USER'S MANUAL

PC-680

P-II/P-III Embedded Card
W/ VGA & Flat Panel
W/ SCSI/SSD

PC-680 M4

PC-680 P-II/!!! EMBEDDED CARD
WITH VGA/SCSI/SSD

OPERATION MANUAL

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APPENDIX C TROUBLE SHOOTING

INTRODUCTION

CHAPTER

1

This chapter gives you the information for PC-680. It also outlines the System specifications.

Sections include:

- About This Manual
- System Specifications
- Safety precautions

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

1-1. ABOUT THIS MANUAL

Thank you for purchasing our PC-680 P-II/P-III Embedded Card with SCSI/VGA/SSD, which is fully PC / AT compatible. The PC-680 provides faster processing speed, greater expandability and can handle more task than before. This manual is designed to assist you how to install and set up the system. It contains 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 indicates you 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 learn how to set the jumpers and how to configure the system to meet your own needs.

Chapter 3 Software Utilities

The chapter contains helpful informations about the proper installation of the VGA driver, SCSI driver and Flash BIOS update. 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 how to set up the BIOS configurations.

Appendix A Expansion Bus

This Appendix introduces you the expansion bus for PC-104 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
  Pentium II, Pentium III.
  233/266/300/333/350/400/450/500/550MHz clock generator.
  Auto detect voltage regulator.

- **MEMORY :**
  Up to 512MB, SDRAM
  Four 168pin DIMMs socket on board.

- **CACHE :**
  L1 Cache (depended on CPU type).
  L2 Cache Built-in CPU

- **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 256KB flash EEPROM.
  Support Green Function .
  Support S/IO Setup.

- **KEYBOARD / MOUSE CONNECTOR :**
  DIN connector on board, supports AT Keyboard or PS/2 Mouse by jumper selection.
  5 pin External keyboard connector.

- **BUS SUPPORT :**
  External ISA/PCI BUS.
  Internal PCI Bus, for VGA IDE & SCSI.
  PC-104 BUS.

- **DISPLAY :**
  Support SVGA for CRT & Panel.
  Support 32bits PCI Local Bus.
  VGA BIOS combines in 256KB flash ROM together with system BIOS.
  Support 15 pin connector 1024 x 768 (256 colors) resolution on SVGA Monitor.
  Support 2 MB Video memory (1 MB optional).
  Support 41 pin connector 640 x 480, 800 x 600 resolutions on LCD Panel.
  Panel support Color STN, TFT, EL.
  SVGA & Panel Display simultaneously.

- **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 IDE ports, support Ultra DMA-33, four enhanced IDE devices.

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

- **SCSI INTERFACE :**
  Two connectors, one for SCSI 50pin connector and one 68pin ULTRA (40MB/S) wide SCSI connector.

- **SOLID STATE DISK SOCKET :**
  Supports up to 144MB disk-on-chip.

- **USB CONNECTOR :**
  USB Connector on board, support 2 USB ports.

- **SERIAL PORT :**
  Two high speed 16550 Compatible UARTs with Send / Receive 16 Byte FIFOs.
  MIDI Compatible.
  Programmable Band Rate Generator.

- **PARALLEL PORT :**
  SPP, ECP, EPP Function.
  Bi-directional parallel port.

- **GREEN FUNCTION :**
  Software support by BIOS setup.
  Hardware support by switch control.

- **LED INDICATOR :**
  System power.
  Hard Disk access.
  Turbo and green function mode.

- **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 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 details you the jumper & connector settings, and component locations.

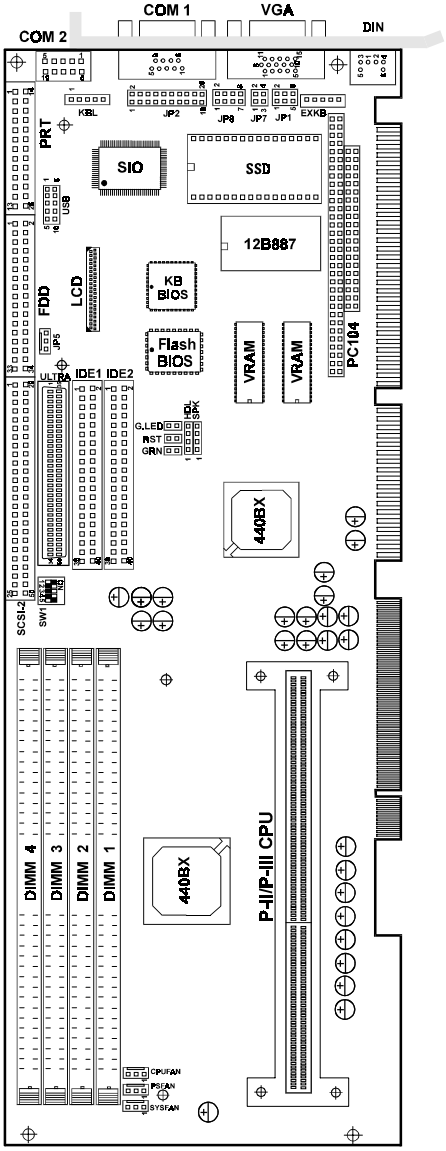
Section includes:

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

2-1 JUMPER & CONNECTOR QUICK REFERENCE TABLE

CPU Type & Clock Selection	SW1
RS232/422/485 (COM2) Selection	JP2
AT Keyboard / PS/2 Mouse Selection	JP1
SSD Memory Maping Selection	JP6, JP7
COM1 Connector	COM1
COM2 Connector	COM2
Keyboard / PS2 Mouse Connector	DIN
External Keyboard Connector	EXKB
Reset Connector	RST
CPU Fan Connector	CPUFAN
Floppy Disk Drive Connector	FDD
Hard Disk Drive Connector	IDE1, IDE2
Hard Disk Drive LED Connector	HDL
Power LED & KeyLock Connector	KBL
Panel Inverter Delay-power Connector	JP5
LCD Panel Connector	LCD
VGA CRT Connector	VGA
External Speaker Connector	SPK
Printer Connector	PRT
Power Supply Fan Connector	PSFAN
SCSI Connector	SCSI1,ULTRA
System Fan Connector	SYSFAN
Green Function Connector	GRN
Universal Serial Bus Connector	USB
Disk-on-chip Socket	SSD
Memory Installation	DIMM1, DIMM2 DIMM3, DIMM4

2-2 COMPONENT LOCATIONS



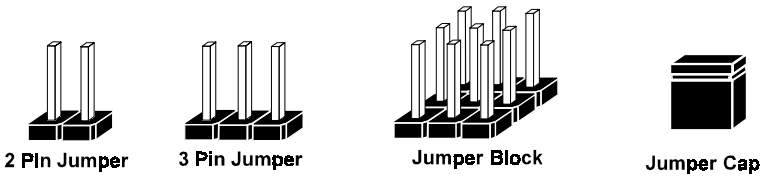
PC-680 Connector, Jumper and Component locations

2-3 HOW TO SET THE JUMPERS

You can configure your board by setting the jumpers. A jumper consists of two or three metal pins with a plastic base mounted on the card, and a small plastic "cap"(with a metal contact inside) to connect the pins. So you can set up your hardware configuration by "opening" or "closing" the pins.

