SBC-800-A1.2

Full-size CPU Card P4 Socket478 w/ LVDS,TV-out, Dual LAN, Audio,CF2,& 4USB Ports.

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AGP Differences Notice

- **SBC-800A1.0 uses ATI Mobility Radeon M6 AGP Version 1.2**
- **SBC-800A1.1 uses ATI Mobility Radeon M6 AGP Version 1.2**
- **SBC-800A1.2 uses ATI Mobility Radeon M6 AGP Version 2.2**

With different chipset adopted on each version of SBC-800, jumper and connector settings remain the same. However, BIOS and Drivers are varied. A complete set of corresponding files of BIOS and Drivers are stored in the CD-ROM No.2087800012 to facilitate your board set up.

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Your satisfaction is our primary concern. Here is a guide to AAEON's customer services. To ensure you get the full benefit of our services, please follow the instructions below carefully.

Technical Support

We would like you to have the maximum performance from your products. Therefore if you run into technical difficulties, we are here to help. For the most frequently asked questions, you can easily find answers in your product documentation. These answers are normally a lot more detailed than the ones we can give over the phone.

Please consult this manual first. If you still cannot find the answer, gather all the information or questions which apply to your problem, and with the product close at hand, call your dealer. Our dealers are well trained and ready to give you the support you need to get the most from your AAEON products. In fact, most problems reported are minor and are able to be easily solved over the phone.

In addition, free technical support is available from AAEON engineers every business day. We are always ready to give advice on application requirements or specific information on the installation and operation of any of our products.

SBC-800 3rd Edition Jan 2003 CD ROM No. 2087800012

Product Warranty

AAEON warrants to you, as the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of shipment.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by AAEON, or which have been subject to misuse, abuse, accident or improper installation. AAEON assumes no liability under the terms of this warranty as a consequence of such events.

Because of AAEON's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If an AAEON product is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time, and freight charge. Please consult your dealer for more details.

If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU type and speed, AAEON products used, other hardware and software used, etc.) Note anything abnormal and list any on-screen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
3. If your product is diagnosed as defective, obtain an RMA (return material authorization) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Packing list

Before you begin installing your card, please make sure that the following materials have been shipped:

1 SBC-800 Full- size Single Board Computer Card

1 Quick Installation Guide

1 Heatsink with cooling fan

1 Support CD contains the followings:

-- User's Manual (this manual in PDF file)

-- chipset driver

-- Ethernet driver and utilities

-- VGA driver and utilities

-- Audio driver and utilities

1 floppy disk drive interface cable (34-pin, pitch 2.54mm)

1USB cable and Audio Kit with bracket (2.0mm)

1 IDE hard disk drive cable (40-pin, pitch 2.54mm)

1 parallel and serial cable port with bracket (26-25-pin, pitch 2.0mm)

1 serial port with bracket (10-9 pin, pitch 2.0mm)

1RCA jack cable 4-pin (2.54mm) for TV-out

1 bag of screws and miscellaneous parts

If any of these items are missing or damaged, contact your distributor or sales representative immediately.

SBC-800 3rd Edition Jan 2003 CD ROM No. 2087800012

Notice

Dear Customer,

Thank you for purchasing the SBC-800 board. This user's manual is designed to help you to get the most out of the SBC-800, please read it thoroughly before you install and use the board. The product that you have purchased comes with a two-year limited warranty, but AAEON will not be responsible for misuse of the product. Therefore, we strongly urge you to first read the manual before using the product.

To receive the latest version of the user manual, please visit our Web site at:

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CHAPTER 1

General Information

This chapter gives background information of the mainboard.

Sections Include:

- Board Specifications
- Layout and Dimensions

Introduction

The SBC-800 is an all-in-one Single Board Computer (SBC) capable of handling the Scoket 478 Pentium 4 CPU up to 2GHz (with system bus frequencies of 400MHz) . Reliability, performance, flexibility are essential qualities for SBC's and SBC-800 offers all of these.

Onboard we have Incorperated Intel's Brookdale 845 chipset for high-volume memory, and configuration options that optimize P4 performance. High Speed ATI Mobility Radeon M6 AGP 4X 8M/ 16M offers high-quality 2D, 3D,and video streams and supports non-interlaced CRT, DVI and LVDS panels with resolutions up to 1600 x 1200 at 16.7M colors.

Ethernet and Audio features onboard provide quality and performance unsurpassed in the market. Excellent audio quality (ALC201), with up to two channels provide for full surround sound experience. Dual Intel 82559GD Ethernet IC offer networking options taking advantage of Intel® Single Driver® technology. Standard RJ-45 connectors are both placed on the bracket for ease of connection.

Memory banks were designed with capacity accessibility in mind. There are three 168-pin DIMM sockets providing a total of 3GB of storage space. A CompactFlash connector is provided on the solder side of the board and can store an additional 1GB of memory. (IBM Micro Drive)

SBC-800 supports four IDE devices(UDMA 100), two floppy disks, Four USB ports,two RS-232 serial ports, one bi-directional parallel port supports SPP,ECP, and EPPmodes. This full-sized SBC can be operated without a backplane if necessary.

Features

- Supports Intel Pentium 4 CPU
- High Speed ATI Mobility Radeon M6
- AGP 4X 8M/16M on board. Supports LVDS, DVI.
- Dual 10/100 Base-T Fast Ethernet (Intel 82559GD)
- Supports H/W status monitoring
- Integrated AC-97 2.1 SoundBlaster compatible PCI 3D Audio
- Supports Type II Compact Flash Memory
- Four USB ports onboard
- Supports 1 IrDA
- Supports Ultra DMA 100

Specifications

Standard Full-size SBC functions

CPU: Socket 478 Pentium 4 (With system bus frequencies of 400MHz).

CPU socket: Intel Socket 478

Bus interface: PICMG Compliant

BIOS: Award 2 MB Flash BIOS

Chipset: Intel 845 Brookdale

ISA bus interface: ITE IT8888 PCI to ISA bridge Full ISA bus function and master mode support.

Memory : Onboard three 168 pins DIMM socket supports up to 3G bytes SDRAM (onlyPC-133 SDRAM supported)

Enhanced IDE: Supports two IDE channel. Support Ultra DMA/ 100 mode with data transfer rate of 100MB/sec.

FDD interface: Supports two floppy disk drives, 5.25" (360KB and 1.2MB) and/or 3.5" (720KB, 1.44MB, and 2.88MB).

Parallel port: One bi-directional parallel ports. Supports SPP, ECP, and EPP modes.

Serial port: Two RS-232 serial ports, can be configured as COM1,COM2, or disabled individually and one RS-232/422/485(COM2).And either COM1, COM2 can be S/W configurable to support Ring wake up, COM2 provide the option to select 12V/5V/RING function by jumper setting (16C550 equivalent).

KB/Mouse connector : 6-pin mini-DIN connector supports PC/AT keyboard and PS/2 mouse, Addition 5-pin(wafer) and 4-pin(wafer supports PC/AT KBD and mouse for IPC applications. Supports wake on KBD and Mouse function.

USB connectors: 10-pin onboard connector supports four USB ports.

Battery: Lithium battery for data retention

Watchdog timer: Can generate a system reset, or NMI. Software selectable time-out interval (1 sec. ~ 255 min., 1 sec./step or 1 min./step)

DMA: 7 DMA channels (8237 equivalent)

Interrupt: 15 interrupt levels (8259 equivalent)

Power management: Supports ATX power supply. I/O peripheral support power saving and doze/standby/suspend modes. APM 1.2 compliant.

H/W status monitoring: Embedded in ITE 8712 supports power, supply voltages, and temperature monitoring.

Flat Panel/CRT Interface

Chipset: ATI mobility Radeon M6

Chipset output VGA signal: AGP 4X

Display memory: 8M/16MB DDR Memory

Display type: Supports non-interlaced CRT, DVI and LVDS.

Can display CRT, TV and Flat Panel simultaneously.

Resolution: Up to 1600 x 1200 @ 16.7M colors

Notice: Flat panel doesn't support 640x480 or below

High Drive: support 64mA high driving capability for ISA-bus slot on backplane

Audio Interface

Chipset: Intel ICH2

Audio interface: One 14 pin header (2.00mm)

Codec: ALC 201

Ethernet Interface

Chipset: Two Intel 82559GD

Ethernet interface : Two 10/100 Base-T RJ45 connector LAN LED support (Link,RX,TX)support WOL and optional support for AOL

