

# USER'S MANUAL

## **PC-620-G4**

Socket 370 Full-sized  
Embedded Card  
W/ VGA / LAN / SCSI

**PC-620 M7**

***PC-620-G4 Socket 370 CPU Card  
With VGA / SCSI / 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 notice.

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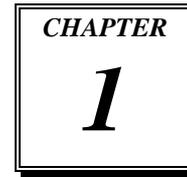
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# ***INTRODUCTION***



This chapter gives you the information for PC-620-G4. 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 Quick Start.**

## **1-1. ABOUT THIS MANUAL**

Thank you for procuring our PC-620-G4 Socket 370 Embedded Card with SCSI/VGA/LAN, which is fully PC / AT compatible. The PC-620-G4 provides faster processing speed, greater expandability and can handle more tasks than before. This manual is designed to assist you on 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 on how to avoid damaging this Embedded Card.

### ***Chapter 2 Hardware Configuration***

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

### ***Chapter 3 Software Utilities***

This chapter contains helpful information for proper installation of the VGA utility, SCSI utility, LAN utility and update BIOS. It also describes the Watchdog-timer function.

### ***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 PC-104, PCI BUS and ISA 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™ processor in 370-pin socket.  
300A/333/366/400/433/466/500/533/566/600/633/667/700/733/766/800/850 MHz clock generator.
- Intel® Pentium® !!! processor in 370-pin socket  
500E/550E/600E/650E/700/750/800/850 MHz clock generator.
- Auto detect voltage regulator.

- **MEMORY :**

- Up to 512MB SDRAM
- Two 168pin DIMMs socket on board.

- **CACHE :**

- Depended on CPU (256KB Cache).

- **REAL-TIME CLOCK / CALENDAR :**

- CMOS data back up from BIOS set or BIOS default.
- Dallas DS 12887 Real Time Clock.

- **BIOS :**

- Award Flash BIOS for plug & play function.
- Easy update 128/256KB flash EEPROM.
- Support Green Function.
- Support S/IO Setup.

- **KEYBOARD CONNECTOR :**

- PC/AT type mini DIN connector.
- Support PC/AT Keyboard or PS/2 Mouse by jumper selection.
- 5-pin External keyboard connector.

- **BUS SUPPORT :**

- External ISA/PCI BUS (PICMG Spec.)
- Internal PCI Bus for VGA, IDE, LAN, & SCSI.
- PC-104 BUS.

● **DISPLAY :**

Support simultaneous display for CRT & Panel.  
Support 32bits PCI Local Bus.  
VGA BIOS combines in 128/256KB flash ROM together with system BIOS.  
Support 15-pin connector 1024 x 768 (high color) resolution on SVGA Monitor.  
Support 2 MB Video memory (4 MB optional).  
Support 51-pin connector 640 x 480, 800 x 600 resolutions on LCD Panel.  
Panel support Color STN and TFT modes.

● **WATCHDOG :**

I / O port 0443H to Enable watchdog.  
I / O port 0441H to Disable watchdog.  
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 Enhanced IDE ports, Support up to four Enhanced IDE devices.  
Support Ultra DMA-33.

● **FLOPPY DISK DRIVER INTERFACE :**

Support up to two Floppy Disk Drives, 3.5" and 5.25" (360K / 720K / 1.2M / 1.44M / 2.88M / LS-120).

● **DISK-ON-CHIPS SOCKET :**

32-pin SSD socket on board, supports up to 144MB Disk-on-chip.

● **USB CONNECTOR :**

Universal Serial Bus Connector on board, supports up to two USB ports.

● **LAN ADAPTER :**

Realtek RTL8139 Fast Ethernet  
10/100 Base-T PCI-BUS  
Wake On LAN support.

- **SCSI INTERFACE :**
  - Built-in Adaptec 7890.
  - Two connector on board, One 50-pin connector for SCSI II and one 68-pin connector for ULTRA-II Wide SCSI (transfer rate: up to 80MB/S).
  
- **SERIAL PORT :**
  - Two high speed 16550 Compatible UARTs with Send / Receive 16 Byte FIFOs. COM1=RS-232; COM2=RS-232/422/485.
  - MIDI Compatible.
  - Programmable Baud Rate Generator.
  
- **PARALLEL PORT :**
  - SPP, ECP, EPP Function.
  - Bi-directional parallel port.
  
- **GREEN FUNCTION :**
  - Software supported by BIOS setup.
  - Hardware supported by switch control.
  
- **HARDWARE MONITORING FUNCTION :**
  - Support monitoring function for Voltage, CPU temperature, and cooling fan.
  
- **LED INDICATOR :**
  - System power.
  - Hard Disk access.
  - Turbo mode.
  - LAN Led indicator.
  
- **PC-104 BUS EXPANSION & SPEED :**
  - ISA        8MHz
  - PC-104    8MHz
  - PCI Bus    33Mhz
  - USB        12Mbit/sec
  
- **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 DIMENSION :**

338.5mm x 122mm

● **BOARD NET WEIGHT :**

0.4 Kg.

**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. Stay safe from the 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.

Sections include:

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

## 2-1. JUMPER & CONNECTOR QUICK REFERENCE TABLE

COM Port Connector .....	COM1, COM2
RS232/422/485 (COM2) Selection .....	JP6
IRQ12 Release Selection .....	JP10
ATX Power Signal Connector .....	JP14
ATX Power Button .....	JP12
AT/ATX Power Selection .....	JP1, JP2, JP13
Universal Serial Bus Connector .....	USB
Solid-State Disk Socket .....	SSD
SSD Memory Mapping Selection .....	JP7, JP8
Keyboard or PS/2 Mouse Selection .....	JP9
Keyboard or PS/2 Mouse Connector .....	DIN
External Keyboard Connector .....	EXKB
Reset Connector .....	RST
Hard Disk Drive LED Connector .....	HDL
CPU Fan Connector .....	CPUFAN
System Fan Connector .....	SYSFAN
External Speaker Connector .....	SPK
Floppy Disk Drive Connector .....	FDD
Hard Disk Drive Connector .....	IDE1, IDE2
VGA CRT Connector .....	VGA
LCD Panel Connector .....	LCD
Panel VCC Selection .....	JP4
Panel Power Connector .....	JP5
Printer Connector .....	PRT
Power LED & Keylock Connector .....	KBL
SCSI Connector .....	SCSI, ULTRA
LAN Connector .....	LAN
LAN LED Indicator .....	LED1, LED2, LED3
Green Function Connector .....	GRN
Memory Installation .....	DIMM1, DIMM2
...	
Reserved .....	JP3, JP15, JP11
Pin .....	

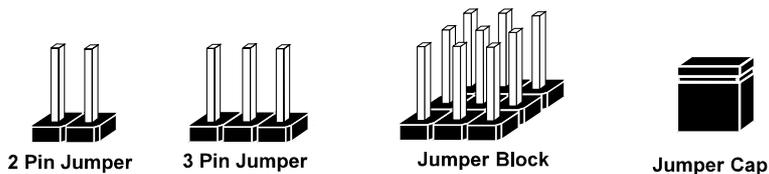


## **2-3. HOW TO SET THE JUMPERS**

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" the 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**

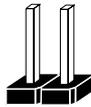


If a jumper has three pins (for example, labelled PIN1, PIN2, and PIN3), You can connect PIN1 & PIN2 to create one setting and shorting. You can either connect PIN2 & PIN3 to create another setting. The same jumper diagrams are applied all through this manual. The figures on the next following page will show you what the manual diagrams look like and what they represent.

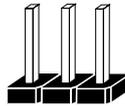
**JUMPER DIAGRAMS**



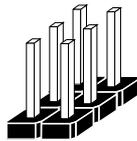
Jumper Cap looks like this



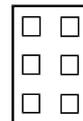
2 pin Jumper looks like this



3 pin Jumper looks like this



Jumper Block looks like this



**JUMPER SETTINGS**



2 pin Jumper closed(enabled)  
looks like this

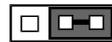


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3 pin Jumper  
2-3 pin closed(enabled)  
looks like this

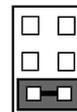


1

1



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



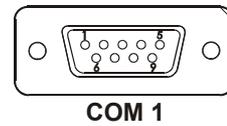
1 2

1 2

## 2-4. COM PORT CONNECTOR

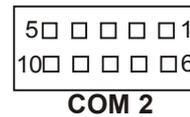
**COM1** : COM1 Connector, DB9 male connector  
 The COM1 Connector assignments are as follows :

PIN	ASSIGNMENT
1	DCD
2	RX
3	TX
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI



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

PIN	ASSIGNMENT		
	RS-232	RS-422	RS-485
1	DCD	TX-	TX-
2	RX	TX+	TX+
3	TX	RX+	RX+
4	DTR	RX-	RX-
5	GND	GND	GND
6	DSR	RTS-	NC
7	RTS	RTS+	NC
8	CTS	CTS+	NC
9	RI	CTS-	NC
10	NC	NC	NC



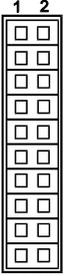
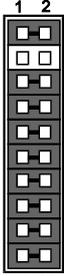
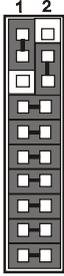
**2-5. RS232/422/485 (COM2) SELECTION**

**JP6** : RS-232/422/485 Selection

COM1 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	RS-232	RS-422	RS-485
Jumper settings (pins closed)	Open	1-2 5-6 7-8 9-10 11-12 13-14 15-16 17-18 19-20	1-3 4-6 7-8 9-10 11-12 13-14 15-16 17-18 19-20
Jumper illustration	 <p>1 2 19 20 <b>JP6</b></p>	 <p>1 2 19 20 <b>JP6</b></p>	 <p>1 2 19 20 <b>JP6</b></p>

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

## 2-6. IRQ12 RELEASE SELECTION

**JP10:** IRQ12 Release Selection.

The pin assignments are as follows:

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
IRQ12 Release	Open	 JP10
PS/2 Mouse	Closed	 JP10

\*\*\*Manufacturing Default: PS/2 Mouse.

## 2-7. ATX POWER SIGNAL CONNECTOR

**JP14 :** ATX Power Signal Connector

The pin assignments are as follows:

PIN	ASSIGNMENT
1	PWR ON
2	GROUND
3	5V SB



## 2-8. ATX POWER BUTTON

**JP12 :** ATX Power Button

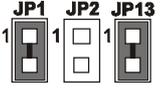
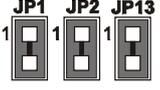
The pin assignments are as follows:

PIN	ASSIGNMENT
1	Pull Low
2	PWR BTN Switch



## 2-9. AT/ATX POWER SELECTION

**JP1, JP2, JP13** : AT/ATX Power Selection  
 The selections are as follows:

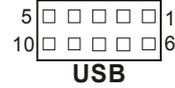
POWER SELECTION	JUMPER SETTINGS (pin closed)			JUMPER ILLUSTRATION
	JP1	JP2	JP13	
ATX	ON	OFF	ON	
AT	ON	ON	ON	

\*\*\*Manufacturing Default: ATX.

