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PCISA-3716E2V

Celeron™ , Pentium® III ,VIA Cyrix® Ⅲ Processor

With Dual Ethernet , VGA , Audio Board

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1

Introduction

Welcome to the PCISA-3716E2V Socket 370 Celeron® , Pentium III® (FC-PGA) and VIA Cyrix® Ⅲ with two 10/100Mbps Ethernet , VGA , Audio Board. It is equipped with high performance Intel® Celeron up to 677MHz(or above) , Pentium III (FC-PGA) 500-933MHz (or above) and VIA Cyrix® III 600 MHz (or above) Processor and advanced high performance multi-mode I/O, designed for the system manufacturers, integrators, or VARs that want to provide all the performance, reliability, and quality at a reasonable price.

This board has a built-in IDE Interface CompactFlashDisk™ Flash Disk (Type II) for embedded application. The CompactFlashDisk™ Flash Disk is 100% compatible to hard disk. User can use any DOS command without any extra software utility. The Flash Disk currently is available from 128MB to 1GB.

One advanced high performance LPC super I/O chip – ITE (IT8705F) is used in the PCISA-3716E2V board. The on-chip UARTs are compatible with the NS16C550. The parallel port and FDD interface are compatible with IBM PC/AT architecture.

PCISA-3716E2V uses the advanced SIS SIS630E Chipset which is 100% PCI compatible chipset with PCI 2.1 standard. In addition, this board provides one 168-pin sockets for its on-board DRAM. The DIMM module is 3.3V SDRAM and max. 512MB for each module.

The VGA chip (on chip sis300) used on PCISA-3716E2V supports 3D function .

1.1 Specifications :

- **CPU** : support Intel Celeron® up to 677 MHz or above, Pentium III (FC-PGA) 500-933 MHz (or Above) and VIA Cyrix® Ⅲ Processor. Supports 66MHz, 100MHz and 133 MHz FSB.
- **Expansion Bus** : PCISA bus(ISA and PCI bus), expansion to support PCI and ISA (** Slave mode only) bus signal
- **DMA channels** : 7
- **Interrupt levels** : 15
- **Chipset** : SIS630E 66/100/133MHz CPU / DRAM Clock
- **DRAM** : One 168-pin DIMM socket ,supports SDRAM RAM module, up to 512MB.
- **AGP VGA Controller** : On chip SIS300 3D (Share memory up to 64MB RAM)

  AGP bus speed : 66MHz

  VESA Standard Super High Resolution Graphic Mode up to

  1600 x 1200 256/32K colors 100 Hz

  1280 x 1024 256/32K/64K/16M colors 120 Hz

  1024 x 768 256/32K/64K/16M colors 120 Hz

  800 x 600 16/256/32K/64K/16M colors 120 Hz

  640 x 480 16/256/32K/64K/16M colors 120 Hz
- **10/100Mbps Ethernet Controller** : Two Ethernet - Realtek 8139C and SIS900 (embedded in SIS630 chipset), Auto-sensing interface to 10Mbps, 100Mbps Network , RJ45 connector for 10BASE-TX and 100BASE-TX , Full Duplex capability , Full Software driver support
- **Ultra DMA/66 (Enhanced PCI IDE Interface)** : Supports two PCI Enhance IDE hard drives. The Ultra DMA/66 IDE can handle data transfer up to 66MB/s. The best of all is that this new technology is compatible with existing ATA-2 IDE specifications. So, there is no need to do any change for customer's current accessory.
- **Multi-I/O Chip** : IT8705FI I/O, setup by BIOS

Two 16C550 RS-232C Ports , One EPP/ECP Parallel Port, Floppy Port.

- **Floppy disk drive interface** : Two 2.88 MB, 1.44MB, 1.2MB, 720KB, or 360KB floppy disk drives.
- **Two high speed Serial ports** : NS16C550 compatible UARTs
- **Bi-directional Parallel Port :** One parallel port support , IEEE1284 compatible.
- **IrDA port :** Support Infrared and Amplitude Shift Keyed IR(ASKIR) interface.
- **USB port :** Support Two USB ports for future expansion ,USB 1.2 compatible.
- **Watchdog timer** : Supports resolution of 1 second and period of 1-255 . Reset is generated when CPU does not periodically trigger the timer. You can uses IO port 443H to control the watch-dog and generate a system reset.
- **CompactFlash Disk –** Type II CompactFlashDisk™**.** The Flash Disk provides 100% compatibility with IDE hard disk.
- **SIS7018 PCI Audio Chipset:** Sound Blaster compatible and Roland MPU401 compatible (AC97)
- **Support ATX Power function**
- **Mouse & Keyboard Connector** : PS/2 Mouse Port Expansion Keyboard.
- **Power Consumption** : +5V : 7.5A (Pentium III 933MHz, 256MB SDRAM) +12V : 0.3A
- **Operating Humidity** : 5 ~ 95 % , non-condensing

1.2 What You Have

In addition to this *User's Manual*, the PCISA-3716E2V package includes the following items:

- PCISA-3716E2V Socket 370 Celeron® , Pentium III and VIA Cyrix® Ⅲ with Dual Ethernet , VGA , Audio Board
- FDD/HDD (1x2.54mm and 1x2.54mm Support DMA66)Cable

  (32200-000017 / 32200-000052)
- Keyboard / Mouse Adapter Y Cable

  (32000-000138)
- Printer / Serial Port (1x RS232) Cable

  (32200-000039)
- Audio (Line In ,Line Out ,Mic In) / Serial Port (1xRS232) Cable

  (19800-000004)

If any of these items is missing or damaged, contact the dealer from whom you purchased the product. Save the shipping materials and carton in case you want to ship or store the product in the future.

2

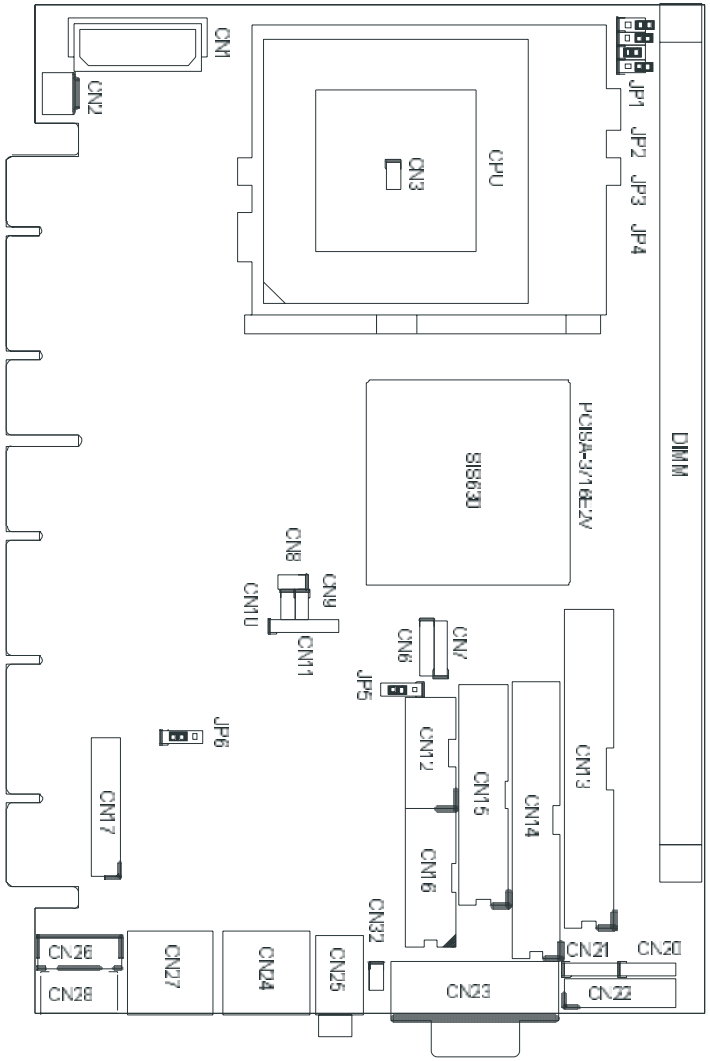
Installation

This chapter describes how to install the PCISA-3716E2V. The layout of PCISA-3716E2V is shown on the next page and the Unpacking Precautions that you should be careful with are described on the following page. Also included is the jumpers and switches setting for this board's configuration, such as: CPU type selection, system clock setting and Watchdog timer.