SSD Interface

Compact Flash connector onboard support type 2 CFD

Mechanical and environmental

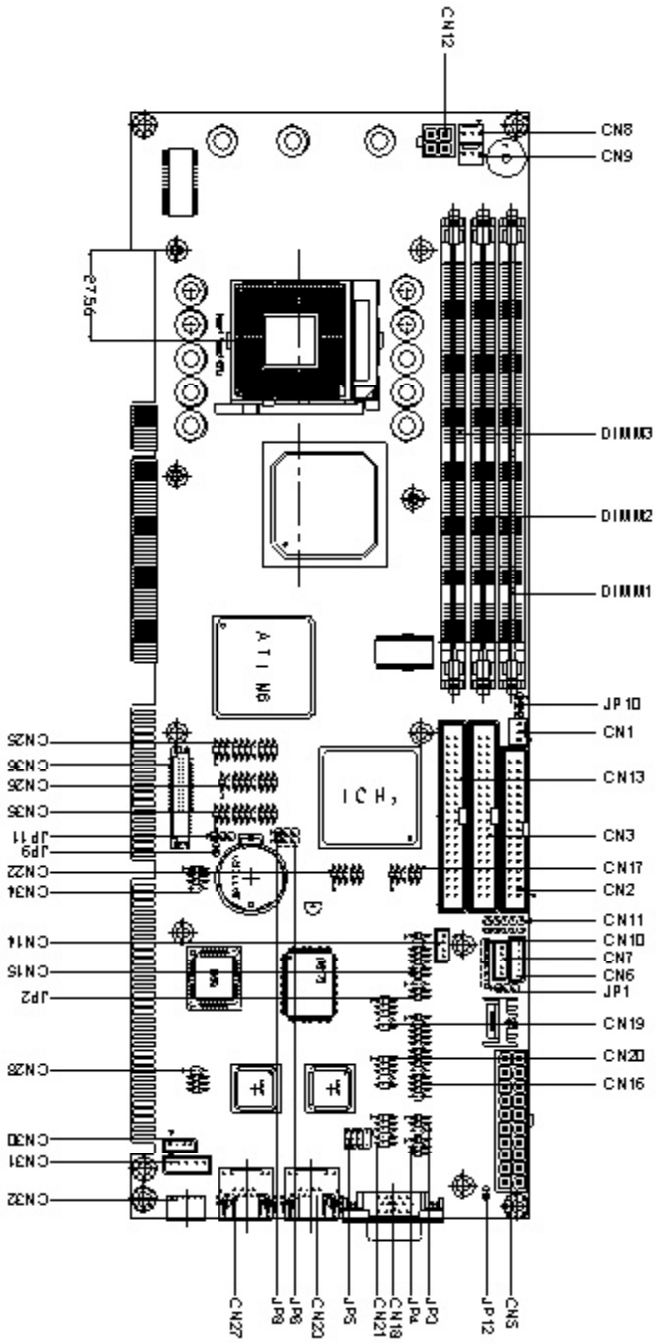
Power supply voltage: +5V, 3.3V, ATX12V

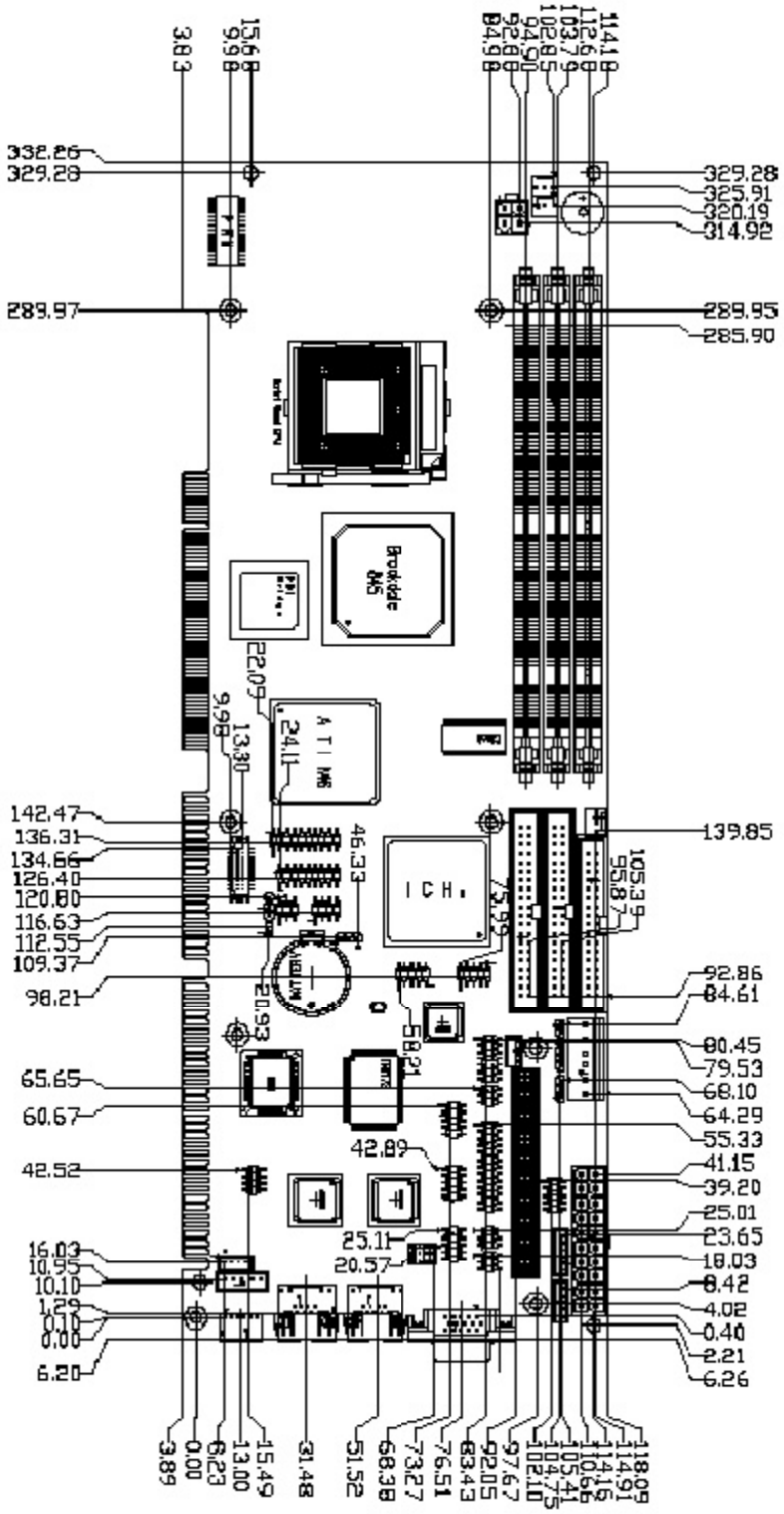
Operating temperature: 32 to 140° F (0 to 60° C)

Board size: 13.3"(L) x 4.8"(W) (338mm x 122mm)

Weight: 1.2 lb. (0.5 Kg)

Board Layout




3.83
15.68
9.98
332.26
329.28
289.97
22.09
9.98
13.30
24.11
142.47
136.31
134.66
126.40
120.80
116.63
112.55
109.37
98.21
46.33
20.93
65.65
60.67
42.52
16.03
10.95
10.10
1.29
0.10
0.00
6.20
3.89
0.00
6.23
13.00
15.49
31.48
51.52
58.38
73.27
76.51
83.43
92.05
97.67
102.10
104.75
105.41
106.66
114.16
114.91
118.09
114.19
112.68
103.79
102.85
94.90
92.86
84.98
329.28
325.91
320.19
314.92
289.95
285.90
139.85
105.39
95.87
92.86
84.61
80.45
79.53
68.10
64.29
55.33
41.15
39.20
25.01
23.65
18.03
8.42
4.02
0.40
2.21
6.26
75.22
58.21
42.89
25.11
20.57

2

Installation

This chapter describes how to set up the main board hardware, including instructions on setting jumpers and connecting peripherals, switches, and indicators. Be sure to read all the safety precautions before you begin the installation procedure.

Safety Precautions

Warning! *Always completely disconnect the power cord from your chassis whenever you are working on it. Do not make connections while the power is on because sensitive electronic components can be damaged by the sudden rush of power. Only experienced electronics personnel should open the PC chassis.*

Caution! *Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not in the chassis.*

Removing the CPU

The SBC-800 all-in-one CPU module supports Socket 478 Pentium4 CPUs. The system's performance depends on the CPU you choose. You can install or upgrade the CPU in the board's PGA socket by following the procedures outlined below. If your system has an existing CPU, you need to remove it before installing the new CPU.

Removing a CPU

1. Disconnect power from the chassis, and unplug all connections to the CPU card. Then, remove the CPU card from the chassis by following the instructions in the user's manual for your chassis.
2. Lift the CPU out of the PGA socket. The old chip may be difficult to remove. You may find spray chip lubricant, designed for pin-grid-array (PGA) devices, and a chip puller helpful. These are available at electronics hobbyists' supply stores.

Installing A CPU

To install the CPU, follow the instructions that came with it. If no documentation was provided, the general procedures for installing a CPU are outlined below:

1. Lubricate the pins on the CPU with lubricant for PGA devices. This makes the CPU slide in much easier and greatly reduces the chance of damaging the pins and other components.
2. Carefully align the CPU so that it is parallel to the socket. Make sure that the notch on the corner of the CPU matches the notch on the inside of the socket.
3. Gently push the CPU into the socket. There will probably be a small gap between the CPU and the socket even when it is fully seated. DO NOT USE EXCESSIVE FORCE!

When you install a new CPU, you may have to adjust other settings on the board, such as CPU type, CPU clock, and PCI speed, to accommodate it. Make sure that the settings are correct for your CPU. **Improper settings may damage the CPU.**

Installing DRAM (DIMMs)

System Memory

The SBC-800contains three sockets for 168-pin dual inline memory module (DIMM). The socket uses 3.3 V unbuffered synchronous DRAM (SDRAM). DIMM is available in capacities of 16, 32, 64, 128 256,or 512 MB. The socket can be filled in the DIMM of any size, giving your SBC-800 single board computer between 16 and 512 MB of memory.

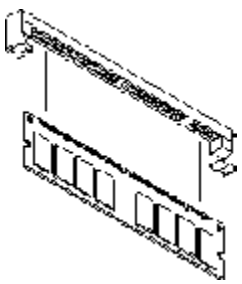
Supplementary information about DIMM

SBC-800 can only accept PC-133 SDRAM DIMM Module(with or without parity).

Single-sided modules are typically 16 ,64 or 256 MB; double-sided modules are usually 32, 128 ,512 MB.

Memory Installation Procedures

To install DIMM, first make sure the two handles of the DIMM socket are in the "open" position. i.e. The handles remain outward. Slowly slide the DIMM module along the plastic guides on both ends of the socket. Then press the DIMM module right down into the socket, until you hear a click. This is when the two handles have automatically locked the memory module into the correct position of the DIMM socket. (See Figure below) To take away the memory module, just push both handles outward, and the memory module will be ejected by the mechanism in the socket.



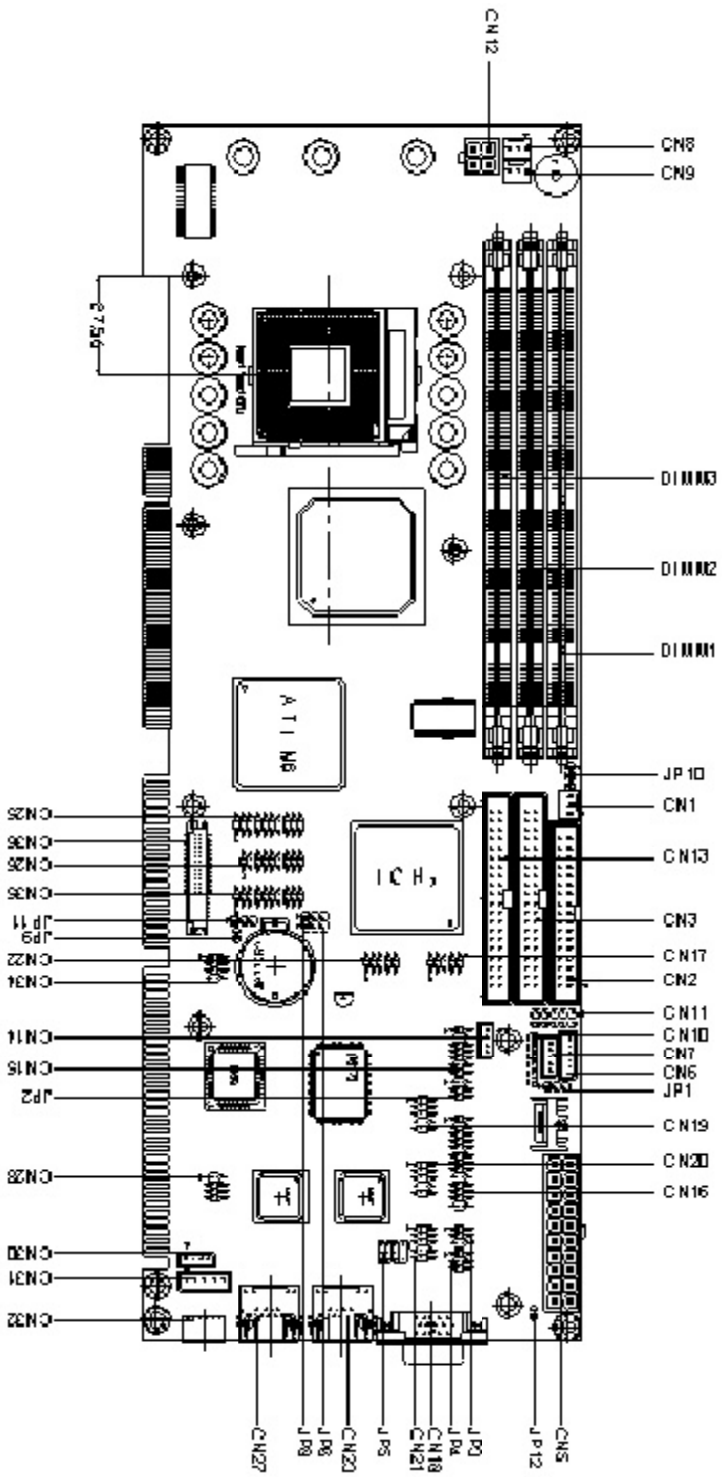
Jumpers

Jumpers	Function
JP2	Audio Select
JP3	COM2 RS-232/422/485 Select
JP4	COM2 Ring/+5/+12 V Select
JP5	COM2 RS-232/422/485 Select
JP6	Clear CMOS
JP8	LCD Voltage Select
JP9	VGA Function Enable/Disable
JP10	FSB Select (Option)
JP12	Simulate AT Function

