressed during the boot.

If you are purposely configuring the system without a keyboard, set the error halt condition in Setup to HALT ON ALL, BUT KEYBOARD. This will cause the BIOS to ignore the missing keyboard and continue the boot.

MEMORY ADDRESS ERROR AT ... :

Indicates a memory address error at a specific location. You can use this location along with the memory map for your system to find and replace the bad memory chips.

MEMORY PARITY ERROR AT ... :

Indicates a memory parity error at a specific location. You can use this location along with the memory map for your system to find and replace the bad memory chips.

MEMORY SIZE HAS CHANGED SINCE LAST BOOT :

Memory has been added or removed since the last boot. In EISA mode use Configuration Utility to reconfigure the memory configuration. In ISA mode enter Setup and enter the new memory size in the memory fields.

MEMORY VERIFY ERROR AT ... :

Indicates an error verifying a value already written to memory. Use the location along with your system's memory map to locate the bad chip.

OFFENDING ADDRESS NOT FOUND :

This message is used in conjunction with the I/O CHANNEL CHECK and RAM PARITY ERROR messages when the segment that has caused the problem cannot be isolated.

OFFENDING SEGMENT :

This message is used in conjunction with the I/O CHANNEL CHECK and RAM PARITY ERROR messages when the segment that has caused the problem has been isolated.

PRESS A KEY TO REBOOT :

This will be displayed at the bottom screen when an error occurs that requires you to reboot. Press any key and the system will reboot.

PRESS F1 TO DISABLE NMI, F2 TO REBOOT :

When BIOS detects a Non-maskable Interrupt condition during boot, this will allow you to disable the NMI and continue to boot, or you can reboot the system with the NMI enabled.

RAM PARITY ERROR – CHECKING FOR SEGMENT :

Indicates a parity error in Random Access Memory.

Should be Empty But EISA Board Found

PLEASE RUN EISA CONFIGURATION UTILITY :

A valid board ID was found in a slot that was configured as having no board ID.

Note: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

Should Have EISA Board But Not Found

PLEASE RUN EISA CONFIGURATION UTILITY :

The board installed is not responding to the ID request, or no board ID has been found in the indicated slot.

Note: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

Slot Not Empty :

Indicates that a slot designated as empty by the EISA Configuration Utility actually contains a board.

SYSTEM HALTED, (CTRL-ALT-DEL) TO REBOOT :

Indicates the present boot attempt has been aborted and the system must be rebooted. Press and hold down the CTRL and ALT keys and press DEL.

Wrong Board in Slot

PLEASE RUN EISA CONFIGURATION UTILITY :

The board ID does not match the ID stored in the EISA non-volatile memory.

Note: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

FLOPPY DISK(S) FAIL (80) :

Unable to reset floppy subsystem.

FLOPPY DISK(S) FAIL (40) :

Floppy type mismatch.

Hard Disk(S) Fail (80) :

Hard Disk Drive reset failed.

Hard Disk(S) Fail (40) :

Hard Disk Drive controller diagnostics failed.

Hard Disk(S) Fail (20) :

Hard Disk Drive initialization error.

Hard Disk(S) Fail (10) :

Unable to recalibrate fixed disk.

Hard Disk(S) Fail (08) :

Sector Verify failed.

Keyboard is locked out – Unlock the key :

BIOS detect the keyboard is locked. P17 of keyboard controller is pulled low.

Keyboard error or no keyboard present :

Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are being pressed during the boot.

Manufacturing POST loop :

System will repeat POST procedure infinitely while the P15 of keyboard controller is pull low. This is also used for M/B burn in test.

BIOS ROM checksum error – System halted :

The checksum of ROM address F0000H-FFFFFFH is bad.

Memory test fail :

BIOS reports the memory test fail if the onboard memory is tested error.

TROUBLE SHOOTING FOR POST CODES

The lists below indicate you the post codes. Please follow the instruction to adjust your system. If the error still occurred, please contact with your distributor for maintenance.

- CFh** : Test CMOS R/W functionality.
- C0h** : Early chipset initialization
 - Disable shadow RAM
 - Disable L2 cache (socket 7 or below)
 - Program basic chipset registers
- C1h** : Detect memory
 - Auto-detection of DRAM size, type and ECC
 - Auto-detection of L2 cache (socket 7 or below)
- C3h** : Expand compressed BIOS code to DRAM.
- C5h** : Call chipset hook to copy BIOS block to E000 & F000 shadow RAM.
- 0h1** : Expand the Xgroup codes locating in physical address 1000:0
- 02h** : Reserved.
- 03h** : Initial Superio_Early_Init switch.
- 04h** : Reserved.
- 05h** :
 1. Blank out screen
 2. Clear CMOS error flag
- 06h** : Reserved
- 07h** :
 1. Clear 8042 interface
 2. Initialize 8042 self-test

- 08h** :
 - 1. Test special keyboard controller for Winbond 977 series Super I/O Chips.
 - 2. Enable keyboard interface.