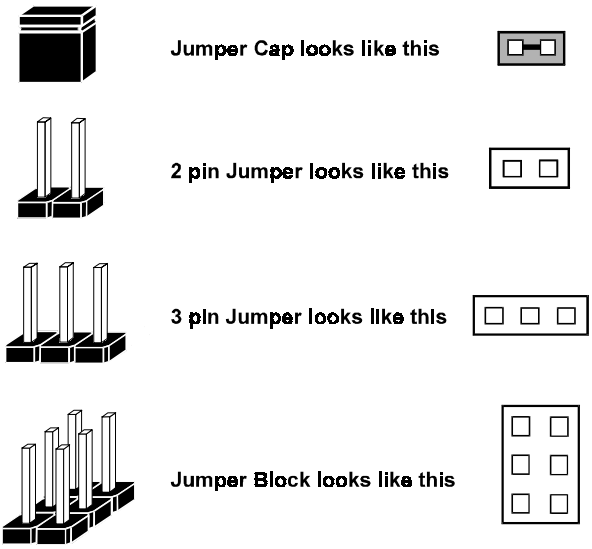
The jumper can be combined into sets which called jumper blocks. When the jumpers are all in the block, you have to put them together to set up the hardware configuration. The figure below shows how this looks.

JUMPERS AND CAPS

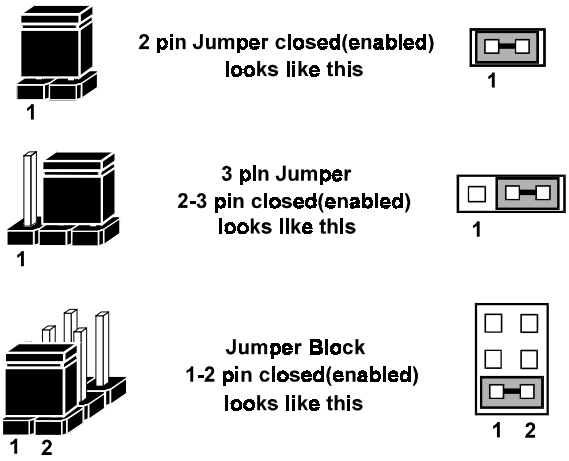


For example, if a jumper has three pins, labelled PIN1, PIN2, and PIN3. You can connect PIN1 & PIN2 to create one setting and shorting. You can either connect PIN2 & PIN3 to create another setting. The same jumper diagrams are applied all through this manual. The figure below shows what the manual diagrams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

JUMPER DIAGRAMS



JUMPER SETTINGS



2-4 CPU TYPE & CLOCK SELECTION

SW1 : CPU type and Bus Ratio Selection
SW1A5: CPU Clock Selection
The jumper settings are as follows :

2-4-1 Intel P-II 233/266/300/333 CPU type & clock Jumper settings

CPU TYPE	CPU CLOCK	Jumper Settings SW1 A1	A2	A3	A4	A5	JUMPER ILLUSTRATION
Intel P-II 233Mhz	66Mhz	ON	OFF	OFF	ON	ON	
Intel P-II 266Mhz	66Mhz	ON	ON	ON	OFF	ON	
Intel P-II 300Mhz	66Mhz	ON	OFF	ON	OFF	ON	
Intel P-II 333Mhz	66Mhz	ON	ON	OFF	OFF	ON	

*** Manufactory default -- Intel P-II 266Mhz

2-4-2 Intel P-II 350/400/450 CPU type & clock Jumper settings

CPU TYPE	CPU CLOCK	Jumper Settings SW1 A1	A2	A3	A4	A5	JUMPER ILLUSTRATION
Intel P-II 350Mhz	100Mhz	ON	OFF	OFF	ON	OFF	
Intel P-II 400Mhz	100Mhz	ON	ON	ON	OFF	OFF	
Intel P-II 450Mhz	100Mhz	ON	OFF	ON	OFF	OFF	

2-4-3 Intel P-III 450/500/550/600 CPU type & clock Jumper settings

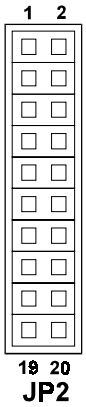
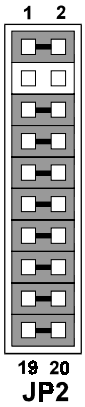
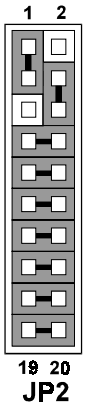
CPU TYPE	CPU CLOCK	Jumper Settings SW1 A1	A2	A3	A4	A5	JUMPER ILLUSTRATION
Intel P-III 450Mhz	100Mhz	ON	OFF	ON	OFF	OFF	
Intel P-III 500Mhz	100Mhz	ON	ON	OFF	OFF	OFF	
Intel P-III 550Mhz	100Mhz	ON	OFF	OFF	OFF	OFF	
Intel P-III 600Mhz	100Mhz	OFF	ON	ON	ON	OFF	

2-4-4 Intel P-III 650/700/750/800 CPU type & clock Jumper settings

CPU TYPE	CPU CLOCK	Jumper Settings SW1 A1	A2	A3	A4	A5	JUMPER ILLUSTRATION
Intel P-III 650Mhz	100Mhz	OFF	OFF	ON	ON	OFF	
Intel P-III 700Mhz	100Mhz	OFF	ON	OFF	ON	OFF	
Intel P-III 750Mhz	100Mhz	OFF	OFF	OFF	ON	OFF	
Intel P-III 800Mhz	100Mhz	OFF	ON	ON	OFF	OFF	

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

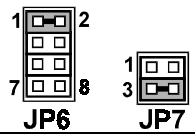
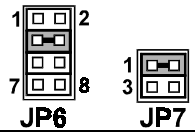
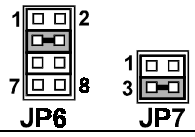
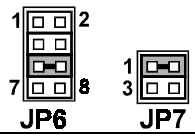
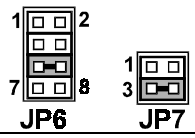
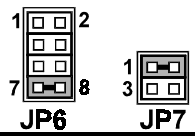
JP2 : RS-232/422/485 Selection
COM1 is fixed for RS-232 function only.
COM2 is selectable for RS-232, 422, 485 function.
The jumper settings are as follows :