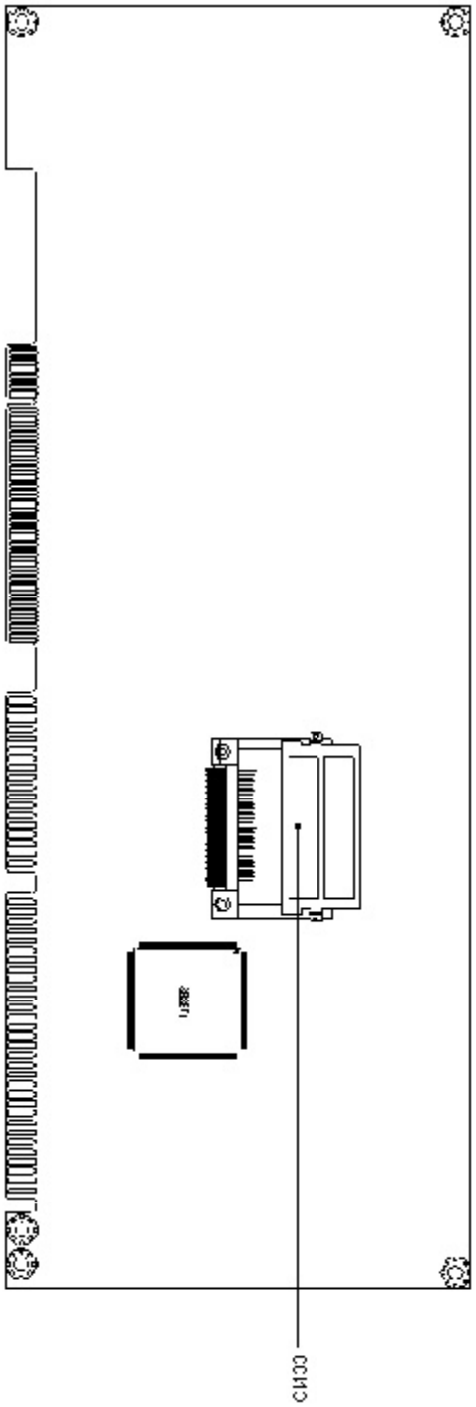
Connectors

Connector	Function
CN1	FAN-1
CN2	Floppy Drive Connector
CN3	Primary IDE Connector
CN5	ATX Power
CN6	External Power On Connector
CN7	External PME Connector
CN8	FAN-2
CN9	FAN-3
CN10	IrDA Connector
CN11	Front Panel
CN12	ATX Power_12V
CN13	Slave IDE Connector
CN14	Audio Out Connector (1Watt)
CN15	Audio Connector
CN16	Parallel Port Connector
CN17	USB2-3 Connector
CN18	VGA Display Connector
CN19	Digital I/O Connector
CN20	COM1 RS-232 Serial Port Connector
CN21	COM2 RS-232/422/485 Serial Port Connector
CN22	USB0-1 Connector
CN23	100 Base-Tx Ethernet Connector
CN25	LVDS channel-1
CN26	LVDS channel-2
CN27	100 Base-Tx Ethernet Connector
CN28	External LAN LED Connector
CN30	Internal Mouse Connector
CN31	Internal Keyboard Connector
CN32	Keyboard/Mouse Connector
CN33	Compact Flash Connector
CN34	TV-Out Connector
CN35	DVI Connector

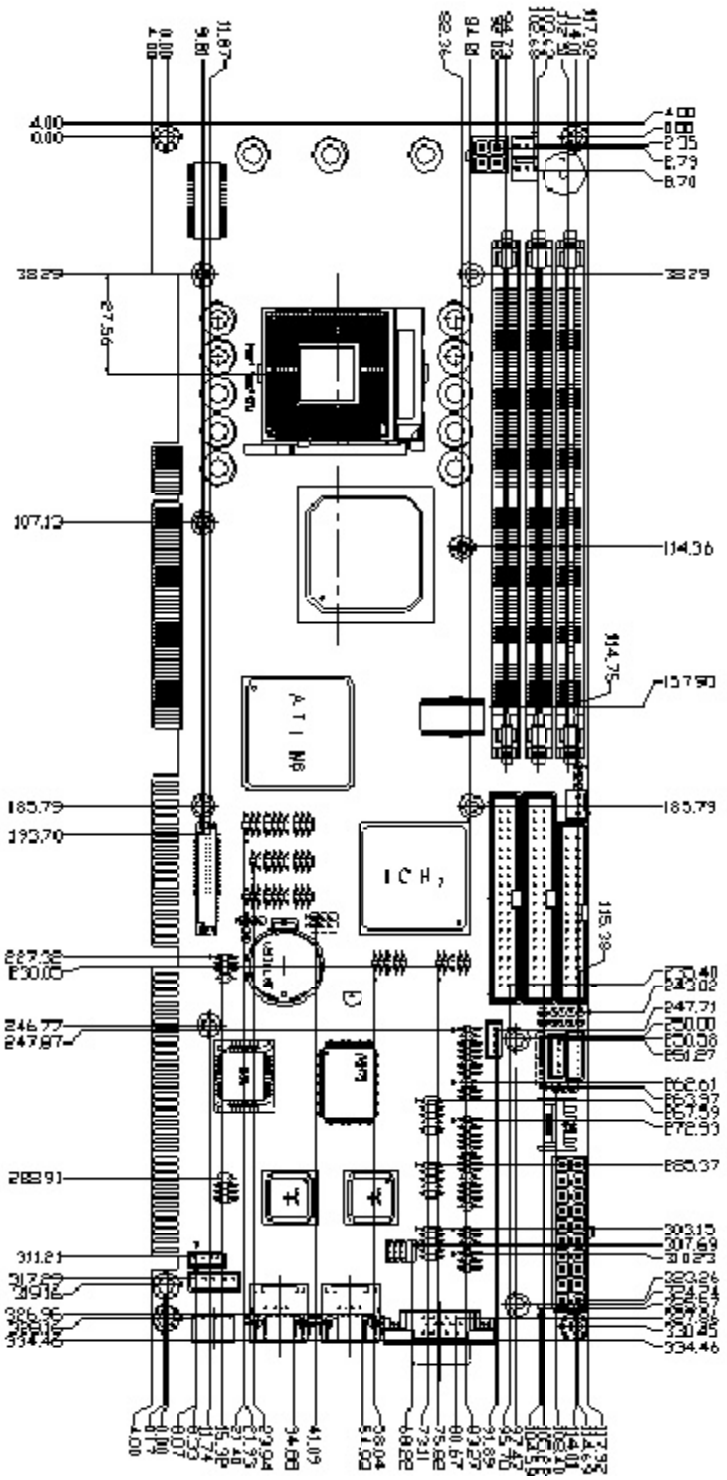
Locating Jumpers and Connectors



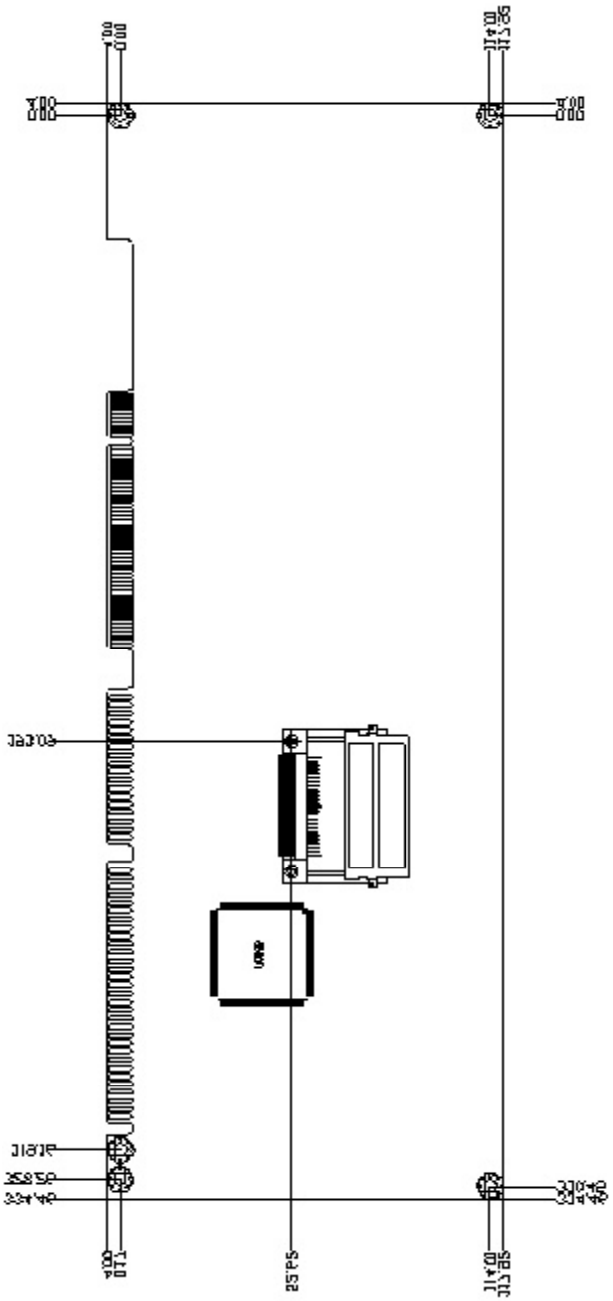
Locating Jumpers & Connectors (Soldering Side)



Mechanical Drawing

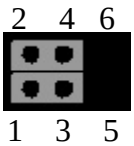


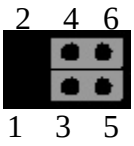
Mechanical Drawing (Soldering Side)



Audio out (JP2)

Non-Amplifier	*Amplifier





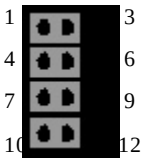
*Default

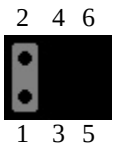
Output audio signal can be selected going through amplifier or not with Jumper 2

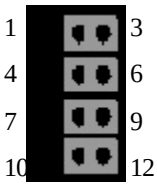
RS-232/422/485 COM 2 (JP5 &JP3) Setting

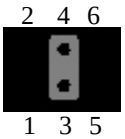
The SBC-800 COM 2 serial port can be selected as RS-232/422/485 by setting JP5 & JP3.

*RS-232		RS-422	
JP5	JP3	JP5	JP3



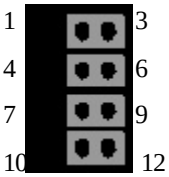


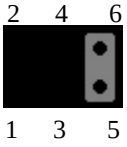




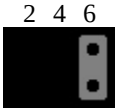
*Default

RS-485	
JP5	JP3





COM2 (Ring, +5V, +12V) JP4

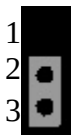
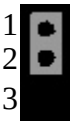
12V	+5V	*Ring
		

*Default

Clear CMOS (JP6)

You can use JP6 to clear the CMOS data if necessary. To reset the CMOS data, place a jumper on JP6 (Clear CMOS) for just a few seconds, and then remove the jumper to the (Protect) position.

Clear CMOS (JP6)

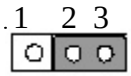
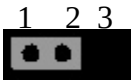
Clear CMOS	*Protect
	

*Default

LCD Voltage Select (JP8)

You can use JP8 to selcet LCD voltage ,The configuration are as follow:

LCD Voltage (JP8)

*3.3V	5V
	

*Default

VGA Function Enable/Disable (JP9)

ON	* OFF
Disable	Enable

*Default

can video off with dissending the VGA singal

FSB Select (JP10) (Option)

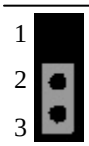
The FSB= CPU Clock x 4

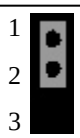
If CPU Clock=100 Then FSB=400 MHz

If CPU Clock=133 Then FSB=533 MH

***Default**

Reserve	*Normal





Simulate AT Function (JP12)

ON	*OFF
Simulate AT	Normal

***Default**

CPU Fan Power Connector-1(CN1)

Pin	singal
1	GND
2	+12V
3	Fan Speed Sense

Floppy Drive Connector (CN2)

Floppy drive connector (CN2)

Pin	Signal	Pin	Signal
1	GND	2	DENSITY SELECT
3	GND	4	N.C.
5	GND	6	N.C.
7	GND	8	INDEX
9	GND	10	MOTOR A
11	GND	12	DRIVE SELECT B
13	GND	14	DRIVE SELECT A
15	GND	16	MOTOR B
17	GND	18	DIRECTION
19	GND	20	STEP
21	GND	22	WRITE DATA
23	GND	24	WRITE GATE
25	GND	26	TRACK 0
27	GND	28	WRITE PROTECT
29	N.C.	30	READ DATA
31	GND	32	SIDE 1
33	N.C.	34	DISK CHANGE

IDE Hard Drive Connector (CN3)

IDE hard drive connector (CN3)

Pin	Signal	Pin	Signal
1	IDE 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	REQ	22	GND
23	IO WRITE	24	GND
25	IO READ	26	GND
27	IO READY	28	GND
29	DACK	30	GND
31	IRQ14	32	N.C.
33	ADDR 1	34	ATA66 DETECT
35	ADDR 0	36	ADDR 2
37	CS#1	38	CS#3
39	IDEACTP	40	GND

ATX Power connector (CN5)

The ATX power supply uses 20-pin connector shown below. Make sure you plug in the right direction.