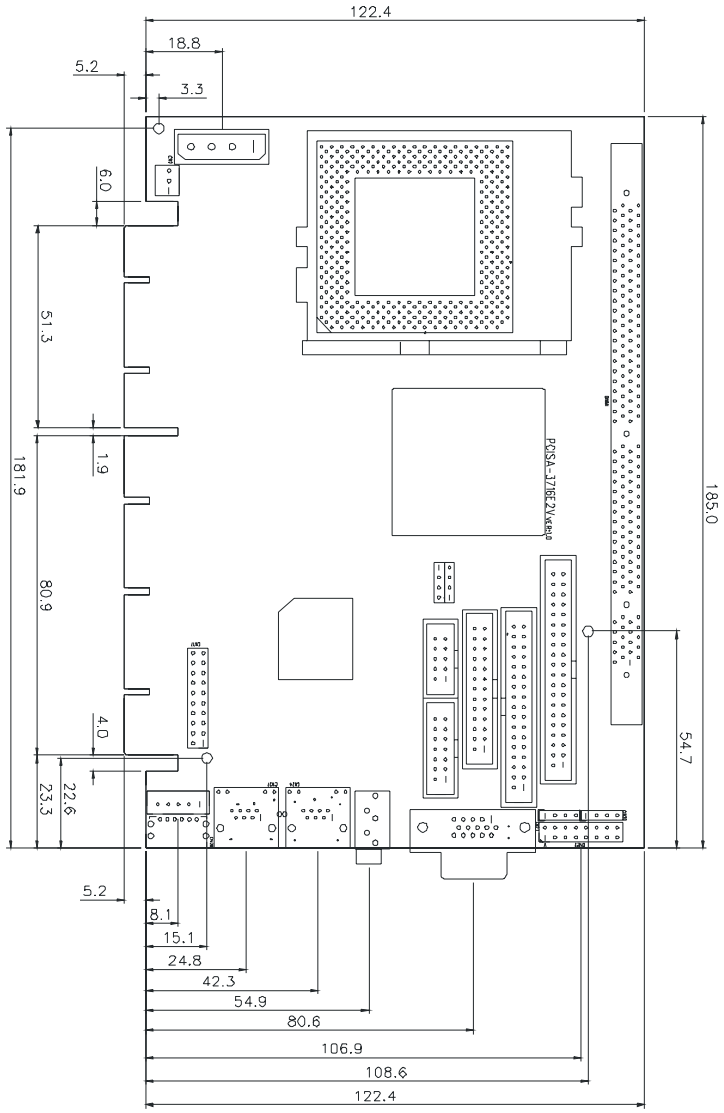
2.1 PCISA-3716E2V 's Layout

< please, refer to the next page >

2.1 PCISA-3716E2V 's Layout



2.2 PCISA-3716E2V 's Dimension (Unit : mm)



2.3 Unpacking Precautions

Some components on PCISA-3716E2V are very sensitive to static electric charges and can be damaged by a sudden rush of power. To protect it from unintended damage, be sure to follow these precautions:

- ✓ Ground yourself to remove any static charge before touching your PCISA-3716E2V. You can do it by using a grounded wrist strap at all times or by frequently touching any conducting materials that is connected to the ground.
- ✓ Handle your PCISA-3716E2V by its edges. Don't touch IC chips, leads or circuitry if not necessary.
- ✓ Do not plug any connector or jumper while the power is on.
- ✓ Do not put your PCISA-3716E2V unprotected on a flat surface because it has components on both sides.

2.4 Setting the CPU of PCISA-3716E2V

- **JP1,2,3,4 : CPU & DRAM FREQUENCY SETTING (H/W)**



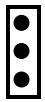
CPU/DRAM	JP1	JP2	JP3	JP4
66/66	O	O	O	C
100/100	O	O	C	O
133/133	C	C	C	O

O : Open
C : Close

2.5 Clear CMOS Setup

If you forget the CMOS password, you can clear or reset it by closing the **JP5**. After JP5(1-2) is closed, turn on the power for about 3 seconds then turn it off and open the JP5(1-2). Now, the password has been cleared from your CMOS.

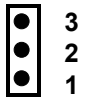
- **JP5 : Clear CMOS Setup**



PIN NO.	DESCRIPTION
2-3	**Normal Operation**
1-2	Clear CMOS Setup

2.6 COM2 RS-232/422,485 Selection

- **JP6 : COM2 Mode Selection**



JP6	DESCRIPTION
1-2	RS232
2-3	RS422/RS485

**** 2-3 RS422 / RS485 (Option)**

3

Connection

This chapter describes how to connect peripherals, switches and indicators to the PCISA-3716E2V board.

3.1 Floppy Disk Drive Connector

PCISA-3716E2V board is equipped with a 34-pin daisy-chain driver connector cable.

- **CN14 : FDD CONNECTOR**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GROUND	2	REDUCE WRITE
3	GROUND	4	N/C
5	GROUND	6	N/C
7	GROUND	8	INDEX#
9	GROUND	10	MOTOR ENABLE A#
11	GROUND	12	DRIVE SELECT B#
13	GROUND	14	DRIVE SELECT A#
15	GROUND	16	MOTOR ENABLE B#
17	GROUND	18	D4IRECTION#
19	GROUND	20	STEP#
21	GROUND	22	WRITE DATA#
23	GROUND	24	WRITE GATE#
25	GROUND	26	TRACK 0#
27	GROUND	28	WRITE PROTECT#
29	GROUND	30	READ DATA#
31	GROUND	32	SIDE 1 SELECT#
33	GROUND	34	DISK CHANGE#

3.2 PCI E-IDE Disk Drive Connector

You can attach two IDE (Integrated Device Electronics) hard disk drives to the PCISA-3716E2V IDE controller .The maximal data transfer rate is 66MB/s . In this case , Cable total length shall not exceed 0.46 m (18 in).

CN13 (40Pin 2.54mm IDE) : Primary IDE Connector

- **CN13 : IDE Interface Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RESET#	2	GND
3	DATA 7	4	DATA 8
5	DATA 6	6	DATA 9
7	DATA 5	8	DATA 10
9	DATA 4	10	DATA 11
11	DATA 3	12	DATA 12
13	DATA 2	14	DATA 13
15	DATA 1	16	DATA 14
17	DATA 0	18	DATA 15
19	GND	20	N/C
21	IDE DRQ	22	GND
23	IOW#	24	GND
25	IOR#	26	GND
27	IDE CHRDY	28	GND
29	IDE DACK	30	GND
31	INTERRUPT	32	N/C
33	SA 1	34	N/C
35	SA 0	36	SA 2
37	HDC CS0#	38	HDC CS1#
39	HDD ACTIVE#	40	GND

3.3 Parallel Port

This port is usually connected to a printer, The PCISA-3716E2V includes an on-board parallel port, accessed through a 26-pin flat-cable connector CN15.

- **CN15 : (LPT1) Parallel Port Connector**

Pin	Description	Pin	Description
1	STROBE#	2	AUTO FORM FEED #
3	DATA 0	4	ERROR#
5	DATA 1	6	INITIALIZE
7	DATA 2	8	PRINTER SELECT LN#
9	DATA 3	10	GND
11	DATA 4	12	GND
13	DATA 5	14	GND
15	DATA 6	16	GND
17	DATA 7	18	GND
19	ACKNOWLEDGE	20	GND
21	BUSY	22	GND
23	PAPER EMPTY	24	GND
25	PRINTER SELECT	26	N/C

3.4 Serial Ports

The PCISA-3716E2V offers Two high speed NS16C550 compatible UARTs with Read/Receive 16 byte FIFO serial ports (COM1/COM2).

- **CN12 : Serial Port 2x5 pin header Connector (COM1)**

Pin No.	Description	Pin No.	Description
1	DCD	2	DSR
3	RXD	4	RTS
5	TXD	6	CTX
7	DTR	8	RI
9	GND	10	NC

- **CN16 : Serial Port 2x7 pin header Connector (COM2)**

COM2 Support Three Mode : RS232, RS422/RS485
(For 2x5 pin header Connector)
RS232 Mode

Pin No.	Description	Pin No.	Description
1	DCD	2	DSR
3	RXD	4	RTS
5	TXD	6	CTX
7	DTR	8	RI
9	GND	10	NC

RS422 / RS485 Mode (Option)
(For 2x7 pin header Connector)
RS422 Mode

Pin No.	Description	Pin No.	Description
1		2	
3		4	
5		6	
7		8	
9		10	
11	TX+	12	TX-
13	RX+	14	RX-

(For 2x7 pin header Connector)
RS485 Mode

Pin No.	Description	Pin No.	Description
1		2	
3		4	
5		6	
7		8	
9		10	
11	TX+	12	TX-
13		14	

3.5 Keyboard/Mouse Connector

The PCISA-3716E2V provides one external keyboard & mouse ,one mouse and one keyboard connectors.