## 2-10. UNIVERSAL SERIAL BUS CONNECTOR

**USB:** Universal Serial Bus Connector  
 USB connector of this board can support two USB ports.  
 The pin assignments are as follows:

PIN	ASSIGNMENT
1	VCC
2	DATA0-
3	DATA0+
4	GND
5	CGND
6	VCC
7	DATA1-
8	DATA1+
9	GND
10	CGND



## 2-11. SOLID-STATE DISK SOCKET

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



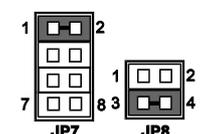
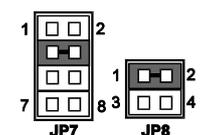
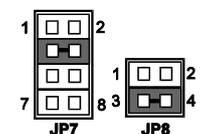
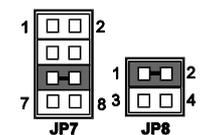
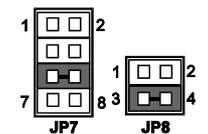
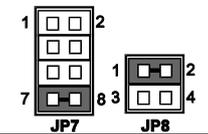
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	NC	17	SD3
2	NC	18	SD4
3	NC	19	SD5
4	SA12	20	SD6
5	SA7	21	SD7
6	SA6	22	CE
7	SA5	23	SA10
8	SA4	24	OE
9	SA3	25	SA11
10	SA2	26	SA9
11	SA1	27	SA8
12	SA0	28	NC
13	SD0	29	NC
14	SD1	30	VCC
15	SD2	31	WE
16	GND	32	VCC

**2-12. SSD MEMORY MAPPING SELECTION**

**JP7, JP8 : 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 Selection are as follows:

SELECTIONS	JUMPER SETTINGS (pins closed)		JUMPER ILLUSTRATION
	JP7	JP8	
CC000h-CDFFFh	1-2	3-4	
D0000h-D1FFFh	3-4	1-2	
D4000h-D5FFFh	3-4	3-4	
D8000h-D9FFFh	5-6	1-2	
DC000h-DDFFFh	5-6	3-4	
E0000h-E1FFFh	7-8	1-2	

\*\*\* Manufactory default --- CC000h-CDFFFh

**2-13. KEYBOARD OR PS/2 MOUSE SELECTION**

**JP9** : AT Keyboard or PS/2 Mouse Selection

If User select to use Y-Cable, please set the jumper same as AT keyboard.  
The jumper settings are as follows:

DEVICE TYPE	JUMPER SETTING (pin closed) JP9	JUMPER ILLUSTRATION
AT KEYBOARD	3-5 4-6	
PS/2 MOUSE	1-3 2-4	

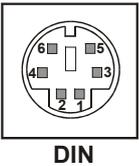
\*\*\* Manufactory default -- AT Keyboard

**2-14. KEYBOARD OR PS/2 MOUSE CONNECTOR**

**DIN** : AT Keyboard or PS/2 Mouse Connector

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

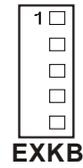
PIN	ASSIGNMENT	
	Keyboard	PS/2 Mouse
1	KBDATA	MSDATA
2	MSDATA	MSDATA
3	GND	GND
4	IOVSB	IOVSB
5	KBCLK	MSCLK
6	MSCLK	MSCLK



## 2-15. EXTERNAL KEYBOARD CONNECTOR

**EXKB** : External Keyboard Connector  
The pin assignments are as follows :

PIN	ASSIGNMENT
1	KBCLK
2	KBDATA
3	NC
4	GND
5	VCC



## 2-16. RESET CONNECTOR

**RST** : Reset Connector.  
The pin assignments are as follows :

PIN	ASSIGNMENT
1	GROUND
2	RESET



## 2-17. HARD DISK DRIVE LED CONNECTOR

**HDL** : Hard Disk Drive LED Connector  
The pin assignments are as follows :

PIN	ASSIGNMENT
1	VCC
2	HDD Active Signal
3	HDD Active Signal
4	HDD Active Signal



## 2-18. CPU FAN CONNECTOR

**CPUFAN** : CPU Fan connector  
The pin assignments are as follows:

PIN	ASSIGNMENT
1	GND
2	+12V
3	CPUFAN



## 2-19. SYSTEM FAN CONNECTOR

**SYSFAN** : System Fan connector  
The pin assignments are as follows:

PIN	ASSIGNMENT
1	GND
2	+12V
3	SYSFAN



## 2-20. EXTERNAL SPEAKER CONNECTOR

**SPK** : External Speaker Connector  
The pin assignments are as follows :

PIN	ASSIGNMENT
1	VCC
2	Speaker Signal
3	Speaker Signal
4	Speaker Signal



**2-21. FLOPPY DISK DRIVE CONNECTOR**

**FDD** : Floppy Disk Drive Connector

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



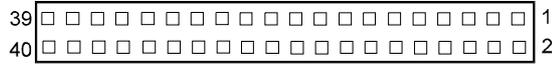
**FDD**

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	2	RPM
3	GND	4	NC
5	GND	6	NC
7	GND	8	INDEX
9	GND	10	MTR0
11	GND	12	DRV1
13	GND	14	DRV0
15	GND	16	MTR1
17	GND	18	DIR
19	GND	20	STEP
21	GND	22	WDATA
23	GND	24	WGATE
25	GND	26	TRK0
27	GND	28	WRPRT
29	GND	30	RDATA
31	GND	32	SEL
33	GND	34	DSKCHG

## 2-22. HARD DISK DRIVE CONNECTOR

### IDE1: Hard Disk Drive Connector

The PC-620-G4 has two HDD connectors on-board, IDE1 and IDE2. The pin assignments are as follows:

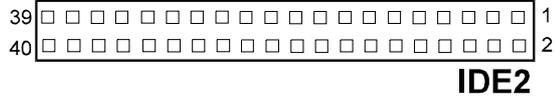


### IDE1

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	IDERDY
8	IDED10	28	PULL HI
9	IDED4	29	IDEACK0
10	IDED11	30	GND
11	IDED3	31	IRQ14
12	IDED12	32	IOCS16
13	IDED2	33	IDEA1
14	IDED13	34	GND
15	IDED1	35	IDEA0
16	IDED14	36	IDEA2
17	IDED0	37	IDECS1P
18	IDED15	38	IDECS3P
19	GND	39	IDELEDP
20	N.C.	40	GND

**IDE2:** Hard Disk Drive Connector

The pin assignments are as follows:

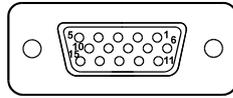


PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	IDERST	21	IDEREQ1
2	GND	22	GND
3	IDED7	23	IDEIOW
4	IDED8	24	GND
5	IDED6	25	IDEIOR
6	IDED9	26	GND
7	IDED5	27	IDERDY
8	IDED10	28	PULL HI
9	IDED4	29	IDEACK1
10	IDED11	30	GND
11	IDED3	31	IDESIRQ
12	IDED12	32	IOCS16
13	IDED2	33	IDEA1
14	IDED13	34	GND
15	IDED1	35	IDEA0
16	IDED14	36	IDEA2
17	IDED0	37	IDECS1S
18	IDED15	38	IDECS3S
19	GND	39	IDELEDS
20	N.C.	40	GND

## 2-23. VGA CRT CONNECTOR

**VGA :** VGA CRT Connector

The pin assignments are as follows:



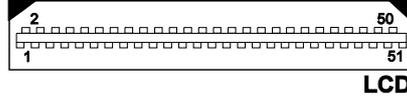
**VGA**

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

**2-24. LCD PANEL CONNECTOR**

**LCD** : LCD Panel Connector

The connector LCD is a 51-pin, dual-in-line header used for Flat Panel displays. The pin assignments are as follows :

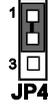


PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	P0	2	P16
3	P1	4	P17
5	P2	6	P18
7	P3	8	P19
9	P4	10	P20
11	P5	12	P21
13	P6	14	P22
15	P7	16	P23
17	LCD VDD	18	LCDVDD
19	P8	20	P24
21	P9	22	P25
23	P10	24	P26
25	P11	26	P27
27	P12	28	P28
29	P13	30	P29
31	P14	32	P30
33	P15	34	P31
35	P34	36	P32
37	P35	38	P33
39	M	40	GND
41	VDDSAFE	42	FLM
43	VDDSAFE	44	GND
45	ENABKL	46	SHFCLK
47	ENVEE	48	GND
49	12VSAFE	50	LP
51	12VSAFE		

## 2-25. LCD VDD SELECTION

**JP4:** LCD VDD Selection

The pin assignments are as follows:

SELECTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
VDD 5V	1-2	
VDD 3.3V	2-3	

## 2-26. PANEL POWER CONNECTOR

**JP5 :** Panel Power Connector

The pin assignments are as follows:

PIN	ASSIGNMENT
1	LCD+12V
2	GND
3	LCD VDD (+5V/3.3V)

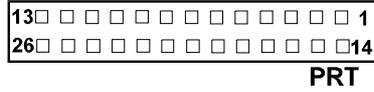


⚠ Pin 3 will depend on the jumper set on LCD VDD selection. Therefore when this connector is used, user should remember to set the jumper on LCD VDD selection

## 2-27. PRINTER CONNECTOR

**PRT** : Printer Connector

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



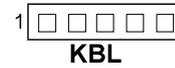
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	STB	14	AUTFE
2	P0	15	ERROR
3	P1	16	INIT
4	P2	17	SLCTIN
5	P3	18	GND
6	P4	19	GND
7	P5	20	GND
8	P6	21	GND
9	P7	22	GND
10	ACK	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SLCT	26	NC

## 2-28. POWER LED & KEYLOCK CONNECTOR

**KBL** : Power LED & Keylock Connector

The pin assignments are as follows :

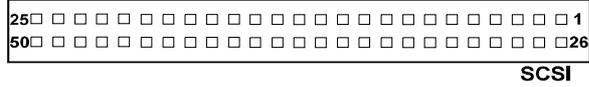
PIN	ASSIGNMENT
1	POWER LED
2	NC
3	GND
4	KB INH
5	GND



## 2-29. SCSI CONNECTOR

The PC-620-G4 is equipped with two SCSI Connectors, the SCSI II & ULTRA. The SCSI II is a 50 pins dual-in-line header, ULTRA is a 68 pins dual-in-line header. The pin assignments are as follows :