ATX power connector (CN5)

Pin	Signal	Pin	Signal
1	+3.3V	11	+3.3V
2	+3.3V	12	-12V
3	GND	13	GND
4	+5V	14	PS ON
5	GND	15	GND
6	+5 V	16	GND
7	GND	17	GND
8	POWER OK	18	-5V
9	+5VSB	19	+5V
10	+12V	20	+5V

External Power On Connector (CN6)

On board SBC-800, there is a 6-pin wafer for external power on function. The pin definition is provided below.

External Power On Connector (CN6)

Pin	Signal
1	N.C.
2	GND
3	N.C.
4	GND
5	PS-ON
6	5VSB

Exernal PME Connector (CN7)

Can use add-on card supplying PME signal enabe wake on lan and hot-swap function

External PME Connector (CN7)

Pin	Signal
1	5VSBY
2	GND
3	PME
4	SMBDATA
5	SMBCLK

CPU Fan Power Connector-2 (CN8)

Plug in the fan cable to the 3-pin fan connector onboard. The fan connector is marked CN8.

CPU fan power connector (CN8)

Pin	Signal
1	GND
2	+12V
3	Fan speed sensor

CPU Fan power connector-3 (CN9)

Plug in the fan cable to the 3-pin fan connector onboard. The fan connector is marked CN9.

CPU fan power connector (CN9)

Pin	Signal
1	GND
2	+12V
3	Fan speed sensor

IrDA Connector (CN10)

The IrDA connector (CN10) can be configured to support wireless infrared modules. With this module and application software such as laplink or Win95, Direct Cable connection can transfer files between laptops, notebooks, PDA and printers. This connector supports HPSIR (115.2Kbps, 2 meters), (ASK-IR (56Kbps) and fast IR (4Mbps, 2 meters).Install infrared module onto IrDA connector and enabled infrared function from BIOS setup, make sure to have correct orientation when you plug onto IrDA connector (CN10).

Pin	Signal
1	+5V
2	CIRTX
3	IRRX
4	GND
5	IRTX
6	CIRRX

Front Panel connector(CN11)

Front panel connector (CN11)

Pin	Signal
1	POWER ON BUTTON-(GND)
2	POWER ON BUTTON+
3	IDE LED-
4	IDE LED+
5	SPEAKER-
6	SPEAKER+(VCC)
7	CASE OPEN+
8	CASE OPEN+ (GND)
9	RESET SWITCH+
10	RESET SWITCH-(GND)

ATX Power_12V connector (CN12)

For Pentium 4 power use_12V

ATX Power_12V connector (CN12)

Pin	Signal
1	GND
2	GND
3	+12V(for PWM)
4	+12V(for PWM)

Secondary IDE Connector (CN13)

IDE hard drive connector (CN13)

Pin	Signal	Pin	Signal
1	IDE 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	REQ	22	GND
23	IO WRITE	24	GND
25	IO READ	26	GND
27	IO READY	28	GND
29	DACK	30	GND
31	IRQ14	32	N.C.
33	ADDR 1	34	ATA66 DETECT
35	ADDR 0	36	ADDR 2
37	CS#1	38	CS#3
39	IDEACTP	40	GND

Audio Out Connector 1 Watt (CN14)

Audio Out Connector 1 Watt (CN14)

Pin	Signal
1	OUT L+
2	OUT L-
3	OUT R+
4	OUT R-

Audio Connector (CN15)

Audio connector (CN15)

Pin	Signal	Pin	Signal
1	MIC IN	2	MIC VCC
3	GND	4	CD GND
5	LINE IN L	6	CD IN L
7	LINE IN R	8	CD GND
9	GND	10	CD IN R
11	LINE OUT L	12	LINE OUT R
13	GND	14	GND

Parallel port connector (CN16)

Parallel port connector (CN16)

Pin	Signal	Pin	Signal
1	STROBE	14	AFD
2	PTD0	15	ERROR
3	PTD1	16	INIT
4	PTD2	17	SLIN
5	PTD3	18	GND
6	PTD4	19	GND
7	PTD5	20	GND
8	PTD6	21	GND
9	PTD7	22	GND
10	ACK	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SELECT	26	N.C.

USB 2-3 connector (CN17)

USB 2-3 connector (CN17)

Pin	Signal	Pin	Signal
1	+5V	2	GND
3	USBD2-	4	GND
5	USBD2+	6	USBD3+
7	GND	8	USBD3-
9	GND	10	+5V

VGA Display connector (CN18)

VGA display connector (CN18)

Pin	Signal	Pin	Signal
1	RED	9	VCC
2	GREEN	10	GND
3	BLUE	11	N/C
4	N/C	12	DDCSDA
5	GND	13	H-SYNC
6	GND	14	V-SYNC
7	GND	15	DDCSCL
8	GND	16	N/C

Digital I/O Connector (CN19)

SBC-800 offers 4 bit TTL input/output digital I/O functions. Output 801H; GPI20 [bit0], GPI21[bit1], GPI22[bit2], GPI23[bit3] and Input801H; GPO24[bit4], GPO25[bit5], GPO26[bit6], GPO27[bit7]. With the input and output consisting of the following:

Digital I/O Connector (CN19)

Pin	Signal	Pin	Signal
1	IN1	2	IN2
3	IN3	4	IN4
5	OUT1	6	OUT2
7	OUT3	8	OUT4
9	+5V	10	GND

COM 1 (CN20) & COM 2 (CN21) Serial Ports

On board offer two serial ports for serial devices connection. Pin definitions show as below.

COM 1 RS-232 (CN20)

Pin	Signal	Pin	Signal
1	**DCD**	**2**	**RXD1**
3	TXD1	4	DTR1
5	GND	6	DSR1
7	RTS1	8	CTS1
9	RI	10	N.C.

COM 2 RS-232/422/485 (CN21)

Pin	Signal	Pin	Signal
1	**DCD2(422TXD-/485DATA-)**	**2**	**RXD2 (422RXD+)**
3	TXD2(422TXD+/485DATA+)	4	DTR2 (422RXD-)
5	GND	6	DSR2
7	RTS2	8	CTS2
9	RI/+5V/+12V	10	N.C.

USB 0-1 connector (CN22)

USB 0-1 connector (CN22)

Pin	Signal	Pin	Signal
1	+5V	2	GND
3	USBD0-	4	GND
5	USBD0+	6	USBD1+
7	GND	8	USBD1-
9	GND	10	+5V

100 Base-Tx Ethernet connector(CN23)

100Base-Tx Ethernet connector (CN23)

Pin	Signal	Pin	Signal
1	**TX1+**	**9**	**N.C.**
2	**TX1-**	**10**	**N.C.**
3	RX1+	11	GND
4	N.C.	12	GND
5	N.C.	13	ACTIVE LED1
6	RX1-	14	LINK LED1
7	N.C.	15	+3.3 V
8	N.C.	16	SPEED LED1

LVDS Channel-1 (CN25)

LVDS channel -1connector (CN 25)

Pin	Signal		Pin	Signal
1	LVDS_ TXL 1	2	LVDS_ TXL1#	
3	GND	4	GND	
5	LVDS_ TXLCK	6	LVDS_ TXLCK#	
7	GND	8	PVCC	
9	PVCC	10	PVCC	
11	LVDS_ TXL 2	12	LVDS_ TXL 2#	
13	GND	14	GND	
15	LVDS_ TXL 0	16	LVDS_ TXL 0#	
17	LVDS_ TXL 3	18	LVDS_ TXL 3#	
19	F_ENABKL	20	N.C	

LVDS Channel-2 (CN26)

LVDS channel -2 connector (CN 26)

Pin	Signal	Pin	Signal
1	LVDS_ TXU 1	2	LVDS_ TXU1#
3	GND	4	GND
5	LVDS_ TXUCK	6	LVDS_ TXUCK#
7	GND	8	PVCC
9	PVCC	10	PVCC
11	LVDS_ TXU2	12	LVDS_ TXU2#
13	GND	14	GND
15	LVDS_ TXU 0	16	LVDS_ TXU0#
17	LVDS_ TXU 3	18	LVDS_ TXU3#

100 Base-Tx Ethernet connector(CN27)

100Base-Tx Ethernet connector (CN27)

Pin	Signal	Pin	Signal
1	**TX2+**	**10**	**N.C.**
3	RX2+	11	GND
4	N.C.	12	GND
5	N.C.	13	ACTIVE LED2
6	RX2-	14	LINK LED2
7	N.C.	15	+3.3 V
8	N.C.	16	SPEED LED2

External Lan LED (CN28)

External Lan LED (CN28)

Pin	Signal	Pin	Signal
1	**Active LED1**	**5**	**Link LED1**
2	Speed LED1	6	+3.3V
3	Active LED2	7	Link LED2
4	Speed LED2	8	+3.3V

Internal Mouse Connector(CN30)

Onboard there is a 4-pin header for mouse connection, the pin definition is provided below.

Internal Mouse Connector (CN30)

Pin	Signal	Pin	Signal
1	MS CLOCK	2	MS DATA
3	GND	4	+5V

Internal Keyboard Connector(CN31)

Onboard there is a 5-pin header for keybaord connection, the pin definition is provided below.

Internal Keyboard Connector(CN31)

Pin	Signal	Pin	Signal
1	KB CLOCK	2	KB DATA
3	NC	4	GND
5	+5V		

Keyboard and PS/2 Mouse Connector(CN32)

Keyboard and PS/2 Mouse Connector(CN32)

Pin	Signal	Pin	Signal
1	MS_CLOCK	2	KB_CLOCK
3	+5V	4	GND
5	KB_DATA	6	MS_DATA

Compact Flash Connector (CN33)

Compact Flash Connector (CN33)			
Pin	**Signal**	**Pin**	**Signal**
1	GND	26	GND
2	DATA3	27	DATA11
3	DATA4	28	DATA12
4	DATA5	29	DATA13
5	DATA6	30	DATA14
6	DATA7	31	DATA15
7	CS#1	32	CS#3
8	GND	33	GND
9	GND	34	IO READ
10	GND	35	IO WRITE
11	GND	36	+5V
12	GND	37	IRQ15
13	+5V	38	+5V
14	GND	39	CSEL
15	GND	40	N.C.
16	GND	41	IDE RESET
17	GND	42	IO READY
18	ADDR2	43	N.C.
19	ADDR1	44	+5V
20	ADDR0	45	DASP
21	DATA0	46	DIAG
22	DATA1	47	DATA8
23	DATA2	48	DATA9
24	N.C.	49	DATA10
25	GND	50	GND

TV-output connector (CN34)

The SBC-800 has an eight pin connector offering TV output connection. The pin definition is listed below.

TV-Out 4*2 Pin Connector (2.0mm) (CN34)

Pin	Signal	Pin	Signal
1	Y	2	COMP
3	GND	4	GND
5	C	6	SYNC
7	GND	8	NC

DVI Connector (CN35)

Pin	Signal	Pin	Signal
1	DVI_TX1	2	DVI_TX1#
3	GND	4	GND
5	DVI_CLK	6	DVI_CLK#
7	GND	8	PPVCC
9	NC	10	PPVCC
11	DVI_TX2	12	DVI_TX2#
13	GND	14	GND
15	DVI_TX0	16	DVI_TX0#
17	NC	18	NC
19	DVI_DDCDATA	20	DVI_DDCCLK

CHAPTER 3

Award BIOS Setup

This chapter describes how to configure the BIOS for the system.

BIOS CONFIGURATION

Award's BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed CMOS SRAM so that it retains the Setup information when the power is turned off.