- 09h** : Reserved

- 0Ah** :
 - 1. Disable PS/2 mouse interface (optional)
 - 2. Auto detect ports for keyboard & mouse followed by a port & interface swap (optional).
 - 3. Reset keyboard for Winbond 977 series Super I/O chips.

- 0Bh** : Reserved

- 0Ch** : Reserved

- 0Dh** : Reserved

- 0Eh** : Test F000h segment shadow to see whether it is R/W-able or not. If test fails, keep beeping the speaker.

- 0Fh** : Reserved

- 10h** : Auto detect flash type to load appropriate flash R/W codes into the run time area in F000 for ESCD and DMI support.

- 11h** : Reserved

- 12h** : Use walking 1's algorithm to check out interface in CMOS circuitry. Also set real-time clock power status, and then check for override.

- 13h** : Reserved

- 14h** : Program chipset default values into chipset. Chipset default values are MODBINable by OEM customers.

- 15h** : Reserved

- 16h** : Initial Early_Init_Onboard_Generator switch.

- 17h** : Reserved
- 18h** : Detect CPU information including brand, SMI type (Cyrilx or Intel) and CPU level (586 or 686).
- 19h** : Reserved
- 1Ah** : Reserved
- 1Bh** : Initial interrupts vector table. If no special specified, all H/W interrupts are directed to SPURIOUS_INIT_HDLR & S/W interrupts to SPURIOUS_soft_HDLR.
- 1Ch** : Reserved
- 1Dh** : Initial EARLY_PM_INIT switch
- 1Eh** : Reserved
- 1Fh** : Load keyboard matrix (notebook platform)
- 20h** : Reserved
- 21h** : HPM initialization (notebook platform)
- 22h** : Reserved
- 23h** :
 1. Check validity of RTC value:
e.g. a value of 5Ah is an invalid value for RTC minute.
 2. Load CMOS settings into BIOS stack. If CMOS checksum fails, use default value instead.
 3. Prepare BIOS resource map for PCI & PnP use. If ESCD is valid, take into consideration of the ESCD's legacy information.
 4. Onboard clock generator initialization. Disable respective clock resource to empty PCI & DIMM slots.
 5. Early PCI initialization:
 - Enumerate PCI bus number
 - Assign memory & I/O resource
 - Search for a valid VGA device & VGA BIOS, and put it into C000:0.

- 24h** : Reserved
- 25h** : Reserved
- 26h** : Reserved
- 27h** : Initialize INT 09 buffer
- 28h** : Reserved
- 29h** :
 1. Program CPU internal mtrr (P6 & PII) for 0-640K memory address.
 2. Initialize the APIC for Pentium class CPU.
 3. Program early chipset according to CMOS setup.
Example: onboard IDE controller.
 4. Measure CPU speed.
 5. Invoke video BIOS.
- 2Ah** : Reserved
- 2Bh** : Reserved
- 2Ch** : Reserved
- 2Dh** :
 1. Initialize multi-language
 2. Put information on screen display, including Award title, CPU type, CPU speed ...
- 2Eh** : Reserved
- 2Fh** : Reserved
- 30h** : Reserved
- 31h** : Reserved
- 32h** : Reserved
- 33h** : Reset keyboard except Winbond 977 series Super I/O chips.

- 34h** : Reserved
- 35h** : Reserved
- 36h** : Reserved
- 37h** : Reserved
- 38h** : Reserved
- 39h** : Reserved
- 3Ah** : Reserved
- 3Bh** : Reserved
- 3Ch** : Test 8254
- 3Dh** : Reserved
- 3Eh** : Test 8259 interrupt mask bits for channel 1.
- 3Fh** : Reserved
- 40h** : Test 8259 interrupt mask bits for channel 2.
- 41h** : Reserved
- 42h** : Reserved
- 43h** : Test 8259 functionality.
- 44h** : Reserved
- 45h** : Reserved
- 46h** : Reserved
- 47h** : Initialize EISA slot

