

SBC-776

Full-sized Intel FC-370 Pentium III CPU
Card with Intel 815E chipset, Dual LAN,
Audio, SCSI, LCD & 4 USB.

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A Message to the Customer

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Each and every AAEON product is built to the most exacting specifications to ensure reliable performance in the harsh and demanding conditions typical of industrial environments. Whether your new AAEON equipment is destined for the laboratory or the factory floor, you can be assured that your product will provide the reliability and ease of operation for which the name AAEON has come to be known.

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 want you to get the maximum performance from your products. So 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.

So please consult this manual first. If you still cannot find the answer, gather all the information or questions that 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.

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AAEON warrants to you, 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. 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-776 Half- size Single Board Computer Card
- 1 Quick Installation Guide
- 1 Support CD contains the followings:
 - User's Manual (this manual in PDF file)
 - Ethernet driver and utilities
 - VGA driver and utilities
 - Audio driver and utilities

- 1 floppy disk drive interface cable (34-pin, pitch 2.0mm)
- 1 IDE hard disk drive cable (40-pin, pitch 2.54mm)
- 1 parallel port (26-25-pin, pitch 2.0mm) and serial port (10-9 pin, pitch 2.0mm) adapter kit.
- 1 bag of screws and miscellaneous parts

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

Notice

Dear Customer,

Thank you for purchasing the SBC-776 board. This user's manual is designed to help you to get the most out of the SBC-776, please read it thoroughly before you install and use the board. The product that you have purchased comes with an 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-776 is an all-in-one Single Board Computer (SBC) capable of handling the Intel Celeron 300~766MHz (with system bus frequencies of 66MHz) and Pentium III 500~850 MHz (with system bus frequencies of 100MHz). Reliability, performance, flexibility are essential qualities for SBC's and SBC-776 offers all of these.

Onboard is the versatile Intel 815E chipset, controlling LAN, LCD, and AUDIO. The VGA has a display memory size of 4 MB, with resolutions up to 1024 x 768 at 256K. Ethernet connections can be easily carried out through two RJ-45 connectors.

This full-sized SBC supports M-Systems DiskOnChip 2000 family of flash disk products that are small, plug and play, solid state disks in a standard 32-pin DIP package with capabilities ranging from 8MB to 288MB. There are also three 168-pin DIMM sockets providing a maximum of 512MB. A compact flash connector is provided on the solder side of the board.

The additional Advansys ASC38C0800, Ultra II Wide SCSI coordinates up to 15 devices that are simultaneously connected to your mainboard. Connection with the onboard chipset is made through a 68-pin SCSI connector.

SBC-776 supports two IDE devices, two floppy disks, four USB ports, two serial ports that can be configured as COM1, COM2, COM3 and COM4. The single bidirectional parallel port can support SPP, ECP and EPP modes. The standard ATX power connector enables this full-sized SBC to be operated without any backplane if necessary.

Features

- Supports Intel Celeron /Pentium III FC-370 CPUs
- High Speed AGP 2X for VGA function onboard (Intel 815E built in)
- Two 10/100 Base-T Fast Ethernet (Intel 815 E built in and Intel 82559ER)
- Supports H/W status monitoring
- Integrated AC-97 2.1 SoundBlaster compatible PCI 3D Audio
- Onboard Intel 815E controller supports 18/36-bit TFT panel
- Supports Compact Flash Memory
- Four USB ports onboard
- Two COM ports onboard
- Ultra II Wide SCSI interface onboard
- Supports DiskOnChip

Specifications

Standard LPX-size SBC functions

- **CPU:** FC-370 Pentium III (Coppermine), Celeron, and compatible CPUs (With system bus frequencies of 66/100/133MHz).
- **CPU socket:** Intel Socket 370
- **Bus interface:** PICMG Compliant
- **BIOS:** Award 4 MB Flash BIOS
- **Chipset:** Intel 815E
- **I/O chipset:** Winbond W83627HF. Fully 16-bit I/O decoded
- **ISA bus interface: Winbond W83626 LPC to ISA bridge** Full ISA bus function except master mode support
- **Memory :** Onboard three 168 pins DIMM socket supports up to 512Mbytes SDRAM (PC-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:** One RS-232 and one RS-232/422/485 serial port. Ports can be configured as COM1, COM2, COM3, COM4, or disabled individually and of which one and be configured as RS-232/422/485 (COM2). (16C550 equivalent).
- **KB/Mouse connector :** 6-pin mini-DIN connector supports PC/AT keyboard and PS/2 mouse and wake on KBD function.
- **USB connectors:** 10-pin onboard connector supports four USB ports.
- **Battery:** Lithium battery for data retention
- **Watchdog timer:** Can generate a system reset, IRQ15, 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 W83267HF supports power, supply voltages, and temperature monitoring.

Flat Panel/CRT Interface

- **Chipset:** embedded In Intel 815E
- **Chipset output VGA signal:** AGP 4X
- **Display memory:** Share system memory 4MB SDRAM (Max)
- **Display type:** Supports non-interlaced CRT and up to 18/36 bit LCD (TFT, LCD, only). Can display both CRT and Flat Panel simultaneously.
- **Resolution:** Up to 1024 x 768 @ 256 K colors

Audio Interface

- **Chipset:** Intel 815E
- **Audio interface:** One 14 pin header (2.00mm)
- **Codec:** ALC 200

Ethernet Interface

- **Chipset:** Intel 815E embedded in ICH2 and Intel 82559ER
- **Ethernet interface :** 82559ER does not support WOL and AOL
82562ET support WOL and do not support AOL
82562EM support WOL and AOL. 776 offers 82559ER and 82562 ET on board.

Compact Flash socket onboard

- Compact flash connector onboard support type 2 CFD

Ultra Wide II SCSI Interface

- **Chipset:** AdvanSys ASC38C0800
- **Connector:** 68-pin internal
- **Termination:** Auto termination

SSD Interface

- One 32-pin DIP socket supports M-Systems DiskOnChip 2000 series

Mechanical and environmental

- **Power supply voltage:** ATX power supply
- **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. (0.3 Kg)

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-776 all-in-one CPU module supports most Pentium III/ Celeron or 586 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-776 contains 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 or 256 MB. The socket can be filled in the DIMM of any size, giving your SBC-776 single board computer between 16 and 512 MB of memory.

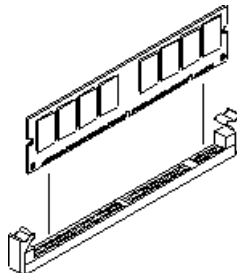
Supplementary information about DIMM

SBC-776 can accept PC-133 SDRAM DIMM Module(with or without parity).