Entering Setup

- **To Enter Setup Before Boot Press <Del>**

Power ON the computer and press <Del> immediately will allow you to enter Setup. The other way to enter Setup is to power on the computer, when the below message appears briefly at the bottom of the screen during the POST (Power On Self Test), press <Del> key.

If the message disappears before you respond and you still wish to enter Setup, then please power off/on the board or reset the system by shorting pin9-10 on CN11.

Setup keys

These keys helps you navigate in Award BIOS:

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	Main Menu: Quit and not save changes into CMOS RAM Other pages: Exit current page and return to Main Menu
PgUP/+	Increase the numeric value or make changes
PgDn/-	Decrease the numeric value or make changes
F1	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2	Item Help
F3	Reserved
F4	Reserved
F5	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
F6	Load the default CMOS RAM value from BIOS default table, only for Option Page Setup Menu
F7	Load the default
F8	Reserved
F9	Reserved
F10	Save all the CMOS changes, only for Main Menu

Getting Help

Main Menu

Figure 3.1 shows the Main Setup Menu screen.

Status Page Setup /Option Page Setup Menu

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.

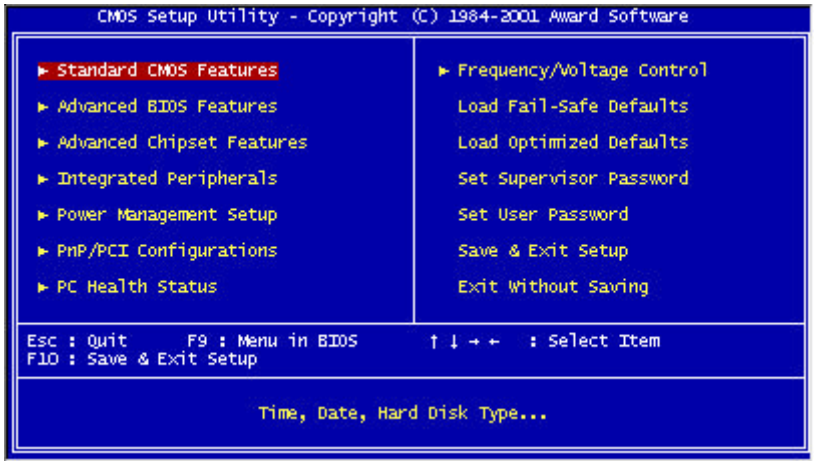
In Case of Problems

If, after making and saving system changes with Setup, you discover that your computer is no longer able to boot, the **Award BIOS** supports an override CMOS settings that helps you to reset the system back to default configuration. (Please refer to P.15 for JP2 - Clear CMOS setting.)

The Best Advice

The best advice is to alter only settings that you thoroughly understand. In particular, **DO NOT** change settings in Advanced Chipset Features unless you understand what you are doing. The Chipset defaults have been carefully chosen by Award Software or your system manufacturer for the best performance and reliability. Even a seemingly small change to the Chipset setup may cause the system to become unstable.

Main Setup Menu



Standard CMOS Features

Use this menu for basic system configuration. (Date, time, IDE, etc.)

Advanced BIOS Features

Use this menu to set the advanced features available on your system.

Advanced Chipset Features

Use this menu to change the values in the chipset registers and optimize your system performance.

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals. (Primary slave, secondary slave, keyboard, mouse etc.)

Power Management Setup

Use this menu to specify your settings for power management. (HDD power down, power on by ring, KB wake up, etc.)

PnP/PCI Configuration

This entry appears is your system supports PnP/PCI.

PC Health Status

This menu allows you to set the shutdown temperature for your system.

Frequency/Voltage Control

Use this menu to specify your settings for frequency/ voltage control.

Load Fail-Safe Defaults

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

Load Optimized Defaults

Use this menu to load the BIOS default values that are factory settings for optimal performance system operations. While AWARD has designated the custom BIOS to maximize performance, the factory has the right to change these defaults to meet their needs.

Set Supervisor/User Password

Use this menu to set User and Supervisor Passwords.

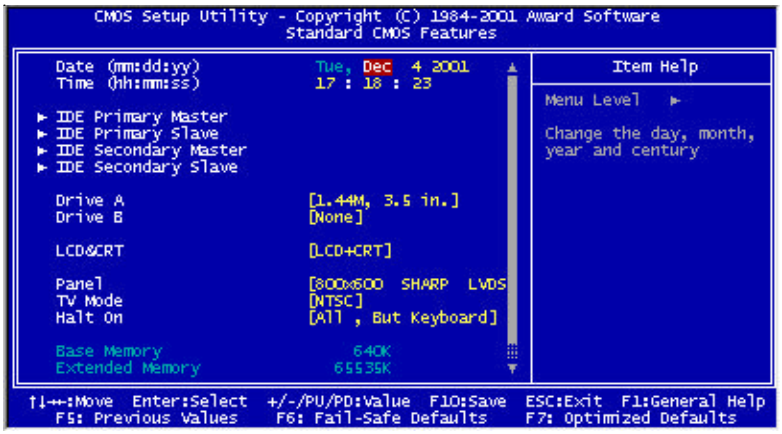
Save and Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit Without Saving

Abandon all CMOS value changes and exit setup.

Standard CMOS Features



This standard setup menu allows users to configure system components such as the date, time, hard disk drive, floppy drive, display, and memory. Online help for each field can be accessed by pressing F1.

Date and Time Configuration

The BIOS determines the day of the week from the other date information. This field is for information only.

Press the left or right arrow key to move to the desired field (date, month, year). Press the PgUp/- or PgDn/+ key to increment the setting, or type the desired value into the field.

The time format is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00 hours. Press the left or right arrow key to move to the desired field. Press the PgUp/- or PgDn/+ key to increment the setting, or type the desired value into the field.

HARD DISKS

The BIOS supports up to four IDE drives. This section does not show information about other IDE devices, such as a CD-ROM drive, or about other hard drive types, such as SCSI drives.

***NOTE**: We recommend that you select type AUTO for all drives.*

The BIOS can automatically detect the specifications and optimal operating mode of almost all IDE hard drives. When you select type AUTO for a hard drive, the BIOS detects its specifications

If you do not want to select drive type AUTO, other methods of selecting the drive type are available:

1.Match the specifications of your installed IDE hard drive(s) with the preprogrammed values for drive types 1 through 45.

2.Select USER and enter values into each drive parameter field.

3.Use the IDE HDD AUTO DETECTION function in Setup.

Here is a brief explanation of drive specifications:

Type: The BIOS contains a table of predefined drive types. Each defined drive type has a specified number of cylinders, number of heads, write precompensation factor, landing zone, and number of sectors. Drives whose specifications do not accommodate any predefined type are classified as type USER.

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

Cyls: Number of cylinders

Head: Number of heads

Precomp: Write precompensation cylinder

Landz: Landing zone

Sector: Number of sectors

Mode: Auto, Normal, Large, or LBA

- **Auto**: The BIOS automatically determines the optimal mode.
- **Normal**: Maximum number of cylinders, heads, and sectors supported are 1024, 16, and 63.
- **Large**: For drives that do not support LBA and have more than 1024 cylinders.

- LBA (Logical Block Addressing): During drive access, the IDE controller transforms the data address described by sector, head, and cylinder number into a physical block address, significantly improving data transfer rates. For drives with greater than 1024 cylinders.

Drive A
Drive B

Select the correct specifications for the diskette drive(s) installed in the computer.

None	No diskette drive installed
360K, 5.25 in	5-1/4 inch PC-type standard drive; 360 kilobyte capacity
1.2M, 5.25 in	5-1/4 inch AT-type high-density drive; 1.2 megabyte capacity
720K, 3.5 in	3-1/2 inch double-sided drive; 720 kilobyte capacity
1.44M, 3.5 in	3-1/2 inch double-sided drive; 1.44 mega byte capacity
2.88M, 3.5 in	3-1/2 inch double-sided drive; 2.88 mega byte capacity

LCD & CRT

Select the terminal output you want to display:

The choices are as follow:

LCD, CRT, CRT+LCD, TV, CRT+TV, CRT+DVI

Panel

There are seven types of resolutin with LVDS BIOS support in this

menu. The choices:

* 1024 x 768 18bit 1CH
* 1280x 1024 48bit 2CH
* 1024 x 768 48bit 2CH
* 800 x 600 24bit 1CH

Halt On

During the power-on-self-test (POST), the computer stops if the BIOS detects a hardware error. You can tell the BIOS to ignore certain errors during POST and continue the boot-up process. These are the selections:

No errors: POST does not stop for any errors.

All errors: the BIOS detects any nonfatal error, POST stops and prompts you to take corrective action.

All, But Keyboard: POST does not stop for a keyboard error, but stops for all other errors

All, But Diskette: POST does not stop for diskette drive errors, but stops for all other errors.

All, But Disk/Key: POST does not stop for a keyboard or disk error, but stops for all other errors.

Memory

You cannot change any values in the Memory fields; they are only for your information. The fields show the total installed random access memory (RAM) and amounts allocated to base memory, extended memory, and other (high) memory. RAM is counted in kilobytes (KB: approximately one thousand bytes) and megabytes (MB: approximately one million bytes).

RAM is the computer's working memory, where the computer stores programs and data currently being used, so they are accessible to the CPU. Modern personal computers may contain up to 64 MB, 128 MB, or more.

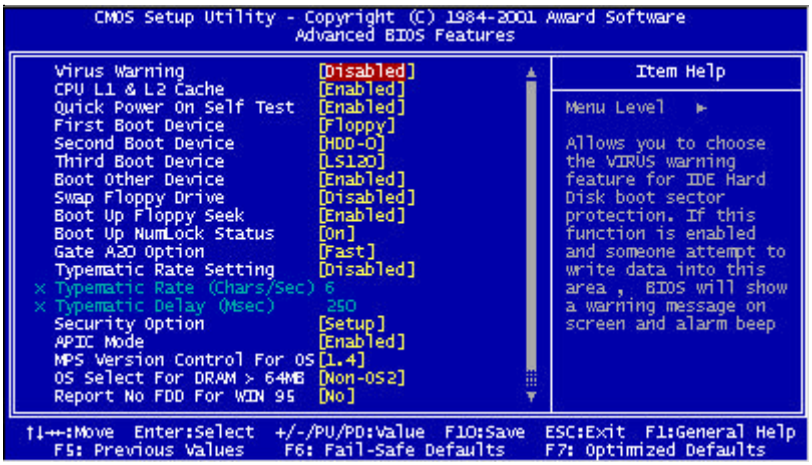
Base Memory

Typically 640 KB. Also called conventional memory. The DOS operating system and conventional applications use this area.

TV Mode

This item eable you to select TV-out singal in twodifferent protocls.The choices: NTSC, PAL

Advanced BIOS Features



The displayed configuration is based on the manufacturer's SETUP DEFAULTS settings.

Virus Warning

When enabled, you receive a warning message if a program (specifically, a virus) attempts to write to the boot sector or the partition table of the hard disk drive. You should then run an anti-virus program. Keep in mind that this feature protects only the boot sector, not the entire hard drive.

NOTE: *Many disk diagnostic programs that access the boot sector table can trigger the virus warning message. If you plan to run such a program, we recommend that you first disable the virus warning.*

CPU L1 & L2 Cache

The chocie: Enable, Disable

Quick Power On Self Test

Select Enabled to reduce the amount of time required to run the power-on-self-test (POST). A quick POST skips certain steps. We recommend that you normally disable quick POST. Better to find a problem during POST than lose data during your work.

First/Second/Third/Fourth Boot Device

The BIOS attempts to load the operating system from the devices in the sequence selected in these items.

The choices: Floppy, LS/ZIP, HDD, SCSI, CDROM, Disable.

Boot other device

The choice is : Enable, Disable

Swap Floppy Drive

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

Boot Up Floppy Seek

When Enabled, the BIOS tests (seeks) floppy drives to determine whether they have 40 or 80 tracks. Only 360-KB floppy drives have 40 tracks; drives with 720 KB, 1.2 MB, and 1.44 MB capacity all have 80 tracks. Because very few modern PCs have 40-track floppy drives, we recommend that you set this field to Disabled to save time.