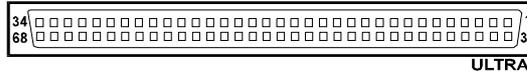
**SCSI:** SCSI II Connector



PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	18	GND	35	GND
2	GND	19	GND	36	GND
3	GND	20	GND	37	GND
4	GND	21	GND	38	TRMPWR
5	GND	22	GND	39	GND
6	GND	23	GND	40	GND
7	GND	24	GND	41	SATTN-
8	GND	25	GND	42	GND
9	GND	26	SCD0	43	SBSY-
10	GND	27	SCD1	44	SACK-
11	GND	28	SCD2	45	SRST-
12	GND	29	SCD3	46	SMSG-
13	GND	30	SCD4	47	SSEL-
14	GND	31	SCD5	48	SCD-
15	GND	32	SCD6	49	SREQ-
16	GND	33	SCD7	50	SIO-
17	GND	34	SCDPL		

**ULTRA : Ultra II-wide SCSI.**

The pin assignments are as follows:



PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	LVDP12	24	LVACKP	47	LVDM7
2	LVDP13	25	LVRSTP	48	LVDP1M
3	LVDP14	26	LVMSGP	49	GND
4	LVDP15	27	LVSELP	50	NC
5	LVDPHP	28	LVCDP	51	LVTRMPWR
6	LVDP0	29	LVREQP	52	LVTRMPWR
7	LVDP1	30	LVIOP	53	NC
8	LVDP2	31	LVDP8	54	GND
9	LVDP3	32	LVDP9	55	LVATNM
10	LVDP4	33	LVDP10	56	GND
11	LVDP5	34	LVDP11	57	LVBSYM
12	LVDP6	35	LVDM12	58	LVACKM
13	LVDP7	36	LVDM13	59	LVRSTM
14	LVDP1P	37	LVDM14	60	LVMSGM
15	GND	38	LVDM15	61	LVSELM
16	DIFFSE	39	LVDPHM	62	LVCDM
17	LVTRMPWR	40	LVDM0	63	LVREQM
18	LVTRMPWR	41	LVDM1	64	LVIOM
19	NC	42	LVDM2	65	LVDM8
20	GND	43	LVDM3	66	LVDM9
21	LVATNP	44	LVDM4	67	LVDM10
22	GND	45	LVDM5	68	LVDM11
23	LVBSYP	46	LVDM6		

⚠ The SCSI function of this CPU Card is designed based on PCI Bus Master, that means one of the PCI Bus Master is occupied. The SCSI Bus Master (DRQ3) is same as 4th PCI Slot on the backplane (DRQ3).

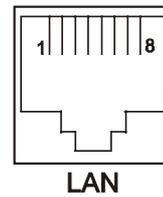
**When the SCSI chipset is on-board, the 4th PCI slot on backplane would fail even if SCSI function is disabled.**

## 2-30. LAN CONNECTOR

**LAN:** LAN Connector

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



## 2-31. LAN LED INDICATOR

PC-620-G4 possesses 3 LAN Led Indicator, namely : LED1, LED2, and LED3. The pin assignments are as follows:

**LED1:** LAN Led Indicator

PIN	ASSIGNMENT
1	Pull Hi
2	Link



**LED2:** LAN Led Indicator

PIN	ASSIGNMENT
1	Pull Hi
2	Active -100Mbps



**LED3:** LAN Led Indicator

PIN	ASSIGNMENT
1	Pull Hi
2	Active -10Mbps



### 2-32. GREEN FUNCTION CONNECTOR

**GRN:** Green Function Connector  
 The pin assignments are as follows:

PIN	ASSIGNMENT
1	EXTSMI-
2	GND



### 2-33. MEMORY INSTALLATION

The PC-620-G4 can 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 and Flash BIOS update. It also describes how to install the watchdog timer configuration.

Section includes:

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

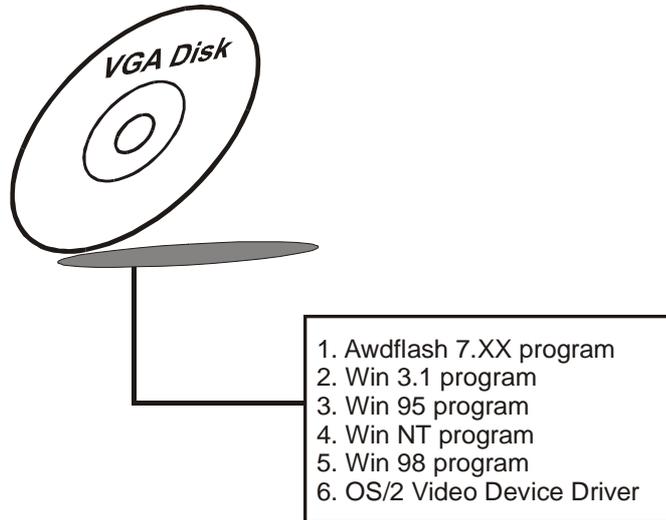
### 3-1. INTRODUCTION

Enclosed with our PC-620-G4 package is our driver utility, which may come in a form of a CD ROM disc or floppy diskettes. For CD ROM disc user, you will only need some of the files contained in the CD ROM disc, please kindly refer to the following chart:

File name (Assume that CD ROM drive is D:)	Purpose
D:\VGA\C&T\CT69K	C&T 69000 For VGA driver installation
D:\Flash\Awdflash.exe	For BIOS update
D:\LAN\RTL8139	For LAN Driver installation
D:\SCSI\7890	For SCSI Driver installation

### 3-2. VGA DRIVER UTILITY

The VGA interface embedded with our PC-620-G4 can support a wide range of display mode, such as SVGA, STN, TFT,.....etc. You can display CRT and LCD Panel simultaneously on this board, but make sure that the modes for CRT and LCD Panel are the same. If not, only one of them can be displayed.



### 3-1-2. Installation Procedures of VGA Driver

#### 1. Install VGA Driver to Windows 3.1

- (1). To install VGA driver to Windows 3.1, please insert Utility Disk into floppy disk drive A/B or CD ROM drive under your Windows 3.1 system, and go to directory where VGA driver is located.
- (2). Click Setup.exe file for VGA driver installation directly. Follow the instructions on the screen and complete the installation.
- (3). Once installation is completed, you must shut down system and restart in order for changes to take effect.

#### 2. Install VGA Driver to Windows 95

- (1). Click START, SETTINGS, then CONTROL PANEL.
- (2). On CONTROL PANEL, click the DISPLAY icon and enter the SETTINGS tab of the DISPLAY PROPERTIES window.
- (3). Select the SETTINGS page, push the CHANGE DISPLAY TYPE button. Click the CHANGE button in the "Adapter Type" area.
- (4). Push the "HAVE DISK BUTTON" and press OK.
- (5). Specify the path for the new driver and press the <Enter> key. The "Select Device" dialog box will appear. Select the "Chips and Tech 69000 PCI".
- (6). Follow the remaining instruction that appear on the screen to complete the rest of the installation, then restart your computer.

#### 3. Install VGA driver to Windows NT 3.5x/4.0

- (1). To install VGA drivers to Windows 3.5x/4.0 is as you normally would. Click START, then SETTINGS, then CONTROL PANEL of the operating system.
- (2). Select the DISPLAY icon to start the DISPLAY PROPERTIES window, then choose the SETTING tab, then DISPLAY TYPE.
- (3). In the CHANGE DISPLAY TYPE window, click on the CHANGE button in the ADAPTER TYPE, this will bring up the SELECT DEVICE window.

- (4). In the CHANGE DISPLAY window, click on Have Disk. Follow the instructions appearing on the screen until you complete the whole installation.
- (5). Once installation is completed, the system must be shut down and restarted for the new drivers to take effect.

#### **4. Install VGA driver to OS/2 Warp Operation System**

##### (1) Preliminary Steps:

- (i) OS/2 DOS Support must be installed.
- (ii) If you previously installed SVGA support, you must reset the system to VGA mode. VGA is the default video mode enable when OS/2 is to be installed.
- (iii) To restore VGA mode, Use SELECTIVE INSTALL and select VGA for PRIMARY DISPLAY. For more information on this procedure, see the section on Changing Display Adapter Support in the OS/2 User's Guide.

##### (2) Start Driver installation

- (i) Open an OS/2 full screen or windowed session.
- (ii) Place into Drive A/B the Utility Disk, which contains the 69000 Display Driver.
- (iii) At the OS/2 command prompt , type the following commands to copy the files to the OS/2 drive:  
Type A: and press ENTER to make this the default drive.  
Type Setup A: C: and press ENTER

⌚ When the setup Program is completed, you will need to perform a shut down and then restart the system in order for change to take effect.

- (iv) After restarting the system, first open the OS/2 System folder.
- (v) Then open the System Setup folder.
- (vi) Open the Display Driver Install Object.
- (vii) When the Display Driver Install window appears, select PRIMARY DISPLAY, and click OK.
- (viii) When the Primary Display Driver List window appears, select "Chips and Technologies 69000" from the list of Adapter types, then select OK to install the video driver.

- (ix) When installation is complete, you should shut down and restart the system for the changes to take effect. And also make sure to remove the install Utility Disk before restarting system.

**For more details on Installation procedure, please refer to readme.txt or install.txt file found on VGA DRIVER UTILITY.**

### 3-3. FLASH BIOS UPDATE

#### 3-3-1. System BIOS Update:

Users of PC-620-G4 can use the program "Awdflash.exe" contained in the Utility Disk for system BIOS and VGA BIOS update.