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			

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

2-6 SSD MEMORY MAPPING SELECTION

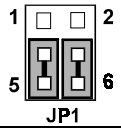
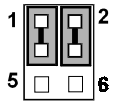
JP6, JP7 : SSD Memory Mapping Selection
A 32-pin SSD socket supports Disk-on-Chip up to 144MB. This PnP Flash ROM SSD can be installed as one of user's hard disk drive. And if set as Drive C, it can be used to boot up the computer with MS-DOS installed. The SSD Memory Mapping is as follows:

SSD Memory Map	JUMPER SETTINGS (pins closed) JP6	JP7	JUMPER ILLUSTRATION
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

2-7 AT KEYBOARD / PS2 MOUSE SELECTION

JP1 : AT Keyboard / PS2 Mouse Selection
The jumper settings are as follows:

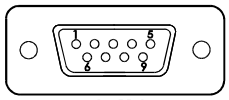
DEVICE TYPE	JUMPER SETTINGS (pins closed) JP1	JUMPER ILLUSTRATION
AT KEYBOARD	3-5 4-6	 JP1
PS/2 MOUSE	1-3 2-4	 JP1

*** Manufactory default -- AT Keyboard

2-8 COM1 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

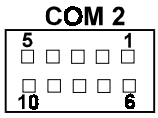


COM 1

2-9 COM2 CONNECTOR

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

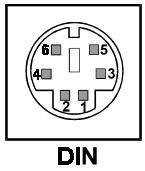
PIN	ASSIGNMENT		
	RS-232	RS-422	RS-485
1	DCD	TX-	TX-
2	RX	TX+	TX+
3	TX	RX+	RX+
4	DTR	RX-	RX-
5	GND	GND	GND
6	DSR	RTS-	NC
7	RTS	RTS+	NC
8	CTS	CTS+	NC
9	RI	CTS-	NC
10	NC	NC	NC



2-10 KEYBOARD OR PS/2 MOUSE CONNECTOR

DIN : Keyboard or PS/2 Mouse Connector
The pin assignments are as follows :

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

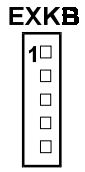


Note: To select keyboard or mouse, user should set the right device type described on JP1.

2-11 EXTERNAL KEYBOARD CONNECTOR

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

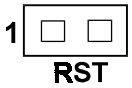
PIN	ASSIGNMENT
1	KBCLK
2	KBDATA
3	NC
4	GND
5	Vcc



2-12 RESET CONNECTOR

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

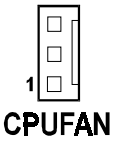
PIN	ASSIGNMENT
1	Reset
2	Ground



2-13 CPU FAN CONNECTOR

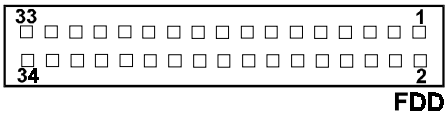
CPUFAN : CPU Fan connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	GND
2	+12V
3	CPUFAN



2-14 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 attach to the FDD connector on the board, and the other side is attaches to two FDDs.
The pin assignments are as follows :

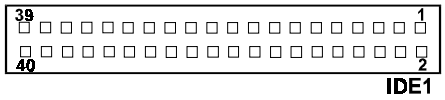


FDD

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

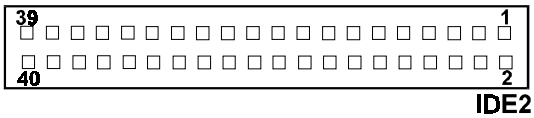
2-15 HARD DISK DRIVE CONNECTOR

IDE1: Hard Disk Drive Connector
The PC-680 possesses two HDD connectors, IDE1 and IDE2. The pin assignments are as follows:



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:



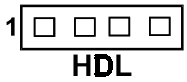
IDE2

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

2-16 HARD DISK DRIVE LED CONNECTOR

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

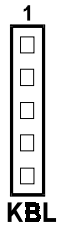
PIN	ASSIGNMENT
1	Vcc
2	HDD Active Signal
3	HDD Active Signal
4	HDD Active Signal



2-17 POWER LED & KEYLOCK CONNECTOR

KBL : Power LED & Keylock Connector
The pin assignments are as follows :

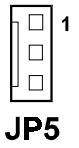
PIN	ASSIGNMENT
1	Power LED
2	NC
3	Ground
4	Keyboard INT
5	Ground



2-18 PANEL INVERTER DELAY-POWER CONNECTOR

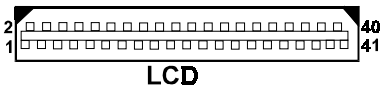
JP5 : Panel Inverter Delay-power Connector
This Connector acts as an inverter to supply proper power to LCD panel.
The pin assignments are as follows :

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



2-19 LCD PANEL CONNECTOR

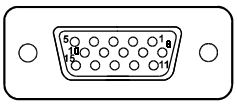
LCD : LCD Panel Connector
The connector LCD is a 41-pin, dual-in-line header used for Flat Panel displays.
The pin assignments are as follows :



PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	P20	2	GND
3	P16	4	Vcc
5	P21	6	P0
7	P17	8	P8
9	P22	10	P1
11	P18	12	P9
13	P23	14	P2
15	P19	16	P10
17	Vcc	18	P3
19	FLM	20	P11
21	MDE	22	P4
23	LP	24	P12
25	SHFCLK	26	P5
27	3.3V	28	P13
29	3.3V	30	P6
31	ENABKL	32	P14
33	LCDVDD	34	P7
35	ENVEE	36	P15
37	GND	38	LCD+12V
39	GND	40	LCD+12V
41	NC		

2-20 VGA CRT CONNECTOR

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



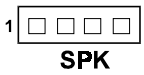
VGA

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

2-21 EXTERNAL SPEAKER CONNECTOR

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

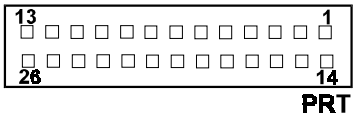
PIN	ASSIGNMENT
1	Vcc
2	Speaker Signal
3	Speaker Signal
4	Speaker Signal



SPK

2-22 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 :

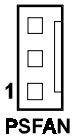


PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	STB	14	AUTFE
2	P0	15	ERROR
3	P1	16	INIT
4	P2	17	SLCTIN
5	P3	18	GND
6	P4	19	GND
7	P5	20	GND
8	P6	21	GND
9	P7	22	GND
10	ACK	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SLCT	26	NC

2-23 POWER SUPPLY FAN CONNECTOR

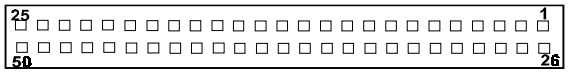
PSFAN : Power Supply Fan connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	GND
2	+12V
3	PSFAN



