

# **MB-662**

LPX- size Intel FC-370 Pentium III  
CPU Card with LCD, LAN, Audio,  
4 COMs & SSD.

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3. If your product is diagnosed as defective, please manage to obtain an RMA (return material authorization) number from your dealer. This allows us to deal with your return 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 the 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 out after paying to your dealer for it.

## Packing list

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Before you begin to install your card, please make sure to check if the following materials have been contained:

- 1 MB-662 LPX- size Single Board Computer Card
- 1 Quick Installation Guide
- 1 Support CD contains the followings:
  - User's Manual (this manual in PDF file)
  - Ethernet, Audio, VGA drivers and utilities
- 1 hard disk drive (IDE) interface cable (44 pins, pitch 2.00mm)
- 1 floppy disk drive interface cable (34 pins, pitch 2.54mm)
- 1 IDE cable (40 pins, pitch 2.54mm)
- 1 parallel port (25-26 pins, pitch 2.54mm) and serial port (9-10 pins, pitch 2.54mm) adapter kit.
- 1 bag of screws and miscellaneous parts

If any of these items is lost or damaged, please contact your distributor or sales representative immediately.

## Notice

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Dear Customer,

Thank you for purchasing the MB-662 board. This user's manual is designed to help you to get the most out of the MB-662, 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 suggest you to read the manual before using the product.

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

**<http://www.aaeon.com.tw>**

## **Notice**

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You will find a single PCI/ISA slot on MB-662 for AAE-ON has designed a riser card for this expansion interface, PCM-10560-4. Due to the industry discrepancies we recommend our customers to use PCM-10560-4 with MB-662.

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## **General Information**

This chapter gives background information of the mainboard.

Sections Include:

- Board Specifications
- Layout and Dimensions

# Introduction

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The MB-662 is an all-in-one Celeron/Pentium III FC-chip processor based LPX-size single board computer (SBC) with a PCI Flat Panel controller, a PCI 100Base-T Ethernet interface. When using an Intel Pentium III processors, the MB-662 achieves outstanding performance that surpasses any other SBC in its class. In addition, the onboard SSD interface supports M-Systems DiskOnChip 2000 series, memory capacity up to 288 MB.

Onboard features include four serial ports (three RS-232, one RS-232/422/485), two bi-directional parallel (ECP/EPP/SPP) port, two USB (Universal Serial Bus) ports, a floppy drive controller, and a keyboard/PS/2 mouse interface. The built-in high speed 2 EIDE channels can support up to 4 Ultra DMA/33 mode. Up to four IDE devices can be connected, including large hard disks, CD-ROM drives, and tape backup drives, etc.

The MB-662 also features power management to minimize power consumption. It complies with and supports three types of power saving features: Doze mode, Standby mode, and Suspend mode. In addition, the board's watchdog timer can automatically reset the system or generate an interrupt in case the system stops due to a program bug or EMI.

## Highly integrated LPX-size SBC

The MB-662 is a highly integrated LPX-size SBC that combines, video, and network functions on a single computer board. If you buy MB-662 Rev. A10, the C&T69000 controller can provide up to 1024 x 768 resolution @ 64K colors with on-chip 2MB SDRAM display memory. Otherwise, if the version of your board is MB-662 Rev. A10-01, the C&T69030 controller can provide up to 1600 x 1200 resolution @ 64K colors with on-chip 4MB SDRAM display memory. Major onboard devices adopt PCI technology to achieve outstanding computing performance making the MB-662 one of the world's best and most powerful LPX-size Single Board Computer.

## Features

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- Supports Intel Celeron /Pentium III FC-370
- Supports DiskOnChip (SSD) up to 288MB
- C&T 69000 LCD controller (MB-662 A1.0) supports 36-bit TFT Panels  
C&T 69030 LCD controller (MB-662 A1.0-01) supports 36-bit TFT Panels
- Realtek RTL 8139C 10/100Base-T Fast Ethernet
- Supports H/W status monitoring

# Specifications

---

## Standard LPX-size SBC functions

- **CPU:** FC-370 Pentium III (Coppermine), Celeron, and compatible CPUs (With system bus frequencies of 66/100MHz).
- **CPU socket:** 370 pins Socket  
**BIOS:** Award 256KB Flash BIOS
- **Chipset:** Intel 440BX
- **I/O chipset:** ITE IT8661F / Winbond W83977ATF.
- **Memory :** Onboard two 168 pins DIMM socket supports up to 512Mbytes SDRAM.
- **Enhanced IDE:** Two EIDE channels. Supports up to 4 Ultra DMA/ 33 devices with data transfer rate of 33MB/sec.. With one 44 and one 40 pin IDE connectors.
- **FDD interface:** Supports two floppy disk drives, 5.25" (360KB and 1.2MB) and/or 3.5" (720KB, 1.44MB, and 2.88MB), with one standard type connector and one FPC connector.
- **Parallel port:** Two bi-directional parallel ports. Supports SPP, ECP, and EPP modes. One external 25-pin D-sub connector and one 13x2 pin header for LPT2.
- **Serial port:** Three RS-232 and One RS-232/422/485 serial port. Ports can be configured as COM1, COM2, COM3, COM4, or disabled individually. 16C550 serial UARTs. 3 external D-sub connectors, 1 internal 5x2 pin header supporting COM2.
- **IR interface:** Supports one IrDA Tx/Rx header (FIR/SIR, IrDA 1.0 spec.).
- **KB/Mouse connector :** 6-pin mini-DIN connector supports PC/AT keyboard and PS/2 mouse.
- **USB connectors:** Onboard supports dual USB external ports.
- **Battery:** Lithium battery for data retention
- **CMOS Backup:** CMOS data backup in flash memory, auto system reload when data is loss.

- **Watchdog timer:** Can generate a system reset, IRQ15, or IRQ 10 and IRQ 11. Software selectable time-out interval (1 sec. ~ 255 sec, 1 sec./step)
- **DMA:** 7 DMA channels (8237 equivalent)
- **Interrupt:** 15 interrupt levels (8259 equivalent)
- **Power management:** I/O peripheral devices support power saving and doze/standby/suspend modes. APM 1.2 compliant. Supports ATX power supply, PC 97 and modem ring-in function.
- **H/W status monitoring:** Winbond W83781D H/W status monitoring IC supports power supply voltages, fan speed control and temperature monitoring.
- **LED status pin header:** LED status indicator for power, CPU fan, Aux. fan, HDD, low temperature, high temperature and LAN.

## Flat Panel/CRT Interface

### MB-662 Rev. A1.0

- **Chipset:** C&T 69000
- **Display memory:** 2MB SDRAM built in chip
- **Display type:** Supports non-interlaced CRT and LCD (TFT, DSTN, and Mono) displays. Can display both CRT and Flat Panel simultaneously.
- **Resolution:** Up to 1024x768@64K colors.

### MB-662 Rev. A1.0-01

- **Chipset:** C&T 69030
- **Display memory:** 4MB SDRAM built in chip
- **Display type:** Supports non-interlaced CRT and LCD (TFT, DSTN, and Mono) displays. Can display both CRT and Flat Panel simultaneously.
- **Resolution:** Up to 1600x1200@64K colors.

## Audio Interface

- **Chipset:** ESS ES1938 (Solo-1)
- **Audio interface:** 16-bit stereo VLSI chip, PCI based AC 97 Digital Audio Processor, Sound Blaster / Pro emulation.

## **Ethernet Interface**

- **Chipset:** Realtek RTL8139C 10/100Base-T Fast Ethernet controller.
- **Ethernet interface :** Onboard 10/100Base-Tx RJ-45 connector optional Remote Boot ROM Function.

## **SSD Interface**

- One 32 pins DIP socket supports M-Systems DiskOnChip 2000 series up to 288MB.