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

As PC-620-G4 user, you have to update the VGA BIOS for your specific LCD flat panel you are going to use. For doing this, you need two files. One is the "Awdflash.exe" file and the other is the VGA BIOS C&T 69000 file for LCD panel display. Both file must be provided by the vendor or manufacturer. When you get these two files ready, follow the following steps for updating your VGA BIOS:

1. Install "Awdflash.exe" from Utility Disk to Drive C.
2. Insert the VGA BIOS file you have obtained from the vendor.
3. Type the path to Awdflash.exe and execute the VGA BIOS update with file 620xxxxx.bin  
C:\UTIL\AWDFLASH>AWDFLASH 620xxxxx.bin
4. The screen will display the table below:

FLASH MEMORY WRITER v7.XX (C) Award Software 2000 All Rights Reserved	
For i440BX-SMC669-2A69KP6PC-0	DATE: 03/02/2001
Flash Type - MXIC 29F002(N)T /5V	
File Name to Program: 620xxxxx.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 i440BX-SMC669-2A69KP6PC-0   DATE: 03/02/2001 Flash Type - MXIC 29F002(N)T /5V File Name to Program: 620xxxxx.bin Checksum: XXXXX
Error Message : Are You Sure To Program (Y/N)

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

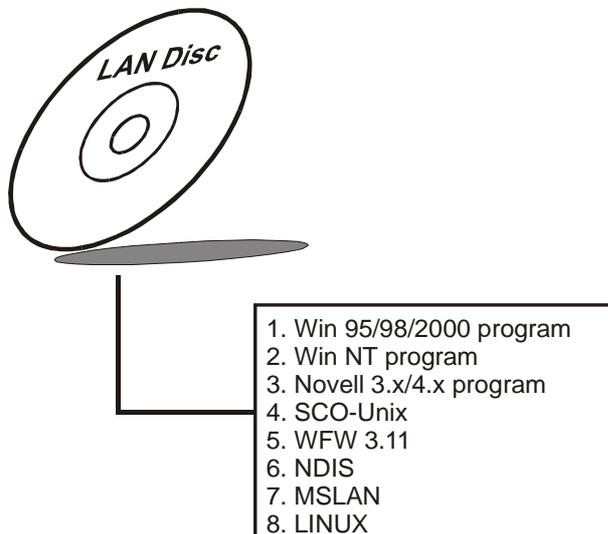
FLASH MEMORY WRITER v7.XX (C) Award Software 2000 All Rights Reserved
For i440BX-SMC669-2A69KP6PC-0   DATE: 03/02/2001 Flash Type - MXIC 29F002(N)T /5V File Name to Program: 620xxxxx.bin Checksum: XXXXX  Reset System or Power off to accomplish update process!
F1: Reset   F10: Exit

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

### 3-4. LAN DRIVER UTILITY

#### 3-4-1. Introduction

PC-620-G4 Embedded Card is enhanced with LAN function that can support various network adapters. Installation programs for LAN drivers are listed as follows:



#### 3-4-2. Installation Procedures of LAN Driver

##### 1. Install LAN Driver to Windows 98/2000

Executing Windows 98/Windows 2000, it will auto-detect your system configuration and find the adapter hardware.

- (1) Ask you to select which driver you want to install, select "Driver from disk provided by hardware manufacturer".
- (2) Insert the Realtek RTL8139 driver disk into the drive A or CD drive and specify the setup file pathname, ex: A:\ .
- (3) Win 98/ Win 2000 will appear some messages to insert Windows 98/Win2000 system disk to complete setup step.
- (4) Windows 98/Windows 2000 will finish the other installation procedure automatically, and then restart the system.

## 2. Install LAN Driver to Windows NT 3.0/4.0

- (1) In the Main group of 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 utility, and enter the filename (ex. A:\pathname) where the setup file OEMSETUP.INF is located, and then choose OK button.
- (6) The screen will appear "Select Line Speed" dialog box, which is provided by RTL8139.SYS driver. The default value is "auto" so that the line speed can be auto detected as 10MB or 100MB, while the RTL8139.SYS is loading.
- (7) The screen will appear "Input Ethernet ID" dialog box, which is provided by RTL8139.SYS driver. This option is only required when you have more than one RTL8139 PCI Fast Ethernet adapters on this computer. Select "SKIP" if only one adapter is installed on this computer.
- (8) "Bus Location" displayed in next screen. Your machine contains more than one hardware bus, please select the Bus Type and Bus number on which your network adapter card is installed.
- (9) NT will then perform the binding process. If any additional network software options were installed, you may be prompted for specific information for these packages.
- (10) Re-starting your system you will acquire network service.

 Note: For Installing Multiple LAN Adapters:

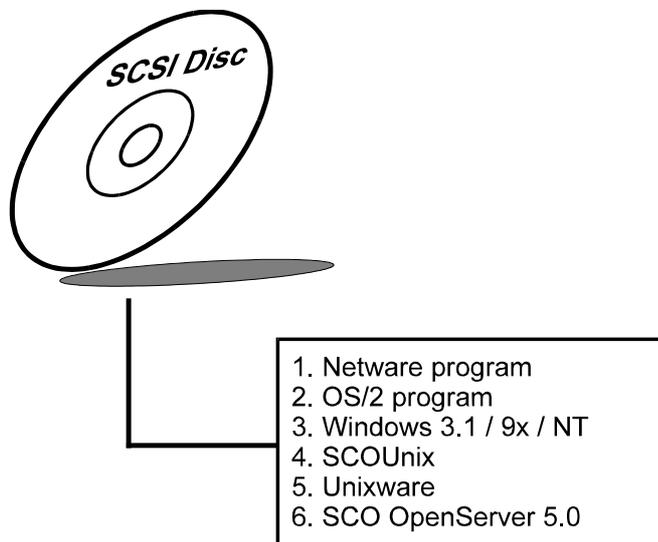
Enter Windows NT and follow above setup procedure step 2, in the "Network Settings" dialog box, choose the "Configure..." button. The "Input Ethernet ID" dialog box appears and input adapter's Ethernet ID. Last step to select OK and close NETWORK SETUP. Select SKIP if only one adapter is installed on this computer.

**For more information on installation procedure, please refer to TXT directory found on LAN DRIVER UTILITY.**

### 3-5. SCSI DRIVER UTILITY

#### 3-5-1. Introduction

PC-620 embedded with SCSI Adaptec 7890 can support SCSI II and Ultra2 Wide SCSI. Installation programs for SCSI drivers are provided as follows:



**For Installation procedure, please refer to Readme.txt file on SCSI DRIVER UTILITY.**

### 3-6. WATCHDOG TIMER CONFIGURATION

The watchdog timer can reset the system automatically. It is defined at I/O port **0443H**. When you want to enable the watchdog timer, please write I/O port **0443H**, then the system will reset itself. When you want to disable the function, write I/O port **0441H**, the system will run the command to stop the Watchdog function.

The PC-620 watchdog function, You must write your program so when it writes I/O port address 0443 for enable watchdog and write I/O port address 0441 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:**

```
MOVAX, 000FH (choose the values you need; start from 0)
MOVDX, 0443H
OUTDX, AX
```