- **CN28 : Extended Keyboard & PS/2 Mouse 6-pin Mini Din Connector**

PIN NO.	DESCRIPTION
1	KB DATA
2	MS DATA
3	GND
4	VCC
5	KB CLOCK
6	MS CLOCK

- **CN26 : 5-pin Header Keyboard Connector**

PIN NO.	DESCRIPTION
1	KB CLOCK
2	KB DATA
3	N/C
4	GND
5	+5V

3.6 External Switches and Indicators

There are several external switches and indicators for monitoring and controlling your CPU board. All the functions are in the CN17 connector.

- **CN17 : Multi Panel**

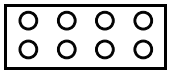
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1.	SPEAKER	11	POWER-LED +
2.	N/C	12	N/C
3.	N/C	13	POWER-LED -
4.	SPEAKER +5V	14	KEYLOCK+
5.	RESET SW	15	KEYLOCK -
6.	RESET SW GND	16	GND
7.	IDE LED -	17	N/C
8.	IDE LED+	18	ATX POWER PSON#
9.	ATX POWER BUTTON	19	ATX 5VSB
10.	ATX POWER BUTTON GND	20	ATX 5VSB

3.7 USB Port Connector

The PCISA-3716E2V has two built-in USB ports for the future new I/O bus expansion.

- **CN6,7: Pin Header USB Connectors**

PIN NO.	Description
1	VCC
2	USBD0-
3	USBD0+
4	GND



CN7 (USB 0)

CN6 (USB 1)

3.8 IrDA Infrared Interface Port

PCISA-3716E2V built-in IrDA port supports Serial Infrared (SIR) or Amplitude Shift Keyed IR (ASKIR) interface. If you want to use the IrDA port, you have to configure the FIR or ASKIR model in the BIOS's Peripheral Setup's COM2. Then the normal RS-232 COM2 will be disabled.

- **CN11 : IrDA Connector**

PIN NO.	DESCRIPTION
1	VCC
2	N/C
3	IR-RX
4	GND
5	IR-TX

3.9 VGA Connector

The built-in 15-pin D-Type VGA connector can be connected directly to your monochrome CRT monitor as well as high resolution color CRT monitor.

- **CN23 : 15-pin Female VGA Connector**

1	RED	2	GREEN
3	BLUE	4	N/C
5	GND	6	GND
7	GND	8	GND
9	VCC	10	GND
11	N/C	12	DDC DAT
13	HSYNC	14	VSYNC
15	DDC CLK		

3.10 LAN RJ45 Connector

PCISA-3716E2V is equipped with two 10/100Mbps Ethernet

Controller. You can connect it to your LAN through RJ45 connector. The pin assignments are as follows.

- **CN24,27 : LAN RJ45 Connector**

1	TX+	5.	N/C
2	TX-	6.	RX-
3.	RX+	7.	N/C
4.	N/C	8.	N/C

CN24 : On chip SIS 300 LAN
CN27 : PCI BUS Realtek 8139C LAN

- **CN32 : Active LED Connector For on chip SIS300 LAN**

Pin No.	Description	Pin No.	Description
1	VCC	2	LAN ACT.

- **On Chip SIS300 LAN Support Active LED Only**

- **CN9 : Active LED Connector For Realtek 8139C LAN**

Pin No.	Description	Pin No.	Description
1	VCC	2	LAN ACT.

- **CN8 : Link LED Connector For Realtek 8139C LAN**

Pin No.	Description	Pin No.	Description
1	VCC	2	LAN Link

3.11 Fan Connector

The PCISA-3716E2V provides one CPU cooling fan connector and one system fan connectors. These connectors can supply

12V/500mA to the cooling fan.

- **CN2 : CPU Fan Connector**

PIN NO.	DESCRIPTION
1	GND
2	+12V
3	Fan Sensor

3.12 Temperature Sensor Connector

You can connect external temperature sensor to this connector.

- **CN10 : Temperature Sensor Connector**
  **** Use 10K Ohm Temperature register sensor**

Pin No.	Description	Pin No.	Description
1	THER-DA	2	GND

3.13 Audio CD IN

This is used to connect to the CD-Out from CD-ROM player.

- **CN21 : Audio CD IN (2.54mm)**

Pin No.	Description	Pin No.	Description
1	CD IN_R	2	GND
3	GND	4	CD IN_L

3.14 Audio Line OUT

This output normally support direct line-out from audio chip. It will only provide 6W output when the optional amplifier is installed.

- **CN25 : Left/Right Audio Output Connector for Headphone or By optional amplifier Speaker Output .**

1.	GROUND
2.	LEFT SIGNAL (SPK LEFT)
3.	NC
4.	RIGHT SIGNAL (SPK RIGHT)
5.	NC

3.15 Speaker OUT (Reserved)

- **CN20 : Optional Speaker out . (Two 6W stereo power amplifiers)**

1.	RIGHT SIGNAL
2.	GND
3.	GND
4.	LEFT SIGNAL

3.16 Audio Panel

One line-out (2 different pin assignments),one line-in and one mic-in are supported . All these output are from audio chip without amplifier .

- **CN22 : Audio Panel**

Pin	Description	Pin	Description
1	Line Out R	2	GND
3	Line Out L	4	GND
5	Line Out R	6	Line Out L
7	GND	8	GND
9	Line In R	10	Line In L
11	GND	12	GND
13	NC	14	NC
15	MIC In	16	GND

3.17 CompactFlash Storage Card Socket

The PCISA-3716E2V configures CompactFlash Storage Card in IDE Mode.
It will use IDE Secondary / Slave channel when CompactFlash card is plugged in.

- **CN31 : CompactFlash Storage Card Socket pin assignment**

PIN NO	DESCRIPTION	PIN NO	DESCRIPTION
1	GROUND	26	CARD DETECT1
2	D3	27	D11
3	D4	28	D12
4	D5	29	D13
5	D6	30	D14
6	D7	31	D15
7	CS1#	32	CS3#
8	N/C	33	N/C
9	GROUND	34	IOR#
10	N/C	35	IOW#
11	N/C	36	OBLIGATORY TO PULL HIGH
12	N/C	37	IRQ15
13	VCC	38	VCC
14	N/C	39	MASTER/SLAVE
15	N/C	40	N/C
16	N/C	41	RESET#
17	N/C	42	IORDY
18	A2	43	N/C
19	A1	44	OBLIGATORY TO PULL HIGH
20	A0	45	ACTIVE#
21	D0	46	PDIAG#
22	D1	47	D8
23	D2	48	D9
24	N/C	49	D10
25	CARD DETECT2	50	GROUND

3.18 Power Connector

The PCISA-3716E2V can work without backplane, while attaching external power to this connector.

- **CN1: Power Supply Connector**

1.	+5V
2.	GND
3.	GND
4.	+12V

4

AWARD BIOS SETUP

4.1 Introduction

This manual discusses Award's Setup program built into the ROM BIOS. The Setup program allows users to modify the basic system configuration. This special information is then stored in battery-backed RAM so that it retains the Setup information when the power is turned off.

4.2 Starting Setup

The Award BIOS is immediately activated when you first power on the computer. The BIOS reads the system information contained in the CMOS and begins the process of checking out the system and configuring it. When it finishes, the BIOS will seek an operating system on one of the disks and then launch and turn control over to the operating system.
While the BIOS is in control, the Setup program can be activated in one of two ways:

1. By pressing <Del> immediately after switching the system on, or
2. by pressing the <Del> key when the following message appears briefly at the bottom of the screen during the POST (Power On Self Test).

Press DEL to enter SETUP.

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to...

PRESS F1 TO CONTINUE, DEL TO ENTER SETUP

4.3 Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the PageUp and PageDown keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program using the keyboard.

Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item in the left hand
Right arrow	Move to the item in the right hand

Esc key	Main Menu -- Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
(Shift)F2 key	Change color from total 16 colors. F2 to select color forward, (Shift) F2 to select color backward
F3 key	Calendar, only for Status Page Setup Menu
F4 key	Reserved
F5 key	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
F6 key	Load the default CMOS value from BIOS default table, only for Option Page Setup Menu
F7 key	Load the default
F8 key	Reserved
F9 key	Reserved
F10 key	Save all the CMOS changes, only for Main Menu

4.4 Getting Help

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc> or the **F1** key again.

If, after making and saving system changes with Setup, you discover that your computer no longer is able to boot, the Award BIOS supports an override to the CMOS settings which resets your system to its defaults.

The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both Award and your systems manufacturer to provide the absolute maximum performance and reliability. Even a seemingly small change to the chipset setup has the potential for causing you to use the override.

4.5 Main Menu

Once you enter the AwardBIOS™ CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu. CMOS Setup Utility - Copyright (C) 1984-1998

Standard CMOS Feature	Frequency/Voltage Control
Advanced BIOS Feature	Load Fail-Safe Defaults
Advanced Chipset Feature	Load Optimized Defaults

Integrated Peripherals	Set Supervisor Password
Power Management Setup	Set User Password
PnP/PCI Configurations	Save & Exit Setup
PC Health Status	Exit Without Saving
Esc : Quit ↑↓←→ : Select Item	
F10 : Save & Exit Setup	
Time, Date, Hard Disk Type….	