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



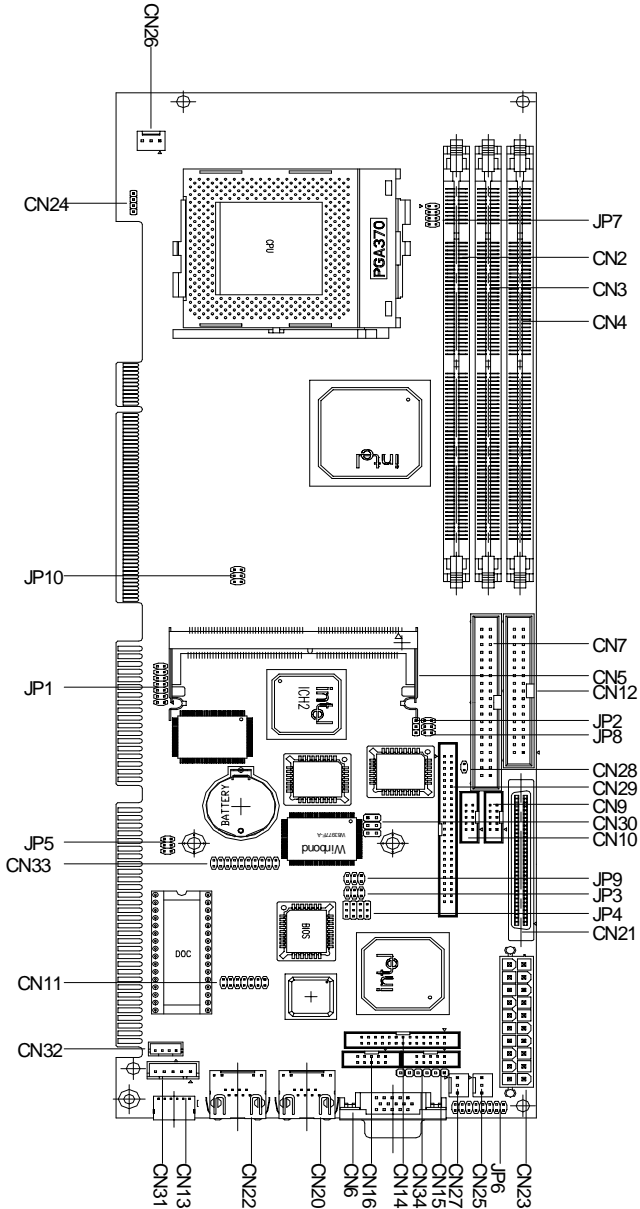
Jumpers

Jumpers	Function
JP1	VGA or AGP VGA Select Header
JP2	Clear CMOS Selection
JP3	Watchdog Function Select
JP4	RS-232/422/485 COM 2 Setting
JP5	DiskOnChip Address Selection
JP6	Function Select
JP7	CPU/DIMM Speed Select
JP8	LCD Panel's Voltage Setting
JP9	RS-232/422/485 COM2 Setting
JP10	LCD or VGA Enable Header

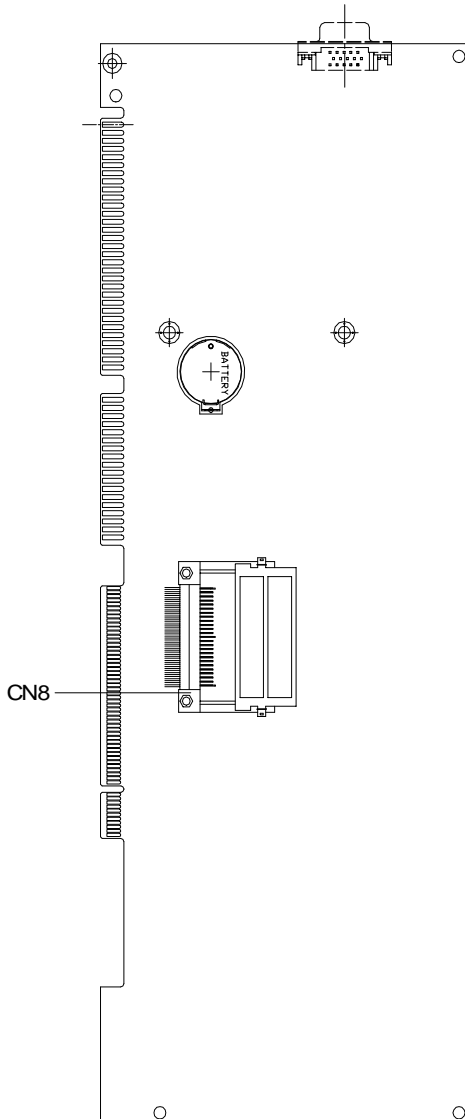
Connectors

Connector	Function
CN2,3,4	SDRAM Slot
CN5	AGP Slot
CN6	VGA Connector
CN7	Primary IDE Connector
CN8	Compact Flash
CN9,10	USB Dual Port Header
CN11	Audio Connector
CN12	Floppy Drive Connector
CN13	PS/2 Keyboard and Mouse Connector
CN14	Parallel Port Connector
CN15	COM 1 Serial Port
CN16	COM 2 Serial Port
CN20,22	LAN RJ-45 Connector
CN21	SCSI Connector
CN23	ATX Power Supply
CN24	Speaker/Buzzer
CN25	System FAN 1 Connector
CN26	CPU Fan Connector
CN27	System FAN 2 Connector
CN28	LCD Backlight Power Connector
CN29	TFT LCD Panel Connector
CN31	PS/2 Keyboard Header
CN32	PS/2 Mouse Header

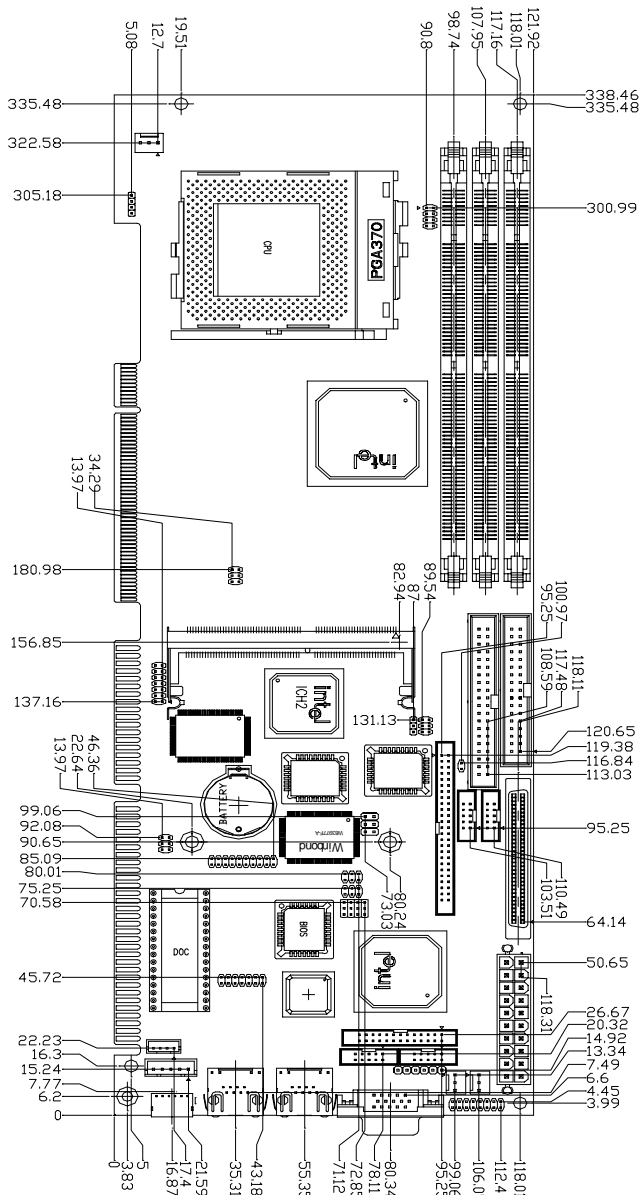
Locating Jumpers and Connectors



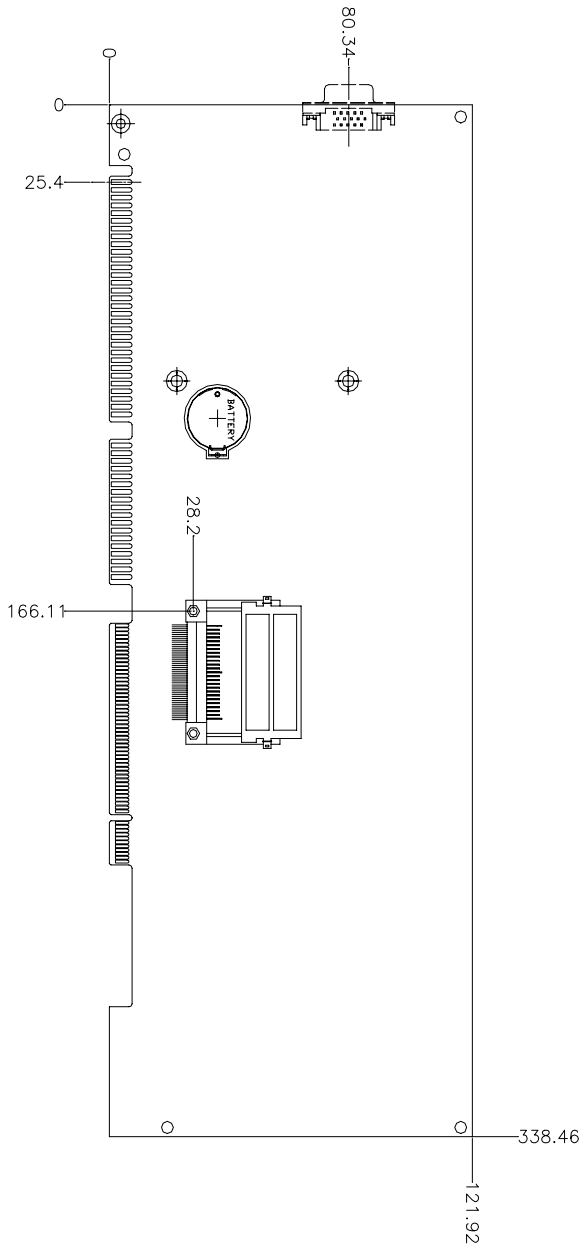
Locating Jumpers and Connectors



Mechanical Drawing

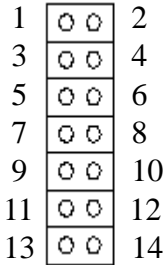


Mechanical Drawing

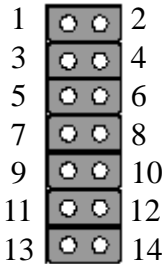


VGA or AGP VGA Header Select (JP 1)