Boot Up NumLock Status

Toggle between On or Off to control the state of the NumLock key when the system boots. When toggled On, the numeric keypad generates numbers instead of controlling cursor operations.

Gate A20 Option

Gate A20 refers to the way the system addresses memory above 1 MB (extended memory). When set to Fast, the system chipset controls Gate A20. When set to Normal, a pin in the keyboard controller controls Gate A20. Setting Gate A20 to Fast improves system speed, particularly with OS/2 and Windows.

Typematic Rate Setting

Key strokes repeat at a rate determined by the keyboard control ler. 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

If you have set a password, select whether the password is required every time the System boots, or only when you enter Setup.

APIC Mode

Advanced programmable interrupt contoller,it can be used for either uin-processor or multi-processor

The choice: Enable, Disable

MPS Version Control For OS

The choice: version 1.1, version 1.4

OS Select For DRAM>64MB-

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

The choice: Non-OS2, OS2

HDD S.M.A.R.T Capability

Hard disk drives have built in problem detection capability (Self-Monitoring Analysis and Reporting Technology).
If a foreseen problem is about to take place, the computer will give a you a warning signal.

The choice: **Enable, Disable**

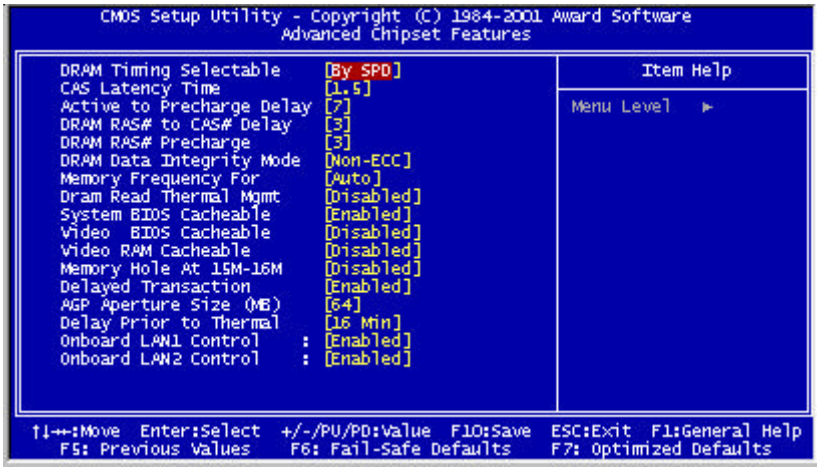
Report No FDD For WIN 95

Report no FDD for Win 95 or not.
The choice: Yes, no

Small Logo (EPA) show

You can let the logo display on screen or not
The choice: Enable, Disable

Advanced Chipset Features



DRAM Timing Selectable

The Choices: SPD, Manual SPD store information about Memory Module setting.Therefore, it can auto detect the best frequency the memory module should use.

CAS Latency Time

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. Do not reset this field from the default value specified by the system designer.

Active To Precharge Delay

The choice: 5,6,7

DRAM RAS-to-CAS Delay

This field lets you insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed. Fast gives faster performance; slow gives more stable performance. This field applies only when synchronous DRAM is installed in the system.

DRAM RAS# Percharge

The choice: 2,3

DRAM Data Integrity Mode

This item enable you to select Error-Correction-Code or not.
The choices: ECC, Non-ECC

Memory Frquency For

This item enable you to select the memory frequency, but SBC-800 only support PC-133 memory, so please put the selection on Auto or PC-133 prevent accidentaly crash.

Dram Read Thermal Mgmt

The Choices: Enable,Disable

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 choices: Enabled, Disabled

Video BIOS Cacheable

Selecting Enabled allows caching of the video BIOS ROM at C0000h to C7FFFh, resulting in better video performance. However, if any program writes to this memory area, a system error may result. The choices: Enabled, Disabled Memory

Video RAM Cacheable

When enableed,the graphics chips' Local Memory will be cached for faster execution. However,if any program writes to this memory area,a system error may result.The choices: Enable, Disable

Memory Hole At 15-16m

In order to improve performance, certain space in memory is reserved for ISA cards. This memory must be mapped into the memory. The choices: 15-16 M, disabled

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 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 choices: 32M, 64M.

Delay Prior to Thermal

The choices:4,8,16,32 Mins

On board Lan1 Control

The choices:Enable,Disable

On board Lan2 Control

The choices:Enable,Disable

Integrated Peripherals

On-Chip Primary PCI IDE

The system chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the primary and/or secondary IDE interface. Select Disabled to deactivate this interface, if you install a primary and/or secondary add-in IDE interface.

On-Chip Secondary PCI IDE

The chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the secondary IDE interface. Select Disabled to deactivate this interface.

The choices: Enable, Disable

IDE Primary/Secondary Master/Slave PIO

The four IDE PIO (Programmable Input/Output) fields let you set a PIO mode (0-1) 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 choices: Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

IDE Primary/Secondary Master/Slave UDMA

Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33, select Auto to enable BIOS support.

The choices: Auto, disable

USB Controller

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

USB Keyboard Support

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

AC97 Audio

The default setting of Auto enables the AC97 audio if it is detected onboard

Init Display First

This item allows you to active PCI slot or onboard first.

The choice: PCI slot, onboard

IDE HDD Block Mode

Block Mode transfers can improve the access to IDE devices

Enable this item if your IDE devices support block mode transfers.

Power on Function

Select the different manners for powering on the system.
The choices: **Keyboard 98, password, any key, hot key, button only, mouse click, mouse move.**

KB Power on Password

The system will ask for a password, after entering the correct password the keyboard can then be used.

Hot key Power on

The Choices are: Ctrl+F1,Ctrl+F2,.....Ctrl+F12

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 an add-in FDC or the system has no floppy drive, select Disabled in this field.

Onboard Serial Ports (1, 2)

Normally, the main board I/O chips will occupy a certain portion of memory space. For each I/O device the computer provides an I/O address. The more devices attached the more address needed to organize the memory storage areas. If all the I/O devices were run through the same address, your devices would come to a near halt. By providing the end user with four serial ports this allows devices to run more efficiently if needed. Also the corresponding interrupt needs to be selected.

Selections of logical COM port addresses are as follows. (3F8/ IRQ4, 3E8/IRQ4, 2F8/IRQ3, 2E8/IRQ3)

UART Mode Select

Select an operating mode for the second serial port:

Normal	RS-232C serial port
IrDA 1.0	Infrared port compliant with IrDA 1.0 specification
IrDA SIR	IrDA-compliant serial infrared port
IrDA MIR	1 MB/sec infrared port
IrDA FIR	Fast infrared standard
ASK IR	Amplitude shift keyed infrared port
SCR	

UR2 Duplex Mode

The Choices: Half, Full

Onboard Parallel Port

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

The Choices: 378/IRQ7, 278/IRQ5, 3BC/IRQ7, disabled

Parallel Port Mode

Two bidirectional parallel ports. Supports SPP, ECP, EPP, ECP + EPP.

ECP Mode Use DMA

Select a DMA channel for the port.

The Choices: 1, 3

PWRON After PWR-Fail

This option will determine how the system will power on after a power failure.

The choice: **off, on , former status**

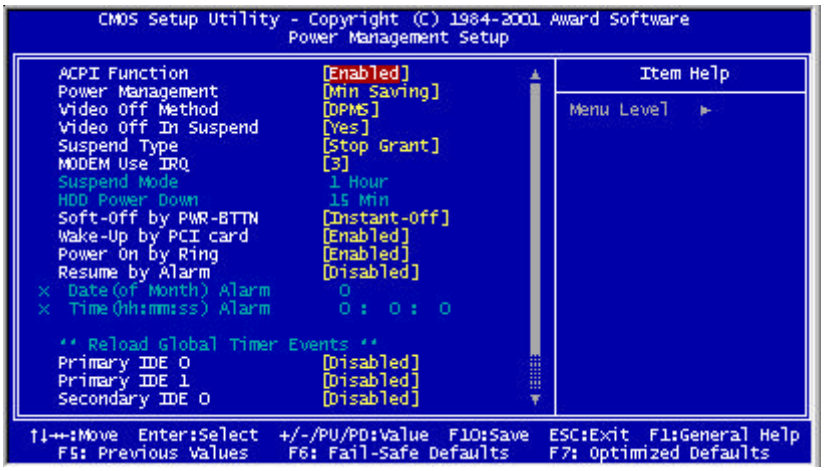
Midi Port Address

The choices are: 300, 330, Disable

Midi Port IRQ

The choices are: 5, 10

Power Management Setup



ACPI Function

This item allows you to enable/disable the Advanced Configuration and Power Management (ACPI). **The Choices: Enable/Disable**

Power Management

This category allows you to select the type (or degree) of power saving and is directly related to the following modes:

1. User Define
2. Min Saving
3. Max Saving

Disable (Default)	No power management. Disable all four modes.
Min. Power Saving	Minimum power managemen. Doze mode = 1 hour. Standby mode = 1 hour. Suspend mode = 1 hour. HDD Power Down =15 minutes.
Max.Power Saving	Maximum power management **ONLY AVAILABLE FOR SL CPU'S.** Dose mode = 1 min., Standby mode = 1 min., Suspend mode = 1-2 mins., and HDD Power Down = 1
User Defined	Allows you to set each mode individually. Wh not disabled, each of the tanges are from 1 min. to 1 hour except for HDD Power Down which ranges from 1 min. to 15 min. and disable.

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	Initial display power management signaling

Video Off In Suspend

After the selected period of system inactivity, the chipset enters a hardware suspend mode, stopping the CPU clock and possibly causing other system devices to enter power management modes. In this case the video hardware can be selected to shut off after a period of system inactivity. This determines the manner in which the monitor is blanked.

Suspend Type

Select the suspend type. The choice: **PWRON suspend, Stop Grant**

MODEM use IRQ

This determines the IRQ in which the MODEM can use.

The choices: **3, 4, 5, 7, 9, 10, 11, NA**

Soft-Off by PWR-BTTN

Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has hung. The choice: **Delay 4 seconds, Instant-Off.**

Wake Up On PCI Card

This will enable the system to wake up through PCI card peripheral. The choice: **Enable/Disable**

Power On By Ring

An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) boots the system from a soft off state.

Resume By Alarm

This option is used to Enable/Disable USB keyboard wake up with suspend to RAM.
The choices: **Enable, disable**

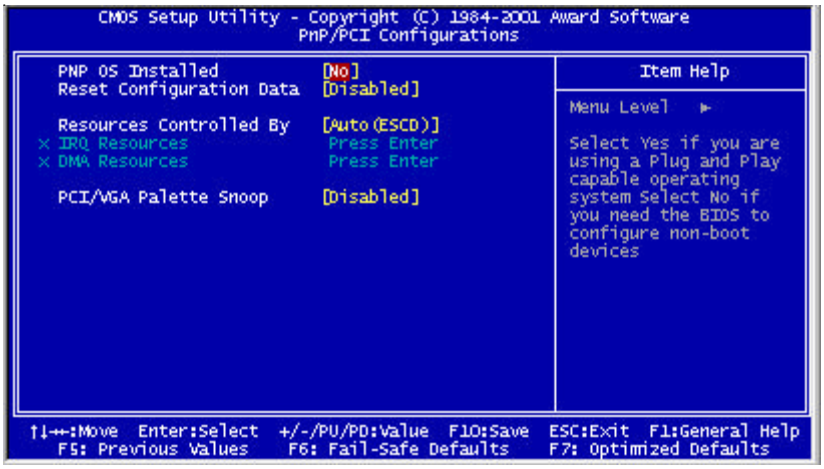
Date Alarm
You can choose which month the system will boot up. Set to 0 to boot everyday.
Time Alarm
You can choose what hour, minute and second the system will boot up.