- 48h** : Reserved
- 49h** :
 - 1. Calculate total memory by testing the last double word of each 64K page.
 - 2. Program writes allocation for AMD K5 CPU.
- 4Ah** : Reserved
- 4Bh** : Reserved
- 4Ch** : Reserved
- 4Dh** : Reserved
- 4Eh** :
 - 1. Program MTRR of M1 CPU
 - 2. Initialize L2 cache for P6 class CPU & program CPU with proper cacheable range.
 - 3. Initialize the APIC for P6 class CPU.
 - 4. On MP platform, adjust the cacheable range to smaller one in case the cacheable ranges between each CPU are not identical.
- 4Fh** : Reserved
- 50h** : Initialize USB
- 51h** : Reserved
- 52h** : Test all memory (clear all extended memory to 0)
- 53h** : Reserved
- 54h** : Reserved
- 55h** : Display number of processors (multi-processor platform)
- 56h** : Reserved
- 57h** :
 - 1. Display PnP logo
 - 2. Early ISA PnP initialization
 - Assign CSN to every PnP device.

- 58h** : Reserved
- 59h** : Initialize the combined Trend Anti-Virus code.
- 5Ah** : Reserved
- 5Bh** : (Optional Feature)
Show message for entering AWDFLASH.EXE from FDD
(optional)
- 5Ch** : Reserved
- 5Dh** : 1. Initialize Init_Onboard_Super_IO switch.
2. Initialize Init_Onboard_AUDIO switch.
- 5Eh** : Reserved
- 5Fh** : Reserved
- 60h** : Okay to enter Setup utility; i.e. not until this POST stage can users
enter the CMOS setup utility
- 61h** : Reserved
- 62h** : Reserved
- 63h** : Reserved
- 64h** : Reserved
- 65h** : Initialize PS/2 Mouse
- 66h** : Reserved
- 67h** : Prepare memory size information for function call:
INT 15h ax=E820h
- 68h** : Reserved
- 69h** : Turn on L2 cache.

- 6Ah** : Reserved
- 6Bh** : Program chipset registers according to items described in Setup and Auto-configuration table.
- 6Ch** : Reserved
- 6Dh** :
 1. Assign resources to all ISA PnP devices.
 2. Auto assign ports to onboard COM ports if the corresponding item in Setup is set to "AUTO".
- 6Eh** : Reserved
- 6Fh** :
 1. Initialize floppy controller.
 2. Set up floppy related fields in 40:hardware.
- 70h** : Reserved
- 71h** : Reserved
- 72h** : Reserved
- 73h** : (Optional Feature)
Enter AWDFLASH.EXE if:
 - AWDFLASH is found in floppy drive.
 - ALT+F2 is pressed
- 74h** : Reserved
- 75h** : Detect & install all IDE devices: HDD, LS120, ZIP, CDROM.....
- 76h** : Reserved
- 77h** : Detect serial ports and parallel ports
- 78h** : Reserved
- 79h** : Reserved
- 7Ah** : Detect and install co-processor

- 7Bh** : Reserved
- 7Ch** : Reserved
- 7Dh** : Reserved
- 7Eh** : Reserved
- 7Fh** :
 - 1. Switch back to text mode if full screen logo is supported.
 - If errors occur, report errors and wait for keys
 - If no errors occur or F1 key is pressed to continue:
 - *Clear EPA or customization logo.
- 80h** : Reserved
- 81h** : Reserved
- 82h** :
 - 1. Call chipset power management hook.
 - 2. Recover the text font used by EPA logo (not for full screen logo).
 - 3. If password is set, ask for password.
- 83h** : Save all data in stack back to CMOS.
- 84h** : Initialize ISA PnP boot devices.
- 85h** :
 - 1. USB final initialization.
 - 2. NET PC: Build SYSID structure.
 - 3. Switch screen back to text mode.
 - 4. Setup ACPI table at top of memory.
 - 5. Invoke ISA adapter ROMs.
 - 6. Assign IRQs to PCI devices.
 - 7. Initialize APM.
 - 8. Clear noise of IRQs.
- 86h** : Reserved
- 87h** : Reserved

- 88h** : Reserved
- 89h** : Reserved
- 90h** : Reserved
- 91h** : Reserved
- 92h** : Reserved
- 93h** : Read HDD boot sector information for Trend Anti-Virus code.
- 94h** :
 - 1. Enable l2 cache.
 - 2. Program boot up speed.
 - 3. Chipset final initialization.
 - 4. Power management final initialization.
 - 5. Clear screen and display summary table
 - 6. Program K6 write allocation.
 - 7. Program P6 class write combining.
- 95h** :
 - 1. Program daylight saving.
 - 2. Update keyboard LED and typematic rate.
- 96h** :
 - 1. Build MP table.
 - 2. Build and update ESCD.
 - 3. Set CMOS century to 20h or 19h.
 - 4. Load CMOS time into DOS timer tick.
 - 5. Build MSIRQ routing table.
- FFh** : Boot attempt (INT 19h)

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