Note that a brief description of each highlighted selection appears at the bottom of the screen.

The main menu includes the following main setup categories. Recall that some systems may not include all entries.

Standard CMOS Features

Use this menu for basic system configuration. See Section 4.6 for the details.

Advanced BIOS Features

Use this menu to set the Advanced Features available on your system. See Section 4.7 for the details.

Advanced Chipset Features

Use this menu to change the values in the chipset registers and optimize your system's performance. See section 4.8 for the details.

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals. See section 4.9 for the details.

Power Management Setup

Use this menu to specify your settings for power management. See section 4.10 for the details.

PnP / PCI Configuration

This entry appears if your system supports PnP / PCI. See section 4.11 for the details.

PC Health Status

Use this menu to monitor your hardware. See section 4.12 for the details.

Frequency/Voltage Control

Use this menu to specify your settings for frequency/voltage control. See section 4.13 for the details.

Load Fail-Safe Defaults

Use this menu to load the BIOS default values for the minimal/stable performance for your system to operate. See section 4.14 for the details.

Load Optimized Defaults

Use this menu to load the BIOS default values that are factory settings for optimal performance system operations. While Award has designed the custom BIOS to maximize performance, the factory has the right to change these defaults to meet their needs. See section 4.14 for the details.

Supervisor / User Password

Use this menu to set User and Supervisor Passwords. See section 4.15 for the details.

Save & Exit Setup

Save CMOS value changes to CMOS and exit setup. See section 4.16 for the details.

Exit Without Save

Abandon all CMOS value changes and exit setup. See section 4.16 for the details.

4.6 Standard CMOS Setup

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

.

Standard CMOS Features

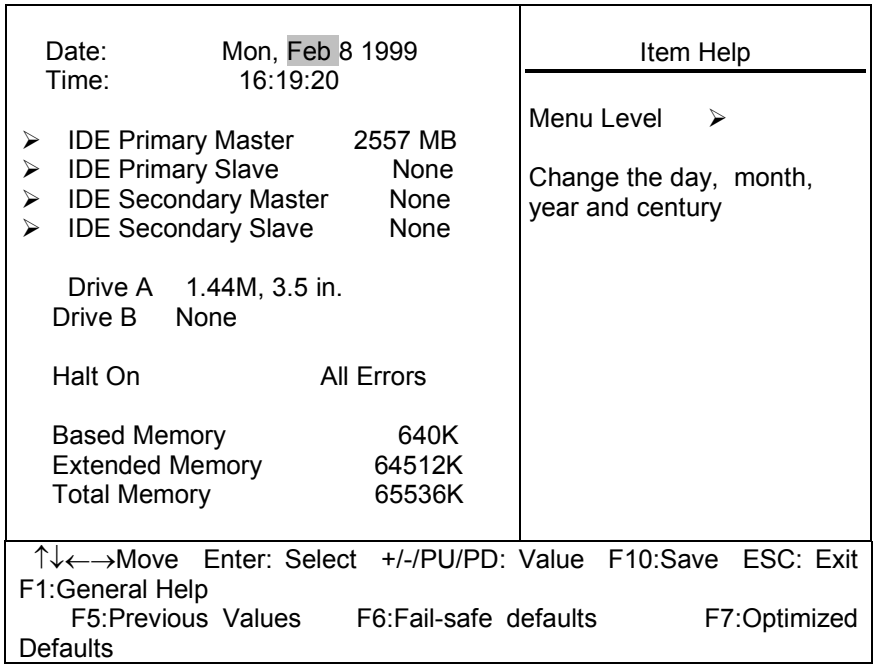


Figure 1: The Main Menu

Main Menu Selections

Item	Options	Description
Date	MM DD YYYY	Set the system date.
Time	HH : MM : SS	Set the system time
IDE Primary Master	Options are in its sub menu (described in Table 3)	Press <Enter> to enter the sub menu of detailed options
IDE	Options are in its sub	Press <Enter> to enter

Primary Slave	menu (described in Table 3)	the sub menu of detailed options
IDE Secondary Master	Options are in its sub menu (described in Table 3)	Press <Enter> to enter the sub menu of detailed options
IDE Secondary Master	Options are in its sub menu (described in Table 3)	Press <Enter> to enter the sub menu of detailed options
Drive A Drive B	None 360K, 5.25 in 1.2M, 5.25 in 720K, 3.5 in 1.44M, 3.5 in 2.88M, 3.5 in	Select the type of floppy disk drive installed in your system
Halt On	All Errors No Errors All, but Keyboard All, but Diskette All, but Disk/Key	Select the situation in which you want the BIOS to stop the POST process and notify you
Base Memory	N/A	Displays the amount of conventional memory detected during boot up
Extended Memory	N/A	Displays the amount of extended memory detected during boot up
Total Memory	N/A	Displays the total memory available in the system

Table 2 Main Menu Selections

IDE Adapters

The IDE adapters control the hard disk drive. Use a separate sub menu to configure each hard disk drive.
Figure 2 shows the IDE primary master sub menu.

CMOS Setup Utility – Copyright © 1984-1998 Award Software
IDE Primary Master

IDE HDD Auto-Detection	Press Enter	Item Help
IDE Primary Master	Auto 2557 MB	Menu Level ➢➢
Access Mode	Auto	
Cylinder	4956	To auto-detect the HDD's size, head... on this channel
Head	16	
Precomp	0	
Landing Zone	4955	
Sector	63	

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

Figure 2 IDE Primary Master sub menu

Use the legend keys to navigate through this menu and exit to the main menu. Use Table 3 to configure the hard disk.

Item	Options	Description
IDE HDD Auto-detection	Press Enter	Press Enter to auto-detect the HDD on this channel. If detection is successful, it fills the remaining fields on this menu.
IDE Primary Master	None Auto Manual	Selecting 'manual' lets you set the remaining fields on this screen. Selects the type of fixed disk. "User Type" will let you select the number of cylinders, heads, etc. Note: PRECOMP=65535 means NONE !
Capacity	Auto Display your disk drive size	Disk drive capacity (Approximated). Note that this size is usually slightly

		greater than the size of a formatted disk given by a disk checking program.
Access Mode	Normal LBA Large Auto	Choose the access mode for this hard disk
The following options are selectable only if the 'IDE Primary Master' item is set to 'Manual'		
Cylinder	Min = 0 Max = 65535	Set the number of cylinders for this hard disk.
Head	Min = 0 Max = 255	Set the number of read/write heads
Precomp	Min = 0 Max = 65535	**** **Warning**: Setting a value of 65535 means no hard disk
Landing zone	Min = 0 Max = 65535	****
Sector	Min = 0 Max = 255	Number of sectors per track

Table 3 Hard disk selections

4.7 Advanced BIOS Features

This section allows you to configure your system for basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.

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Advanced BIOS Features

Virus Warning	Enabled	Item Help
CPU Internal Cache	Enabled	
External Cache	Enabled	
CPU L2 Cache ECC Checking	Enabled	
Quick Power On Self Test	Disabled	Menu Level ➢
First Boot device	Floppy	
Second Boot device	HDD-0	Allows you to choose the VIRUS warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep
Third Boot device	Floppy	
Boot other device	Disabled	
Swap Floppy Drive	Disabled	
Boot Up Floppy Seek	Disabled	
Boot Up NumLock Status	Off	
Gate A20 Option	Normal	
Typematic Rate Setting	Disabled	
Typematic Rate (Chars/Sec)	6	
Typematic Delay (Msec)	250	
Security Option	Setup	
OS Select For DRAM > 64MB	Non-OS2	
Report NO FDD For Win 95	No	

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

Virus Warning

Allows you to choose the VIRUS Warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep.

Enabled	Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table.

Disabled	No warning message will appear when anything attempts to access the boot sector or hard disk partition table.

CPU Internal Cache/External Cache

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

Enabled	Enable cache
Disabled	Disable cache

CPU L2 Cache ECC Checking

This item allows you to enable/disable CPU L2 Cache ECC checking.
The choice: Enabled, Disabled.

Processor Number Feature

Some of the new generation of socket-370 processors are installed with a unique processor number. This number may be used for verification in internet transactions and e-commerce. If you prefer not to use or distribute the unique processor number , use this item to suppress the processor number. The Choice : Enable , Disable.

Quick Power On Self Test

This category speeds up Power On Self Test (POST) after you power up the computer. If it is set to Enable, BIOS will shorten or skip some check items during POST.

Enabled	Enable quick POST
Disabled	Normal POST

First/Second/Third/Other Boot Device

The BIOS attempts to load the operating system from the devices in the sequence selected in these items.
The Choice: Floppy, LS/ZIP, HDD, SCSI, CDROM, Disabled.