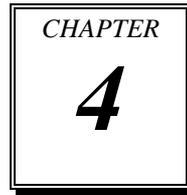
**Watchdog disable program:**

```
MOVAX, 000FH(this value can be ignored)
MOVDX, 0441H
OUTDX, 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***

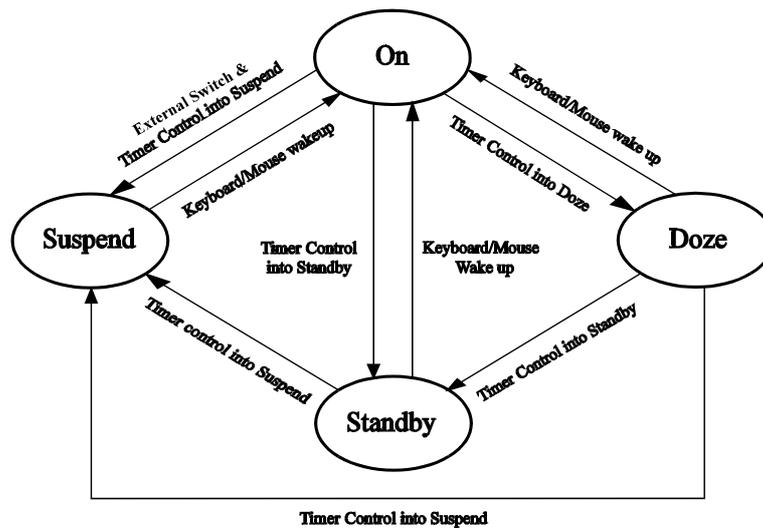


This chapter gives you the concise information for Green PC Function.

Sections include:

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

## 4-1. POWER SAVING BLOCK DIAGRAM



## 4-2. DOZE MODE

1. After timing-out, CPU clock slows down.
2. Monitor Activity, according to the setting of Advanced Setup.
3. Any activity occurs, system will exit from Doze mode to On mode.

## 4-3. STANDBY MODE

1. After timing-out, CPU clock slows down.
2. Two beep sound.
3. Level 1 cache are disabled.
4. VGA monitor displays blank screen.
5. Fixed disk driver motor will be spin off.
6. Any activity occurs, system will exit from Standby mode to On mode.

#### **4-4. SUSPEND MODE**

1. After timing-out, CPU clock slows down.
2. Three beep sound.
3. Level 2 cache are disabled.
4. VGA monitor displays blank screen.
5. Fixed disk driver motor will be spin off.
6. Monitor activity according to the setting of Advanced Setup.
7. When system in Suspend mode, only Keyboard / Mouse / Alarm resume can wakeup system.



# ***AWARD BIOS SETUP***



This chapter states out how to set up the Award BIOS.

Sections include:

- Introduction
- Entering Setup
- The Standard CMOS Setup
- The BIOS Features Setup
- The Chipset Features Setup
- Power Management Setup
- PNP/PCI Configuration
- Load BIOS/Setup defaults
- Integrated Peripherals
- Password Setting
- IDE HDD Auto Detection
- Save & Exit Setup

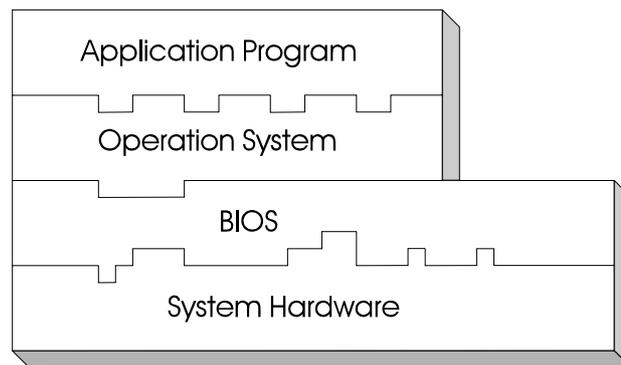
## 5-1. INTRODUCTION

This chapter will show you the function of a BIOS in managing the features of your system. The PC-620-G4 Socket 370 Embedded Card is equipped with the BIOS for system chipset from Award Software Inc. This page briefly explains the function of the BIOS in managing the special features of your system. The following pages describe how to use the BIOS for system chipset Setup menu.

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

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

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



## 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 <DEL> TO ENTER SETUP, ESC TO SKIP MEMORY TEST**

As long as this message is present on the screen you may press the <Del> key (the one that shares the decimal point at 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:

ROM PCI / ISA BIOS (2A69KP6A) CMOS SETUP UTILITY AWARD SOFTWARE, INC.	
STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION
PNP/PCI CONFIGURATION	SAVE & EXIT SETUP
LOAD BIOS DEFAULTS	EXIT WITHOUT SAVING
LOAD SETUP DEFAULTS	
Esc : Quit	↑↓→← : Select Item
F10 : Save & Exit Setup	(Shift)F2 : Change Color
Time, Date, Hard Disk Type.....	

### Setup program initial screen

You may use the cursor up/down keys to highlight each individual menu items. As you highlight each item, a brief description of that item's function appears in the lower window. If you have a coloured monitor you can use the Shift F2 keys to scroll through the various color combinations available.

### 5-3. THE STANDARD CMOS SETUP MENU

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

ROM PCI / ISA BIOS (2A69KP6A)									
STANDARD CMOS SETUP									
AWARD SOFTWARE, INC.									
Date (mm:dd:yy)		: Thu, Feb 1 2001							
Time (hh:mm:ss)		: 18 : 41 : 50							
HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE	
Primary Master	: Auto	0	0	0	0	0	0	AUTO	
Primary Slave	: Auto	0	0	0	0	0	0	AUTO	
Secondary Master	: Auto	0	0	0	0	0	0	AUTO	
Secondary Slave	: Auto	0	0	0	0	0	0	AUTO	
Drive A : 1.44M , 3.5 in.					Base Memory: 640K				
Drive B : None					Extended Memory: 1300484K				
Video : EGA/VGA					Other Memory: 384K				
Halt On : All Errors					-----				
					Total Memory: 131072K				
Esc : Quit		↑↓→← : Select Item			Pu/Pd/+/- : Modify				
F1 : Help		(Shift) F2 : Change Color							

CMOS setup screen

User the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want.

Information on each item are as follows:

**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 examples, 4: 30 P.M. You should enter the time as 16:30:00.

**Primary Master/Slave:**

**Secondary Master/Slave :**

The categories identify the types of 2 channels that have been installed in the computer. There are 45 predefined types and 4 user definable types are for Enhanced IDE BIOS. Type 1 to Type 45 are predefined. Type User is user-definable.

Press PgUp / <+> or PgDn / <-> to select a numbered hard disk type or type the number and press < Enter >. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use Type User to define your own drive type manually.

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

If the controller of HDD interface is ESDI, the selection shall be "Type 1".

If the controller of HDD interface is SCSI, the selection shall be "None"  
If the controller of HDD interface is CD-ROM, the selection shall be "None"

**TYPE:**

This is the number designation for a drive with certain identification parameters.

**CYLS:**

This is the number of cylinders found in the specified drive type.

**HEAD:**

This is the number of heads found in the specified drive type.

**PRECOMP:**

Precomp is the read delay circuitry which takes into account the timing differences between the inner and outer edges of the surface of the disk platter. The number designates the starting cylinder of the signal.

**LANDZ:**

Landz is the landing zone of the heads. This number determines the cylinder location where the heads will normally park when the system is shut down.

**SIZE (CAPACITY):**

This is the formatted capacity of the drive based on the following formula:  
(# of heads) X (# of cylinders) X (# of sets) X ( 512bytes/sects)

**DRIVE A AND DRIVE B:**

This item identifies the type of floppy disk drive A or drive B that have been installed in the computer. The options are 360KB 5.25in, 1.2KB 5.25in, 720KB 3.5in, 1.44MB 3.5in, 2.88MB 3.5in and None.

**VIDEO:**

This item selects the type of video adapter used for the primary system monitor. Although secondary monitors are supported, you don't have to select the type in Setup. The available options are ①Mono, ②Color 40, ③VGA/EGA, and ④Color 80.

**HALT ON:**

This item determines whether the computer will stop when error is detected during power up. The available options are ①No errors, ②All errors, ③All, But keyboard, ④All, but Diskette, and ⑤All, But Disk/Key.

**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 BIOS FEATURES SETUP MENU

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

ROM PCI/ISA BIOS (2A69KP6A) BIOS FEATURES SETUP AWARD SOFTWARE, INC.			
Virus Warning	: Disabled	Video BIOS Shadow	: Enabled
CPU Internal Cache	: Enabled	C8000-CBFFF Shadow	: Disabled
External Cache	: Enabled	CC000-CFFFF Shadow	: Disabled
CPU L2 Cache ECC Checking	: Enabled	D0000-D3FFF Shadow	: Disabled
		D4000-D7FFF Shadow	: Disabled
Quick Power On Self Test	: Disabled	D8000- DBFFF Shadow	: Disabled
Boot Sequence	: A,C, SCSI	DC000- DFFFF Shadow	: Disabled
Swap Floppy Drive	: Disabled		
Boot Up Floppy Seek	: Enabled		
Boot Up NumLock Status	: On		
Gate A20 Option	: Fast		
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec)	: 6		
Typematic Delay (Msec)	: 250	Esc : Quit	↑↓→← : Select Item
Security Option	: Setup	F1 : Help	Pu/Pd/+/- : Modify
PCI/VGA Palette Snoop	: Disabled	F5 : Old Values (Shift)F2 :	Color
OS Select For DRAM > 64MB	: Non-OS2	F6 : Load BIOS Defaults	
Report No FDD For WIN 95	: Yes	F7 : Load Setup Defaults	

**BIOS Features Setup screen**

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

To get help on each item, highlight the relevant item and press the <F1> key. A window will appear on your screen detailing the various options available for each item. A brief introduction of each setting is given below:

**VIRUS WARNING:**

When 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/disable CPU L2 Cache ECC checking.

**QUICK POWER ON SELF TEST:**

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

**BOOT SEQUENCE:**

This category determines the sequence for which drive to look for first when system boots up. You may set the system to look first at drive A: and then at drive C:, or vice versa.

**SWAP FLOPPY DRIVE:**

This item is effective only in system wherein there are two floppy disk drives. Selecting enabled assigns physical swapping of 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 directly to the hard disk drive.

**BOOT UP NUMLOCK STATUS:**

This item allows you to determine the default state of the numeric keypad. By default, the system boots up with NumLock on.

**GATE 20A OPTION:**

This entry allows you to select how the gate A20 is handled. The gate A20 is a device used to address memory above 1Mbytes. Initially the gate A20 was handled via a pin on the keyboard. Today, while keyboards still provide this support, it is more common and much faster for the system chipset to provide support for gate A20.

**TYPOMATIC 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. This item is disable by default.

**TYPOMATIC RATE (CHARS/SEC):**

When the typematic rate is enabled, this selection allows you to choose the rate at which the keys are accelerated.

**TYPOMATIC DELAY (MSEC):**

When the typematic rate is enabled, this selection allows you to choose the delay between when the key was first depressed and when the acceleration begins.

**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.

**PCI/VGA PALETTE SNOOP:**

This entry determines whether the MPEG ISA/VESA VGA Cards can work with PCI/VGA or not.

**OS SELECT FOR DRAM >64MB:**

This item allows you to access the memory that over 64MB in OS/2. You may choose OS2 or Non-OS2.

**REPORT NO FDD FOR WIN 95:**

Whether report no FDD for Win 95 or not.

**VIDEO BIOS SHADOW:**

Determines whether video BIOS will be copied to RAM. However, it is optional depending on chipset design. Video Shadow will increase the video speed.

**C8000-CBFFF SHADOW ~ DC000-DFFFF SHADOW:**

These categories determine whether option ROMs will be copied to RAM. An example of such option ROM would be support of onboard SCSI.