2-24 SCSI CONNECTOR

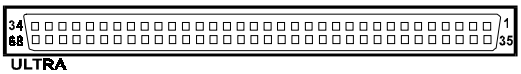
SCSI: SCSI II Connector
ULTRA: Ultra wide SCSI Connector
The PC-680 equips with two SCSI Connectors on board, SCSI and ULTRA. The SCSI is a 50 pins dual-in-line header, ULTRA is a 68 pins dual-in-line header.The pin assignments are as follows :



SCSI

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 : SCSI Connector for Ultra wide SCSI HDD.
The pin assignments are as follows:



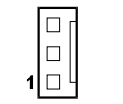
PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	24	GND	47	SCD7
2	GND	25	GND	48	SCDPL
3	GND	26	GND	49	GND
4	GND	27	GND	50	GND
5	GND	28	GND	51	TRMPWR
6	GND	29	GND	52	TRMPWR
7	GND	30	GND	53	NC
8	GND	31	GND	54	GND
9	GND	32	GND	55	SATTN-
10	GND	33	GND	56	GND
11	GND	34	GND	57	SBSY-
12	GND	35	SCD12	58	SACK-
13	GND	36	SCD13	59	SRST-
14	GND	37	SCD14	60	SMSG-
15	GND	38	SCD15	61	SSEL-
16	GND	39	SCDPH	62	SCD-
17	GND	40	SCD0	63	SREQ-
18	GND	41	SCD1	64	SIO-
19	NC	42	SCD2	65	SCD8
20	GND	43	SCD3	66	SCD9
21	GND	44	SCD4	67	SCD10
22	GND	45	SCD5	68	SCD11
23	GND	46	SCD6		

- The SCSI function of this CPU Card is designed based on PCI Bus Master, that means that 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.**

2-25. SYSTEM FAN CONNECTOR

SYSFAN : System Fan Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	GND
2	+12V
3	SYSFAN

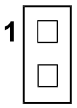


SYSFAN

2-26. GREEN FUNCTION CONNECTOR

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

PIN	ASSIGNMENT
1	EXTSMI-
2	GND

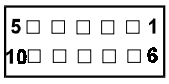


GRN

2-27. UNIVERSAL SERIAL BUS CONNECTOR

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

PIN	ASSIGNMENT
1	VCC
2	USBP∅–
3	USBP∅+
4	GND
5	GND
6	VCC
7	USBP1–
8	USBP1+
9	GND
10	GND



USB

2-28. SOLID-STATE DISK SOCKET

SSD: 32pin Solid State Disk 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

2-29. MEMORY INSTALLATION

The PC-680 P-II/P-III Embedded Computer can support 4 SDRAM banks.

Note: DIMM 1,2,3,4 for double Bank SDRAM module (168pin x 32bit x 4)

DRAM BANK CONFIGURATION

DIMM 1	DIMM 2	DIMM 3	DIMM 4	TOTAL MEMORY
32M				32M
32M	32M			64M
32M	32M	32M		96M
32M	32M	32M	32M	128M
32M	64M			96M
32M	64M	32M		128M
32M	64M	64M	64M	224M
32M	64M	128M	64M	288M
32M	128M	128M	64M	352M
64M				64M
64M	64M			128M
64M	64M	64M		192M
64M	32M	32M	64M	192M
64M	64M	64M	64M	256M
64M	32M	64M	64M	224M
64M	128M			192M
64M	128M	128M		320M
64M	64M	64M	128M	320M
64M	32M	64M	128M	288M
64M	128M	128M	128M	448M
128M				128M
128M	128M			256M
128M	32M	64M	128M	352M
128M	64M	128M		320M
128M	128M	128M		384M
128M	128M	128M	32M	416M
128M	64M	128M	128M	448M
128M	128M	128M	128M	512M

SOFTWARE UTILITIES

CHAPTER
3

This chapter comprises the detailed information of VGA driver, SCSI driver, and BIOS update. It also describes how to configure the Watchdog Timer.

Section includes:

- VGA Driver Utilities
- Flash BIOS Update
- SCSI Driver Utilities
- Watchdog Timer Configuration

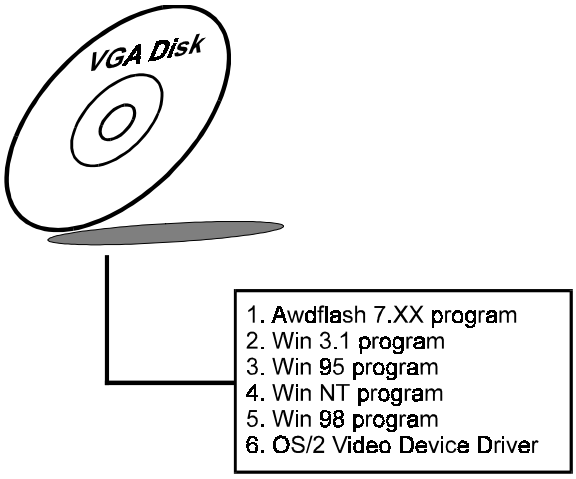
3-1. INTRODUCTION

Enclosed with our PC-680 package is our driver utility, which may comes in a form of a CD ROM disc or floppy diskettes. For CD ROM disc user, you will only need some of the files contained in the CD ROM disc, please kindly refer to the following chart:

File name (Assume that CD ROM drive is D:)	Purpose
D:\VGA\C&T\CT6555x	For VGA driver installation
D:\Flash\Awdflash.exe	For BIOS update
D:\SCSI\AIC7880	For SCSI driver installation

3-2. VGA DRIVER UTILITY

The VGA interface embedded with our PC-680 can support a wide range of display mode, such as SVGA, STN, TFT, EL,.....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.



3-2-1. Installation of VGA Driver for PCI

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 "Adaper 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 65550 PCI".

(6). Follow the remaining instructions that appear on the screen to complete the rest of the installation, and 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 65550 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 changes 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 65550" 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.