Swap Floppy Drive

If the system has two floppy drives, you can swap the logical drive name assignments.

The choice: Enabled/Disabled.

Boot Up Floppy Seek

Seeks disk drives during boot up. Disabling speeds boot up.

The choice: Enabled/Disabled.

Boot Up NumLock Status

Select power on state for NumLock.
The choice: Enabled/Disabled.

Gate A20 Option

Select if chipset or keyboard controller should control GateA20.

Normal	A pin in the keyboard controller controls GateA20
Fast	Lets chipset control GateA20

Typematic Rate Setting

Key strokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected.
The choice: Enabled/Disabled.

Typematic Rate (Chars/Sec)

Sets the number of times a second to repeat a key stroke when you hold the key down.
The choice: 6, 8, 10, 12, 15, 20, 24, 30.

Typematic Delay (Msec)

Sets the delay time after the key is held down before it begins to repeat the keystroke.
The choice: 250, 500, 750, 1000.

Security Option

Select whether the password is required every time the system boots or only when you enter 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.

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

OS Select For DRAM > 64MB

Select the operating system that is running with greater than 64MB of RAM on the system.

The choice: Non-OS2, OS2.

Report No FDD For Win 95

Whether report no FDD for Win 95 or not.

The choice: Yes, No.

Video BIOS Shadow

This item allows the video BIOS to be copied to system memory for faster performance.

The Choice : Enable , Disable.

4.8 Advanced Chipset Features

CMOS Setup Utility – Copyright © 1984 – 1998 Award Software
Advanced Chipset Features

Advanced DRAM Control 1	Press Enter	Item Help
Advanced DRAM Control 2	Press Enter	
System BIOS Cacheable	Disabled	Menu Level ➢
Video BIOS Cacheable	Disabled	
Memory Hole At 15M-16M	Enabled	
AGP Aperture Size	64MB	
Graphic Window WR Combin	Enable	
Concurrent function (MEM)	Enabled	
Concurrent function (PCI)	Enabled	
CPU Pipeline Control	Enabled	
PCI Delay Transaction	Enabled	
Power-supply Type	AT	
Memory Parity Check	Enabled	

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

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache. It also coordinates communications between the conventional ISA bus and the PCI bus. It must be stated that these items should never need to be altered. The default settings have been chosen because they provide the best operating conditions for your system.

Advanced DRAM Control 1 / 2 Settings

The first chipset settings deal with CPU access to dynamic random access memory (DRAM). The default timings have been carefully chosen and should only be altered if data is being lost. Such a scenario might well occur if your system had mixed speed DRAM chips installed so that greater delays may be required to preserve the integrity of the data held in the slower memory chips.

Auto Configuration

This item will automatically configure the chipset timing. . You may select 'manual' to set up following gray items by your specific need.

The choice: Manual, Auto, 100MHZ, 133MHZ.

SDRAM RAS Active Time

This item defines SDRAM ACT to PRE command period.

The Choice: 6T, 7T, 5T, 4T.

SDRAM RAS Precharge Time

This item defines SDRAM PRE to ACT command period.

The Choice: 3T, 2T, 4T, Reserved.

RAS to CAS Delay

This item defines SDRAM ACT to Read/Write command period.
The choice: 3T, 2T, 4T, Reserved.

Dram Backgroud Command

This item is lead-off time control for DRAM background command. When select 'Delay 1T' , background commands are issued 1 clock behind memory address (MA) been issued. When select 'Normal', background command and MA are issued at the same time.

The choice: Delay 1T, Normal.

LD-Off Dram RD/WR Cycles

The item is lead-off time control for DRAM Read/Write Cycles. When select 'Delay 1T' , memory read/write command is issued 1 clock behind memory address (MA) been issued. When select 'Normal', read/write command amd MA are issued at the same time.

The choice: Delay 1T, Normal.

Write Recovery Time

This item defines the Data-in to PRE command period.

The choice: 1T, 2T

VCM REF To ACT/REF Delay

This item defines VCM REF to REF/ACT command period.

The choice: 10T, 9T.

VCM ACCT To ACT/REF Delay

This item defines VCM ACT to ACT/REF command period.

The choice: 10T, 9T, 8T, Reserved.

Early CKE Delay 1T Cntrl

When this item is enabled, CKE is driven out from flip-flop. It is used when system operates under low frequency and CKE delay adjustment method defined in the 'Early CKE Delay Adjustment' which can not meet setup time and hold time requirement.

The choice: Normal, Delay 1T.

Early CKE Delay Adjust

This item controls the timing for CKE. Various delay options are provided to ensure that CKE can meet SDRAM setup time and hold time specification when CKE is driven out.

The Choice: 1ns, 2ns, 3ns, 4ns, 5ns, 6ns, 7ns, 8ns.

Mem Command Output Time

This item is to control the timing to drive memory command onto memory bus.

The choice: Normal, Delay 1T.

SDRAM/VCM CAS Latency

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing.
The Choice: 2, 3 , SPD

SDRCLK Control

This item controls the phase of SDRCLK that lags behind SDCLK.

The choice: Enabled, Disabled.

SDWCLK Control CS#/CKE

This item controls the phase of SDWCLK used for chip set select signals pin that lags ahead SDCLK.

The choice: Enabled, Disabled.

SDWCLK Control MA/SRAS

This item controls the phase of SDWCLK used for MA/ SRAS signals that lags ahead SDCLK.

The choice: +5.0ns~-2.5ns (Default 0.0ns)

SDWCLK Control DQM/MD

This item controls the phase of SDWCLK used for DQM/MD signals that lags ahead SDCLK.

The choice: +5.0ns~-2.5ns (Default 0.0ns)

EGMRCLK Control

This item controls the phase of EGMRCLK that lags behind SDCLK.

The choice: -1.0ns~+6.5ns (Default 0.0ns)

EGMWCLK Control

This item controls the phase of EGMWCLK that lags ahead SDCLK.

The choice: +5.0ns~-2.5ns (Default 0.0ns)

System BIOS Cacheable

Selecting *Enabled* allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

The choice: Enabled, Disabled.

Vedio 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.

The choice: Enabled, Disabled.

Memory Hole at 15M-16M

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

The Choice: Enabled, Disabled.

AGP Aperture Size

Select the size of 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.

The Choice: 4M, 8M, 16M, 32M, 64M, 128M, 256M.

Graphic Window WR Combin

Use this item to enable or disable CPU support for WR Combin.

The Choice : Enable , Disable .

Concurrent Function (MEM)

This item is CPU & PCI Masters Concurrently Access Memory Function. Select enabled allows CPU access memory cycles and PCI masters access memory cycles concurrently issued onto host bus and PCI bus, respectively, and then the memory access cycles will be rearranged by SiS630 to memory sequentially.

The choice: Enabled, Disabled

Concurrent Function (PCI)

This item is CPU & PCI Masters Concurrently Access PCI Bus Function. Select enabled allows CPU access PCI bus cycle and PCI masters access memory cycles concurrently issued onto host bus and PCI bus, respectively.

The choice: Enabled, Disabled.

CPU Pipeline Control

When enabled this item, only one pending cycle is allowed at one time.
When disabled, there might be more than two pending cycles at one time depends on the CPU behaviour.
The choice: Enabled, Disabled.

PCI Delay Transaction

If the chipset has an embedded 32-bit write buffer to support delay transaction cycles, you can enable this item to provide compliance with PCI Ver.2.1 specifications. We recommend that you leave this item at the default value.
The choice : Enable, Disable.

Power-Supply Type

This item controls the power-supply type to AT or ATX.
The choice: AT,ATX.

Memory Parity Check

Enabled this item to test the boot-up memory. .

The choice: Enabled, Disabled.

4.9 Integrated Peripherals

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Integrated Peripherals

SIS 630 OnChip IDE Device Press Enter SIS 630 OnChip PCI Device Press Enter Super I/O Device Press Enter USB Controller Enabled USB Keyboard Support Enabled Init Display First PCI Slot IDE HDD Block Mode Enabled System Share Memory 8MB	Item Help Menu Level ➢ If your IDE hard drive supports block mode select Enabled for automatic detection of the optimal number of block read/write per sector the drive can support
↑↓←→ Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults	

SIS 630 OnChip IDE Device

Internal PCI / IDE

This chipset contains an internal PCI IDE interface with support for two IDE channels. The choice: Primary, Secondary, Both.

IDE Primary Master/Slave PIO

The four IDE PIO (Programmed Input / Output) fields let you 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.

The choice: Auto, Mode 0, Mode 1, Mode 2, Mode 3, and Mode 4.