## 5-5. CHIPSET FEATURE SETUP

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

ROM PCI/ISA BIOS (2A69KP6A) CHIPSET FEATURES SETUP AWARD SOFTWARE, INC.			
Auto Configuration	: Enable	Power-Supply Type	: AT
EDO DRAM Speed Selection	: 60 ns	Auto Detect DIMM Clk	: Enable
EDO CASx# MA Wait State	: 2	CPU Warning Temperature	: Disable
EDO RASx# Wait State	: 2	Current System Temp.	: 35°C/95°F
SDRAM RAS-to-CAS Delay	: 3	Current CPU1 Temperature	: 45°C/113°F
SDRAM RAS Precharge Time	: 3	Current CPUFAN1 Speed	: 5037 RPM
SDRAM CAS latency Time	: 3	Current CPUFAN2 Speed	:
SDRAM Precharge Control	: Disabled	IN0 (V): 2.00V	IN1(V) : 1.50V
DRAM Data Integrity Mode	: Non-ECC	IN2 (V): 3.32V	+ 5V : 5.02V
System BIOS Cacheable	: Disabled	+12 V : 12.28V	-12V : -11.95V
Video BIOS Cacheable	: Disabled	- 5 V : -4.99V	VBAT(V) : 3.28V
Video RAM Cacheable	: Disabled	5VSB(V):5.05V	
8 Bit I/O Recovery Time	: 1	Shutdown Temperature	Disable
16 Bit I/O Recovery Time	: 1	Esc : Quit	↑↓→← : Select Item
Memory Hole At 15M-16M	: Disabled	F1 : Help	Pu/Pd/+/- : Modify
Passive Release	: Enabled	F5 : Old Values	(Shift)F2 : Color
Delayed Transaction	: Disabled	F6 : Load BIOS Defaults	
AGP Aperture Size (MB)	: 64	F7 : Load Setup Defaults	

**Chipset Features Setup screen**

The parameters in this 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.

### **AUTO CONFIGURATION:**

Auto Configuration selects predetermined optimal values of chipset parameters. When disabled, chipset parameters revert to setup information stored in CMOS. Many fields in this screen are not available when Auto Configuration is Enabled.

**EDO DRAM SPEED SELECTION:**

The DRAM timing is controlled by the DRAM Timing Registers. The timings programmed into this register are dependent on the system design. Slower rates may be required in certain system designs to support loose layouts or slower memory.

**EDO CASx# MA WAIT STATE:**

You can select the timing control type of EDO DRAM CAS MA (memory address bus).

**EDO RASx# WAIT STATE:**

You can select the timing control type of EDO DRAM RAS MA (memory address bus).

**SDRAM RAS-to-CAS DELAY:**

You can select RAS to CAS Delay time in HCLKs of 2/2 or 3/3. The system board designer should set the values in this field, depending on the DRAM installed. Do not change the values in this field unless you change specifications of the installed DRAM or the installed CPU.

**SDRAM RAS PRECHARGE TIME:**

Defines the length of time for Row Address Strobe is allowed to precharge.

**SDRAM CAS LATENCY TIME:**

You can select CAS latency time in HCLKs of 2/2 or 3/3. The system board designer should set the values in this field, depending on the DRAM installed. Do not change the values in this field unless you change specifications of the installed DRAM or the installed CPU.

**SDRAM PRECHARGE CONTROL:**

When enabled, all CPU cycles to SDRAM result in an All Banks Precharge Command on the SDRAM interface.

**DRAM DATA INTEGRITY MODE:**

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

**SYSTEM BIOS CACHEABLE :**

Select Enabled allows caching of the system BIOS ROM at F000h-FFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

**VIDEO BIOS CACHEABLE:**

Select Enabled allows caching of the video BIOS ROM at C0000h-F7FFFh, resulting in better video performance. However, if any program writes to this memory area, a system error may result.

**VIDEO RAM CACHEABLE:**

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

**8 Bit I/O RECOVERY TIME:**

The recovery time is the length of time, measured in CPU clocks, which the system will delay after the completion of an input/output request. This delay takes place because the CPU is operating so much faster than the input / output bus that the CPU must be delayed to allow for the completion of the I/O. This item allows you to determine the recovery time allowed for 8bit I/O.

**16 Bit I/O RECOVERY TIME:**

This item allows you to determine the recovery time allowed for 16bit I/O. Choices from NA, 1 to 4 CPU clocks.

**MEMORY HOLE AT 15M-16M:**

In order to improve performance, certain space in memory can be reserved for ISA cards. This memory must be mapped into the memory space below 16MB.

**PASSIVE RELEASE:**

When Enabled, CPU to PCI bus accesses is allowed during passive release. Otherwise, the arbiter only accepts another PCI master access to local DRAM.

**DELAYED TRANSACTION:**

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

**AGP APERTURE SIZE (MB):**

Select the size of the Accelerated Graphics Port (AGP) aperture. 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. See [www.agpforum.org](http://www.agpforum.org) for AGP information.

**AUTO DETECT DIMM CLK:**

To reduce the occurrence of electromagnetic interference (EMI), the BIOS detects the presence or absence of components in DIMM and turns off system clock generator pulses to empty slots.

**CPU WARNING TEMPERATURE:**

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

**CURRENT SYSTEM TEMP.:**

This item displays the current system temperature, if your computer contains a monitoring system.

**CURRENT CPU1 TEMPERATURE:**

This item displays the current CPU temperature, if your computer contains a monitoring system.

**CURRENT CPUFAN1/CPUFAN2 SPEED:**

This item indicate the current speed of the CPU fans, if your computer contains a monitoring system.

**SHUTDOWN TEMPERATURE:**

This item select the shutdown temperature.

## 5-6. POWER MANAGEMENT SETUP

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

ROM PCI/ISA BIOS (2A69KP6A) POWER MANAGEMENT SETUP AWARD SOFTWARE, INC.		
ACPI function	: Disabled	** Reload Global Timer Events **
Power Management	: User Define	IRQ (3-7, 9-15), NMI : Disabled
PM Control by APM	: Yes	Primary IDE 0 : Disabled
Video Off Method	: DPMS	Primary IDE 1 : Disabled
Video Off After	: Standby	Secondary IDE 0 : Disabled
MODEM Use IRQ	: NA	Secondary IDE 1 : Disabled
Doze Mode	: Disable	Floppy Disk : Disabled
Standby Mode	: Disable	Serial Port : Disabled
Suspend Mode	: Disable	Parallel Port : Enabled
HDD Power Down	: Disable	
Throttle Duty Cycle	: 62.5%	
PCI/VGA Act-Monitor	: Disabled	
Soft-Off by PWR-BTTN	: Disabled	
Wake Up On LAN	: Enabled	Esc : Quit      ↑↓→← : Select Item
IRQ 8 Break Suspend	: Disabled	F1 : Help      Pu/Pd/+/- : Modify
		F5 : Old Values (Shift)F2 : Color
		F6 : Load BIOS Defaults
		F7 : Load Setup Defaults

**Power Management Setup Screen**

This category allows you to configure your system to most effectively save energy while operating in a manner consistent with your own style of computer use. Having made all the setting above, press <ESC> to return to the main menu.

### ACPI FUNCTION:

This item allows you to enable / disable the Advanced Configuration and Power Management (ACPI).

### POWER MANAGEMENT:

This item allows you to select the type (or degree) of power saving and is directly related to HDD power down, Doze Mode, Standby Mode, and Suspend Mode.

**PM CONTROL BY APM:**

When this item is set to be YES, the system BIOS will wait for APM's prompt before it enter any PM mode e.g. DOZE, STANDBY or SUSPEND. If APM is installed, & if there is a task running, even the timer is time out, the APM will not prompt the BIOS to put the system into any power saving 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 write blanks to video buffer.
BLANK SCREEN	This selection only writes blanks to video buffer.
DPMS	Initial display power management signaling.

**VIDEO OFF AFTER:**

When enabled, this feature allows the VGA adapter to operate in a power saving mode.

**MODEM USE IRQ:**

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

**DOZE MODE:**

When enabled and after the set time of system inactivity, the CPU clock will run at slower speed while all other devices still operate at full speed.

**STANDBY MODE:**

When enabled and after the set time of system inactivity, the fixed disk drive and the video would be shut off while all other devices still operate at full speed.

**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.

**THROTTLE DUTY CYCLE:**

This item allows you to select the percent of time that the clock runs when the system enters Doze mode.

**PCI/VGA ACTIVE MONITOR:**

This item allows you to enable any video activity restarts the global timer for Standby mode.

**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”.

**WAKE UP ON LAN:**

This item allows your computer to be booted from another computer via network by sending a wake-up signal.

**IRQ 8 BREAK SUSPEND:**

This item allows you to enable and disable the monitoring of IRQ8 so it doesn't awaken the system from Suspend mode.

**RELOAD GLOBAL TIMER EVENTS:**

When enabled, an event occurring on each device listed below restarts the global timer for Standby mode.

- |                       |                   |
|-----------------------|-------------------|
| ❶ IRQ[3-7, 9-15], NMI | ❷ Primary IDE 0   |
| ❸ Primary IDE 1       | ❹ Secondary IDE 0 |
| ❺ Secondary IDE 1     | ❻ Floppy Disk     |
| ❼ Serial Port         | ❼ Parallel Port   |

## 5-7. PNP/PCI CONFIGURATION

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

ROM PCI/ISA BIOS (2A69KP6A) PNP/PCI CONFIGURATION AWARD SOFTWARE, INC.	
PNP OS Installed : No	Used MEM base addr : N/A
Resources Controlled by : Manual	
Reset Configuration Data : Disabled	
IRQ-3 assigned to: PCI/ISA PnP	
IRQ-4 assigned to: PCI/ISA PnP	
IRQ-5 assigned to: PCI/ISA PnP	
IRQ-7 assigned to: PCI/ISA PnP	
IRQ-9 assigned to: PCI/ISA PnP	
IRQ-11 assigned to: PCI/ISA PnP	
IRQ-12 assigned to: PCI/ISA PnP	
IRQ-14 assigned to: PCI/ISA PnP	
IRQ-15 assigned to: PCI/ISA PnP	
DMA-0 assigned to: PCI/ISA PnP	
DMA-1 assigned to: PCI/ISA PnP	Esc : Quit      ↑↓→← : Select Item
DMA-3 assigned to: PCI/ISA PnP	F1 : Help      Pu/Pd/+/- : Modify
DMA-5 assigned to: PCI/ISA PnP	F5 : Old Values (Shift)F2 : Color
DMA-6 assigned to: PCI/ISA PnP	F6 : Load BIOS Defaults
DMA-7 assigned to: PCI/ISA PnP	F7 : Load Setup Defaults

### PNP/PCI Configuration Setup Screen

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 experience users only.