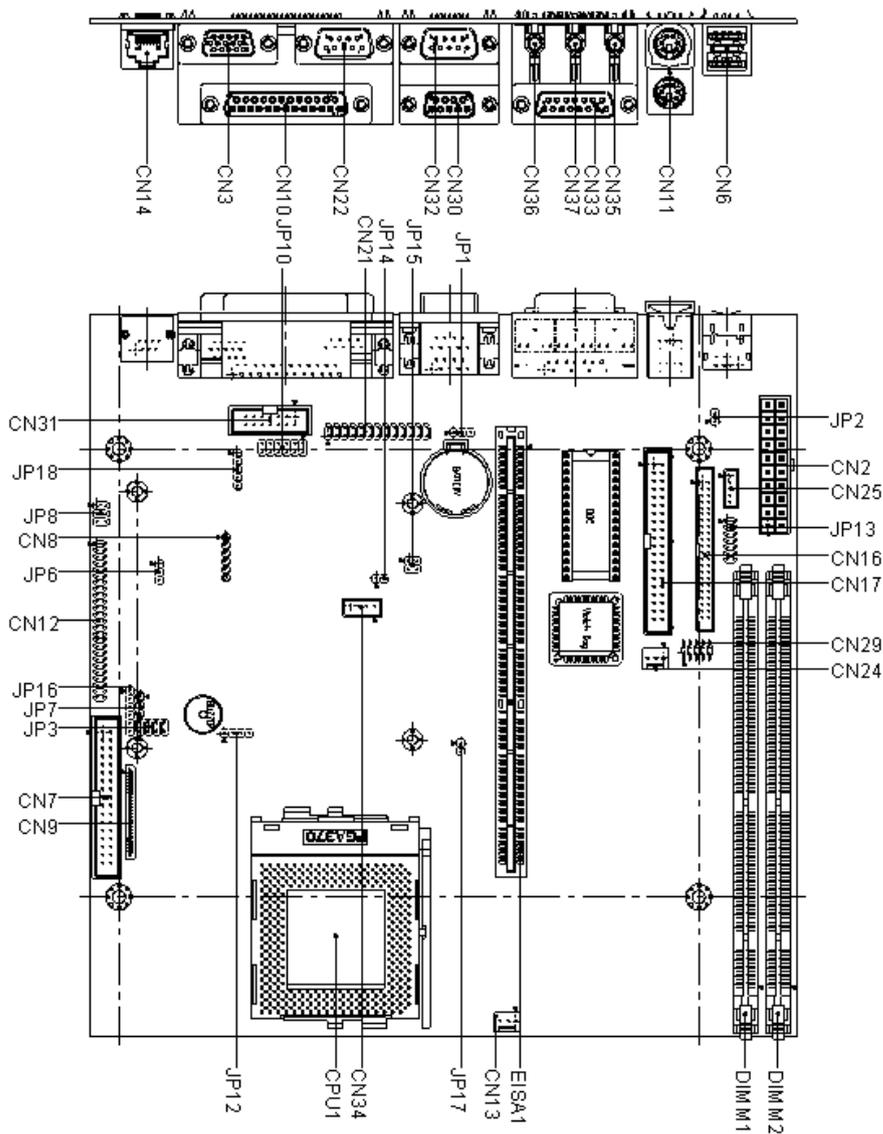
## **Expansion Slots**

**PCI/ISA slot and PC/104 screws hole for LVDS module:** One PCI ISA slot onboard, reserved for Aaeon's PCM-3524 LVDS module.

## **Mechanical and environmental**

- **Power supply voltage:** +5V (4.75V to 5.25V),  
+12V (11.4V to 12.6V)
- **Operating temperature:** 32 to 140°F (0 to 60°C)
- **Board size:** 8.9"(L) x 8.7"(W) (225mm x 220mm)
- **Weight:** 1.2 lb. (0.52 Kg)

# Board Layout





## 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.

# NOTICE

---

Due to the mismatch between current layout and the expected jumper settings described in the manual.

Temporary Solution: Please set the jumper according to the following table.

Permanent Solution: The circuit will be modified to comply with the manual.

## COM4 RS-232/422/485 Selection (JP10)

---

RI function or voltage selection configurations for COM4 can be set manually through jumper, JP10. Jumper settings are illustrated as follows:

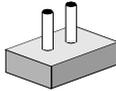
* RI Function	+5Vout	+12Vout
1 3 5 	1 3 5 	1 3 5 
2 4 6	2 4 6 	2 4 6 
* RS-232	RS-422	RS-485
7 9 11 	7 9 11 	7 9 11 
8 10 12	8 10 12	8 10 12

\* Default

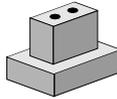
## Setting Jumpers

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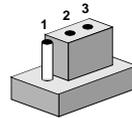
You can configure your card to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To close a jumper you connect the pins with the clip. To open a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case you would connect either pins 1 and 2 or 2 and 3.



**Open**



**Closed**



**Closed 2-3**

The jumper settings are schematically depicted in this manual as follows:



**Open**



**Closed**



**Closed 2-3**

A pair of needle-nose pliers may be helpful when working with jumpers.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

## CPU Installing and Upgrading

---

You can upgrade to a more powerful Celeron CPU at any time by simply removing the old CPU, installing the new one, and setting the jumpers for the new CPU speed.

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



**Caution!** *Always ground yourself to remove any static charge before touching the system board. 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.*



### Install a CPU in the FC-370 socket

MB-622 Series provides a Flip-Chip (FC) socket for easy CPU installation.

1. Make sure the FC-370 socket lever is in the upright position. To raise the lever, pull it out and raise it as far as it can stretch.
2. Place the CPU in the empty socket. Follow the instructions that came with the CPU. If you have no instructions, please follow these steps: Carefully align the CPU so it is parallel to the socket and the notch on the corner of the CPU corresponds with the notch on the inside of the socket. Then gently slide the CPU in. It should be inserted easily. If it isn't, pull the lever up a little more.

3. Press the lever down. The plate will slide forward. You will feel some resistance as the pressure starts to secure the CPU in the socket. This is normal and won't damage the CPU.

When the CPU is installed, the lever should snap into place at the side of the socket.

**Note:** To remove a CPU, pull the lever out to the side a little and raise it as far as it will go. Lift the CPU chip out.

When you install a new CPU, be sure to adjust the board settings, such as CPU type and CPU clock. **Improper settings may damage the CPU.**

# Installing SDRAM (DIMMs)

---

## System Memory

The upper edge of the MB-662 contains two sockets for 168 pins dual inline memory module (DIMM). The socket uses 3.3 V unbuffered synchronous (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 MB-662 single board computer between 16 and 512 MB of memory.

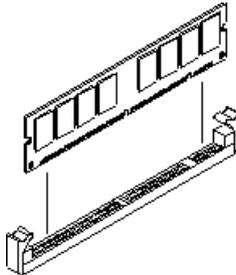
## Supplementary information about DIMM

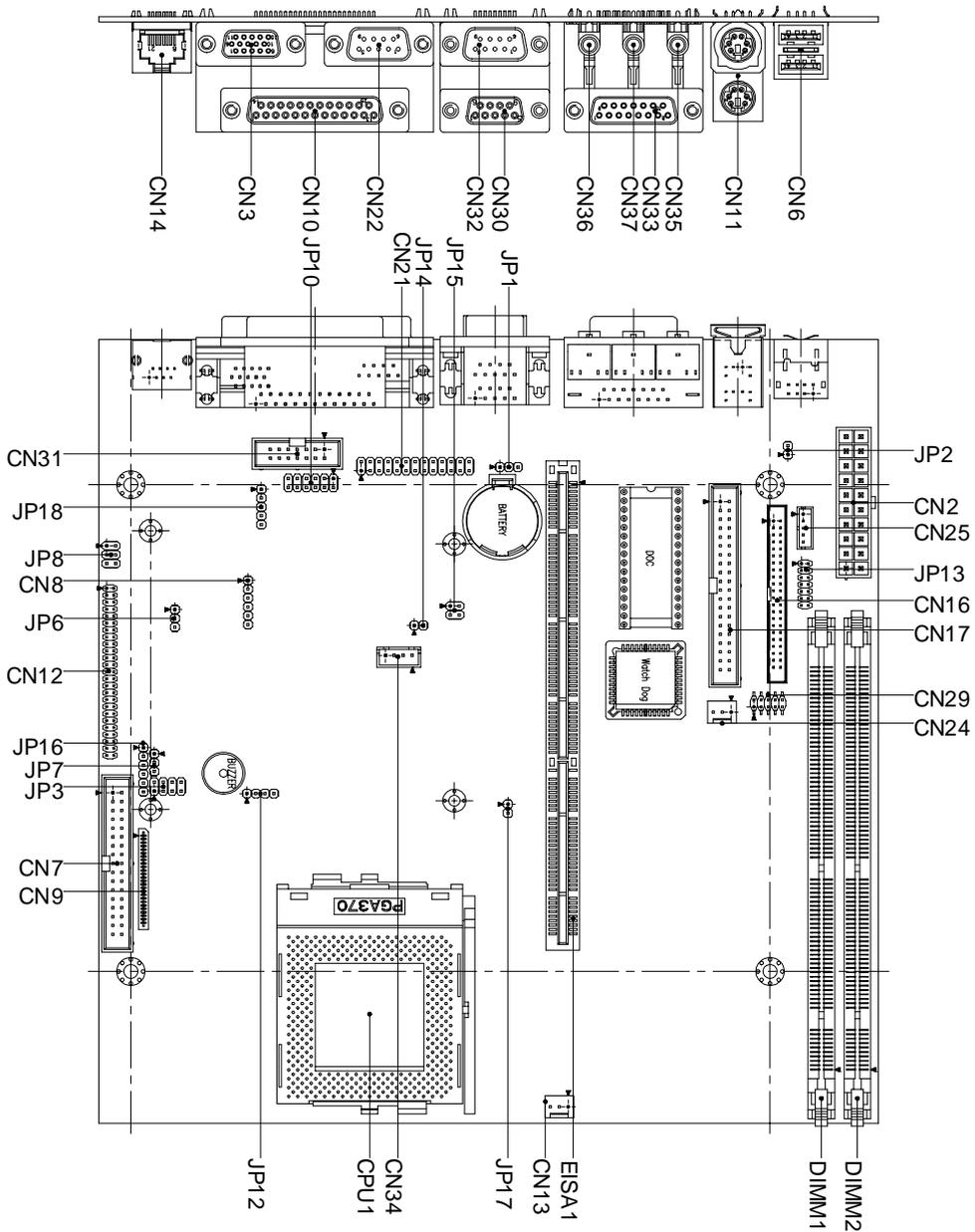
Your MB-662 can accept both regular and PC-100 SDRAM DIMM Module(with or without parity). The MB-662 can also accept PC-133 DIMM Module running at 100MHz speed.