<Reload Global Timer Events>

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

Primary IDE 0
Primary IDE 1
Secondary IDE 0
Secondary IDE 1
FDD, COM, LPT Port
PCI PIRQ (A-D)#

PnP/PCI Configurations



PNP OS Installed

Stetting this option to Yes allows the PnP OS(instead of BIOS) to assign the system resources such as IRQ and I/O address to ISA PnP device.

Reset Configuration Data

Normally, you leave this field disabled. Select enabled to reset Extended System Configuration Data (ESCD) when you exit Setup

Resources 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 ?anual? choose specific resources by going into each of the sub menu that follows this field (a sub menu is proceeded by a ? ? **The choices: Auto, Manual.**

IRQ Resources

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

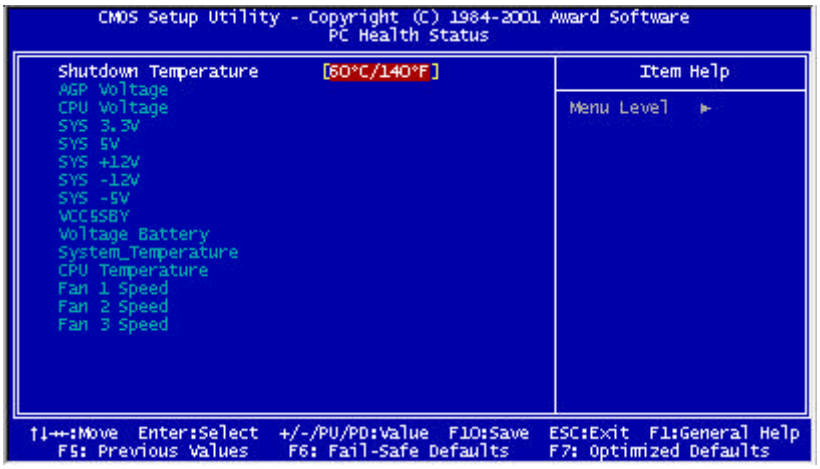
DMA Resources

This sub menu can let you control the DMA resource.

PCI/VGA Palette Snoop

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

PC Health Status

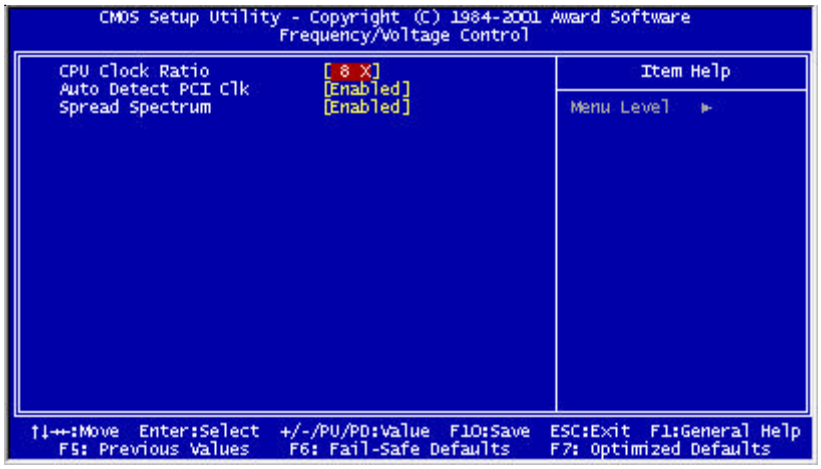


Shutdown Temperature

Your system can be configured to shutdown once reaching a certain temperature. To protect your system from overheating or damage, select a certain temperature level in the PC Health Status menu.

Options:Disable,60C/140F,65C/149F,70C/158F

Frequency/Voltage Control



CPU Clock Ratio

This item allows you to select the CPU ratio.

Auto Detect PCI CLK

This item allows you to enable/disable auto detect PCI clock.

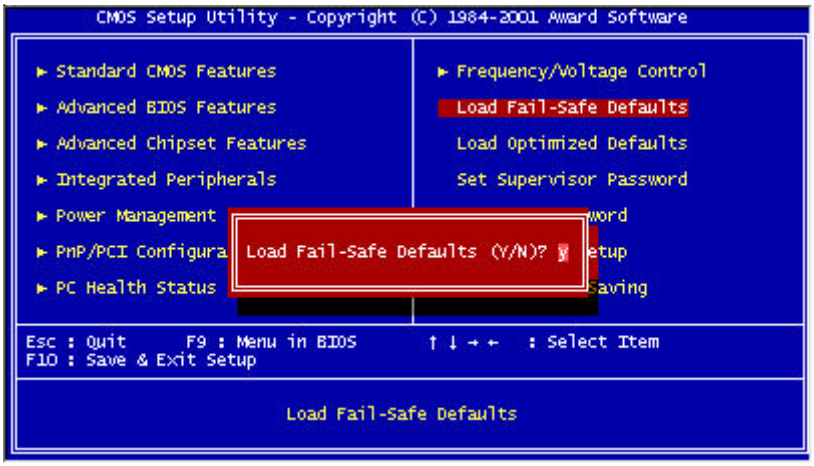
The choices: Enable/Disable

Spread Spectrum

This allows you to enable/disable the spread spectrum modulate. When the system clock generator pulses, the extreme values of the pulse generate excess EMI. Enabling pulse spectrum spread modulation changes the extreme pulse spikes to flat curves thus reducing EMI.

The choices: Enable, Disable

Load Fail-Safe Defaults



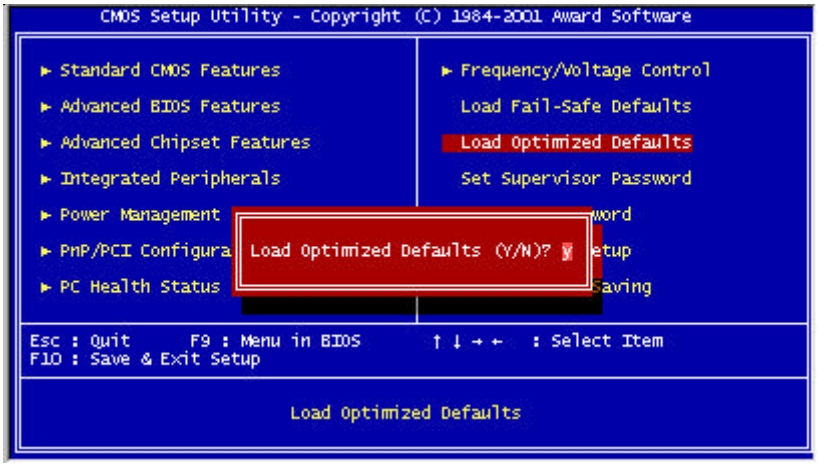
Load Fail-Safe Defaults

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

Load Fail-Safe Default (Y/N)?

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

Load Optimized Default



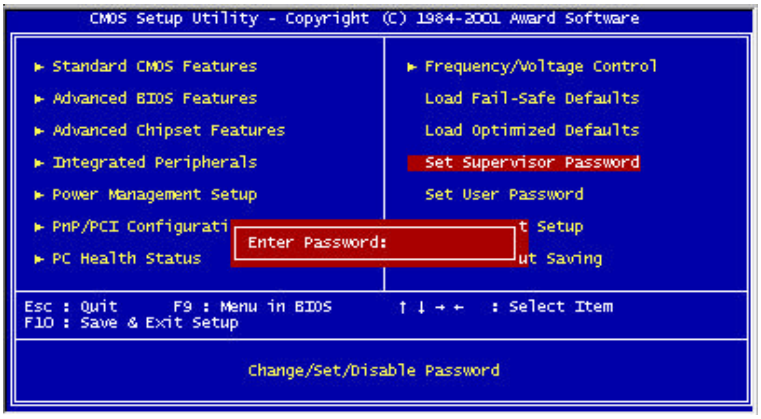
Load Optimized Default

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

Load Optimized Defaults (Y/N)?

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

Set Supervisor Password



When you select this function, a message appears at the center of the screen:

ENTER PASSWORD:

Type the password, up to eight characters, and press Enter. Typing a password clears any previously entered password from CMOS memory.

Now the message changes:

CONFIRM PASSWORD:

Again, type the password and press Enter.

To abort the process at any time, press Esc.

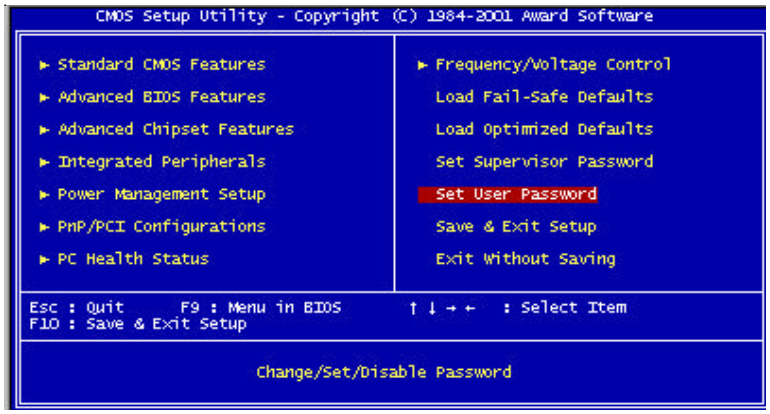
In the Security Option item in the BIOS Features Setup screen, select System or Setup:

System Enter a password each time the system boots and when ever you enter Setup.

Setup Enter a password when ever you enter Setup.

***NOTE**: To clear the password, simply press Enter when asked to enter a password. Then the password function is disabled.*

Set User Password



When you select this function, a message appears at the center of the screen:

ENTER PASSWORD:

Type the password, up to eight characters, and press Enter. Typing a password clears any previously entered password from CMOS memory.

Now the message changes:

CONFIRM PASSWORD:

Again, type the password and press Enter.

To abort the process at any time, press Esc.

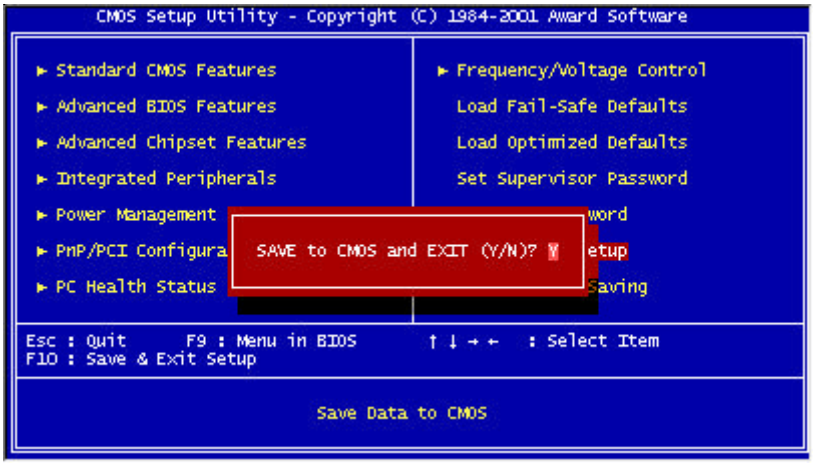
In the Security Option item in the BIOS Features Setup screen, select System or Setup:

System Enter a password each time the system boots and when ever you enter Setup.

Setup Enter a password when ever you enter Setup.

***NOTE**: To clear the password, simply press Enter when asked to enter a password. Then the password function is disabled.*

Save to CMOS and EXIT



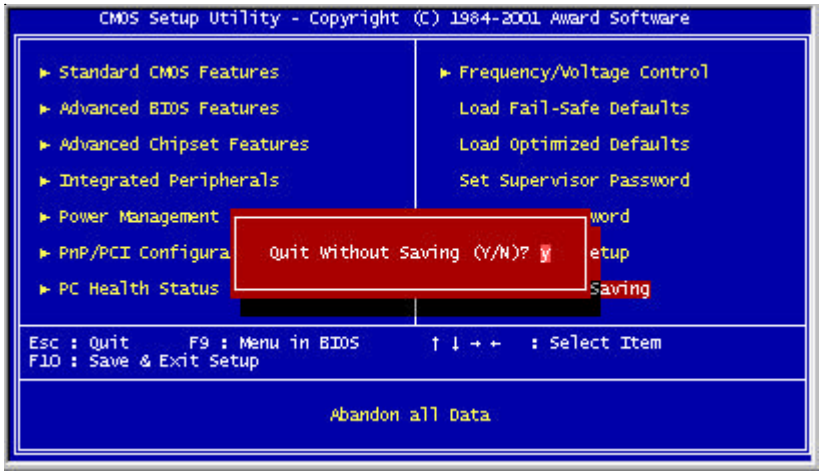
Save to CMOS and EXIT

Pressing <Enter> on this item asks for confirmation:

Save to CMOS and Exit (Y/N)?