3-3. FLASH BIOS UPDATE

3-3-1. System BIOS Update:

Users of PC-680 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-680 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 65550 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 680xxxxx.bin
   C:\UTIL\AWDFLASH>AWDFLASH 680xxxxx.bin
4. The screen will display the table below:

FLASH MEMORY WRITER v7.XX (C) Award Software 1999 All Rights Reserved
For i440BX-SMC669-2A69KP69C-0 DATE: 12/12/1999 Flash Type: MXIC 28F2000PPC/12V File Name to Program: 680xxxxx.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 1999 All Rights Reserved
For i440BX-SMC669-2A69KP69C-0 DATE: 12/12/1999 Flash Type: MXIC 28F2000PPC/12V File Name to Program: F60xxxxx.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:

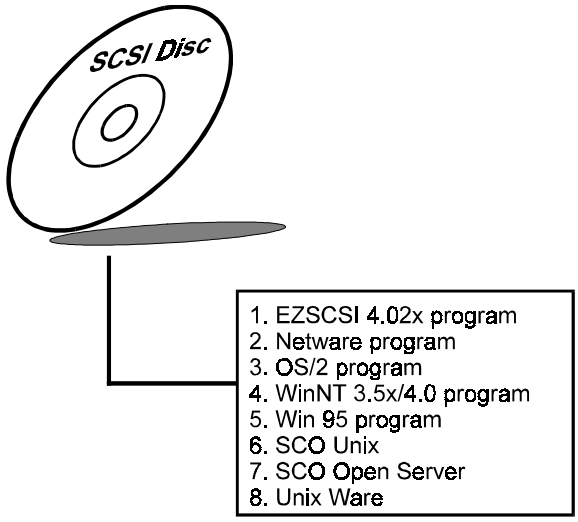
FLASH MEMORY WRITER v7.XX (C) Award Software 1999 All Rights Reserved
For i440BX-SMC669-2A69KP69C-0 DATE: 12/12/1999 Flash Type: MXIC 28F2000PPC/12V File Name to Program: F60xxxxx.bin Checksum: XXXXX Reset System or Power off to accomplish update process!
F1: Reset F10: Exit

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

3-4. SCSI DRIVER UTILITY

3-4-1. Introduction

PC-680 is embedded with SCSI Adaptec 7880 can support SCSI II and Ultra-wide SCSI. Installation programs are provided as follows:



Details on Installation procedure is found in the README.TXT file found on SCSI DRIVER UTILITY.

3-5. 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-680 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:

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

Watchdog disable program:

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

The Watchdog Timer control table is as follow:

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

CHAPTER

4

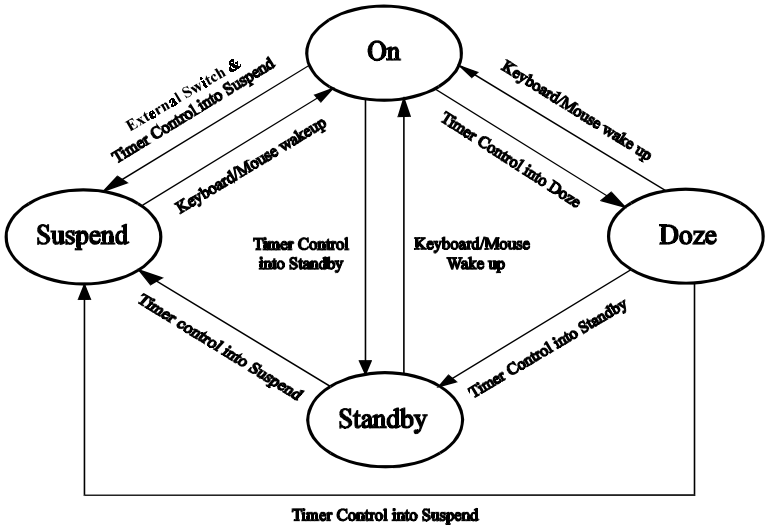
GREEN PC FUNCTION

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

Section includes:

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

4-1. POWER SAVING BLOCK DIAGRAM



4-2. CPU DOZE MODE

1. After timing out, CPU clock slows down to 8MHz.
2. Flash LED to indicate power saving status.
3. Monitor Activity, according to the setting of Advanced Setup.
4. Any activity occurs, system will exit from Doze mode to On mode.

4-3. SYSTEM STANDBY MODE

1. After timing out, CPU clock slows down to 8MHz.
2. Flash LED to indicate power saving status.
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 SYSTEM SUSPEND MODE

1. After timing out, CPU clock is slow down to 8MHz, if you use Intel Pentium or Cyrix (SMI) CPU, then CPU clock will be stopped.
2. Three 3 beep sounds.
3. Flash LED to indicate power saving status.
4. Level 2 cache are disabled.
5. VGA monitor displays blank screen.
6. Fixed disk driver motor will be spin off.
7. Monitor activity according to the setting of Advanced Setup.
8. When system in Suspend mode, only Keyboard / Mouse / Alarm resume can wakeup system.

AWARD BIOS SETUP

CHAPTER

5

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

This section includes:

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

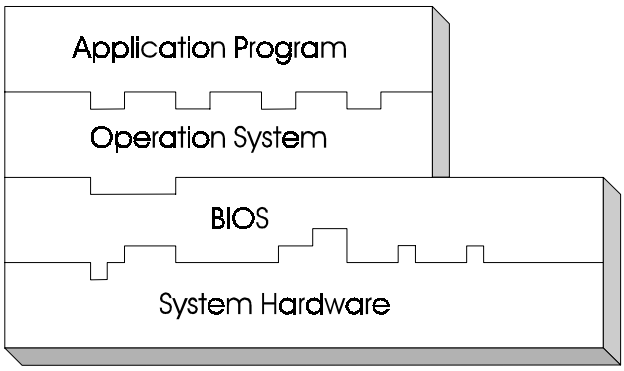
5-1. INTRODUCTION

This chapter will show you the function of a BIOS in managing the features of your system. The PC-680 P-II/P-III Embedded Card is equipped with the BIOS for system chipset from Award Software Inc. This page briefly explains the function of a 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 a 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 (2A69KP69) 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 CINFIGURATION	SAVE & EXIT SETUP
LOAD BIOS DEFAULTS	EXIT WITHOUT SAVING
LOAD SETUP DEFAULTS	
Esc : Quit F10 : Save & Exit Setup	↑↓→← :SELECT ITEM (Shift)F2 : Change Color
Time, Date, Hard Disk Type.....	

Setup program initial screen

You may use the cursor up/down keys to highlight the 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 color 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 < ENTER > and the screen will display the following table:

ROM PCI / ISA BIOS (2A69KP69)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

Date (mm:dd:yy) : Tue, Jul 14 1998
Time (hh:mm:ss) : 10 : 19 : 9

	Type	SIZE	CYLS.	HEADS	PRECOMP	LANDZONE	SECTORS	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.
Drive B : None

Video : EGA/VGA
Halt On : All, But keyboard

Base Memory: 640K
Extended Memory: 1300484K
Other Memory: 384K
Total Memory: 131072K

Esc : Quit ↑↓→← :Select Item Pu/Pd/+/- : Modify
F1 : Help (Shift) F2 : Change Color

CMOS setup screen

In the above table the base memory size and the extended memory size are displayed. This is automatically read from your systems, and you do not need to set these parameters. The screen shows a calendar. The week display will depend on the date set in your system clock and the flashing indicating the current date. Since you have not yet set the time and date, the date displayed is probably incorrect. The description 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/Primary Slave/Secondary Master/Secondary 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.

HEADS:

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.