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





## List of Jumpers

---

Jumpers allow users to manually customize system configurations to their suitable application needs.

The following chart consist the list of each jumper function:

---

Jumpers	
<b>Label</b>	<b>Function</b>
JP1	Clear CMOS Selection
JP2	Power ON Switch
JP3	Panel Type Selection
JP6	LCD Panel Voltage Setting
JP7	LCD Clock Signal Selection
JP8	Ethernet Tx/Rx/Link LED Connector
JP10	COM4 RS-232/422/485 Selection
JP12	Speaker (external) / Buzzer
JP13	System Status LED Pin Header
JP14	Power Reset Connector
JP15	DiskOnChip (DOC) Address Selection
JP16	IR Touchscreen Power Pin Header
JP17	100/66 Mhz Frequency Select
JP18	Keyboard Lock

---

## List of Connectors

---

Connectors on board access link to external devices such as hard disk drives, a keyboard, or floppy drives.

The following consist the list of each connector function:

---

Connectors	
Label	Function
CN2	ATX Power Connector
CN3, CN12	Display Connectors ( CRT and LCD )
CN6	USB Connector
CN7	Floppy Drive Connector
CN8	IrDA Connector
CN9	(FPC) Floppy Drive Connector
CN10	Parallel Port 1 Connector
CN11	Keyboard and Mouse Connector
CN13	CPU Fan Power Connector
CN14	RJ-45 Ethernet Connector
CN16	Primary IDE Hard Drive Connector
CN17	Secondary IDE Hard Drive Connector
CN21	Parallel Port 2 Connector
CN22	COM2 Connector
CN24	System Fan Power Connector
CN25	LCD Inverter Backlight Power Connector
CN29	Digital I/O Connector
CN30	COM3 Connector
CN31	COM4 Connector
CN32	COM1 Connector
CN33	Joystick / MIDI Port
CN34	Audio Connector for CD_IN
CN35	Phone Jack for Line_OUT
CN36	Phone Jack for MIC
CN37	Phone Jack for Line_IN
EISA1	PCI/ISA connector

---

## Clear CMOS Selection (JP1)

---

Safety precautions in setting up this item must be taken. Be sure to place jumper on *protect mode* always. In clearing CMOS, place jumper for just a second (*follow clear CMOS illustration*), then return to the *protect mode* right away.

* Protect			Clear CMOS		
1	2	3	1	2	3
					

\* Default

## LCD Panel Voltage Setting (JP6)

---

The LCD panel driving voltage is set by using JP6. And the jumper setting is illustrated as follows:

5V			* 3.3V		
1	2	3	1	2	3
					

\* Default

## LCD Clock Signal Selection (JP7)

---

The LCD clock control signal is set by using JP7. And the following is the jumper setting for JP7:

Shift Clock			* AShift Clock		
1	2	3	1	2	3
					

\* Default

## Ethernet Tx/Rx/Link LED Connector (JP8)

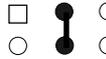
---

With ethernet Tx/Rx/Link LED indicator, the ethernet status can be traced through LED indicator readings. The pin definitions are listed as follows:

Pin	Signal	Pin	Signal
1	Rx-LED	2	Vcc
3	Link LED	4	Vcc
5	Tx-LED	6	Vcc

## COM4 RS-232/422/485 Selection (JP10)

RI function or voltage selection configurations for COM4 can be set manually through jumper JP10. Jumper settings are illustrated as follows:

* RI Function	+5Vout	+12Vout
1 3 5  2 4 6	1 3 5  2 4 6	1 3 5  2 4 6
* RS-232	RS-422	RS-485
7 9 11  8 10 12	7 9 11  8 10 12	7 9 11  8 10 12

\* Default

## Speaker/Buzzer (JP12)

This onboard jumper provides users easy manual settings for on board buzzer and external speaker. By just following the illustration of the settings below:

* on board buzzer	external speaker
1 2 3 4 	1 2 3 4 

\* Default

## System Status LED Pin Header (JP13)

---

LED indicator for system status serves as an early warning indicator as well as a quick troubleshooting indicator. And the following is its pin definition:

<b>Pin</b>	<b>Signal</b>	<b>Pin</b>	<b>Signal</b>
1	Power_ON LED	2	Vcc
3	CPU_fan LED	4	Vcc
5	System_fan LED	6	Vcc
7	HDD_access LED	8	Vcc
9	Low_temperature LED (option)	10	Vcc
11	High_temperature LED (option)	12	Vcc
13	LAN_access LED	14	Vcc

## DiskOnChip (DOC) Address Selection (JP15)

---

The DiskOnChip 2000 family of products provides a single chip solid-state flash disk in a standard 32-pin DIP package. The DiskOnChip 2000 is a solid-state disk with no moving parts, resulting in a significant reduction in power consumption and an increase in reliability. The DiskOnChip is a small plug and play Flash disk. It is easy to use. And it saves integration overhead.

The DiskOnChip 2000 family of products is available in capacities ranging from 16MB to 288MB, unformatted. In order to manage the disk, the DiskOnChip 2000 includes the TrueFFS, M-Systems Flash File System proprietary software. The DiskOnChip 2000 package is pin-to-pin compatible with a standard 32-pin EPROM device.

D400		D800		DC00		* Disable	
1	3	1	3	1	3	1	3
<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>	<input checked="" type="radio"/>	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
2	4	2	4	2	4	2	4

\* Default

## IR Touch Screen Power Pin Header (JP16)

---

This plug-in jumper connection provides quick installation for the optional use of IR touch screen on display panels. Just refer to the pin definitions below:

Pin	Signal	Pin	Signal
1	Vcc	2	GND
3	N/C	4	N/C
5	N/C	6	N/C

## 100/66 Mhz Frequency Selection (JP17)

---

Users can select the operating frequency manually by setting JP17. Illustrated setting is shown as follows:

* 66 Mhz Frequency	100 Mhz Frequency
	

\* Default

Note:

FC-PGA CPUs' frequency ratio is pre-locked within the CPUs. These CPUs run at fixed speed (frequency) regardless of the configurations listed above. If the CPU you are using requires a ratio higher than 5.5X, it is most likely pre-locked. This table is provided for those who are using older PPGA Celeron processors that do not have pre-locked multiplier.

## Keyboard Lock (JP18)

---

Keyboard Lock (CN18)			
Pin	Signal	Pin	Signal
1	Vcc	4	KBLOCK
2	N/C	5	GND
3	GND		

## ATX Power Connector (CN2)

---

For the ease of use and reliability, a standard 20-pin ATX power supply connector is onboard to provide positive plugging through its guide and locking mechanism. Pin definition is as follows:

Pin	Signal	Pin	Signal
1	N/C	11	N/C
2	N/C	12	-12V
3	GND	13	GND
4	+5V	14	PON
5	GND	15	GND
6	+5V	16	GND
7	GND	17	GND
8	N/C	18	-5V
9	5VSB	19	+5V
10	+12V	20	+5V

## Display Connectors (CN3 and CN12)

---

The MB-662'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 (CN3)

A standard conventional D-sub connector is equipped to interface with conventional CRT displays. The pin definition is as follows:

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

## LCD display connector (CN12)

CN12 is a 50-pin, dual-in-line header used for flat panel displays.

When the MB-662's power is applied, the control signal is low until the relevant flat panel signals are present.

Configuration of the VGA interface is done completely via the software utility. You do not have to set any jumper.

Pin	Signal	Pin	Signal
1	+12 V <sub>DC</sub>	2	+12 V <sub>DC</sub>
3	GND	4	GND
5	+5 V <sub>DC</sub>	6	+5 V <sub>DC</sub>
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	FLM (V SYS)
37	M	38	LP (H SYS)
39	GND	40	ENABKL
41	P26	42	P27
43	P28	44	P29
45	P30	46	P31
47	P32	48	P33
49	P34	50	P35

## USB Connector (CN6)

---

MB-662 is equipped with a dual port USB connector. It acquires the new generation of plug and play ( *Hot Plugging* ) feature, for both low speed and high speed devices. It could also be expanded up to 127 connections through USB hub. Refer pin definitions as follows:

USB Connector (CN6)			
Pin	Signal	Pin	Signal
1	Vcc	5	Vcc
2	USBD1-	6	USBD0-
3	USBD1+	7	USBD0+
4	GND	8	GND

## Floppy Drive Connector (CN7), FPC (CN9)

---

You can attach up to two floppy drives to the mainboard controller and use any combination of 5¼" (360 KB and 1.2 MB) and/or 3½" (720 KB, 1.44 MB, and 2.88 MB) drives.