Primary Master/Slave UltraDMA

UDMA (Ultra DMA) is a DMA data transfer protocol that utilizes ATA commands and the ATA bus to allow DMA commands to transfer data at a maximum burst rate of 66 MB/s. When you select *Auto* in the four IDE UDMA fields (for each of up to four IDE devices that the internal PCI IDE interface supports), the system automatically determines the optimal data transfer rate for each IDE device.

The choice: Auto, Disabled.

IDE Burst Mode

Selecting *Enabled* reduces latency between each drive read/write cycle, but may cause instability in IDE subsystems that cannot support such fast performance. If you are getting disk drive errors, try setting this value to *Disabled*. This field does not appear when the Internal PCI/IDE field, above, is *Disabled*.

The choice: Enabled, Disabled.

SIS 630 OnChip PCI Device

SIS-7018 AC97 AUDIO

Select *Enabled* to support AC97 Audio.
The choice: Enabled, Disabled.

SIS-900 10/100M ETHERNET

This item provides a total communication solution including 10/100Mb Fast Ethernet for Office requirement and 1Mb HomePNA for Home Networking. The choice: Enabled, Disabled.

Super I/O Device

Onboard FDC Controller

Select Enabled if your system has a floppy disk controller (FDC) installed

on the system board and you wish to use it. If you install and-in FDC or the system has no floppy drive, select Disabled in this field.

The choice: Enabled, Disabled.

Onboard Serial Port 1/ Port 2

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

The choice: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.

UART Mode Select

This item allows you to select UART mode.

The choice: Enabled, Disabled.

UR2 Duplex Mode

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

The choice: Half, Full.

Onboard Parallel Port 1

This item allows you to determine access onboard parallel port controller with which I/O address.

The choice: 3BC/IRQ7, 378/IRQ7, 278/IRQ5, Disabled.

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.

The choice: SPP, EPP, ECP, ECP+EPP.

ECP Mode Use DMA

Select a DMA channel for the parallel port for use during ECP mode.

The choice: 3, 1.

USB Controller

Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have USB peripherals.

Choices are: Enabled, Disabled.

USB Keyboard Support

Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.

Choices are: Enabled, Disabled.

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.

The choice: Enabled, Disabled.

Init Display First

This item allows you to decide to active which bus first (PCI Slot or AGP first).
The choice: PCI Slot, AGP.

System Share Memory Size

This item defines the System Share Memory Size for video.
Thechoice:2MB,4MB,8MB,16MB, 32MB, 64MB

4.10 Power Management Setup

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

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Power Management Setup

ACPI function Enabled ACPI Suspend Type S3(STR) Video Off Option Susp,Stby -> Off Video Off Method V/H SYNC_Blank Switch Function Break/Wake Hot Key Function As Power Off HDD Off After Disable Power Button Override Instant Off KB Power On Password Disable PM Wake Up Events Press Enter Power Up by Alarm Press Enter	Item Help Menu Level ➢
↑↓←→Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults	

ACPI Function

This item allows you to enable/disable the Advanced Configuration and Power Management (ACPI).
The choice: Enabled, Disabled.

ACPI Suspend Type

This item allows you to S1(Power ON Suspend)/S3(Suspend To RAM) the Advanced Configuration and Power Management (ACPI).
The choice: S1(POS), S3(STR).

Video Off Option

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

Always On	Monitor will remain on during power saving modes.
Suspend --> Off	Monitor blanked when the systems enters the Suspend mode.
Susp,Stby --> Off	Monitor blanked when the system enters either Suspend or Standby modes.
All Modes --> Off	Monitor blanked when the system enters any power saving mode.

Video Off Method

This determines the manner in which the monitor is blanked.

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

Switch Function

You can choose whether or not to permit your system to enter complete Suspend mode. Suspend mode offers greater power savings, with a correspondingly longer awakening period..

The choice: Break/Wake, Disabled.

Hot Key Function As

Select *Enabled* if your system has a hot key for soft power off.

The choice: Enabled, Disabled.

HDD Off After

By default, this item is Disabled, meaning that no matter the mode the rest of the system, the hard drive will remain ready. Otherwise, you have a range of choices from 1 to 15 minutes or Suspend. This means that you can elect to have your hard disk drive be turned off after a selected number of minutes or when the rest of the system goes into a Suspend mode.

Power Button Over Ride

You could press the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has "hung."

The choice: Soft-Off, Delay 4 Sec.

PM Wake Up Events

IRQ [3-7,9-15],NMI

The following is a list of IRQ's, **I**nterrupt **R**e**Q**uests, which can be exempted much as the COM ports and LPT ports above can. When an I/O device wants to gain the attention of the operating system, it signals this by causing an IRQ to occur. When the operating system is ready to respond to the request, it interrupts itself and performs the service.
As above, the choices are *On* and *Off.*
When set *On*, activity will neither prevent the system from going into a power management mode nor awaken it.

- **IRQ [3-7, 9-15], NMI**
- **IRQ 8 Break Suspend :** You can *Enable* or *Disable* monitoring of IRQ8 (the Real Time Clock) so it does not awaken the system from Suspend mode.

Ring / PCIPME Power Up Control

When you select *Enabled,* a signal from ring / PCIPME returns the system to Full On state.

The choice: Enabled, Disabled.

KB Power On Password

This item can be used to prompt the used for a password when the system power is resumed by keyboard action .

The choice: Disable , Enable.

Power Up by Alarm

When you select *Enabled,* the following fields appear. They let you set the alarm that returns the system to Full On state.

Date (of Month) Alarm lets you select a day from 1 to 31 . Time Alarm lets you select a time for the alarm in hours , minutes , and seconds .

The choice: Enabled, Disabled.

4.11 PnP/PCI Configuration Setup

This section describes configuring the PCI bus system. PCI, or **P**ersonal **C**omputer **I**nterconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

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PnP/PCI Configurations

Reset Configuration Data Disabled	Item Help --- Menu Level ➢
Resources Controlled By Auto(ESCD)	
➢ IRQ Resources Press Enter	Default is Disabled. Select Enabled to reset Extended System Configuration Data(ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS cannot boot
PCI/VGA Palette Snoop Disabled	
↑↓←→Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults	

Reset Configuration Data

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system can not boot.
The choice: Enabled, Disabled .

Resource controlled by

The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows®95. If you set this field to "manual" choose specific resources by going into each of the sub menu that follows this field (a sub menu is preceded by a "➢").
The choice: Auto(ESCD), Manual.

IRQ Resources

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

IRQ3/4/5/7/9/10/11/12/14/15 assigned to

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

PCI/VGA Palette Snoop

Leave this field at *Disabled*.
Choices are Enabled, Disabled.

4.12 PC Health Status

This section helps you to get more information about your system including CPU temperature, FAN speed and voltages. It is recommended that you contact with your motherboard supplier to get proper value about your setting of the CPU temperature.

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PC Health Status

Vcore	1.65V	Item Help
+2.5V	2.49V	----------
+3.3V	3.37V	Menu Level ➢
+5V	4.97V	
+12V	11.96V	
+3VSB	3.29V	
+5VSB	4.65V	
Temperature1	- 55℃	
Temperature2	40℃	
Temperature3	79℃	
FAN 1 Speed	4153 RPM	

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

Voltage Monitoring

The chipset reserves 7 inputs for monitoring working voltages from various sources in the system. These voltages may includes CPU voltage, power pins of the ATX power (+/-12V, +/-5V, 3.3V...) and others.

Generic names (Voltage Name) are given to these items because where these pins are connected depends on different platforms you are using.

Temperature 1/2/3

The chipset reserves 3 inputs for monitoring temperatures that are typically the CPU & system temperatures.

Generic names are given for the same reason as Voltage 0-7.

Fan 1 Speed

The chipset reserves 1 inputs for monitoring FAN speeds in the

system. Usually, one FAN is applied to cool down the CPU and the other one is applied by different purpose.

Generic names are given for the same reason as Voltage monitoring.

4.13 Frequency/Voltage Control

CMOS Setup Utility – Copyright © 1984-1998 Award Software
Frequency/Voltage Control

Auto Detect DIMM/PCI Clk	Disabled	Item Help
Spread Spectrum	Disabled	----------
CPU HOST/SDRAM/PCI Clock	Default	Menu Level ➢
CPU Clock Ratio	By H/W	

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

Auto Detect DIMM/PCI CLK

This item allows you to enable/disable auto detect DIMM/PCI Clock.
The choice: Enabled, Disabled.

Spread Spectrum

This item allows you to enable/disable the spread spectrum modulate.
The choice: Enabled, Disabled.

CPU Host/DRAM/PCI Clock

This item allows you to select CPU/PCI frequency.
The choice: Default, 66/66/33MHz, 133/133/33MHz, 100/100/33MHz.

CPU Clock Ratio

This item allows you to select CPU clock ratio.
The choice: By H/W 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7, 7.5, 8.