Select AGP VGA



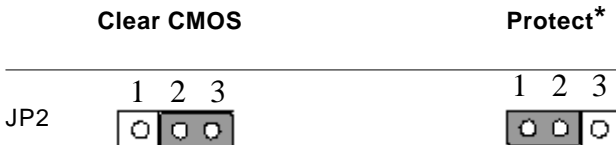
Select on board VGA



Clear CMOS (JP2)

You can use JP2 to clear the CMOS data if necessary. To reset the CMOS data, place a jumper on JP2 for just a few seconds, then remove the jumper.

Clear CMOS (JP2)

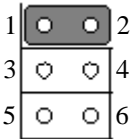


*default

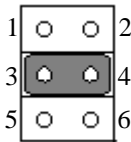
Watchdog Timer Function Select (JP3)

The mainboard is equipped with a watchdog timer that resets the CPU or generates an interrupt if processing comes to a standstill for whatever reason. This feature ensures system reliability in industrial stand-alone and unmanned environments.

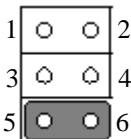
Reset



IRQ15



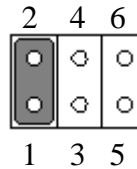
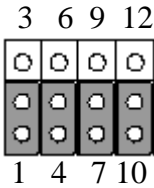
NMI



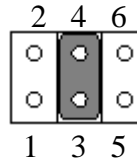
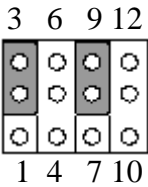
RS-232/422/485 COM 2 (JP4 & JP9) Setting

The SBC-776 COM 2 serial port can be selected as RS-232/422/485 by setting JP4.

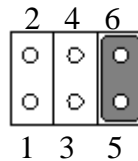
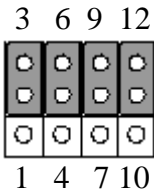
*RS-232



*RS-485



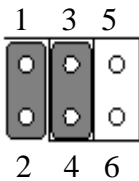
*RS-422



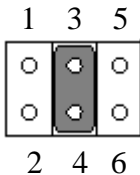
DiskOnChip Address Selection (JP5)

The DiskOnChip 2000 occupies an 8 Kbyte window in the upper memory address range of C800 to D400. You should ensure this does not conflict with any other device's memory address. JP5 controls the memory address of the Flash Disk.

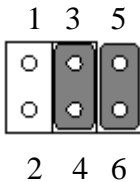
*D400H



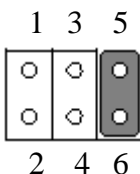
*DC00H



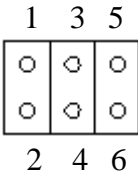
*CE00H



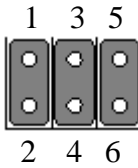
*D000H



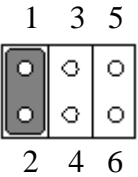
*E000H



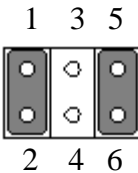
*DOC Disable



*D800H



*C800H



These addresses might conflict with the ROM BIOS of other peripheral boards, Please select the appropriate memory address to avoid memory conflicts.

Function Select Header (JP 6)









Next you may want to install external switches to monitor and control the mainboard. These features are completely optional — install them only if you need them. The front panel connector (JP6) is an 16-pin male, dual in-line header and provides connections for a speaker, hard disk access indicator and an input switch for resetting the card.

Speaker

The mainboard can drive an 8Ω external speaker at 0.5 watts. If there is no external speaker, the SBC-776 provides an onboard buzzer as an alternative.

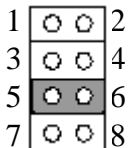
LED interface

The front panel LED indicator for hard disk access is an active low signal (24 mA sink rate).

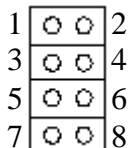
1		2	Power Button
3		4	Reset Switch
5		6	Suspend Switch
7		8	Hard Disk LED
9		10	Power LED
11		12	Suspend LED
13		14	SCSI LED
15		16	Chassis Open Detected

CPU/DIMM Speed Select Header (JP 7)

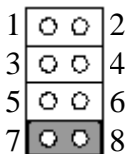
CPU/133 DIMM/133



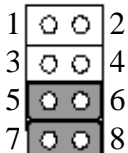
CPU/133 DIMM/100

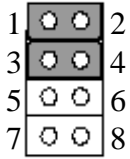


CPU/100 DIMM/100



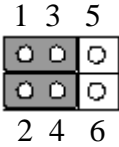
CPU/66 DIMM/100



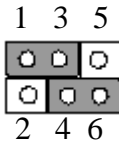


LCD Panel's Voltage Setting (JP 8)

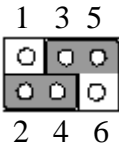
*LCD Panel power: +5V; Backlight power: +5V



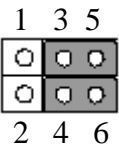
*LCD Panel power: +5V; Backlight power: +12V



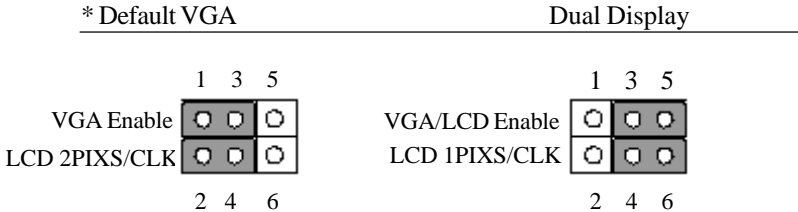
*LCD Panel power: +3.3V; Backlight power: +5V



*LCD Panel power: +3.3V; Backlight power: +12V



LCD or VGA Enable Header (JP10)



VGA connector (CN6)

The mainboard's PCI SVGA interface can drive conventional CRT displays and is capable of driving a wide range of flat panel displays, including electroluminescent (EL), gas plasma, passive LCD, and active LCD displays. The board has two connectors to support these displays, one for standard CRT VGA monitors and one for flat panel displays.

VGA display connector (CN6)

CN6 is a 15-pin, dual-in-line header used for conventional CRT displays. A simple one-to-one adapter can be used to match CN6 to a standard 15-pin D-SUB connector commonly used for VGA.

VGA display connector (CN6)

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

IDE Hard Drive Connector (CN7)

IDE hard drive connector (CN7)

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	SIGNAL GND	20	N/C
21	IDEPDREQR	22	GND
23	IO WRITE	24	GND
25	IO READ	26	GND
27	IO CHANNEL READY	28	GND
29	IDEPDACKX	30	GND
31	IRQ14	32	IOCS16
33	ADDR 1	34	P66DET
35	ADDR 0	36	ADDR 2
37	HARD DISK SELECT 0	38	HARD DISK SELECT 1
39	IDE ACTIVE	40	MGND
41	VCC	42	VCC
43	GND	44	N/C

USB connector (CN9, CN10)

The SBC-776 provides two USB (Universal Serial Bus) interfaces, which give complete plug and play, hot attach/detach for up to 127 external devices. The USB interfaces comply with USB specification Rev. 1.0, and can be disabled in the system BIOS setup.