You can manually configure the PnP/PCI Device's IRQ. Highlight the selected item and pressing the <F1> key, all the options for the desired selection will be displayed for choice.

**RESOURCE CONTROLLED BY:**

The Award Plug and Play Bios can automatically configure all the booth and Plug and Play-compatible devices. If set to Auto, all interrupt request (IRQ) and DMA assignment fields disappear, as the BIOS automatically assigns them.

**RESET CONFIGURATION DATA:**

When Enable, the system will reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system cannot boot.

**IRQ # ASSIGNED TO:**

If resources are controlled manually, assign each system interrupt as Legacy ISA Devices or PCI/ISA PnP Devices.

Legacy ISA Devices	complaint with the original PC AT bus specification, requiring a specific interrupt such as IRQ4 for serial port 1.
PCI/ISA PnP Devices	complaint with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

**DMA # ASSIGNED TO:**

If resources are controlled manually, assign each system DMA channel as Legacy ISA Devices or PCI/ISA PnP Devices.

Legacy ISA Devices	complaint with the original PC AT bus specification, requiring a specific interrupt such as IRQ4 for serial port 1.
PCI/ISA PnP Devices	complaint with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

**USED MEM BASE ADDR:**

Select a base address for the memory area used by any peripheral that requires high memory.

## 5-8. LOAD BIOS DEFAULTS

### AUTO CONFIGURATION WITH BIOS DEFAULTS

"LOAD BIOS DEFAULTS" loads the default BIOS values. When the diagnostic aid of your system becomes unusable, choose this option and the following message appears :

Load BIOS Default ( Y / N ) ? Y

To use the BIOS defaults, change the prompt to "Y" and press < Enter >, the CMOS is load automatically when you power on the PC-620-G4.

## 5-9. LOAD SETUP DEFAULTS

### AUTO CONFIGURATION WITH SETUP DEFAULTS

This Main Menu item uses the default SETUP values. Use this option as a diagnostic aid of your system behaves erratically. Choose this item and the following message appears:

Load SETUP Default ( Y / N ) ?Y

To use the SETUP defaults, change the prompt to "Y" and press <Enter> The CMOS is load automatically form SETUP default values.

## 5-10. INTEGRATED PERIPHERALS

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

ROM PCI/ISA BIOS (2A69KP6A)			
INTEGRATED PERIPHERALS			
AWARD SOFTWARE, INC.			
IDE HDD Block Mode	: Enabled	Onboard Parallel Port	: 378/IRQ7
IDE Primary Master PIO	: Auto	Parallel Port Mode	: Normal
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		
On-Chip Primary PCI IDE	: Enabled		
On-Chip Secondary PCI IDE	: Enabled		
Onboard PCI SCSI Chip	: Disabled		
USB Keyboard Support	: Disabled		
Init Display First	: PCI Slot		
Onboard FDC Controller	: Enabled	Esc : Quit	↑↓→← : Select Item
Onboard UART 1	: 3F8/IRQ4	F1 : Help	Pu/Pd/+/- : Modify
Onboard UART 2	: 2F8/IRQ3	F5 : Old Values	(Shift)F2 : Color
Onboard UART 2 Mode	: Standard	F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

### INTEGRATED PERIPHERALS

By moving cursor to the desired selection and press the <F1> key, all options for the desired selection will be displayed for choice. User has to use select the desired option. Having made all the setting according to your selections. Press <Esc> to return to the Main Menu.

#### 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.

**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, also known as 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. When you select Auto in the four IDE UDMA fields, the system automatically determines the optimal data transfer rate for each IDE device.

**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.

**ONBOARD PCI SCSI CHIP:**

Select Enabled if your system contains a built-in SCSI controller.

**USB KEYBOARD SUPPORT:**

Select Enabled if you have a USB Keyboard.

**INIT DISPLAY FIRST:**

Initialize the AGP video display before initializing any other display device on the system. Thus the AGP display becomes the primary display.

**ONBOARD FDC CONTROLLER:**

Select Enabled unless you installed an add-in FDC.

**ONBOARD UART1:**

**ONBOARD UART2:**

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

**ONBOARD UART 2 MODE:**

Select an operating mode for the second serial port.

**ONBOARD PARALLEL PORT:**

Select a logical LPT port address and corresponding interrupt for the physical parallel port.

**PARALLEL PORT MODE:**

Select an operating mode for the onboard parallel (printer) port. Select Normal, Compatible, or SPP unless you are certain your hardware and software both support one of the other available modes. For more information about parallel port modes, see <http://www.fapo.com/1284int.htm>.

## 5-11. PASSWORD SETTING

### TO SET A PASSWORD

If you want to enable this item you should choose the "PASSWORD SETTING" option from the main menu, 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, and press < Enter >. You will be asked to confirm the password. Type the password again and press < Enter >. You may also press < Esc > to abort the selection and not enter a password.

To change the original password, enter CMOS setup Menu again you will be asked to enter the original password, then select "PASSWORD SETTING" and press enter. The system will ask you to enter a password, then you may enter new password and re-type new password of confirmation.

 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

Upon entering the CMOS setup Menu, the system will ask you to enter the original password, after entering the original password, press "PASSWORD SETTING" a message will appear at the center.

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

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

### 5-12. IDE HDD AUTO DETECTION

Choose the "IDE HDD AUTO DETECTION" option . The screen will be shown as below.

ROM PCI / ISA BIOS (2A69KP6A)							
STANDARD CMOS SETUP							
AWARD SOFTWARE, INC.							
Type	Size	CYLS.	HEADS	PRECOMP	LANDZONE	SECTORS	MODE
Primary Master :	( Mb)	0	0	0	0	0	-----
Primary Slave :							
Secondary Master :							
Secondary Slave :							
Select Secondary Slave Option (N=Skip) : N							
Option	Size	Cyls	Heads	Precomp	Landzone	Sectors	Mode
2(Y)	540	524	32	0	1048	63	LBA
1	541	1049	16	65535	1048	63	Normal
3	540	524	32	65535	1048	63	LARGE
Note: Some Oses (like SCO-UNIX) must use "Normal" for installation							
Esc : Skip							

#### IDE HDD AUTO DETECTION Screen

This setup menu allows you to save time in finding the Hard Disk Drive information, just follow the following steps:

1. Select the "IDE HDD AUTO DETECTION" from the Main Menu.
2. After a couple of seconds, the screen will appear the Hard Disk information and following message will appear:

**"SELECT PRIMARY MASTER OPTION (N=SKIP):N"**

3. Enter Y or N to confirm the acceptance of the parameter reported by BIOS, then press the <ENTER> key.

⚠ The process will repeat again for Primary Slave, Secondary Master and Secondary Slave Hard Disks.

### 5-13. SAVE & EXIT SETUP

When you have completed adjusting all the settings as required, you must have these setting into the CMOS RAM. Select "SAVE & EXIT SETUP" and press<Enter>, as the display shown on below:

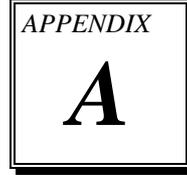
ROM PCI / ISA BIOS (2A69KP6A) CMOS SETUP UTILITY AWARD SOFTWARE, INC.	
STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION
PNP/PCI CONF	ETUP
LOAD BIOS DE	SAVING
SAVE to CMOS and EXIT (Y/N)? N	
LOAD SETUP DEFAULTS	
Esc : Quit	↑↓→← :Select Item
F10 : Save & Exit Setup	(Shift)F2 : Change Color
Save Data to CMOS & Exit SETUP	

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

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

ROM PCI / ISA BIOS (2A69KP6A) CMOS SETUP UTILITY AWARD SOFTWARE, INC.	
STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION
PNP/PCI CONF	ETUP
LOAD BIOS DE	SAVING
LOAD SETUP DEFAULTS	
Esc : Quit	↑↓→← : Select Item
F10 : Save & Exit Setup	(Shift)F2 : Change Color
Abandon all Datas & Exit SETUP	

# ***EXPANSION BUS***



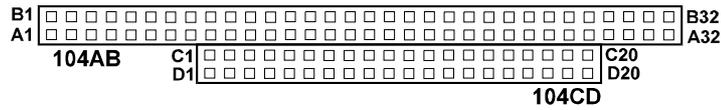
This appendix indicates the pin assignments.

Section includes:

- PC-104 Connector Pin Assignment
- ISA BUS Pin Assignment
- PCI BUS Pin Assignment

## PC-104 CONNECTOR PIN ASSIGNMENT

### 104AB, 104CD : PC-104 Connector



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

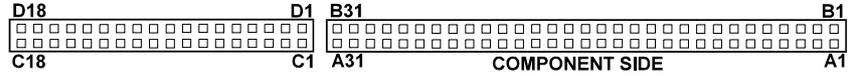
The pin assignments for connector 104AB & 104CD are as follow:

104AB				104CD			
PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT
A1	IOCHK	B1	GND	C1	GND	D1	GND
A2	D7	B2	REST	C2	SBHE	D2	MEMCS16
A3	D6	B3	VCC	C3	LA23	D3	IOCS16
A4	D5	B4	IRQ9	C4	LA22	D4	IRQ10
A5	D4	B5	-5V	C5	LA21	D5	IRQ11
A6	D3	B6	DRQ2	C6	LA20	D6	IRQ12
A7	D2	B7	-12V	C7	LA19	D7	IRQ15
A8	D1	B8	OWS	C8	LA18	D8	IRQ14
A9	D0	B9	+12V	C9	LA17	D9	DACK0
A10	IOCHRDY	B10	GND	C10	MEMR	D10	DRQ0
A11	AEN	B11	SMEMW	C11	MEMW	D11	DACK5
A12	A19	B12	SMEMR	C12	D8	D12	DRQ5
A13	A18	B13	IOW	C13	D9	D13	DACK6
A14	A17	B14	IOR	C14	D10	D14	DRQ6
A15	A16	B15	DACK3	C15	D11	D15	DACK7
A16	A15	B16	DRQ3	C16	D12	D16	DRQ7
A17	A14	B17	DACK1	C17	D13	D17	VCC
A18	A13	B18	DRQ1	C18	D14	D18	MASTER
A19	A12	B19	REFRESH	C19	D15	D19	GND
A20	A11	B20	CLK	C20	KEY PIN	D20	GND
A21	A10	B21	IRQ7				
A22	A9	B22	IRQ6				
A23	A8	B23	IRQ5				
A24	A7	B24	IRQ4				
A25	A6	B25	IRQ3				
A26	A5	B26	DACK2				
A27	A4	B27	TC				
A28	A3	B28	BALE				
A29	A2	B29	VCC				
A30	A1	B30	OSC				
A31	A0	B31	GND				
A32	GND	B32	GND				

## ISA BUS PIN ASSIGNMENT

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

The pin assignments as follows :

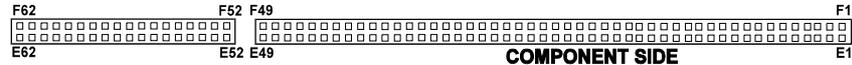


B		A		D		C	
PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT
B1	GND	A1	-I/O CH CHK	D1	-MEMCS16	C1	SBHE
B2	RESET	A2	SD07	D2	-I/OCS16	C2	LA23
B3	+5V	A3	SD06	D3	IRQ10	C3	LA22
B4	IRQ9	A4	SD05	D4	IRQ11	C4	LA21
B5	-5V	A5	SD04	D5	IRQ12	C5	LA20
B6	DRQ2	A6	SD03	D6	IRQ15	C6	LA19
B7	-12V	A7	SD02	D7	IRQ14	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

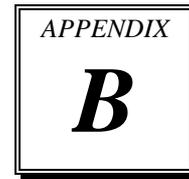
Like ISA-BUS connector, the PCI-BUS edge connector is also divided into two sets : one consists of 98 pins; the other consists of 22 pins. The standard of PICMG 32-bit PCI-ISA connector contains 218 pins in total.

The pin assignments are as follows :