4.14 Defaults Menu

Selecting “Defaults” from the main menu shows you two options which are described below

Load Fail-Safe Defaults
When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

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

Pressing ‘Y’ loads the BIOS default values for the most stable, minimal-performance system operations.

Load Optimized Defaults
When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N) ? N

Pressing ‘Y’ loads the default values that are factory settings for optimal performance system operations.

4.15 Supervisor/User Password Setting

You can set either supervisor or user password, or both of then. The differences between are:

supervisor password :
can enter and change the options of the setup menus.

user password :
just can only enter but do not have the right to change the options of the setup menus. When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:
Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.
To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.
PASSWORD DISABLED.
When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.
Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.
You determine when the password is required within the BIOS Features Setup Menu and its Security option (see Section 3). If the Security option is set to password will be required both at boot and at entry to Setup. If set to "Setup", prompting only occurs when trying to enter Setup.

4.16 Exit Selecting

Save & Exit Setup

Pressing <Enter> on this item asks for confirmation:

Save to CMOS and EXIT (Y/N)? Y

Pressing "Y" stores the selections made in the menus in CMOS – a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values the system is restarted again.

Exit Without Saving

Pressing <Enter> on this item asks for confirmation:

Quit without saving (Y/N)? Y

This allows you to exit Setup without storing in CMOS any change. The previous selections remain in effect. This exits the Setup utility and restarts your computer.

Appendix A. Watch-Dog Timer

The Watchdog Timer is a device to ensure that standalone systems can always recover from abnormal conditions that cause the system to crash.

These conditions may result from an external EMI or a software bug. When the system stops working, hardware on the board will perform hardware reset (cold boot) to bring the system back to a known state.

Three I/O ports control the operation of Watch-Dog Timer.

443 (hex)	Write	Set Watchdog Time period
443 (hex)	Read	Enable the refresh the Watchdog Timer.
043/843 (hex)	Read	Disable the Watch-Dog Timer.

Prior to enable the Watch-Dog Timer, user has to set the time-out period. The resolution of the timer is 1 second and the range of the timer is from 1 sec to 255 sec. You need to send the time-out value to the I/O port – 443H, and then enable it by reading data from the same I/O port – 443H. This will activate the timer that will eventually time out and reset the CPU board. To ensure that this reset condition won't occur, the Watch-Dog Timer must be periodically refreshed by reading the same I/O port 443H. This must be done within the time-out period, please refer to the example program. Finally, we have to disable the Watch-Dog timer by reading the I/O port -- 843H or 043H. Otherwise the system could reset unconditionally.

A tolerance of at least 5% must be maintained to avoid unknown routines in the operating system (DOS), such as disk I/O that can be very time-consuming. Therefore if the time-out period has been set to 10 seconds, the I/O port 443H must be read within 7 seconds.

Example assembly program:

```
TIMER_PORT  = 443H
TIMER_START  = 443H
TIMER_STOP  = 843H

;;INITIAL TIMER COUNTER

MOV DX, TIMER_PORT
MOV AL, 8    ;;8 seconds
OUT DX, AL
MOV DX, TIMER_START
IN AL, DX.    ;;start counter

W_LOOP:
MOV DX, TIMER_STOP
IN AL, DX
MOV DX, TIMER_START
IN AL, DX      ;;restart counter

;;ADD YOUR APPLICATION HERE

CMP EXIT_AP, 0
JNE W_LOOP
MOV DX, TIMER_STOP
IN AL, DX
;;EXIT AP
```

Appendix B. POST Messages

POST Messages

During the Power On Self Test (POST), if the BIOS detects an error requiring you to do something to fix, it will either sound a beep code or display a message. If a message is displayed, it will be accompanied by:
PRESS F1 TO CONTINUE, CTRL-ALT-ESC OR DEL TO ENTER SETUP

POST Beep

Currently there are two kinds of beep codes in BIOS. This 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 code indicates that your DRAM error has occurred. This beep code consists of a single long beep repeatedly.

Error Messages

One or more of the following messages may be displayed if the BIOS detects an error during the POST. This list includes messages for both the ISA and the EISA BIOS.

CMOS BATTERY HAS FAILED

CMOS battery is no longer functional. It should be replaced.

CMOS CHECKSUM ERROR

Checksum of CMOS is incorrect. This can indicate that CMOS has become corrupt. This error may have been caused by a weak battery. Check the battery and replace if necessary.

DISK BOOT FAILURE, INSERT SYSTEM DISK AND PRESS ENTER

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

DISKETTE DRIVES OR TYPES MISMATCH ERROR - RUN SETUP

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

DISPLAY SWITCH IS SET INCORRECTLY

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

DISPLAY TYPE HAS CHANGED SINCE LAST BOOT

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

EISA Configuration Checksum Error
PLEASE RUN EISA CONFIGURATION UTILITY

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

EISA Configuration Is Not Complete
PLEASE RUN EISA CONFIGURATION UTILITY

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

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

ERROR ENCOUNTERED INITIALIZING HARD DRIVE

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

ERROR INITIALIZING HARD DISK CONTROLLER

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

FLOPPY DISK CNTRLR ERROR OR NO CNTRLR PRESENT

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

Invalid EISA Configuration
PLEASE RUN EISA CONFIGURATION UTILITY

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

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

KEYBOARD ERROR OR NO KEYBOARD PRESENT

Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are being pressed during the boot.
If you are purposely configuring the system without a keyboard, set the error halt condition in Setup to HALT ON ALL, BUT KEYBOARD. This will cause the BIOS to ignore the missing keyboard and continue the boot.

Memory Address Error at ...

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

Memory parity Error at ...

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

MEMORY SIZE HAS CHANGED SINCE LAST BOOT

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

Memory Verify Error at ...

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

OFFENDING ADDRESS NOT FOUND

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

OFFENDING SEGMENT:

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

PRESS A KEY TO REBOOT

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

PRESS F1 TO DISABLE NMI, F2 TO REBOOT

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

RAM PARITY ERROR - CHECKING FOR SEGMENT ...

Indicates a parity error in Random Access Memory.

Should Be Empty But EISA Board Found
PLEASE RUN EISA CONFIGURATION UTILITY

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

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

Should Have EISA Board But Not Found
PLEASE RUN EISA CONFIGURATION UTILITY

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

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

Slot Not Empty

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

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

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

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

Wrong Board In Slot
PLEASE RUN EISA CONFIGURATION UTILITY

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

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

FLOPPY DISK(S) fail (80) → Unable to reset floppy subsystem.

FLOPPY DISK(S) fail (40) → Floppy Type dismatch.

Hard Disk(s) fail (80) → HDD reset failed

Hard Disk(s) fail (40) → HDD controller diagnostics failed.

Hard Disk(s) fail (20) → HDD initialization error.

Hard Disk(s) fail (10) → Unable to recalibrate fixed disk.

Hard Disk(s) fail (08) → Sector Verify failed.

Keyboard is locked out - Unlock the key.

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

Keyboard error or no keyboard present.

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

Manufacturing POST loop.

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

BIOS ROM checksum error - System halted.

The checksum of ROM address F0000H-FFFFFH is bad.

Memory test fail.

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

Appendix C.

DMA, IRQ and 1st MB Memory

I/O Address Map

DMA Channel Assignments:

DMA Channel #	Description
0	Available
1	Available
2	Floppy Disk (8-bit transfer)
3	Available
4	Cascade for DMA controller 1
5	Sound
6	Available
7	Available

IRQ Mapping Chart

IRQ0	System Timer	IRQ8	RTC Clock
IRQ1	Keyboard	IRQ9	USB
IRQ2	Cascade to IRQ Controller	IRQ10	LAN1
IRQ3	(COM2)	IRQ11	LAN2
IRQ4	(COM1)	IRQ12	PS/2 Mouse
IRQ5	Sound	IRQ13	FPU
IRQ6	FDC	IRQ14	Primary IDE
IRQ7	LPT1	IRQ15	Secondary IDE

Note: All IRQs have been assigned to the listed devices, so if you want to add any additional device, you must free the unused IRQ first. For example, if you don't use USB K/B or Mouse, then IRQ9 may be set free.

1st MB Memory Address Map

Memory Address	Description
00000-9FFFF	System Board extension for ACPI BIOS
A0000-CFFFF	SIS630E
D0000-DFFFF	Free
F0000-FFFFF	System Board extension for ACPI BIOS

I/O Address Map

I/O Address Range	Description
000-01F	DMA Controller #1
020-021	Interrupt Controller #1, Master
040-05F	8254 Timer
060-06F	8042 (Keyboard Controller)
070-07F	Real Time Clock, NMI Mask
080-09F	DMA Page Register
0A0-0BF	Interrupt Controller #2
0C0-0DF	DMA Controller #2
0F0	Clear Math Coprocessor Busy
0F1	Reset Math Coprocessor
0F8-0FF	Math Coprocessor
170-177 1F0-1F7	Fixed Disk
2F8-2FF	Serial Port 2 (COM2)
378-37F	Parallel Printer Port 1 (LPT1)
380-38F	SDLC, Bisynchronous 2
3A0-3AF	Bisynchronous 1
3B0-3BB	SIS 630E
3C0-3DF	SIS 630E
3F0-3F7	Diskette Controller
3F8-3FF	Serial Port 1 (COM1)
443, 843	Watch-dog timer

Appendix D.