USB connector (CN9)

Pin	Function	Pin	Function
1	VCC	2	GND
3	USBD0-	4	GND
5	UDBD0+	6	USBD1+
7	GND	8	USBD1-
9	GND	10	VCC

USB connector (CN10)

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

Audio Connector (CN11)

On board SBC-776, there is a 14-pin header for audio capability. The pin definition is provided below.

Audio connector (CN 11)

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

Floppy Drive Connector (CN12)

Floppy drive connector (CN12)

Pin	Signal	Pin	Signal
1	GND	2	DENSITY SELECT
3	GND	4	N/C
5	GND	6	DRIVE TYPE
7	GND	8	INDEX
9	GND	10	MOTOR 0
11	GND	12	DRIVE SELECT 1
13	GND	14	DRIVE SELECT 2
15	GND	16	MOTOR 1
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	GND	30	READ DATA
31	GND	32	HEAD DELECT
33	GND	34	DISK CHANGE

PS/2 Keyboard and Mouse Connector (CN13)

On board SBC-776, there is a standard 6-pin header for PS/2 keyboard and mouse connector. The pin definition is provided below.

Keyboard and mouse connector (CN 13)

Pin	Signal	Pin	Signal
1	KB DATA	2	MS DATA
3	GND	4	VCC
5	KB CLOCK	6	MS CLOCK

Parallel port connector (CN14)

Normally, the parallel port is used to connect the board to a printer. The SBC-776 includes an onboard parallel port, accessed through CN14, a 26-pin flat-cable connector. A traditional DB-25 connector cable is needed to install the printer to the board. The cable has a 26-pin connector on one end and a DB-25 connector on the other.

Parallel port IRQ

The onboard parallel port is designated as LPT1 and can be disabled or changed to LPT2 or LPT3 in the system BIOS setup.

Parallel port connector table (CN14)

Parallel port connector (CN14)

Pin	Signal	Pin	Signal
1	/STB	2	D0
3	D1	4	D2
5	D3	6	D4
7	D5	8	D6
9	D7	10	/ACK
11	BUSY	12	PE
13	SLCT	14	/AUTOFD
15	/ERR	16	/INIT
17	/SLCTINI	18	GND
19	GND	20	GND
21	GND	22	GND
23	GND	24	GND
25	GND	26	N/C

COM 1 (CN 15) & COM 2 (CN 16) Serial Ports

On board offer four set serial ports for serial devices connection. Two of them are the D-Sub type, pin definition show as below, for another two, please refer to page ?.

COM 1 RS-232 (CN15)

Pin	Signal	Pin	Signal
1	SDCDB1X	6	SDSRB1X
2	SRXDB1	7	SRTSB1X
3	STXDB1	8	SCTSB1X
4	SDTRB1X	9	SRIB1X
5	GND	10	NC

COM 1 RS-232 (CN16)

Pin	Signal	Pin	Signal
1	SDCDB2X	6	SDSRB2X
2	SRXDB2	7	SRTSB2X
3	STXDB2	8	SCTSB2X
4	SDTRB2X	9	SRIB2X
5	GND	10	NC

SCSI-2 68-PinConnector (CN 21)

SBC-776 has a 68 pin connector for the Ultra 2 SCSI connection. Please pay attention when connecting the SCSI device, because you must determine the last device on the SCSI chain.

PIN	FUNCTION	PIN	FUNCTION
1	SD+12	35	SD-12
2	SD+13	36	SD-13
3	SD+14	37	SD-14
4	SD+15	38	SD-15
5	SDP+1	39	SDP-1
6	SD+0	40	SD-0
7	SD+1	41	SD-1
8	SD+2	42	SD-2
9	SD+3	43	SD-3
10	SD+4	44	SD-4
11	SD+5	45	SD-5
12	SD+6	46	SD-6
13	SD+7	47	SD-7
14	SDP + 0	48	SDP - 0
15	GND	49	GND
16	DIFS	50	SENIN
17	TPWEX	51	TPWEX
18	TPWEX	52	TPWEX
19	NC	53	NC
20	GND	54	GND
21	SATN+	55	SATN-
22	GND	56	GND
23	SBSY+	57	SBSY-
24	SACK+	58	SACK-
25	SRST+	59	SRST-
26	SMSG+	60	SMSG-
27	SSEL+	61	SSEL-
28	SCD +	62	SCD-
29	SREQ+	63	SREQ-
30	SIO+	64	SIO-
31	SD+8	65	SD-8
32	SD+9	66	SD-9
33	SD+10	67	SD-10
34	SD+11	68	SD-11

100Base-Tx LAN connector (CN22,20)

On board supports one standard RJ-45 connector for ethernet connection. The RJ-45 connector has two LED indicators. Both LED displays indicate the speed of information being processed, however the Lan speed does vary.

* The on board Intel 82559XX fast ethernet controller supports 10Mb/s and 100Mb/s N-way auto-negotiation operation.

Green LED: 100MLAN speed

Yellow LED: 10MLAN speed

100Base-Tx Ethernet connector (CN22)

Pin	Signal	Pin	Sig
1	Tx+	5	N/C
2	TX-	6	RX-
3	RX+	7	N/C
4	N/C	8	N/C

Green LED: 100MLAN speed

Yellow LED: 10MLAN speed

100Base-Tx Ethernet connector (CN20)

Pin	Signal	Pin	Sig
1	Tx+	5	N/C
2	TX-	6	RX-
3	RX+	7	N/C
4	N/C	8	N/C

Power connector (CN23)

ATX power connector (CN23)

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

ATX power connector (CN23)

Pin	Signal	Pin	Signal
1	+3.3V	11	+3.3V
2	+3.3V	12	-12V
3	GND	13	GND
4	+5V	14	POWER 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

Speaker/Buzzer (CN 24)

You can choose to use the internal buzzer on the SBC-776 board, or you may use your own external speaker.

Speaker/Buzzer (CN24)

	Speaker	On Board Buzzer
CN24		

Fan power connectors (CN25, 26, 27)

CPU fan power connector (CN 26)

Plug in the fan cable to the 3-pin fan connector onboard. The fan connector is marked CN26.

CPU fan power connector (CN26)

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

System fan 1 connector (CN 25)

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

System fan 2 connector (CN27)

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

LCD Backlight Power Connector (CN 28)

LCD Backlight Power Connector (CN 28)

Pin	Signal
1	BLKVCC
2	GND

TFT LCD panel connector (CN 29)

LCD panel connector (CN 29)

Pin	Signal	Pin	Signal
1	BLKVCC	2	BLKVCC
3	GND	4	GND
5	LDCVCC	6	LCDVCC
7	ENAVEE	8	GND
9	P0	10	P1
11	P2	12	P3
13	P4	14	P5
15	P6	16	P7
17	P8	18	P9
19	P10	20	P11
21	P12	22	P13
23	P14	24	P15
25	P16	26	P17
27	P18	28	P19
29	P20	30	P21
31	P22	32	P23
33	P24	34	P25
35	SHF CLK	36	VSYNC
37	DE	38	HSYNC
39	GND	40	FPBLEN
41	P26	42	P27
43	P28	44	P29
45	P30	46	P31
47	P32	48	P33
49	P34	50	P35

PS/2 Keyboard Header (CN31)

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

PS/2 Keyboard Header (CN 31)

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

PS/2 Mouse Header (CN 32)

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

PS/2 Mouse Header (CN 32)

Pin	Signal	Pin	Signal
1	MS CLOCK	2	MS DATA
3	GND	4	VCC

Award BIOS Setup

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

Starting setup

The Award BIOS is immediately activated when you first turn on the computer. The BIOS reads system configuration information in CMOS RAM and begins the process of checking out the system and configuring it through the power-on self test (POST).

When these preliminaries are finished, the BIOS seeks an operating system on one of the data storage devices (hard drive, floppy drive, etc.). The BIOS launches the operating system and hands control of system operations to it.

During POST, you can start the Setup program in one of two ways:

1. By pressing Del immediately after switching the system on, or
2. By pressing Del or pressing Ctrl-Alt-Esc when the following message appears briefly at the bottom of the screen during POST:

TO ENTER SETUP BEFORE BOOT PRESS DEL KEY

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 Ctr-Alt-Del. If you do not press the keys at the correct time and the system does not boot, an error message appears and you are again asked to

PRESS F1 TO CONTINUE, DEL TO ENTER SETUP

Setup keys

These keys help 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

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 no longer is able to boot, the **Award BIOS** supports an override to the CMOS settings that resets your system to its default configuration.