F		E		F		E	
PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT
F1	-12V	E1	TRST#	F31	+3.3V	E31	AD18
F2	TCK	E2	+12V	F32	AD17	E32	AD16
F3	GND	E3	TMS	F33	C/BE2#	E33	+3.3V
F4	TDO	E4	TDI	F34	GND	E34	FRAME#
F5	+5V	E5	+5V	F35	IRDY#	E35	GND
F6	+5V	E6	INTA#	F36	+3.3V	E36	TRDY#
F7	INTB#	E7	INTC#	F37	DEVSEL#	E37	GND
F8	INTD#	E8	+5V	F38	GND	E38	STOP#
F9	REQ3#	E9	CLKC	F39	LOCK#	E39	+3.3V
F10	REQ1#	E10	+5V(I/O)	F40	PERR#	E40	SDONE
F11	GNT3#	E11	CLKD	F41	+3.3V	E41	SB0#
F12	GND	E12	GND	F42	SERR#	E42	GND
F13	GND	E13	GND	F43	+3.3V	E43	PAR
F14	CLKA	E14	GNT1#	F44	C/BE1#	E44	AD15
F15	GND	E15	RST#	F45	AD14	E45	+3.3V
F16	CLKB	E16	+5V(I/O)	F46	GND	E46	AD13
F17	GND	E17	GNT0#	F47	AD12	E47	AD11
F18	REQ0#	E18	GND	F48	AD10	E48	GND
F19	+5V(I/O)	E19	REQ2#	F49	GND	E49	AD09
F20	AD31	E20	AD30	F52	AD08	E52	C/BE0#
F21	AD29	E21	+3.3V	F53	AD07	E53	+3.3V
F22	GND	E22	AD28	F54	+3.3V	E54	AD06
F23	AD27	E23	AD26	F55	AD05	E55	AD04
F24	AD25	E24	GND	F56	AD03	E56	GND
F25	+3.3V	E25	AD24	F57	GND	E57	AD02
F26	C/BE3#	E26	GNT2#	F58	AD01	E58	AD00
F27	AD23	E27	+3.3V	F59	+5V(I/O)	E59	+5V(I/O)
F28	GND	E28	AD22	F60	ACK64#	E60	REQ64#
F29	AD21	E29	AD20	F61	+5V	E61	+5V
F30	AD19	E30	GND	F62	+5V	E62	+5V

# ***TECHNICAL SUMMARY***

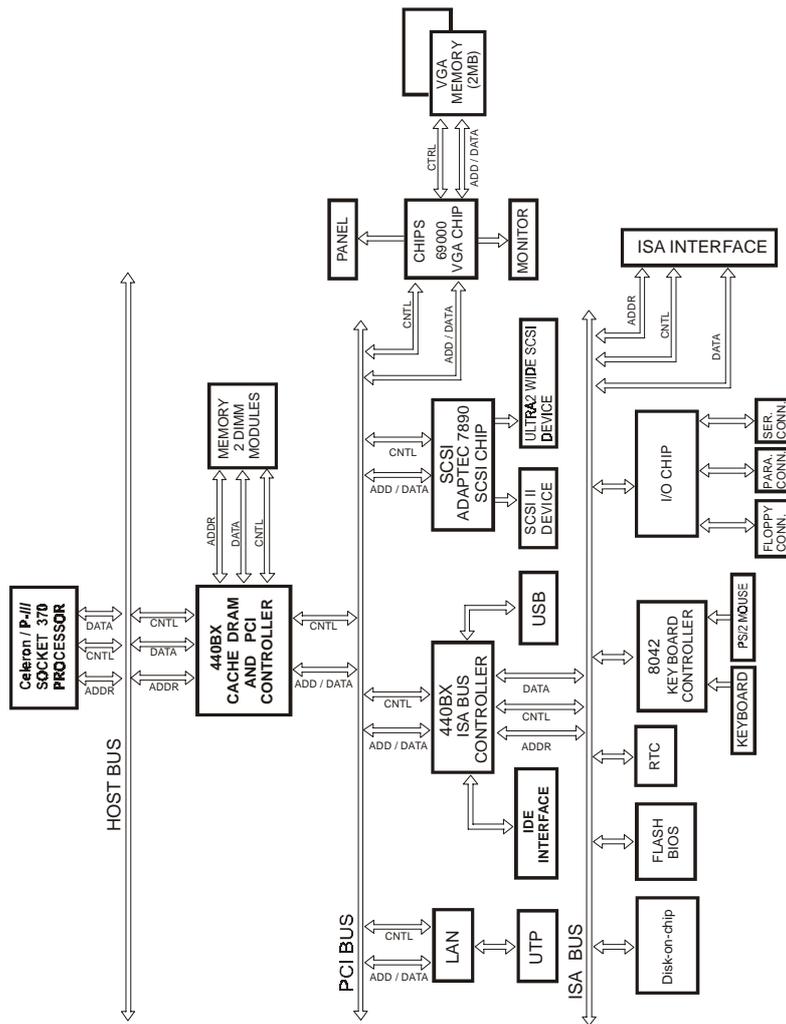


This section introduces you the maps concisely.

Section includes:

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

BLOCK DIAGRAM



**INTERRUPT MAP**

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

## **RTC & CMOS RAM MAP**

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

## TIMER & DMA CHANNELS MAP

### Timer Channel Map :

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

### DMA Channel Map :

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

## I/O & MEMORY MAP

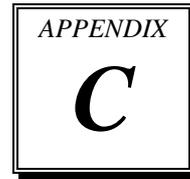
### Memory Map :

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

### I/O Map :

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

# ***TROUBLE SHOOTING***



This section outlines the errors 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 inform 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 kind of beep codes in BIOS. The 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 three short beeps. The other one code indicates that your DRAM error has occurred. This beep code consists of a single long beep repeatedly.

### **CMOS BATTERY FAILURE :**

When the CMOS battery is out of work or has run out, the user has to replace the whole unit.

### **CMOS CHECKSUM ERROR :**

This error inform you that the CMOS is corrupted. When the battery runs weak, this situation might happen. Please check the battery and change a new one when necessary.

### **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.

### **DISK BOOT FAILURE:**

When you can't find the boot device, insert a system disk into Drive A and press < Enter >. Make sure both the controller and cables are all in proper positions, also make sure the disk is formatted correct device. Then reboot the system.

**DISKETTE DRIVES OR TYPES MISMATCH ERROR :**

When the diskette drive type is different from CMOS, please run setup or configure the drive again.

**ERROR ENCOUNTERED INITIALIZING HARD DRIVE :**

When you can't initialize the hard drive. Assure 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 :**

When this error occurs. Be sure the cord is exactly installed in the bus. Make sure the correct hard drive type is selected in Setup. Also check whether all of the jumpers are set correctly in the hard drive.

**FLOPPY DISK CONTROLLER ERROR OR NO CONTROLLER PRESENT :**

When you cannot find or initialize the floppy drive controller, please check the controller whether in proper Setup. If there are no floppy drive installed, Ensure the Diskette Drive selection in Setup is set to NONE.

**KEYBOARD ERROR OR NO KEYBOARD PRESENT :**

When this situation happens, please check keyboard attachment 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 :**

When the memory address indicates error. 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 :**

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

**MEMORY VERIFYING ERROR :**

It 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 MISSING :**

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

**REBOOT ERROR :**

When this error occurs that requires you to reboot.. Press any key and the system will reboot.

**SYSTEM HALTED :**

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.

## **TROUBLE SHOOTING FOR POST CODES**

When you power on your PC, and the screen display nothing. You have to insert the POST Card for test. The address for ISA POST port is 80h. Make sure the card is in correct slot. The lists below indicate you the error messages. Please follow the instruction to adjust your system. If the error still occurred, please contact with your distributor for maintenance.

**C0 :** Turn off OEM specific cache, shadow.....

**03 :** Initialize all the standard devices with default values Standard devices includes :  
DMA controller (8237).  
Programmable Interrupt Controller (8259).  
Programmable Interval Timer (8254).  
RTC chip.

**05 :** 1.Keyboard Controller Self-Test.  
2.Enable Keyboard Interface.

- 07** : Verifies CMOS's basic R/W functionality.
- BE** : Program defaults values into chipset according to the MODBINable Chipset Default Table.
- C1** : Auto-detection of onboard DRAM & Cache.
- C5** : Copy the BIOS from ROM into E0000-FFFFFF shadow RAM so that POST will go faster.
- 08** : Test the first 256K DRAM.
- 09** : 1. Program the configuration register of Cyrix CPU according to the MODBINable Cyrix Register Table.  
2. OEM specific cache initialization (if needed).
- 0A** : 1. Initialize the first 32 interrupt vectors with corresponding Interrupt handlers Initialize INT no from 33-120 with Dummy(Spurious) Interrupt Handler.  
2. Issue CUID instruction to identify CPU type.  
3. Early Power Management initialization (OEM specific).
- 0B** : 1. Verify the RTC time is valid or not.  
2. Detect bad battery.  
3. Read CMOS data into BIOS stack area.  
4. PnP initializations including (PnP BIOS only).  
    -Assign CSN to PnP ISA card.  
    -Create resource map from ESCD.  
5. Assign I/O & Memory for PCI devices (PCI BIOS only).
- 0C** : Initialization of the BIOS Data Area (40 : 0N-40:FF).
- 0D** : 1. Program some of the Chipset's value according to Setup. (Early Setup Value Program).  
2. Measure CPU speed for display & decide the system clock speed.  
3. Video initialization including Monochrome ,CGA, EGA/VGA. If no display device found, the speaker will beep.

- 0E** : 1. Initialize the APIC (Multi-Processor BIOS only).  
2. Test video RAM (If Monochrome display device found).  
3. Show messages including :  
    -Award Logo, Copyright string, BIOS Date code & Part No.  
    -OEM specific sign on messages.  
    -Energy Star Logo (Green BIOS only).  
    -CPU brand, type & speed.  
    -Test system BIOS checksum (Non-compress Version only).
- 0F** : DMA channel 0 test.
- 10** : DMA channel 1 test.
- 11** : DMA page registers test.
- 14** : Test 8254 Timer 0 Counter2.
- 15** : Test 8259 interrupt mask bits for channel 1.
- 16** : Test 8259 interrupt mask bits for channel 2.
- 19** : Test 8259 functionality.
- 30** : Detect Base Memory & Extended Memory Size.
- 31** : 1. Test Base Memory from 256K to 640K.  
2. Test Extended Memory from 1M to the top of memory.
- 32** : 1. Display the Award Plug & Play BIOS Extension message (PnP BIOS only).  
2. Program all onboard super I/O chips (if any) including COM ports, LPT ports, FDD port....according to setup value.
- 3C** : Set flag to allow users to enter CMOS Setup Utility.
- 3D** : 1 Initialize Keyboard.  
2 Install PS2 mouse.

**3E** : Try to turn on Level 2 cache.

Note : Some chipset may need to turn on the L2 cache in this stage. But usually, the cache is turn on later in POST 61h.

**BF** : 1. Program the rest of the Chipset's value according to Setup. (Later Setup Value Program).

2. If auto-configuration is enabled, programmed the chipset with pre-defined value in the MODBINable Auto-Table.

**41** : Initialize floppy disk drive controller.

**42** : Initialize Hard drive controller.

**43** : If it is a PnP BIOS, initialize serial & parallel ports.

**45** : Initialize math coprocessor.

**4E** : If there is any error detected (such as video, kb...), show all the error messages the screen & wait for user to press <F1> key.

**4F** : 1. If password is needed, ask for password.

2. Clear the Energy Star Logo (Green BIOS only).

**50** : Write all CMOS values currently in the BIOS stack area back into the CMOS.

**52** : 1. Initialize all ISA ROMs.

2. Later PCI initializations (PCI BIOS only).

-assign IRQ to PCI devices.

-initialize all PCI ROMs.

3. PnP Initializations (PnP BIOS only).

-assign I/O, Memory, IRQ & DMA TO PnP ISA devices.

-initialize all PnP ISA ROMs.

4. Program shadows RAM according to Setup settings.

5. Program parity according to Setup setting.

6. Power Management Initialization.

-Enable/Disable global PM.

-APM interface initialization.

- 53** : 1.If it is NOT a PnP BIOS, initialize serial & parallel ports.  
2. Initialize time value in BIOS data area by translate the RTC time value into a timer tick value.
- 60** : Setup Virus Protection (Boot Sector Protection) functionality according to Setup setting.
- 61** : 1. Try to turn on Level 2 cache.  
Note : if L2 cache is already turned on in POST 3D, this part will be skipped.  
2. Set the boot up speed according to Setup setting.  
3. Last chance for Chipset initialization.  
4. Last chance for Power Management initialization (Green BIOS only).  
5. Show the system configuration table.
- 62** : 1.Setup daylight saving according to Setup value.  
2.Program the NumLock, typematic rate & typematic speed according to Setup setting.
- 63** : 1. If there is any changes in the hardware configuration, update the ESCD information (PnP BIOS only).  
2. Clear memory that have been used.  
3. Boot system via INT 19H.
- FF** : System Booting. this means that the BIOS already pass the control right to the operating system.



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