A 34-pin daisy chain drive connector cable for (CN7) is required for a dual-drive system. On one end of the cable is a 34-pin flat cable connector. And on the other end is two sets of floppy disk drive connectors. Each set consists of a 34-pin flat-cable connector (usually used for 3½" drives) and a printed-circuit board connector (usually used for 5¼" drives). Plus an additional *Flexible Printed Circuit* (FPC) connector (CN9), extra drive means extra memory for your system, an ideal way for cost effective design.

Wire number 1 on the cable is normally red or blue, and the other wires are usually gray.

### Connecting the floppy drive

1. Plug the 34-pin flat-cable connector into CN7. Make sure that the red or blue wire corresponds to pin 1 on the connector. No worries for CN9 FPC connector, it's guided design for error free connection.
2. Attach the appropriate connector on the other end of the cable to the floppy drive(s). You can use only one connector in the set. The set on the end (after the twist in the cable) connects to the A: drive. The set in the middle connects to the B: drive.
3. If you are connecting a 5¼" floppy drive, line up the slot in the printed circuit board with the blocked-off part of the cable connector.

If you are connecting a 3½" floppy drive, you may have trouble determining which pin is pin number 1. Look for a number printed on the circuit board indicating pin number 1. Also, the connector on the floppy drive connector may have a slot. When the slot is up, pin number 1 should be on the right. Check the documentation that came with the drive for more information. If you desire, connect the B: drive to the connectors in the middle of the cable as described above.

*Please refer to the pin definitions on the next page.*

---

### Floppy Drive Connector (CN7)

---

<b>Pin</b>	<b>Signal</b>	<b>Pin</b>	<b>Signal</b>
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 SELECT
33	GND	34	DISK CHANGE

---

*Note: Please refer to the next page for (CN9) pin definitions.*

## IrDA Connector (CN8)

---

How to install infrared module:

- 1.) Plug infrared module into IrDA connector. Caution must be taken with the connector's orientation before plugging into IrDA connector.
- 2.) Enable infrared function in the BIOS system setup.

IrDA connector (CN8) pin definitions:

<b>Pin</b>	<b>Signal</b>	<b>Pin</b>	<b>Signal</b>
1	Vcc	4	GND
2	FlrRx	5	IrTx
3	IrRx	6	ClrRx

---

## Floppy Drive Connector (CN9)

---

(FPC) Floppy Drive Connector (CN9)			
Pin	Signal	Pin	Signal
1	Vcc	2	INDEX
3	Vcc	4	DRIVE SELECT 2
5	Vcc	6	DISK CHANGE
7	N/C	8	Vcc
9	DENSITY SELECT	10	MOTOR 0
11	N/C	12	DIRECTION
13	Vcc	14	STEP
15	GND	16	WRITE DATA
17	GND	18	WRITE GATE
19	GND	20	TRACK 0
21	GND	22	WRITE PROTECT
23	GND	24	READ DATA
25	GND	26	HEAD SELECT

## Parallel Port 1 Connector (CN10) and Parallel Port 2 Connector (CN21)

---

The mainboard is designed to support two parallel ports. Port 1 connector (CN10) also designated as LPT1 is a standard 25-pin D-sub connector specially prepared for external interface. And port 2 connector (CN21) designated as LPT2 in the form of a 13x2 pin header connector for embedded connection purposes. Both can be enabled and disabled in the BIOS system setup. For example if LPT1 is disabled, LPT2 or LPT3 is enabled. And if LPT2 is disabled, LPT1 or LPT3 is enabled. The pin definitions for both CN10 and CN21 are listed as follows: ( *Please turn to next page*).

Parallel Port 1 Connector (CN10), 25-pin D-sub			
Pin	Signal	Pin	Signal
1	/STB	2	DO
3	D1	4	D2
5	D3	6	D4
7	D5	8	D6
9	D7	10	/ACK
11	BUST	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	GND

Parallel Port 2 Connector (CN21), 13x2 pin header			
Pin	Signal	Pin	Signal
1	/STB	2	/AUTOFD
3	DO	4	ERR
5	D1	6	/INIT
7	D2	8	/SLCTINI
9	D3	10	GND
11	D4	12	GND
13	D5	14	GND
15	D6	16	GND
17	D7	18	GND
19	/ACK	20	GND
21	BUST	22	GND
23	PE	24	GND
25	SLCT	26	N/C

## Keyboard and Mouse Connector (CN11)

---

The MB-662 provides a keyboard connector which supports both a keyboard and a PS/2 style mouse. Please refer to the pin definitions listed below:

Keyboard and Mouse Connector (CN11), Dual mini-din connector			
Pin	Signal	Pin	Signal
1	KB DATA	7	MS DATA
2	MS DATA	8	N/C
3	GND	9	GND
4	Vcc	10	Vcc
5	KB CLOCK	11	MS CLOCK
6	MS CLOCK	12	N/C

## CPU and System Fan Power Connector (CN13) and (CN24)

---

Two 3-pin plug in and error free onboard connectors are located accessibly for trouble-free connection and disconnection. For CPU fan it is labeled **CN13** and **CN24** for system fan. Both pin definitions are listed below:

CPU Fan Power Connector (CN13)	
Pin	Signal
1	GND
2	+12V
3	fan speed sensor

**CN24** continue on the next page.

---

**System Fan Power Connector (CN24)**

---

<b>Pin</b>	<b>Signal</b>
------------	---------------

---

1	GND
---	-----

---

2	+12V
---	------

---

3	fan speed sensor
---	------------------

---

---

## **RJ-45 Ethernet Connector (CN14)**

---

MB-662 is outfitted with a standard RJ-45 LAN connector. With support from Realtek RTL8139C chipset using either 10Mbps or 100Mbps are possible through it's N-way auto-negotiation featured operation. Refer to the pin definitions listed below:

---

**RJ-45 Ethernet Connector (CN14)**

---

<b>Pin</b>	<b>Signal</b>	<b>Pin</b>	<b>Signal</b>
------------	---------------	------------	---------------

---

1	TX+	5	N/C
---	-----	---	-----

---

2	TX-	6	RX-
---	-----	---	-----

---

3	RX+	7	N/C
---	-----	---	-----

---

4	N/C	8	N/C
---	-----	---	-----

---

# IDE Hard Drive Connectors

## Primary IDE Hard Drive Connector (CN16)

## Secondary IDE Hard Drive Connector (CN17)

---

You can attach up to four Enhanced Integrated Device Electronics hard disk drives to the mainboard's internal controller. The mainboard's IDE controller uses a PCI local-bus interface. This advanced interface supports faster data transfer and allows the IDE hard drive to exceed 528 MB.

### Connecting the hard drive

Connecting drives, their done in a daisy-chain fashion and requires one of the three cables, depending on the drive size. 1.8" and 2.5" drives need one 44-pin to two 44-pin flat cable connector. 3.5" drives use one 44-pin to two 40-pin connector.

Wire number 1 on the cable is normally red or blue, and the other wires are usually gray.

1. Connect one end of the cable to CN16 or CN17. Make sure that the red (or blue) wire corresponds to pin 1 on the connector, which is marked and connectors are slotted.
2. Plug the other end of the cable to the Enhanced IDE hard drive, with pin 1 on the cable corresponding to pin 1 on the hard drives. (see your hard drive's documentation for the location of the connector).

Connect a second drive as described above.

Unlike floppy drives, IDE hard drives can be connected to either end of the cable. The pin definitions for this section are listed on the next page.

---

**Primary Hard Drive Connector (CN16)**

---

<b>Pin</b>	<b>Signal</b>	<b>Pin</b>	<b>Signal</b>
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	N/C	22	GND
23	IO WRITE	24	GND
25	IO READ	26	GND
27	IO CHANNEL READY	28	ALE
29	N/C	30	GND
31	IRQ14	32	IOCS16
33	ADDR 1	34	N/C
35	ADDR 0	36	ADDR 2
37	HARD DISK SELECT 0	38	HARD DISK SELECT 1
39	IDE ACTIVE	40	MGND
41	Vcc	42	MVcc
43	GND	44	N/C

---

---

---

**Secondary IDE Hard Drive Connector (CN17)**

---

<b>Pin</b>	<b>Signal</b>	<b>Pin</b>	<b>Signal</b>
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	N/C	22	GND
23	IO WRITE	24	GND
25	IO READ	26	GND
27	IO CHANNEL READY	28	ALE
29	N/C	30	GND
31	IRQ14	32	IOCS16
33	ADDR 1	34	N/C
35	ADDR 0	36	ADDR 2
37	HARD DISK SELECT 0	38	HARD DISK SELECT 1
39	IDE ACTIVE	40	MGND

---

---

## Serial Port COM2 (CN22)

---

This port is also readily available for quick connect and disconnect of serial devices like mouse, printer and etc.. Pin definitions are listed as follows:

Serial Port COM2 RS-232 (CN22)			
Pin	Signal	Pin	Signal
1	NRLSD1	6	NDSR1
2	NRXD1	7	NRTS1
3	NTXD1	8	NCTS1
4	NDTR1	9	NRI1
5	GND	10	GND

## LCD Inverter Backlight Power Connector (CN25)

---

CN25 enables power transmission when connected from the main-board to the LCD panel for backlight lighting. Refer to the pin definitions below:

Pin	Signal
1	+12V ENB
2	N/C
3	N/C
4	GND
5	+5V ENB

## Digital I/O Connector (CN29)

---

MB-662 offers digital I/O functions connector for easy access and link with digital devices. (Input 4031: GPI15 [bit7]; Input 4032: GPI17 [bit1], GPI18 [bit2], GPI19 [bit3]; Output 4036: GPO17 [bit1], GPO 18 [bit2], GPO19 [bit3], GPO20 [bit4] ) The pin definitions are illustrated below:

Pin	Signal	Pin	Signal
1	DIO_IN1	2	DIO_IN2
3	DIO_IN3	4	DIO_IN4
5	DIO_OUT1	6	DIO_OUT2
7	DIO_OUT3	8	DIO_OUT4
9	Vcc	10	GND

## Serial Port COM1 (CN32), COM3 (CN30) and COM4 (CN31) Connectors

---

The availability of this interface allows connection of serial devices such as mouse, printer, etc.. Pin definitions as follows:

COM3 RS-232 (CN30)			
Pin	Signal	Pin	Signal
1	NRLSD2	6	NCTS2
2	NDSR2	7	NDTR2
3	NRXD2	8	NR12
4	NRTS2	9	GND
5	NTXD2	10	GND

## COM1 (CN32)

### COM1 RS-232 (CN32)

Pin	Signal	Pin	Signal
1	DCDA	6	DSRA
2	RXDA	7	RTSA
3	TXDA	8	CTSA
4	DTRA	9	DTRA
5	GND	10	GND

## COM4 (CN31)

### COM4 RS-232/422/485 (CN31)

Pin	Signal	Pin	Signal
1	DCDB	2	DSRB
3	RXDB	4	RTSB
5	TXDB	6	CTSB
7	DTRB	8	IRIB
9	GND	10	N/C
11	485TXD+	12	485TXD-
13	422RXD-	14	422RXD-

## Joystick / MIDI Port (CN33)

---

MB-662 is equipped with a 4 in 1 connector and provides joystick / MIDI port. All designed for easy access to the users. Refer to the pin definitions below:

Joystick / MIDI Port Connector (CN33)			
Pin	Signal	Pin	Signal
1	Vcc	9	Vcc
2	JF0	10	JF2
3	JRC0	11	JRC2
4	GND	12	MOUT
5	GND	13	JRC3
6	JRC1	14	JF3
7	JF1	15	MIN
8	Vcc		

## Audio Connector for CD\_IN (CN34)

---

Links audio connection of the CD-ROM and the mainboard. By using a 4-pin wafer cable connector it could be installed without consuming much time. The pin definitions are listed below:

CD_IN Wafer Connector (CN34)	
Pin	Signal
1	CD_IN Left
2	GND
3	CD_IN Right
4	GND

## Phone Jack for Line\_OUT (CN35)

---

Line\_OUT phone jack is provided for the comfort and convenience of the users. Giving a standard form of connection for the users too. Pin definitions as follows:

Line_OUT Phone Jack (CN35)	
Pin	Signal
1	GND
2	Line_OUT Left
3	GND
4	GND
5	Line_OUT Right

## Phone Jack for MIC (CN36)

---

A standard phone jack is also provided for the users ease and convenience. The pin definitions are listed below:

MIC Phone Jack (CN36)	
Pin	Signal
1	GND
2	N/C
3	GND
4	GND
5	MIC_IN

## Phone Jack for Line\_IN (CN37)

---

The MB-662 is designed with line\_OUT and for additional ease a line\_IN connection is definitely needed. It also comes with standard easy connection. Pin definitions below:

Line_IN Phone Jack (CN37)	
<b>Pin</b>	<b>Signal</b>
1	GND
2	Line_IN Left
3	GND
4	GND
5	Line_IN Right

## PCI/ISA Connector (EISA1)

PIN	SIGNAL	PIN	SIGNAL
1	#IOCHCK	50	GND
2	SD7	51	RSTDRV
3	SD6	52	VCC
4	SD5	53	IRQ9
5	SD4	54	-5V
6	SD3	55	DREQ2
7	SD2	56	-12V
8	SD1	57	#ZWS
9	SD0	58	+12V
10	IORDY	59	GND
11	AEN	60	#SMEMW
12	SA19	61	#SMEMR
13	SA18	62	#IOW
14	SA17	63	#IOR
15	SA16	64	-DACK3
16	SA15	65	DREQ3
17	SA14	66	-DACK1
18	SA13	67	DREQ1
19	SA12	68	#REFRESH
20	SA11	69	SYSCLK
21	SA10	70	IRQ7
22	SA9	71	IRQ6
23	SA8	72	IRQ5
24	SA7	73	IRQ4

## PCI/ISA Connector (EISA1)

PIN	SIGNAL	PIN	SIGNAL
25	SA6	74	IRQ3
26	SA5	75	-DACK2
27	SA4	76	TC
28	SA3	77	BALE
29	SA2	78	VCC
30	SA1	79	ISA OSC
31	SA0	80	GND
32	#SBHE	81	-MEMCS16
33	LA23	82	-IOCS16
34	LA22	83	IRQ10
35	LA21	84	IRQ11
36	LA20	85	IRQ12
37	LA19	86	IRQ15
38	LA18	87	IRQ14
39	LA17	88	-DACK0
40	#MEMR	89	DREQ0
41	#MEMW	90	-DACK5
42	SD8	91	DREQ5
43	SD9	92	-DACK6
44	SD10	93	DREQ6
45	SD11	94	-DACK7
46	SD12	95	DREQ7
47	SD13	96	VCC
48	SD14	97	#MASTER

## PCI/ISA Connector (EISA1)

PIN	SIGNAL	PIN	SIGNAL
49	SD15	98	GND
99	GND	144	GND
100	GND	145	GND
101	#PIRQB	146	#PIRQD
102	#PIRQC	147	#PIRQA
103	VCC	148	VCC
104	VCC	149	VCC
105	#PCIRST	150	PISACLK0
106	#PGNTA	151	GND
107	#PREQA	152	#PGNTB
108	GND	153	GND
109	PISACLK3	154	#PREQB
110	GND	155	AD31
111	AD30	156	AD29
112	N.C	157	N.C
113	#PGNTC	158	#PREQC
114	AD28	159	AD27
115	AD26	160	AD25
116	AD24	161	#C/BE3
117	AD22	162	AD23
118	AD20	163	AD21
119	AD18	164	AD19
120	N.C	165	N.C
121	N.C	166	N.C

## PCI/ISA Connector (EISA1)

PIN	SIGNAL	PIN	SIGNAL
122	AD16	167	AD17
123	#FRAME	168	-IRDY
124	#C/BE2	169	-DEVSEL
125	#TRDY	170	-PLOCK
126	#STOP	171	-PERR
127	N.C	172	-SERR
128	N.C	173	AD15
129	#C/BE1	174	AD14
130	PAR	175	AD12
131	GND	176	GND
132	GND	177	GND
133	AD13	178	AD10
134	AD11	179	AD8
135	AD9	180	AD7
136	#C/BE0	181	AD5
137	AD6	182	AD3
138	AD4	183	AD1
139	AD2	184	AD0
140	VCC	185	VCC
141	N.C	186	VCC
142	N.C	187	GND
143	GND	188	GND



# CHAPTER 3

## **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	Change color from total 16 colors. F2 to select color forward, Shift-F2 to select color backward
F3	Calendar, only for Status Page Setup Menu
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.

# Main Setup Menu



Standard CMOS	Options in the original PC AT-compatible BIOS.
BIOS Features	Award Software enhanced BIOS options.
Chipset Features	Options specific to your system chipset.
Power Management	Advanced Power Management (APM) options.
PnP/PCI Configuration	Plug and Play standard and PCI Local Bus configuration options.
Integrated Peripherals	I/O subsystems that depend on the integrated peripherals controller in your system.
Supervisor/User Password Setting	Change, set, or disable a password. In BIOS versions that allow separate user and supervisor passwords, only the supervisor password permits access to Setup. The user password generally allows only power-on access.
IDE HDD Auto Detection	Automatically detect and configure IDE hard disk parameters.

---

Load BIOS Defaults	BIOS defaults are factory settings for the most stable, minimal-performance system operations.
Load Setup Defaults	Setup defaults are factory settings for optimal-performance system operations.
Save & Exit Setup	Save settings in nonvolatile CMOS RAM and exit Setup.
Exit Without Save	Abandon all changes and exit Setup.

---



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. 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 two 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 during POST, every time the system boots.

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 pre-defined 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 pre-defined 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 accesses, 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 megabyte capacity
2.88M, 3.5 in	3-1/2 inch double-sided drive; 2.88 megabyte capacity

## LCD & CRT

This field may appear as an alternative to The Video field. select your video display device:

LCD	Liquid crystal display
CRT	Auxiliary monitor
Both	Display on both devices

## Pannel

This selection item allow user to select LCD BIOS to match the LCD types.

## 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 non-fatal 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.