LANDZONE:

Landzone 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)

SECTORS :

This is the number of sectors per track. MFM drives have 17 sectors per track. RLL drives have 26 sectors per track. ESDI drives have 34 sectors per track. SCSI and IDE drive may have even more sectors per track.

DRIVE A AND DRIVE B:

The option are 360KB 5.25in, 1.2KB 5.25in, 720KB 3.5in, 1.44MB 3.5in, 2.88MB 3.5in and None. Not Installed could be used as an option for diskless workstations.

VIDEO:

This category selects the type of video adapter used for the primary system monitor. Although secondary monitors are supported, you do not have to select the type in Setup. Available options are EGA/VGA, CGA 40, CGA 80, and MONO.

HALT ON:

This category allows user to choose whether the computer will stop if an error is detected during power up. The available options are “All errors”, “No errors”, “All, But keyboard”, “All, But Diskette”, and “All 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 (2A69KP69)
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
Quick Power On Self Test	: Disabled	D4000-D7FFF Shadow	: Disabled
Boot Sequence	: A,C, SCSI	D8000- DBFFF Shadow	: Disabled
Swap Floppy Drive	: Disabled	DC000-DFFFF Shadow	: 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	: No	F7 : Load Setup Defaults	

BIOS Features Setup

The BIOS FEATURES SETUP allows you find true certain features supported by the chipset and Award BIOS. It also includes support for shadow RAM under which the contents of the ROM BIOS can be copied into memory at boot up, enhancing performance. When you change any of the setting, you may recall the default settings at any time from the main menu.

To get help on each item, highlight the relevant item and press the F1 key. A Windows will appear on your screen detailing the various options available for each item.

A brief introduction of each setting in the BIOS FEATURES SETUP program is given on next page.

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:

This item should always be Enable, If your system has 486CPU or above. Even if you have installed the external cache. If you have no external cache installed this item should be enabled to allow use of the internal cache in the CPU.

EXTERNAL CACHE:

Enable or disable this function according to whether you want external cache enabled or disabled.

QUICK POWER ON SELF TEST:

You can enable or disable this item to speed up Power On Self Test (POST) after you power on the computer. If it is set to Enable, BIOS will shorten or skip some check items during POST.

BOOT SEQUENCE:

You may define whether the system will look first at drive A: and then at drive C: when booting up, or vice versa.

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:

Use this item to enable / disable the NumLock on your keyboard automatically at power-on.

BOOT UP SYSTEM SPEED:

Select High to configure your system in the turbo speed mode at boot up, select Low to configure your system in normal speed mode. Whichever setting you choose you will still be able to use the turbo switch to toggle between the tow modes during use.

MEMORY PARITY CHECK:

Enable or Disable this item according to whether you wish the system to check the memory parity during boot up or not. If you disable this item even if the BIOS encounters a parity error it will be ignored. We recommend that you always enable the item in order to ensure that the memory is good each time you turn your PC on.

GATE 20A OPTION:

When you set this category as Fast. The A20 signal is controlled by chipset specific method.

TYPEMATIC RATE SETTING:

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

TYPEMATIC RATE (CHARS-SEC):

You can use this item to define the typematic rate delay of your keyboard, i.e. the rate at which characters will be repeated when a key held down.

TYPEMATIC DELAY (MSEC):

You can use this item to define the period after which the typematic function become active i.e. how long after you press a key the characters will be repeated.

SECURITY OPTION:

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

5-5 CHIPSET FEATURE SETUP

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

ROM PCI/ISA BIOS (2A69KP69)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

Auto Configuration	: Enable	Auto Detect DIMM/PCI Clk	: Enabled
EDO DRAM Speed Selection	: 60 ns	Spread Spectrum Modulated	: Disabled
EDO CASx# MA Wait State	: 2	CPU Host Clock	: Default
EDO RASx# Wait State	: 2		
SDRAM RAS-to-CAS Delay	: 3		
SDRAM RAS Precharge Time	: 3		
SDRAM CAS latency Time	: 3		
SDRAM Precharge Control	: Disabled		
DRAM Data Integrity Mode	: Non-ECC		
System BIOS Cacheable	: Disabled		
Video BIOS Cacheable	: Disabled		
Video RAM Cacheable	: Disabled		
8 Bit I/O Recovery Time	: 1		
16 Bit I/O Recovery Time	: 1		
Memory Hole At 15M-16M	: Disabled	Esc : Quit	↑↓→← : Select Item
Passive Release	: Enabled	F1 : Help	Pu/Pd/+/- : Modify
Delayed Transaction	: Disabled	F5 : Old Values	(Shift)F2 : Color
AGP Aperture Size (MB)	: 64	F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

Chipset Features Setup

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

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

AUTO CONFIGURATION FUNCTION:

Auto Configuration selects predetremined 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 loosse layouts or slower memory.

EDO CASx# MA WAIT STATE:

You can select the timing control type of EDO DRAM CAS MA. (memory address bus)
The choice: 1,2.

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 filed unless you change specifications of the installed DRAM or the installed CPU.

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-FFFFFh, resulting for a 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 becaue the CPU is operating so much faster than the input/output bus that the CPU must be delayed to allow fro 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.

MEMORY HOLE AT 15-16M:

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 are 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.

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 (2A69KP69)
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

Power Management	: User Define	** Reload Global Timer	Events **
PM Control by APM	: Yes	IRQ (3-7, 9-15), NMI	: Disabled
Video Off Method	: DPMS	Primary IDE 0	: Disabled
Video Off After	: Standby	Primary IDE 1	: Disabled
MODEM Use IRQ	: 3	Secondary IDE 0	: Disabled
Doze Mode	: Diabled	Secondary IDE 1	: Disabled
Standby Mode	: Disable	Floppy Disk	: Disabled
Suspend Mode	: Disable	Serial Port	: Enabled
HDD Power Down	: Disable	Parallel Port	: Disabled
Throttle Duty Cycle	: 62.5%		
VGA Active Monitor	: Disabled		
Resume by Ring	: Enabled		
IRQ 8 Break Suspend	: Disabled		

Esc : Quit	↑↓→← :	Select Item
F1 : Help	Pu/Pd/+/- :	Modify
F5 : Old Values	(Shift)F2 :	Color
F6 : Load BIOS Defaults		
F7 : Load Setup Defaults		

Power Management Setup

This category determines how much power consumption for system after selecting below items. Default value is Disable. Having made all the settings above, press < Esc > to return to the main menu.

POWER MANAGEMENT:

This option allows you to select the type (or degree) of power saving for Doze, Standby, HDD Power Down and Suspend Modes. The available choices are Disable, Min Power Saving, Max Power Saving, and User Defined.

PM CONTROL BY APM:

When set to "YES", an Advanced Power Management device will be activated to enhance the Max. Power Saving mode and stop the CPU internal clock. If the Max. Power Saving is not enabled, this will be preset to "No".

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.