How to Upgrade a New BIOS

You can install an upgrade BIOS for the PCISA-3716E2V that you

can download from the manufacturer's web site (www.e-icp.com.tw). New BIOS may provide support for new peripherals ,improvements in performance or fixes to addressed known bugs.

BIOS Update Procedure:

1. Make a boot disk. Go to the DOS command prompt in MS-DOS or Windows 9x and, with an available floppy disk in "A", type "format A: /s" That will format the floppy and transfer the needed system files to it.

NOTES:
A. This procedure will erase any prior data on that floppy, so please Proceed accordingly.
B. Typically four files will be transferred, only COMMAND.COM being visible when running a simple directory listing.
C. Please leave the diskette UN-write protected for the balance of this procedure.

2. Download the BIOS upgrade file and awdflash.exe utility from a ICP web site to a temp directory on your hard drive, or directly to the floppy you made in step 1..

3. Copy (BIOS file and awdflash.exe)two files to the boot floppy.

4. Reboot the system to the DOS command prompt using the boot diskette you just made.

5. At the DOS command prompt type , "awdflash filename.xxx", where filename.xxx is the file name of the BIOS file . Hit enter.

6. Your first option, in sequence, will be to save the old BIOS. We recommend that you do that in case, for whatever reason, you decide you don't wish to use the new version once it is installed.
NOTES:

A. If you decide to save the old BIOS, PLEASE make sure you do NOT save it to the same file name as the new BIOS - if you use the same BIOS name the old file will be written over the new file with NO warning prompt. A simple file name to save the old BIOS to is OLDBIOS.BIN.
B. If you do NOT decide to save the old BIOS, PLEASE at least write down the version number of the old BIOS and store that information with your important computer documents. Enter N (for "no") and skip to step 9.

7. To save the old BIOS, hit Y (for "yes")

8. Enter a name for the OLD BIOS file and hit enter.
NOTE:PLEASE be sure you do NOT save the old BIOS file to the same file name as the new BIOS - if you use the same BIOS name, the old file will write over the new BIOS file WITHOUT a warning prompt. A simple file name for saving the old BIOS to is OLDBIOS.BIN.

9. Your second option, in sequence, will be whether you want to flash your BIOS. Enter Y (for "yes").
NOTE: This is the critical step. Once you kit the enter key, do NOT touch the keyboard, the reset button, or power switch while the flashing is in progress. There will be bar progressing across the screen while the flashing is progressing.

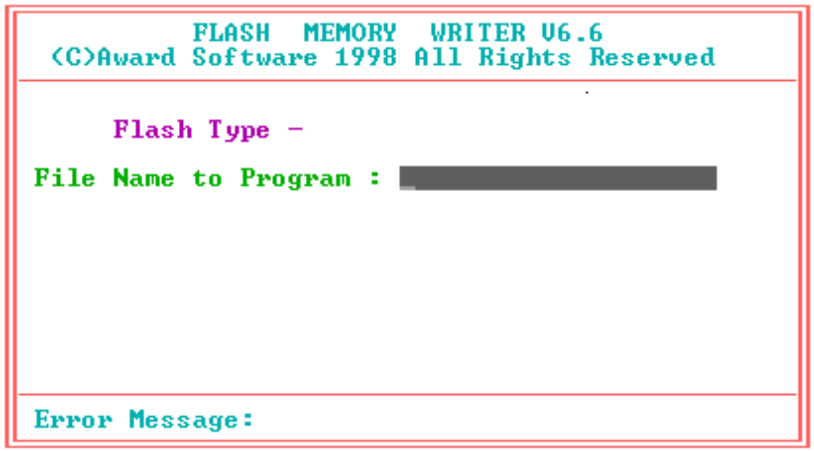
10. When the flashing process is complete, you will be asked to reset or power off the system. Remove the floppy diskette from the floppy drive and either hit the reset button or the power button.

11. Reboot the system and note that the BIOS version on the initial boot-up screen has changed to the new BIOS version. Your BIOS upgrade is now complete.

Recovering Your Old BIOS:
1. Assuming you have the floppy made during the upgrade procedure noted above, boot the system with that diskette in the floppy drive. If you do not have floppy made during the upgrade procedure noted above, you will need to repeat steps 1 though 3 (above) for the version of the BIOS you wish to recover to.

2. Complete steps 4, 5, 6B, 9, 10, and 11 (above) substituting the name of the BIOS you wish to recover for the upgrade BIOS at step 5.

Install screen :



Appendix E. ATX Power Supply

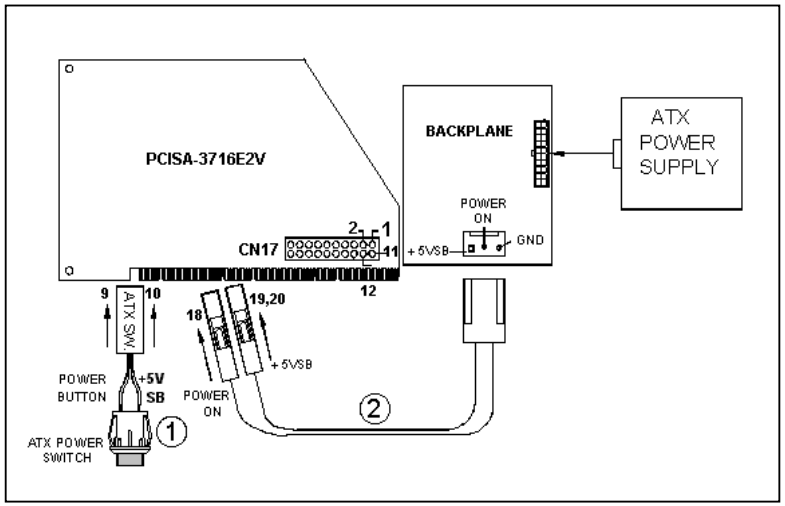
The following notes show how to connect ATX Power Supply to the backplanes and / or the ISBC card.

A. For backplanes with ATX Connector

1. Please, disconnect the AC cord of the Power Supply from the AC

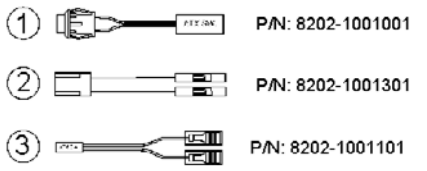
source to prevent sudden electric surge to the board.
2. Please, check the type of your CPU board. All CPU board listed on the next page support ATX power supply but has two types of power switch connection:

2.1.PCISA-3716E2V (through Power Button & +5VSB):



Connect the ATX power supply switch to the pin 9 (power button) and pin 19,20 (+5VSB) of CN17 on the board.

If you wish to turn off the power supply, please push the ATX power switch button for about 4 sec. And to turn ON the system, simply push the button once.

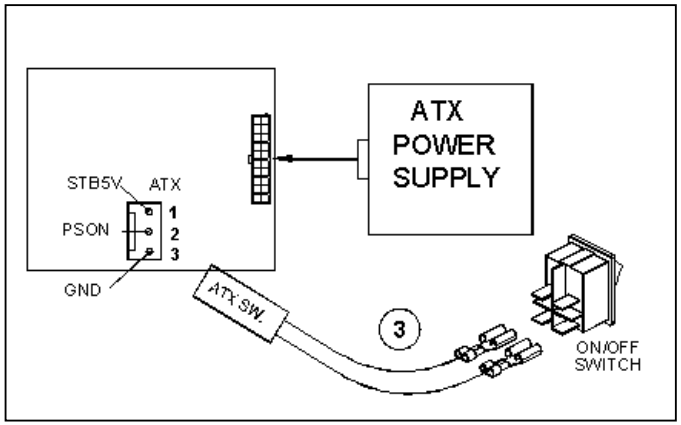


B. For the backplanes with ATX power supply

connector

For some SBC without ATX power ON/OFF function, then you can control the ATX power supply through backplane's PS ON connector. Refer to the figure below: for the backplanes with ATX connector, the connection can be made simply as following:

1. Connect the ON/OFF (ordinary one) switch to Pin 2 (PS ON) and Pin 3 (GND) of connector ATX
2. You may now turn the power ON/OFF by the power switch



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