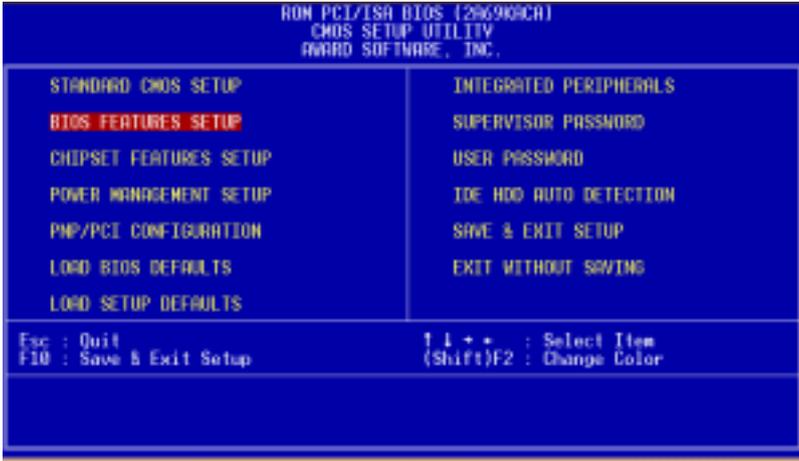
## •Extended Memory

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.

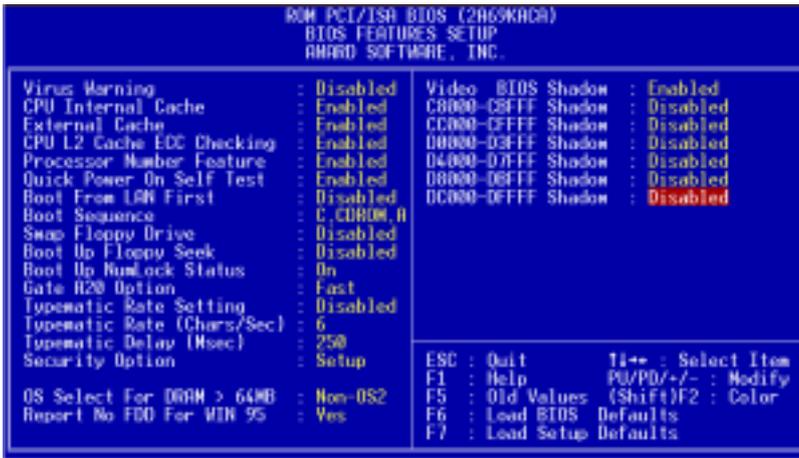
## •Other Memory

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.

# BIOS Features Setup



By choosing the BIOS FEATURES SETUP option from the INITIAL SETUP SCREEN menu, the screen below is displayed.



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.

## **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.

## **Boot Up from LAN**

When enabled, the BIOS attempts to boot from a LAN boot image before it attempts to boot from a local storage device.

The Choice: Disabled, Enabled

## **Boot Sequence**

The original IBM PCs loaded the DOS operating system from drive A (floppy disk), so IBM PC-compatible systems are designed to search for an operating system first on drive A, and then on drive C (hard disk). However, the BIOS now offers many boot sequence options.

## **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

**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 Dealy (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.

**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

**Report No FDD For WIN 95-** Wheather report no FDD for WIn 95 or not.

The choice: Yes, no

## Shadow

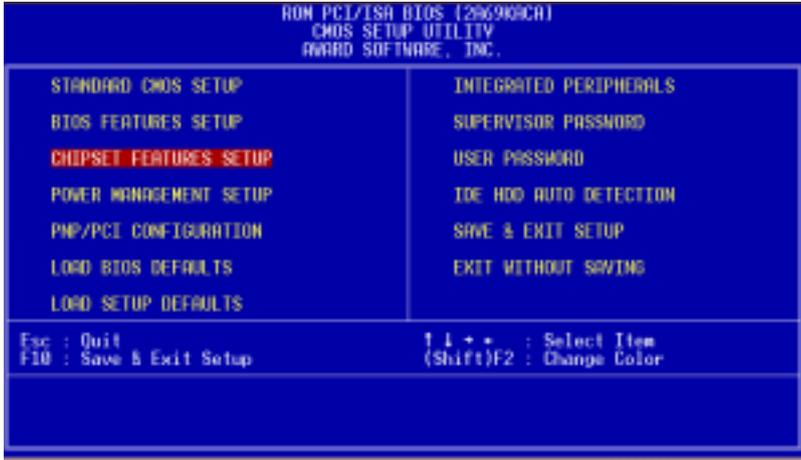
Software that resides in a read-only memory (ROM) chip on a device is called firmware. The AwardBIOS permits shadowing of firmware such as the system BIOS, video BIOS, and similar operating instructions that come with some expansion peripherals, such as, for example, a SCSI adaptor.

Shadowing copies firmware from ROM into system RAM, where the CPU can read it through the 16-bit or 32-bit DRAM bus. Firmware not shadowed must be read by the system through the 8-bit X-bus. Shadowing improves the performance of the system BIOS and similar ROM firmware for expansion peripherals, but it also reduces the amount of high memory (640 KB to 1 MB) available for loading device drivers, etc.

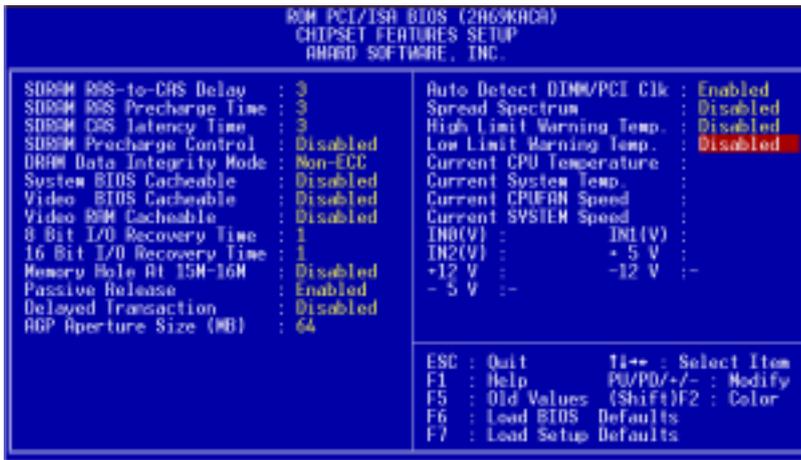
Enable shadowing into each section of memory separately. Many system designers hardwire shadowing of the system BIOS and eliminate a System BIOS Shadow option.

Video BIOS shadows into memory area C8000-DFFFF. The remaining areas shown on the BIOS Features Setup screen may be occupied by other expansion card firmware. If an expansion peripheral in your system contains ROM-based firmware, you need to know the address range the ROM occupies to shadow it into the correct area of RAM.

# CHIPSET Features Setup



By choosing the CHIPSET FEATURES SETUP option from the INITIAL SETUP SCREEN menu, the screen below is displayed.



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

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as SDRAM. It also coordinates communications between the conventional ISA bus and the PCI bus. It must be stated that these items should never need to be altered. The default settings have been chosen because they provide the best operating conditions for your system. The only time you might consider making any changes would be if you discovered that data was being lost while using your system.

Because of the complexity and technical nature of some of the options, not all of the options are described here.

## **SDRAM RAS-to-CAS Delay**

This field lets you control the number of DCLKs between a Row Activate command and a read or write command.

## **SDRAM RAS Precharge Time**

The precharge time is the number of cycles it takes for the RAS to accumulate its charge before DRAM refresh. If insufficient time is allowed, refresh may be incomplete and the DRAM may fail to retain data. This field applies only if synchronous DRAM is installed in the system.

## **SDRAM CAS Latency Time**

When synchronous DRAM is installed, you can control the number of CLKs between when the SDRAMs sample a read command and when the controller samples read data from the SDRAMs. Do not reset this field from the default value specified by the system designer.

## **SDRAM Precharge Control**

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

## **DRAM Data Integrity Mode**

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

## **System BIOS Cacheable**

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

## **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.

## **Video RAM Cacheable**

Selecting Enabled allows caching of the video memory (RAM) at A0000h to AFFFFh, resulting in better video performance. However, if any program writes to this memory area, a memory access error may result.

## **8/16 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 so much faster than the ISA bus.

These two fields let you add recovery time (in bus clock cycles) for 16-bit and 8-bit I/O.

## **Memory Hole at 15M-16M**

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

## **Passive Release**

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

## **Delayed Transaction**

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

## **Auto Detect DIMM/PCI Clk**

When the Auto Detect DIMM/PCI clk enable, the Utility will automatically detect the DIMM/PCI clock in your system.

## **Spread Spectrum**

When the system clock generator pulses, the extreme values of the pulse generate excess EMI. Enabling pulse spectrum spread modulation changes the extreme values from spikes to flat curves, thus reducing EMI. This benefit may in some cases be outweighed by problems with timing-critical devices, such as a clock-sensitive SCSI device

## **High Limit Temperature Warning**

When the single board computer exceeds the high limit temperature warning level, the buzzer will sound and the LED will flash.

## **Low Limit Temperature Warning**

When the single board computer exceeds the low limit temperature warning level, the buzzer will sound and the LED will flash.