MODEM USE IRQ:

Name the interrupt reques (IRQ) line assigned to the modem (if any) on your system. Activity of the selected IRQ always awakens the system.

VIDEO OFF METHOD :

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

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

VIDEO OFF AFTER :

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

N/A	Monitor will remain on during power saving modes.
Suspend	Monitor blanked when the system enters the Suspend mode.
Standby	Monitor blanked when the system enters the Standby mode
Doze	Monitor blanked when the system enters any power saving mode.

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 (2A69KP69)
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-10 assigned to	: PCI/ISA PnP		
IRQ-11 assigned to	: PCI/ISA PnP		
IRQ-12 assigned to	: PCI/ISA PnP		
IRQ-14 assigned to	: PCI/ISA PnP		
IRQ-15 assigned to	: PCI/ISA PnP		
DMA-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

You can manually configurate the PnP/PCI Device's IRQ. Highlight the selected item and pressing <F1> key, the all options for the desired selection will be displayed for choice. User has to use select the desired options. Having made all the above setting according to your configuraton. Press <Esc> to return to the main menu.

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-680.

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 (2A69KP69)
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	: Enabled		
USB Keyboard Support	: Disabled		
Init Display First	: PCI Slot		
		Esc : Quit	↑↓→← : Select Item
Onboard FDC Controller	: Enabled	F1 : Help	Pu/Pd/+/- : Modify
Onboard UART 1	: Auto	F5 : Old Values	(Shift)F2 : Color
Onboard UART 2	: Auto	F6 : Load BIOS Defaults	
OnBoar UART 2 Mode	: Standard	F7 : Load Setup Defaults	

INTEGRATED PERIPHERALS

By moving cursor to the desired selection and pressing <F1> key, the 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.

5-11 PASSWORD SETTING

You may choose to select to set either supervisor or user password, or both of them. The differences is that the supervisor password can enter and change options of the setup menus while user password can only enter setup menu but does not have any rights to change any settings.

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 the < Enter > key. 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 asked you to enter a password, then you may enter new password and re-type new password for confirmation.

🔔 User should bear in mind that when a password is set, you will be ask to enter the password whenever you enter CMOS setup Menu. This can prevent an unauthorized person from changing any part of your system configuration.

You may determine when the password is required within the BIOS Features Setup Menu and its Security Option. If the Security Option is set to “System”, the password will be required both at boot and at entry to Setup. If set to “Setup”, prompting only occurs when trying to enter Setup.

TO DISABLE THE PASSWORD

Upon entering the CMOS setup Menu, the system will ask you to enter the original password. Type the original password, select 〝PASSWORD SETTING〞 and you will be prompted to enter a password. Instead of typing a new password, press the enter key and a message will appear at the center of the screen.

Password Disabled!!! 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 (2A69KP69)
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

AUTO DETECTION

BIOS setup will display all possible modes that supported by the HDD including NORMAL, LBA, & LARGE.

If HDD does not support LBA mode, 'LBA' option will be shown.

If no of cylinders is less then or equal to 1024, no 'LARGE' option will be shown.

User can select a mode which is appropriate for then.

HDD MODE

The Award BIOS supports 3 HDD mode: NORMAL, LBA, & LARGE

NORMAL mode:
Generic access mode in which neither the BIOS nor the IDE controller will make any transformations during accessing.

The maximum number of cylinders, heads & sectors for NORMAL mode are 1024, 16, &63.

	no. Cylinder	(1024)
x	no. Head	(16)
x	no. Sector	(63)
x	no. Per sector	(512)

Total: 528 Mega byte

If user set his HDD to NORMAL mode, the maximum accessible HDD size will be 528 Megabytes even though its physical size may be greater than that.

LBA (logical Block Addressing) mode:
A new HDD accessing method to overcome the 528 Megabyte bottleneck. The number of cylinders. head & sectors shown in setup may not be the number physically contained in the HDD.

During HDD accessing, The IDE controller will transform the logical address described by sector, head & cylinder number into its own physical address inside the HDD.

The maximum HDD size supported by LBA mode is 136 Gigabyte.

LARGE mode:
Some IDE HDDs contain more than 1024 cylinder without LBA support (in some cases, user do not want LBA). The BIOS provides another alternative to support these kinds of HDD.

CYLS	HEADS	SECTOR	MODE
1120	16	59	NORMAL
560	32	59	LARGE

BIOS tricks DOS (or other OS) that the number of cylinder is less than 1024 by dividing it by 2. At the same time, the number of heads is multiplied by 2. A reverse transformation process will be made inside INT 13h in order to access the right HDD address the right HDD address.

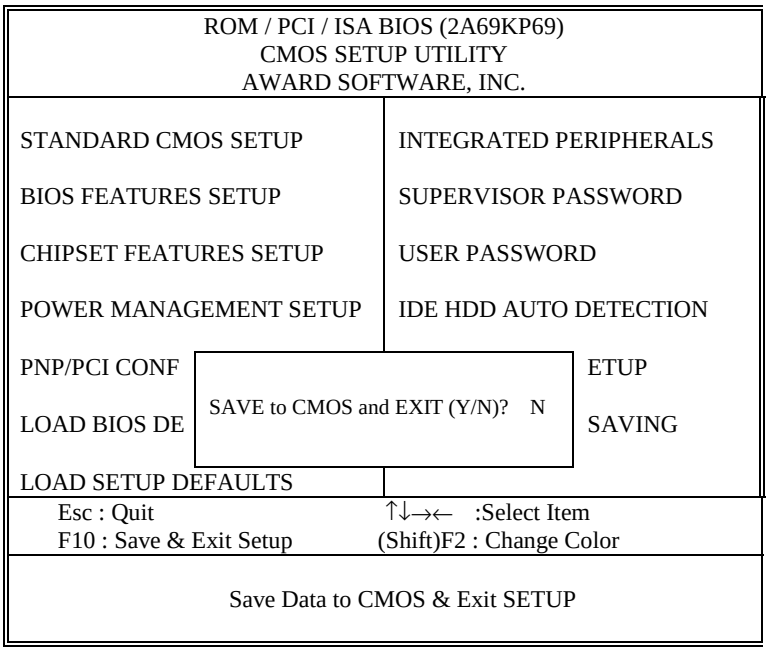
Maximum HDD size:

no. Cylinder	(1024)
x no. Head	(32)
x no. Sector	(63)
x no. Per sector	(512)
Total: 1 Giga byte	

REMARKS:
To support LBA or LARGE mode of HDDs, there must be some softwares involved. All these softwares are located in the Award HDD Service Routine (INT 13h). It may be failed to access a HDD with LBA(LARGE) mode selected if you are running under a Operating System which replaces the whole INT 13h.