You can invoke this override by immediately pressing Insert; when you restart your computer. You can restart by either using the ON/OFF switch, the RESET button or by pressing Ctrl-Alt-Delete.

The best advice is to alter only settings that you thoroughly understand. In particular, do not change settings in the Chipset screen without a good reason. 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.

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

CMOS Setup Utility - Copyright (C) 1984-2000 Award Software Standard CMOS Features		
Date (mm:dd:yy)	Thu, May 3 2001	Item Help Menu Level ▶ Change the day, month, year and century
Time (hh:mm:ss)	11 : 43 : 34	
IDE Primary Master		
IDE Primary Slave		
IDE Secondary Master		
IDE Secondary Slave		
Drive A	[1.44M, 3.5 in.]	
Drive B	[None]	
Video	[EGA/UGA]	
Halt On	[All , But Keyboard]	
Base Memory	640K	
Extended Memory	65472K	
Total Memory	1024K	

++:Move Enter:Select +/-/PU/PD=Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

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

Video

Select the type of primary video subsystem in your computer. The BIOS usually detects the correct video type automatically. The BIOS supports a secondary video subsystem, but you do not select it in Setup.

EGA/VGA Enhanced Graphics Adapter/Video Graphics Array.
For EGA, VGA, SEGA, SVGA, or PGA monitor adapters.

CGA 40 Color Graphics Adapter, power up in 40 column mode

CGA 80 Color Graphics Adapter, power up in 80 column mode

MONO Monochrome adapter, includes high resolution
monochrome adapters

Halt On

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 If: 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.

Extended Memory

Above the 1-MB boundary. Early IBM personal computers could not use memory above 1 MB, but current PCs and their software can use extended memory.

Other Memory

Between 640 KB and 1 MB; often called High memory. DOS may load, terminate-and-stay-resident (TSR) programs, such as device drivers, in this area, to free as much conventional memory as possible for applications. Lines in your CONFIG.SYS file that start with LOADHIGH, load programs into high memory.

Advanced BIOS Features

CMOS Setup Utility - Copyright (C) 1984-2000 Award Software
Advanced BIOS Features

Virus Warning	[Disabled]
CPU Internal Cache	[Enabled]
External Cache	[Enabled]
CPU L2 Cache ECC Checking	[Enabled]
Processor Number Feature	[Enabled]
Quick Power On Self Test	[Enabled]
First Boot Device	[Floppy]
Second Boot Device	[HDD-0]
Third Boot Device	[LS120]
Fourth Boot Device	[Disabled]
Swap Floppy Drive	[Disabled]
Boot Up Floppy Seek	[Enabled]
Boot Up NumLock Status	[On]
Gate A20 Option	[Fast]
Typematic Rate Setting	[Disabled]
x Typematic Rate (Chars/Sec)	6
x Typematic Delay (Msec)	250
Security Option	[Setup]
OS Select For DRAM > 64MB	[Non-OS2]

Item Help

Menu Level ▶

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

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

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 Internal Cache/External Cache

Cache memory is additional memory that is much faster than conventional DRAM (system memory). CPUs from 486-type on up contain internal cache memory, and most, but not all, modern PCs have additional (external) cache memory. When the CPU requests data, the system transfers the requested data from the main DRAM into cache memory, for even faster access by the CPU.

The External Cache field may not appear if your system does not have external cache memory.

CPU L2 Cache ECC Checking

When you select Enabled, memory checking is enable when the external cache contains ECC SRAMs.

Processor Number Feature

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

Quick Power On Self Test

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.

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 controller. When enabled, the typematic rate and typematic delay can be selected.

The choice: Enabled/Disabled

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.

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

Advanced Chipset Features

CMOS Setup Utility - Copyright (C) 1984-2000 Award Software Advanced Chipset Features	
SDRAM CAS Latency Time	[3]
SDRAM Cycle Time Tras/Trc	[7/9]
SDRAM RAS-to-CAS Delay	[3]
SDRAM RAS Precharge Time	[3]
System BIOS Cacheable	[Disabled]
Video BIOS Cacheable	[Disabled]
Memory Hole At 15M-16M	[Disabled]
CPU Latency Timer	[Enabled]
Delayed Transaction	[Enabled]
AGP Graphics Aperture Size	[64MB]
Display Cache Frequency	[100 MHz]
System Memory Frequency	[Auto]
On-Chip Video Window Size	[64MB]
GFX Scaling	[Auto/EDID]
Show UBIOS Message	[Disabled]
TU Format	[NTSC]
Output Device Synchronous	[Disabled]
Output Device Priority	[CRT/FP/TU]

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

SDRAM 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.

SDRAM Cycle Time Tras/Trc

Select the number of SCLKs for an access cycle.
The choices: 5/7, 7/9 disable.

SDRAM 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.

SDRAM RAS Precharge Time

If an insufficient number of cycles is allowed for the RAS to accumulate its charge before DRAM refresh, the refresh may be incomplete and the DRAM may fail to retain data. Fast gives faster performance; slow gives more stable performance. This field applies only when synchronous DRAM is installed in the system.

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

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

CPU Latency Timer

During enable, a deferrable CPU cycle will only be Deferred after it has been in Snoop Stall for 31 clocks and another ADS# has arrived. During disable, a deferrable CPU cycle will be deferred immediately after the GMCH receives another ADS#.

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 Graphics 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 choices: **32M, 64M.**

Display Cache Frequency

Display cache frequency will allow for the level the of the share memory provided by the Intel 815E chipset to be adjusted.

The settings are 100MHz and 133 MHz.

System Memory Frequency

Select the onboard display cache frequency. The settings are auto, 100MHz and 133MHz.

On-Chip Video Window Size

Select the on-chip video window size for VGA drive use.

The choices: **32MB, 64MB, Disabled**

Initial Display Cache

Cas# Latency

Select the local memory clock period. The number of clock cycles of CAS# Latency depends on the Onboard Display Cache timing. The choice: **2,3**

Paging Mode Control

Select the paging mode control. The choice: **open, close**

RAS-to-CAS Override

This item allows you to insert a timing delay between the CAS and RAS strobe signals, used when Onboard display cache is written to, read from, or refreshed. During by CAS#LT, this will depend on the Onboard Display Cache CAS# Latency setting. During Override (2), RAS-to-CAS time = 2

Ras# Timing

This item controls RAS# active to Precharge, and refresh to RAS# active delay (in local memory clock). The choices: **Fast, Slow**

Ras# Precharge Timing

This item controls RAS# precharge (in loca memory clocks). The choices: **Fast, slow**

Integrated Peripherals

CMOS Setup Utility - Copyright (C) 1984-2000 Award Software
Integrated Peripherals

	Item Help
On-Chip Primary PCI IDE [Enabled]	
On-Chip Secondary PCI IDE [Enabled]	
IDE Primary Master PIO [Auto]	
IDE Primary Slave PIO [Auto]	
IDE Secondary Master PIO [Auto]	
IDE Secondary Slave PIO [Auto]	
IDE Primary Master UDMA [Auto]	
IDE Primary Slave UDMA [Auto]	
IDE Secondary Master UDMA [Auto]	
IDE Secondary Slave UDMA [Auto]	
USB Controller [Enabled]	
USB Keyboard Support [Disabled]	
Init Display First [PCI Slot]	
AC97 Audio [Auto]	
Onboard/CNR LAN selection [Auto]	
8-bit I/O Recovery Time [4 SYSCLK]	
16-bit I/O Recovery Time [1 SYSCLK]	
IDE HDD Block Mode [Enabled]	
POWER ON Function [BUTTON ONLY]	

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

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.

Init Display First

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

The choice: PCI slot, onboard

AC97 Audio

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

Onboard/CRN LAN selection

Testing purposes only. **Leave this function in the AUTO setting.**

8-bit I/O Recovery Time

The I/O recovery mechanism adds bus clock cycles between PCI-originated I/O cycles to the ISA bus. This delay takes place because the PCI bus is much faster than the ISA bus. This field lets you add recovery time (in bus clock cycles) for 8-bit I/O.