## **IN0, IN1, IN2, +5V,-5V,+12V,-12V**

These fields display the current voltage of up to seven voltage input lines, if your computer contains a monitoring system.



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

## Power Management

This option allows you to select the type (or degree) of power saving for Doze, Standby, and Suspend modes.

This table describes each power management mode:

Max Saving	Maximum power savings. Only Available for SL CPUs. Inactivity period is 1 minute in each mode.
User Define	Set each mode individually. Select time-out periods in the section for each mode, below.
Min Saving	Minimum power savings. Inactivity period is 1 hour in each mode (except the hard drive).

## PM Control by APM

If Advanced Power Management (APM) is installed on your system, selecting Yes gives better power savings.

## Video Off Method

Determines the manner in which the monitor is blanked.

---

V/H SYNC+Blank	System turns off vertical and horizontal synchronization ports and writes blanks to the video buffer.
DPMS Support	Select this option if your monitor supports the Display Power Management Signaling (DPMS) standard of the Video Electronics Standards Association (VESA). Use the software supplied for your video subsystem to select video power management values.
Blank Screen	System only writes blanks to the video buffer.

---

## Video Off After

As the system moves from lesser to greater power-saving modes, select the mode in which you want the monitor to blank.

## MODEM Use IRQ

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

## Doze Mode

After the selected period of system inactivity, the CPU clock throttles to a small percentage of its duty cycle — between 10 percent and 25 percent for most chipsets. All other devices still operate at full speed.

## **Standby Mode**

After the selected period of system inactivity, the CPU clock stops, the hard drive enters an idle state, and the L2 cache enters a power-save mode. All other devices still operate at full speed.

## **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.

## **HDD Power Down**

After the selected period of drive inactivity, any system IDE devices compatible with the ATA-2 specification or later power manage themselves, putting themselves into an idle state after the specified timeout and then waking themselves up when accessed.

## **Throttle Duty Cycle**

When the system enters Doze mode, the CPU clock runs only part of the time. You may select the percent of time that the clock runs.

## **PCI/VGA Act Minus Monitor**

When Enabled, any video activity restarts the global timer for Standby mode.

## **Soft-OFF by Power Button**

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

## **CPU FAN off in Suspend**

During the suspend mode the CPU fan can be turned off.

The Choice: Enabled, disabled

## **Power on by Ring**

An input signal on the serial ring indicator (in other words an incoming call on the modem) awakens the system from a soft off state.

## **Wake Up On LAN**

The motherboard enabled or disabled will execute a wake up process whenever LAN (Realtech 8139C) receives a wake up event such as a magic packet.

The Choice: Disabled, Enabled

## **IRQ8 Break [Event From] Suspend**

You can select Enabled or Disabled for monitoring of IRQ8 (the Real Time Clock) so it does not awaken the system from Suspend mode.

## **Reload Global Timer Events**

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

IRQ3-7, 9-15, NMI

Primary IDE 0

Primary IDE 1

Floppy Disk

Serial Port

Parallel Port



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

*NOTE: This chapter describes all fields offered by Award Software in this screen. Your system board designer may omit or modify some fields.*

## **PNP OS Installed**

Select Yes if the system operating environment is Plug-and-Play aware (e.g., Windows 95).

## **Resources Controlled By**

The Plug and Play AwardBIOS can automatically configure all the boot and Plug and Play-compatible devices. If you select Auto, all the interrupt request (IRQ) and DMA assignment fields disappear, as the BIOS automatically assigns them.

## **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 cannot boot.

## **Assign IRQ for VGA**

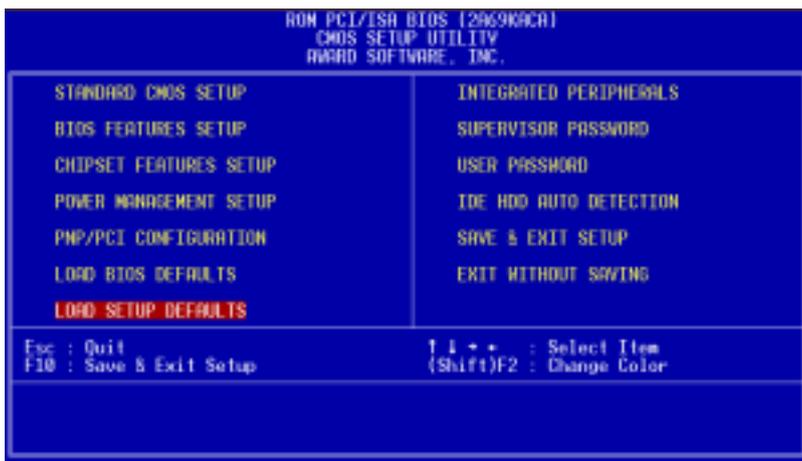
If you are not using your system's VGA controller, select Disabled to free the IRQ resource.

## **Assign IRQ for USB**

Select Enabled if your system has a USB controller and you have one or more USB devices connected. By selecting Disabled setting there is no IRQ resource for USB controller.

## Load BIOS Defaults/Load Setup Defaults

LOAD BIOS DEFAULTS loads the default system values directly from ROM. The BIOS DEFAULTS provides the most stable settings, though they do not provide optimal performance. LOAD SETUP DEFAULTS, on the other hand, provides for maximum system performance. If the stored record created by the setup utility becomes corrupted (and therefore unusable), BIOS defaults will load automatically when you turn the system on.



# Integrated Peripherals Setup



By choosing the INTEGRATED PERIPHERALS option from the initial SETUP SCREEN menu, the screen below is displayed.



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

## **IDE HDD Block Mode**

Select Enabled only if your hard drives support block mode.

## **IDE Primary Master/Slave UDMA**

UDMA (Ultra DMA) is a DMA data transfer protocol that utilizes ATA commands and the ATA bus to allow DMA commands to transfer data at a maximum burst rate of 33 MB/s. When you select Auto in the four IDE UDMA fields (for each of up to four IDE devices that the internal PCI IDE interface supports), the system automatically determines the optimal data transfer rate for each IDE device.

## **On-Chip PCI IDE Primary**

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.

## **USB Keyboard Support**

Select Enabled if your system contains a Universal Serial Bus (USB) 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

## **KBC input clock**

The system designer must select the correct frequency for the keyboard controller input clock. Do not change this from the default value.

## 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
Standard	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
FIR	Fast infrared standard
MIR 0.57M	0.57-MB/sec infrared port
MIR 1.15M	1.15-MB/sec infrared port
Sharp IR	4-MB/sec data transmission
HPSIR	IrDA-compliant serial infrared port
ASK IR	Amplitude shift keyed infrared port

## UART2 Duplex Mode

In an infrared port mode, this field appears. Full-duplex mode permits simultaneous two-direction transmission. Half-duplex mode permits transmission in one direction only at a time. Select the value required by the IR device connected to the IR port.

## **Onboard Serial Ports (1, 2, 3, 4)**

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.

Selections of logical COM port addresses are as follows. ( 3F8, 3E8H, 2F8, 2E8H)

## **RxD, TxD Active**

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

## **Parallel Port Mode**

Two bi-directional parallel ports. Supports SPP, ECP, EPP, ECP + EPP.

## **ECP Mode Use DMA**

Select a DMA channel for the port.

## **EPP Mode select**

Select EPP port type 1.7 or 1.9.

## **IR Transmission Delay**

Disable setting will have no transmission delay when SIR is changed from RX mode to TX mode.

Enabled setting will delay transmission for 4 characters time when SIR is changed from RX mode to TX mode.

## **Onboard Parallel Port**

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

The Choice: 278H, 378, disabled



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

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:

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.*

# IDE HDD Auto Detection

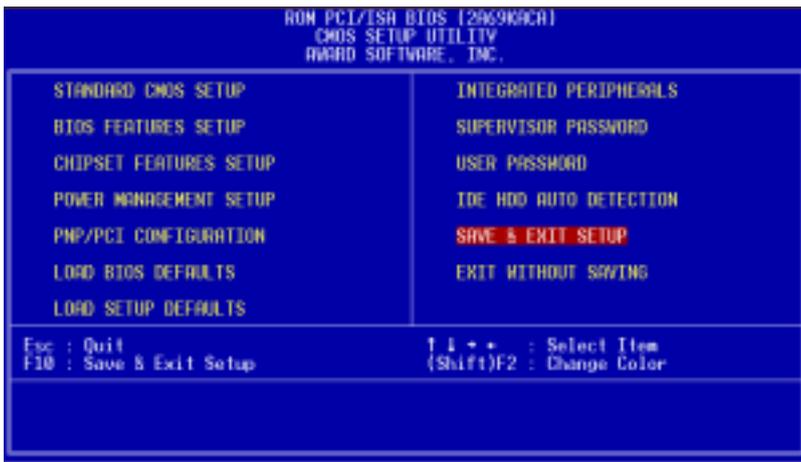
The IDE HDD AUTO DETECTION utility can automatically detect the IDE hard disk installed in your system. You can use it to self-detect and/or correct the hard disk type configuration. You need to repeat the setup for each of the IDE combinations:



## Save & Exit Setup

---

If you select this option and press <ENTER>, the values entered in the setup utility will be recorded in the chipset's CMOS memory. The microprocessor will check this every time you turn your system on and compare this to what it finds as it checks the system. This record is required for the system to operate.