Pressing [Yes] 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.

Quit without Saving



Exit Without Saving

Pressing <Enter> on this item asks for confirmation:

Quit Without Saving (Y/N)?

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.

CHAPTER 4

Driver Installation

This chapter provides instructions for installing the software drivers on these peripherals.

Drivers Installation 1

The SBC-800 comes with a CD which contains most of the drivers and utilities for your needs.There are several installation ways depending on the driver package under different Operating System application. **We recommend that the system driver installation procedure be performed first.**

If you utilize Windows NT series OS, you are strongly recommended to download the latest version Windows NT Service Pack from Microsoft website and install it before installing any driver.

Installation :

Applicable for Windows 9x/ME/2000/XP/NT 4.0

1. Insert the **SBC-800 CD** into the CD ROM Drive.

2. From the CD ROM, select the desired component **Driver** folder, select the desired **Operation System folder** to double click on the **Setup.exe** icon. A driver installation screen will appear.

(Notice:take VGA driver installation under Windows 98 for example, choose the corresponding folder depending on your OS)

3. A driver installation screen will appear, please follow the on-screen instructions to install the driver in sequence.and click on the **Next** button.

(*Notice: In some cases the system will ask you to insert Windows 98 CD and key in its path. Then click on the **OK** button to key in path.)*

4. Click on the **Finish** button to finish installation process. And allows the system to reboot.

Drivers Installation 2

Installation

Applicable for Windows 9x/ME/2000

1. Insert the **SBC-800 CD** into the CD ROM Drive.

2. Click on **Start** button, select the **Settings**, then click on the **Control Panel** icon.

3. Double click on the **Add/Remove Hardware** icon and **Add New Hardware Wizard** will appear. Click on the **Next** button.

4. Select **Search for the best driver for your device (Recommended)** and click on the **Next** button.

5. Select **Specify a location,** click on **Have Disk** button then key in the CD-ROM path and specify component drivers and OS folders. Then click on the **Next** button.

6. The Wizard shows that Windows driver file search for the device: (For example, Ethernet decvices, the list appear **Realtek RTL8139/ 810X Family PCI Fast Ethernet NIC)**.

Click on the **Next** button.

7. The system will ask you to insert Windows 98 CD. Click on the **OK** button to insert CD and key in path.

8. Click on the **OK** button.

9. Click on the **Finish** button to finish installation process. And allows the system to reboot.

Drivers Installation 3

Installation :

Applicable for Windows NT 4.0

1. Insert the **SBC-800 CD** into the CD ROM Drive.

2. Start system with Windows NT 4.0 installed.

IMPORTANT: When the "Please select the operating system to start..." message is displayed, select "Windows NT Workstation Version 4.00 [VGA mode]".

3. From **Start**, select the **Settings group**, then click on the

Control Panel icon.

4. In the **Control Panel**, select the desired device and click on the icon.

5. Follow the step-by-step instruction and click on **OK** button.

6. Click on the **Have Disk...** button.

7. Key in CD-ROM path and specify component drivers, then click on the **OK** button.

8. From the list of displayed devices, select your desired device.

9. If a message appears stating the driver is already installed on the system, and asks if you want to use the current or new drivers, be sure to select the **New** button.

12. If prompted for the driver disk a second time, click on the **Continue** button.

(Notice: In some cases the system will ask you to insert Windows NT CD. Follow its instructions to complete the setup procedures.)

13. When the message **The drivers were successfully installed** is displayed, remove the display driver disk, then click on the **OK** button.

14. Reboot the system.

APPENDIX A

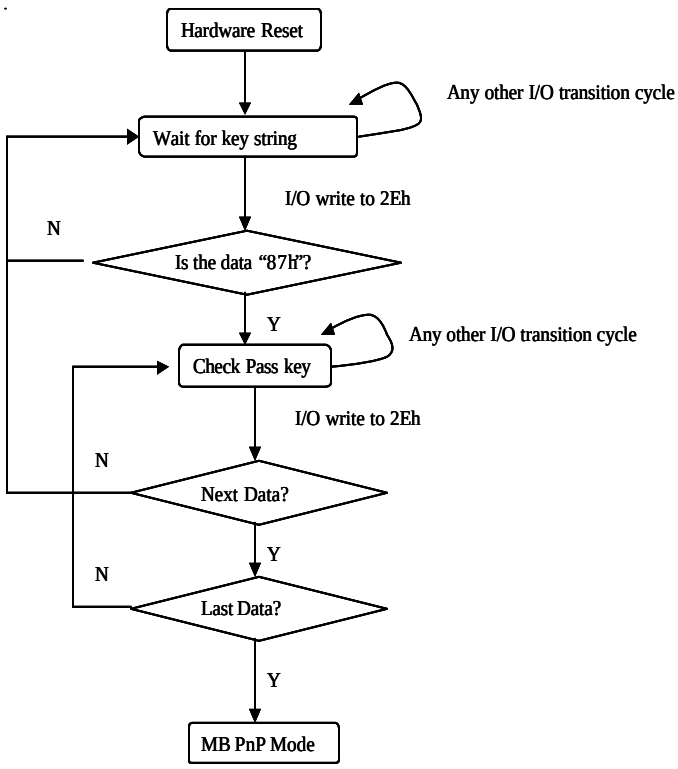
WatchDog Timer

WatchDog Timer

SBC-800 utilizes ITE 8712 chipset as its watchdog timer controller. Below are the procedures to complete its configuration and the AAEON intial watchdog timer program is also attached based on which you can develop customized program to fit your application.

Configuring Sequence Description

After the hardware reset or power-on reset, the ITE 8712 enters the normal mode with all logical devices desabled except KBC. The initial state (enable bit) of this logical device (KBC) is determined by the state of pin 121 (DTR1#) at the falling edge of the system reset during power-on reset.



There are three steps to complete the configuration setup: (1) Enter the MB PnP Mode; (2) Modify the data of configuration registers; (3) Exit the MB PnP Mode. Undesired result may occur if the MB PnP Mode is not exited normally.

(1) Enter the MB PnP Mode

To enter the MB PnP Mode, four special I/O write operations are to be performed during Wait for Key state. To ensure the initial state of the key-check logic, it is necessary to perform four write operations to the Special Address port (2EH). Two different enter keys are provided to select configuration ports (2Eh/2Fh) of the next step.

	Address Port	Data Port
87h, 01h, 55h, 55h:	2Eh	2Fh

(2) Modify the Data of the Registers

All configuration registers can be accessed after entering the MB PnP Mode. Before accessing a selected register, the content of Index 07h must be changed to the LDN to which the register belongs, except some Global registers.

(3) Exit the MB PnP Mode

Set bit 1 of the configure control register (Index=02h) to **1** to exit the MB PnP Mode.

WatchDog Timer Configuration Registers

LDN	Index	R/W	Reset	Configuration Register or Action
All	02H	W	N/A	Configure Control
07H	71H	R/W	00H	WatchDog Timer Control Register
07H	72H	R/W	00H	WatchDog Timer Configuration Register
07H	73H	R/W	00H	WatchDog Timer Time-out Value Register

Configure Control (Index=02h)

This register is write only. Its values are not sticky; that is to say, a hardware reset will automatically clear the bits, and does not require the software to clear them.

Bit	Description
7-2	Reserved
1	Returns to the Wait for Key state. This bit is used when the configuration sequence is completed
0	Resets all logical devices and restores configuration registers to their power-on states.

WatchDog Timer Control Register (Index=71h, Default=00h)

Bit	Description
7	WDT is reset upon a CIR interrupt
6	WDT is reset upon a KBC (mouse) interrupt
5	WDT is reset upon a KBC (keyboard) interrupt
4	WDT is reset upon a read or a write to the Game Port base address
3-2	Reserved
1	Force Time-out. This bit is self-clearing
0	WDT Status
	1: WDT value reaches 0.
	0: WDT value is not 0

WatchDog Timer Configuration Register (Index=72h, Default=00h)

Bit	Description
7	WDT Time-out value select
	1: Second
	0: Minute
6	WDT output through KRST (pulse) enable
5-4	Reserved
3-0	Select the interrupt level[Note] for WDT

WatchDog Timer Time-out Value Register (Index=73h, Default=00h)

Bit	Description
7-0	WDT Time-out value 7-0

IT8712 Watch Dog Timer Initial Program

```
        .MODEL  SMALL
        .CODE
Main:
        CALL    Enter_Configuration_mode
        CALL    Check_Chip
        mov     cl, 7
        call    Set_Logic_Device

        ;time setting
        mov     cl, 10    ; 10 Sec
        dec     al

Watch_Dog_Setting:

        ;Timer setting
        mov     al, cl
        mov     cl, 73h
        call    Superio_Set_Reg

        ;Clear by keyboard or mouse interrupt
        mov     al, 0f0h
        mov     cl, 71h
        call    Superio_Set_Reg
```

```
;unit is second.

mov     al, 0C0H
mov     cl, 72h
call    Superio_Set_Reg

; game port enable
mov     cl, 9
call    Set_Logic_Device


Initial_OK:
CALL   Exit_Configuration_mode
MOV  AH,4Ch
INT    21h

Enter_Configuration_Mode  PROC  NEAR
MOV    SI,WORD PTR CS:[Offset Cfg_Port]

MOV    DX,02Eh
MOV    CX,04h
Init_1:
MOV    AL,BYTE PTR CS:[SI]
OUT    DX,AL
INC    SI
LOOP   Init_1
RET
Enter_Configuration_Mode  ENDP
```

```
Exit_Configuration_Mode  PROC  NEAR
MOV     AX,0202h
 CALL    Write_Configuration_Data
RET
Exit_Configuration_Mode  ENDP


Check_Chip PROC  NEAR

MOV     AL,20h
CALL    Read_Configuration_Data
CMP     AL,87h
JNE     Not_Initial

MOV     AL,21h
CALL    Read_Configuration_Data
CMP     AL,12h
JNE     Not_Initial

Need_Initial:

STC
RET

Not_Initial:

CLC
RET
Check_Chip  ENDP
```

```
Read_Configuration_Data  PROC  NEAR
MOV     DX,WORD PTR CS:[Cfg_Port+04h]
OUT     DX,AL
MOV     DX,WORD PTR CS:[Cfg_Port+06h]
IN      AL,DX
RET
Read_Configuration_Data  ENDP

Write_Configuration_Data  PROC  NEAR
MOV     DX,WORD PTR CS:[Cfg_Port+04h]
OUT     DX,AL
XCHG    AL,AH
MOV     DX,WORD PTR CS:[Cfg_Port+06h]
OUT     DX,AL
RET
Write_Configuration_Data  ENDP

Superio_Set_Reg proc    near
push    ax
MOV     DX,WORD PTR CS:[Cfg_Port+04h]
mov     al,cl
out     dx,al
pop     ax
inc     dx
out     dx,al
ret
Superio_Set_Reg endp
```

```
Set_Logic_Device        proc    near
push    ax
push    cx
xchg    al,cl
mov     cl,07h
call    Superio_Set_Reg
pop     cx
pop     ax
ret
Set_Logic_Device        endp

;Select 02Eh->Index Port, 02Fh->Data Port
Cfg_Port  DB  087h,001h,055h,055h

DW  02Eh,02Fh
```

END Main

Note: Interrupt level mapping

0Fh-Dh: not valid

0Ch: IRQ12

.

.

.

03h: IRQ3

02h: not valid

01h: IRQ1

00h: no interrupt selected