The choice: 0-7 SYSCLK

16-bit I/O Recovery Time

The I/O recovery mechanism adds bus clock cycles between PCI-originated I/O cycles to the ISA bus. This delay takes place because the PCI bus is much faster than the ISA bus. This field lets you add recovery time (in bus clock cycles) for 16-bit I/O.

The choice: 1 SYSCLK, 2SYSCLK, 3SYSCLK, 4 SYSCLK

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/write per sector the drive can support.

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.

Ir Transmission Delay

The system IR component transmits and retrieves data from its working environment, if enabled the IR system will detect or transmit information. If disabled the IR system will be unable to operate.

Use IR Pins

Consult your IR peripheral documentation to select the correct setting of the TxD and RxD signals.

Hot Key Power On

Simply pressing on the pre-selected keyboard key the system will power on.

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.

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	

RxD, TxD Active

Consult your IR peripheral documentation to select the correct setting of the TxD and RxD signals

UR2 Duplex Mode

Select the value required by the IR device connected to the IR port. Full-duplex mode permits simultaneous two-direction transmission. Half-duplex mode permits transmission in one direction only at a time. If no infrared port is present in the system, select disabled.

Use IR Pins

Consult your IR peripheral documentation to select the correct setting of the TxD and RxD signals.

Onboard Serial Ports (1, 2)

Normally, the main board's 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)

Onboard Parallel Port

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

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

Parallel Port Mode

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

EPP Mode Select

Select the EPP port type 1.7 or 1.9

ECP Mode Use DMA

Select a DMA channel for the port.

PWRON After PWR-Fail

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

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

Watch Dog Timer

You can enable the system watchdog timer, a hardware timer that generates either an NMI or a reset when the software that it monitors does not respond as expected each time the watch dog polls it (select the time period in a separate field) The choice: **Disabled, 20 sec, 30 sec, 40 sec, 50 sec, 1 min, 2 min, 4 min.**

Power Management Setup

CMOS Setup Utility - Copyright (C) 1984-2000 Award Software
Power Management Setup

ACPI Function	[Disabled]	↑ ↓	Item Help
ACPI Suspend Type	[S1(POS)]		Menu Level ▶
Power Management	[Min Saving]		
Video Off Method	[DPMS]		
Video Off In Suspend	[Yes]		
Suspend Type	[Stop Grant]		
MODEM Use IRQ	[3]		
Suspend Mode	[Disabled]		
HDD Power Down	15 Min		
Soft-Off by PWR-BTTN	[Instant-Off]		
Wake-Up by PCI card	[Disabled]		
Power On by Ring	[Enabled]		
USB KB Wake-Up From S3	[Disabled]		
PWRON After PWR-Fail	[Former-Sts]		
CPU Thermal-Throttling	[50.0%]		
Resume by Alarm	[Disabled]		
x Date(of Month) Alarm	0		
x Time(hh:mm:ss) Alarm	0 : 0 : 0		

↑↓→+:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General
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 Choices: Enable/Disable**

ACPI Suspend Type

This item will set which ACPI suspend type will be used.

S1 (POS) The S1 sleeping state is low wake-up latency sleeping state. In this state, no system context is lost (CPU or chip set) and hardware maintains all system context.

S3 (STR) The S3 state is a low wake-up latency sleeping state where all system context is lost expect system memory. CPU, cache and chipset context are lost in this state. Hardware maintains memory context and restores some CPU and L2 configuration context.

Power Management

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

1. HDD Power Down
2. Doze Mode
3. Suspend Mode

Disable (Default)	No power management. Disable all four modes.
Min. Power Saving	Minimum power management. 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. Doze mode = 1 min., Standby mode = 1 min., Suspend mode = 1 min., and HDD Power Down = 1 min.
User Defined	Allows you to set each mode individually. When 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**

Suspend Mode

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.

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.

USB KB Wake-up From S3

This option is used to Enabled/Disabled USB keyboard wake up with suspend to RAM. The Choice: Enabled/Disabled

Power On after Power Fail

After initial power failure, the system will attempt to power up again in the setting that the end user has selected.

The Choice: ON/OFF/Former status

CPU Thermal-Throttling

Select the CPU Thermal-Throttling rate for your system.

The choice: 12.5%, 25%, 37.5%, 50%, 62.5% 75%, 87.5%

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

CMOS Setup Utility - Copyright (C) 1984-2000 Award Software PnP/PCI Configurations		Item Help
PNP OS Installed	[Yes]	Menu Level ▶ Select Yes if you are using a Plug and Play capable operating system Select No if you need the BIOS to configure non-boot devices
Reset Configuration Data	[Disabled]	
Resources Controlled By	[Auto(ESCD)]	
IRQ Resources	Press Enter	
DMA Resources	Press Enter	
PCI/UGA Palette Snoop	[Disabled]	
INT Pin 1 Assignment	[Auto]	
INT Pin 2 Assignment	[Auto]	
INT Pin 3 Assignment	[Auto]	
INT Pin 4 Assignment	[Auto]	
←+:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

PNP OS Installed

This item allows you to determine whether the PnP OS is installed or not. Select Yes if the system operating environment is Plug and Play aware. The settings are Yes or No.

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 choices: Enabled, Disabled**

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 “manual” 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.**

PCI/VGA Palette Snoop

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

PC Health Status

CMOS Setup Utility - Copyright (C) 1984-2000 Award Software PC Health Status	
CPU Warning Temperature	[Disabled]
Current System Temp.	
Current CPU1 Temperature	
Current CPUFAN1 Speed	
Current CPUFAN2 Speed	
Current CPUFAN3 Speed	
IN0(V)	
IN1(V)	
IN2(V)	
+ 5 V	
+12 V	
-12 V	
- 5 V	
VBAT(V)	
5USB(V)	
Shutdown Temperature	[Disabled]
	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

CPU Warning Temperature

During enabled, this will warn the user when the CPU temperature reach a certain temperature.

Options: Disabled, 75°C/167°F, 70°C/158°F, 65°C/149°F, 60°C/140°F

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: Disabled, 75°C/167°F, 70°C/158°F, 65°C/149°F, 60°C/140°F

Frequency/Voltage Control

CMOS Setup Utility - Copyright (C) 1984-2000 Award Software
Frequency/Voltage Control

Auto Detect DIMM/PCI Clk	[Enabled]
Spread Spectrum	[Disabled]
Clock By Slight Adjust	[70]
CPU Clock Ratio	[X 3]

Item Help

Menu Level ▶

↑↓←→:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General
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 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

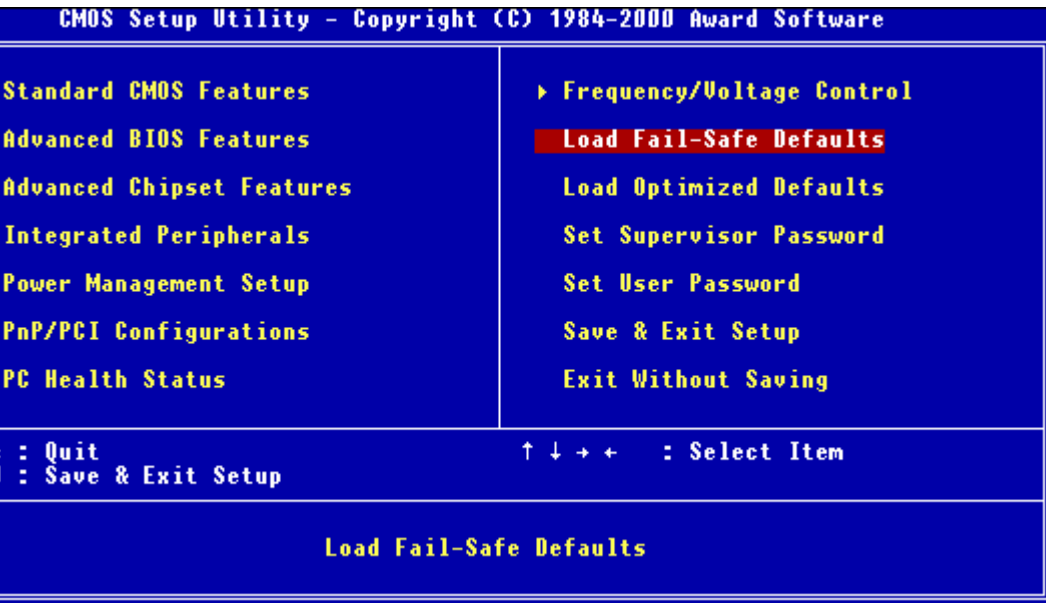
Clock By Slight Adjust

This item allows you to select the CPU clock from 166 MHz to 100 MHz or 99 MHz to 66 MHz depending on the CPU host clock.