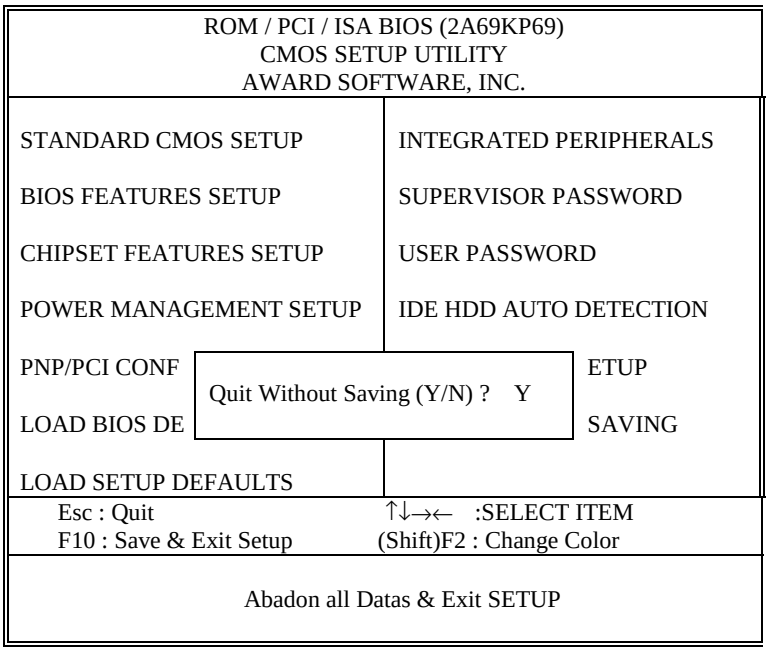
5-13 SAVE & EXIT SETUP

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:



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:



APPENDIX

A

EXPANSION BUS

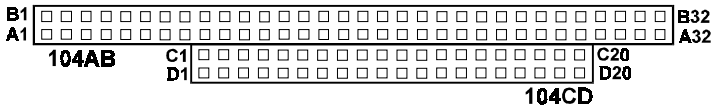
This appendix indicates you the pin assignments.

Sections include:

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

PC-104 CONNECTOR PIN ASSIGNMENT

104AB, 104CD : PC-104 Connector

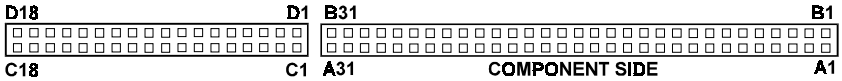


The PC-104 can support multi-pieces of PC-104 modules. This card has two connectors : one (104AB) consists of 64 pin; the other one (104CD) consists of 40 pin, both of them are dual-in-line headers.
The pin assignments for connector 104AB & 104CD are as follow:

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

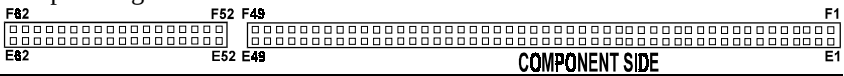
There are two edge connector (called "gold fingers") on this CPU Card, on the right hand is the ISA Bus connector, followed up by PCI BUS connector. The ISA-bus connector is divided into two sets : one consists of 62 pins; the other consists of 36 pins. The pin assignments are as follows:



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 is as follow :



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

APPENDIX

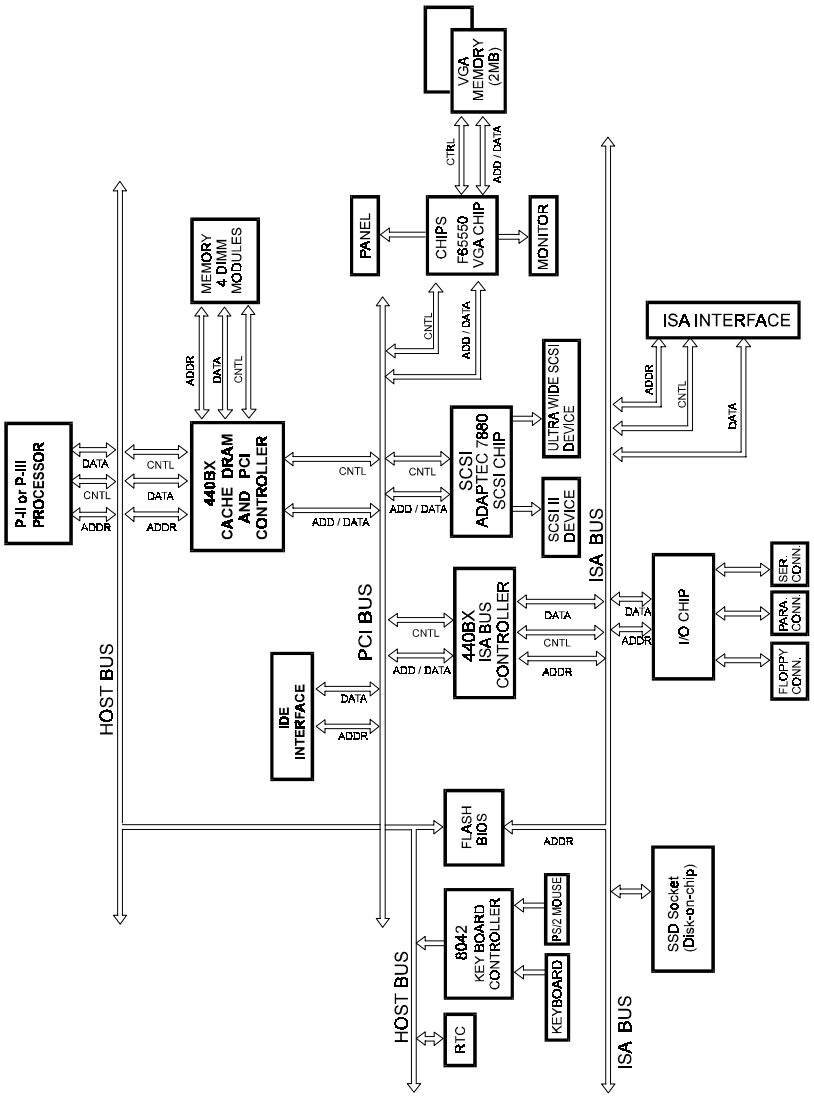
B

This section introduce you the maps concisely.

Section includes:

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

BLOCK DIAGRAM



INTERRUPT MAP

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

RTC & CMOS RAM MAP

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

TIMER & DMA CHANNELS MAP

Timer Channel Map :

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

DMA Channel Map :

DMA Channel	Assignment
0	Available
1	IBM SDLC
2	Floppy Disk adapter
3	Channel-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
00F0000-00FFFFF	System BIOS ROM
0100000-FFFFFFF	System extension memory

I/O Map :

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

TROUBLE SHOOTING

APPENDIX

C

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

Sections include:

- 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 reconfigure 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-FFFFF 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 CPUID 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 Loge (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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