CPU Clock Ratio

This item allows you to select the CPU ratio. When using an Intel CPU this item will be hidden.

Load Fail-Safe Defaults



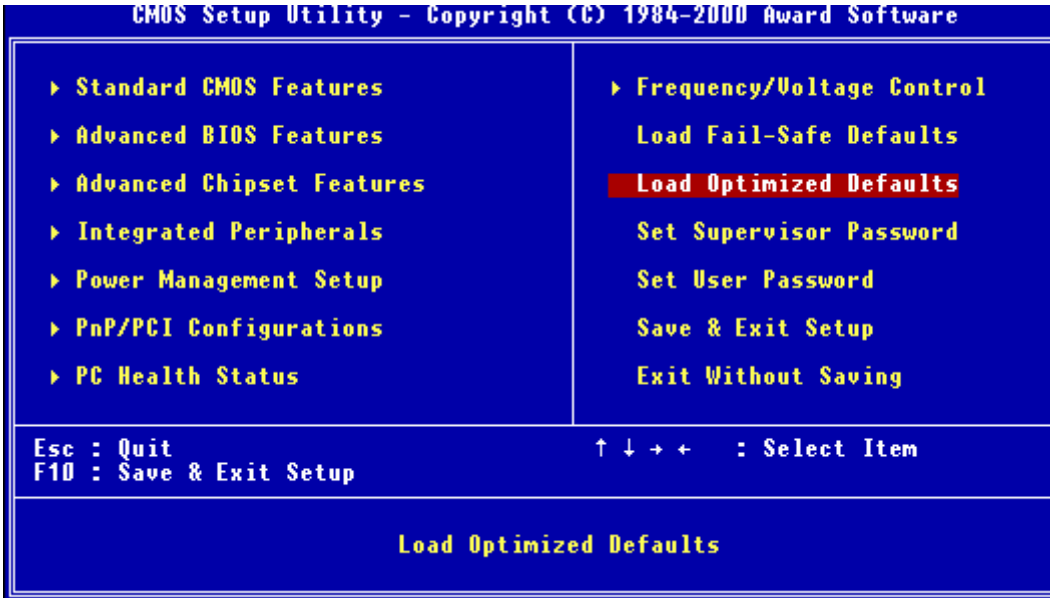
Load Fail-Safe Defaults

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



Change/Set/Disable 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

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- ▶ Standard CMOS Features
 - ▶ Advanced BIOS Features
 - ▶ Advanced Chipset Features
 - ▶ Integrated Peripherals
 - ▶ Power Management Setup
 - ▶ PnP/PCI Configuration Setup
 - ▶ PC Health Status
- ▶ Frequency/Voltage Control
 - Load Fail-Safe Defaults
 - Load Optimized Defaults
 - Set Supervisor Password
 - Set User Password**

Enter Password:

Esc : Quit
F10 : Save & Exit Setup

↑ ↓ → ← : Select Item

Change/Set/Disable 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.

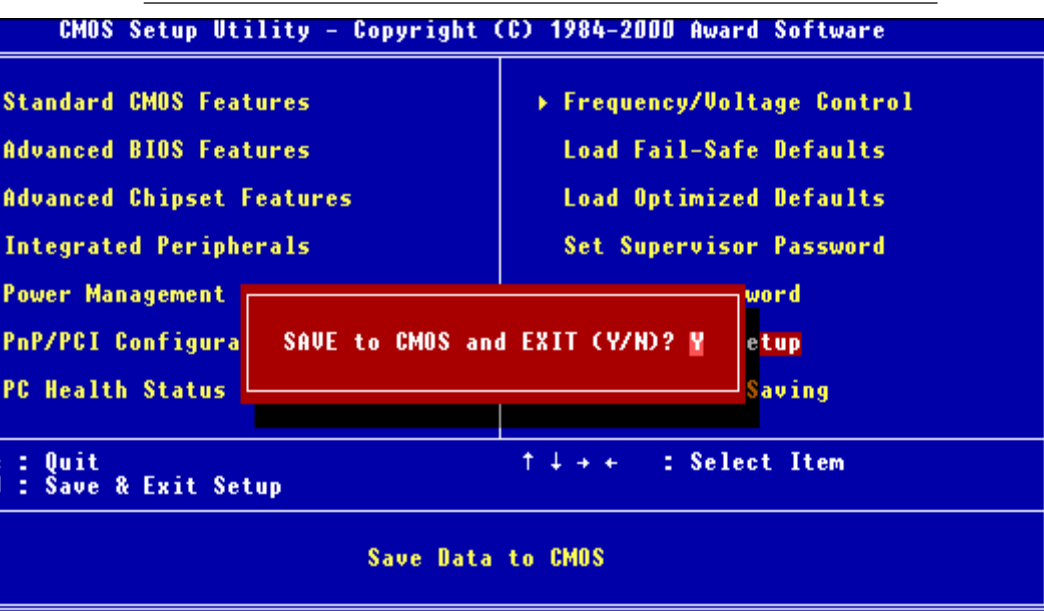
In the Security Option item in the BIOS Features Setup screen, select System or Setup:

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



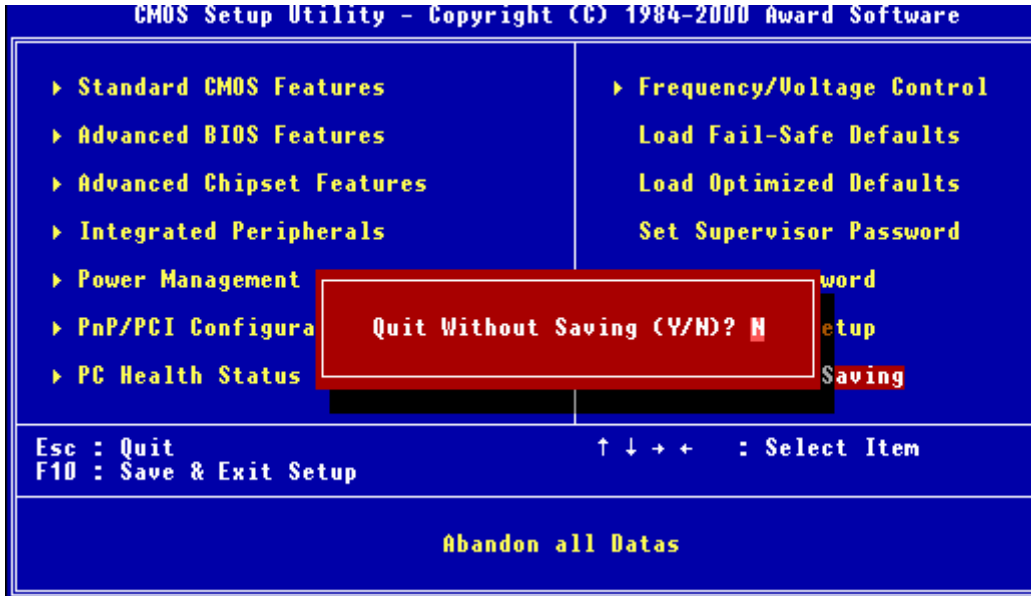
Save to CMOS and EXIT

Pressing <Enter> on this item asks for confirmation:

Save to CMOS and Exit (Y/N)?

Pressing “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.

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

DRIVERS INSTALLATION

This SBC-776 is equipped with an audio, VGA and Dual LAN interface. This chapter provides instructions for installing the software drivers on these peripherals.

Installing Drivers

Notice: Attention

Please follow this “order of installation” for stable and efficient operations.

1. Software installation utility

1.1 For WIN95/98/2000/Me

P.S WIN NT4.0 does not need this driver because it can't support Plug and Play.

2. Intel 82562ET LAN Driver

2.1 For WIN98/Me: Intel did not release 82562ET driver for WIN95.

2.2 For WIN2000

2.3 For WIN NT4.0

3. Advansys 38C0800 SCSI Driver

3.1 For WIN95/98/Me

3.2 For WIN2000

3.3 For WIN NT4.0

4. Intel 82559ER:

4.1 For WIN95/98/2000/Me

4.2 For WIN NT 4.0

5. Intel 815E VGA Driver

5.1 For WIN95/98/Me

5.2 For WIN2000

5.3 For WIN NT4.0

6. Ultra ATA Storage Driver

6.1 For WIN98/2000/NT4.0

PS For WIN95: Intel did not release an Ultra ATA storage driver for WIN95.

Notice: Attention

Notice: Attention

7. Advance Logic ALC200 Sound Driver

7.1 For WIN95

7.2 For WIN98

7.3 For WIN Me

7.4 For WIN2000

7.5 For Win NT 4.0

Notice: Attention

Software Installation Utility

1.1 For WIN95/98/2000/Me

~~>Install the CDROM Driver into the CD disk drive.

~~>Find the Software Installation Utility Folder

~~>Find the WIN95/95/2000/Me folder

~~>Find the infinst_enu folder

~~>Find the disk 1 folder

~~>Find the setup icon and then double click

~~>Click on Next

~~>Click on Yes

~~>Click on Next, install the utility

~~>Click on Yes to restart computer now

~~>Click finish to restart

Intel 82562ET LAN Driver

2.1 & 2.2 Installation Procedures are the same.

- ~~>Click on Start button
- ~~>Click on Settings button
- ~~>Click on Control Panel button
- ~~>Click on Systems button
- ~~>Click on Device Manager button
- ~~>Click on Secondary PCI Ethernet Controller
- ~~>Click on Reinstall Driver
- ~~>Click on Next
- ~~>Select Display a list of the known drivers for this device so that I can choose a specific driver
- ~~>Click on Next
- ~~>Select Network Adapters
- ~~>Click on Next
- ~~>Click on Have Disk
- ~~>Find the 82562ET folder
- ~~>Select your OS folder (WIN98/Me or WIN2000 folder)
- ~~>Click on Next
- ~~>Appear net82557.inf, click on Open
- ~~>Click on OK
- ~~>Find Intel PRO/100 VE Network Connection
- ~~>Click on Next
- ~~>Click on Next, install the driver
- ~~>Click on Finish
- ~~>Click on Close to finish the 82562ET driver installation

2.3 Installation Procedures for WIN NT4.0

Please copy the 82562ET driver from the CDROM onto Floppy Disks and insert into floppy drive

- ~~>Click on Start button
- ~~>Click on Settings button
- ~~>Click on Control Panel button
- ~~>Double click on Network
- ~~>Click on Yes
- ~~>Click on Next
- ~~>Click on Select from List.....
- ~~>Click on Have Disk
- ~~>Click on OK
- ~~>Click on OK
- ~~>Appear Intel Pro Adapter
- ~~>Click on OK
- ~~>Click on Next
- ~~>Select TCP/IP Protocol, NWlink IPX/SPX
Compatible Transport, NetBEUI Protocol (PS: This depends on your system)
- ~~>Click on Next
- ~~>Click on Next
- ~~>Click on Next
- ~~>Type the WIN NT4.0 CDROM path (such as E:) and then click on continue, setup will continue.
- ~~>Appear Do You want to use DHCP? (PS:Depends on your system). Click on No.
- ~~>Setup your TCP/IP Properties
- ~~>Click on Next
- ~~>Click on Next

~~>Type the Workgroup name, click on Next

~~>Click on Yes

~~>Appear Do you want to restart your computer now?
Click on Yes.

Advansys 38C0800 SCSI Driver

3.1 & 3.2 Installation Procedures are identical.

~~>Place CDROM into CD disk drive

~~>Click on Start button

~~>Click on Settings button

~~>Click on Control Panel button

~~>Click on Systems button

~~>Click on Device Manager button

~~>Click on SCSI Controller

~~>Click on Reinstall Driver

~~>Click on Next

~~>Select Display a list of know drivers for this.....

~~>Select Network Adapters

~~>Click on Next

~~>Click on Have Disk

~~>Find the Advansys folder

~~>Select your O.S. folder (WIN95/98/ME/2000
folder)

~~>Click on Next

~~>Appear w2kadv.inf, click on open

~~>Click on OK

~~>Find Win2k Advansys Ultra 2 Wide SCSI Adapter,
click on next

~~>Shows the Update driver warning, click on yes

~~>Click on Next

~~>Click on Next

~~>Click on Finish

~~>Click on Close to finish the Advansys driver
installation

3.3 Installation procedures for WIN NT 4.0

- ~~>Place CDROM into CD disk drive
- ~~>Click on Start button
- ~~>Click on Settings button
- ~~>Click on Control Panel
- ~~>Double Click on SCSI Adapter
- ~~>Click on Drives
- ~~>Click on ADD
- ~~>Click on Have Disk
- ~~>Click on Browse, find the advansys folder
- ~~>Find the WIN NT 4.0 folder, under the name of
nt4adv.inf
- ~~>Click on Open
- ~~>Click on OK
- ~~>Click on Next
- ~~>Select WIN NT 4.0 Advansys Ultra 2 Wide SCSI
Adapter
- ~~>Appear Do you want to restart your computer now?
Click on yes.

Intel 82559ER LAN Driver

4.1 Installation Direction for Intel 82559ER LAN Driver

- ~~>Place CDROM into CD disk drive
- ~~>Click on Start button
- ~~>Click Settings button
- ~~>Click on Control Panel button
- ~~>Click on System button
- ~~>Click on Device Manager button
- ~~>Click on PCI Ethernet Controller
- ~~>Click on Reinstall Driver
- ~~>Click on Next
- ~~>Select Display a list of the known drivers for this.....
- ~~>Click on Next
- ~~>Select Network Adapter
- ~~>Click on Next
- ~~>Click on Have Disk
- ~~>Find the 82559ER folder
- ~~>Find the Drivers folder
- ~~>Find the 82559er drivers 17 folder
- ~~>Find the net 82559er.inf, click on Open
- ~~>Click on OK
- ~~>Find Intel GD82559ER PCI Adapter
- ~~>Click on Next
- ~~>Click on Next, install the driver
- ~~>Click on Yes
- ~~>Click on Finish
- ~~>Click on Close to finish the 82559ER driver installation

4.2 Installation procedures for WIN NT 4.0

Please copy the 82559ER driver from the CDROM onto floppy disk and insert into the floppy drive

- ~~>Place CDROM into CD disk drive
- ~~>Click on Start button
- ~~>Click on Setting button
- ~~>Click on Control Panel button
- ~~>Double click on Network
- ~~>Click on Adapters
- ~~>Click on ADD
- ~~>Click on Have Disk
- ~~>Click on OK
- ~~>Appear Intel 82559ER fast ethernet adapter
- ~~>Click on OK to install driver
- ~~>Click on Close
- ~~>Setup your TCP/IP Properties
- ~~>Appear Do you want to restart your computer now?
Click on Yes.

Intel 815E VGA Driver

5.1, 5.2 & 5.3 Installation Procedures

- ~~>Place the CDROM into the CD disk drive
- ~~>Find the VGA folder
- ~~>Select your OS folder (WIN95/98/2000/NT)
- ~~>Select Graphic folder
- ~~>Select Setup icon, double click
- ~~>Click on Next
- ~~>Click on Yes, install VGA driver
- ~~>Click on finish, restart my computer now

Intel Ultra ATA Storage Driver

6.1 Installation procedures

- ~~>Place the CDROM into the CD disk drive
- ~~>Find the Ultra ATA driver folder
- ~~>Find the intel ATA603_enu icon, double click select graphic folder
- ~~>Click on Next
- ~~>Click on Yes
- ~~>Click on Next
- ~~>Click on Next
- ~~>Select Yes, I want to restart my computer now
- ~~>Click on Finish, restart my computer now

Advance Logic ALC200 Sound Driver

7.1-7.5 Installation procedures

- ~~>Place the CDROM into the CD disk drive
- ~~>Click on Advance ALC200 folder
- ~~>Select your OS folder (WIN95/98/2000/Me/NT)
- ~~>Double click on Setup icon
- ~~>You will see an optional language window, select
English
- ~~>Click on Next
- ~~>Click on go
- ~~>Click on Yes
- ~~>Restart my computer now

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