## **Flat Panel/CRT Controller Display Drivers and Utilities**

This chapter provides information regard:

- Driver types and installation procedure

## Software Drivers

---

This chapter describes the operation and installation of the display drivers supplied on the *Supporting CD-ROM* that are shipped with your product.

The onboard VGA adapter is based on the CHIPS VGA Flat Panel/CRT controller and is fully IBM VGA compatible. This controller offers a large set of extended functions and higher resolutions. If you intend to use your VGA adapter in standard VGA modes only, you do not need to install any of these drivers. Since your VGA adapter is fully compatible, it does not require any special drivers to operate in standard modes.

The purpose of the enclosed software drivers is to take advantage of the extended features of the CHIPS VGA Flat Panel/CRT controller.

### Hardware Configuration

Some of the high-resolution drivers provided in this package will work only in certain system configurations. If a driver does not display correctly, try the following:

1. Change the display controller to CRT-only mode, rather than flat panel or simultaneous display mode. Some high-resolution drivers will display correctly only in CRT mode.
2. If a high-resolution mode is not supported on your system, try using a lower-resolution mode. For example, 1024 x 768 mode will not work on some systems, but 800 x 600 mode is supported on most.

## Necessary to Know

The instructions in this manual assume that you understand elementary concepts of MS-DOS and the IBM Personal Computer. Before you attempt to install any driver from the *Supporting CD-ROM*, you should:

- Know how to copy files from a CD-ROM to a directory on the hard disk
- Understand the MS-DOS directory structure

If you are uncertain about any of these concepts, please refer to the DOS or OS/2 user reference guides for more information *before* you proceed with the installation.

## Before You Begin

Make sure you know the version of the application for which you are installing drivers. The *Supporting CD-ROM* contain drivers for several versions of certain applications. For your driver to operate properly, you must install the driver for your version of the application program.

# Windows 95

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These drivers are designed to work with Microsoft® Windows®. You can install these drivers through the Windows® operating system.

## Driver Installation

1. Install Windows® 95 as you normally do for a VGA display. Click the **Start** button, go to **Settings** and click **Control Panel**. Choose the **Display** icon and double click the icon to open the *Display Properties* window, shown as figure 1:

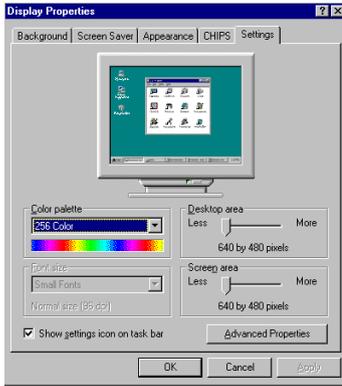


figure 1

Click the setting button, then click the Advanced Properties icon into the *Advanced Display properties* windows, shown as figure2:

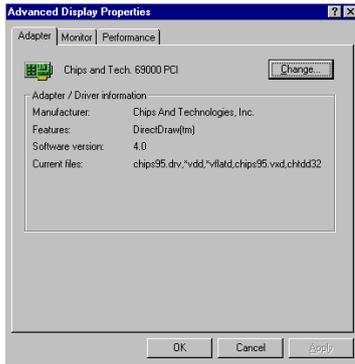


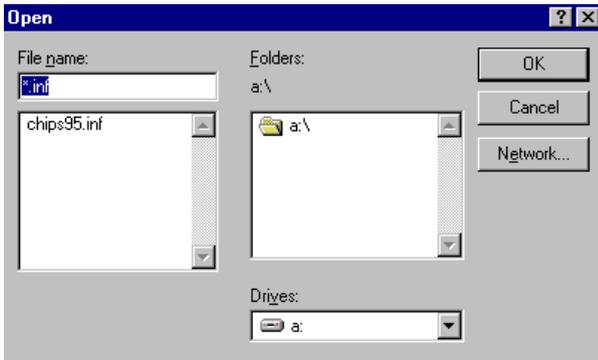
figure 2

Click **Change Display Type**. Then, in the *Change Display Type* window, click the **Change** button under Adapter Type to open the *select Device* window shown as below.



figure 3

2. Insert the *Supporting CD-ROM* into your CD-ROM drive.  
In the *Select Device* window, click on **Have Disk**, select **Browse**,



**figure 4**

And find the Win95 driver "chips95.inf" in the *Supporting CD-ROM*:

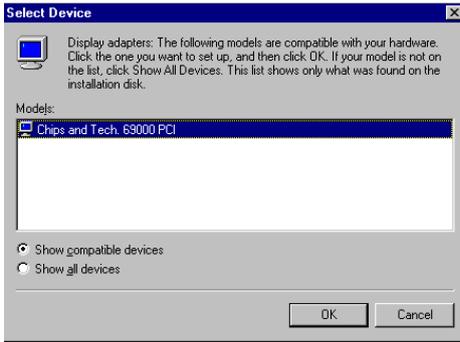
[\driver\vga\69000\win95\chips95.inf](#)

and then click **OK**.

*Note:* If your board is MB-662 Rev. A1.0-01, please try this path:

[\driver\vga\69030\win95\chips95.inf](#) and click **OK**.

The name of the *Chips And Tech "69000 PCI "* driver will appear highlighted in the *Models* column shown as below. Please click **OK** to start the driver installation.



**figure 5**

3. Once the installation is complete, the *Advanced display Properties* window will reappear, shown as figure 6:

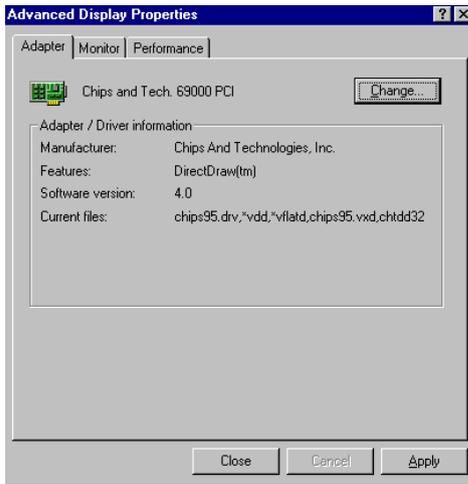


figure 6

Click **close** to close the window, and the *Display Properties* window will reappear, like figure 7:

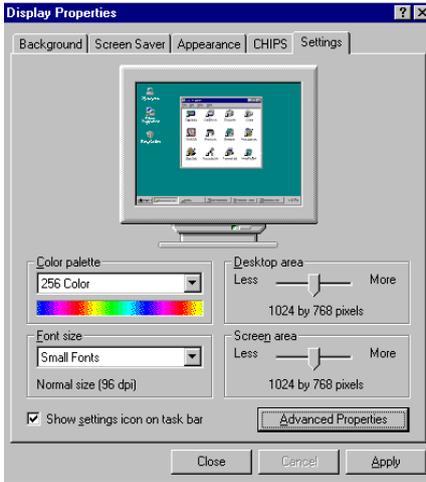
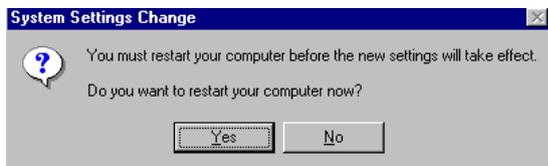


figure 7

Click **Apply** and restart the system for the new settings to take effect, shown as figure 8.



**figure 8**

## Windows® 3.1

---

These drivers are designed to work with Microsoft Windows Version 3.1. You should install these drivers through Windows.

### Driver Installation

1. Install Windows as you normally do for a VGA display and run Windows to make sure that it is working correctly.
2. Place the *Supporting CD-ROM* into your CD-ROM drive. In Windows Program Manager, choose **File** from the **Options** Menu. Then from the pull-down menu, choose **Run**. At the Command Line prompt, type:

```
"cd-rom":\driver\vga\69000\win3.x\setup.exe
```

Press the <ENTER> key or click **OK** to begin the installation.

**"cd-rom"** : the drive letter of your CD-ROM drive

At this time, the setup program locates the directory where Windows is installed. **For proper operation, the drivers must be installed in the Windows subdirectory.**

3. Press <ENTER> to complete the installation. Once completed, you can find the icon Chips CPL under the Control Panel. The icon allows you to select and load the installed drivers.

## OS/2

---

These drivers are designed to function with the OS/2 Version 4.0, 3.0 and 2.11 operating systems.

To install this driver, follow these steps:

1. Open an OS/2 full screen or windowed session.
2. Place the *Supporting CD-ROM* into your CD-ROM drive.
3. At the OS/2 command prompt, type the following commands to copy the files to the OS/2 drive:

```
"cd-rom" :driver\vga\69000\os2\setup.cmd
```

```
"cd-rom" : the drive letter of your CD-ROM drive
```

When the Setup Program is completed, you will need to perform a shutdown and then restart the system in order for changes to take effect.

A log of the information output during the install can be found in <root>:\OS2\INSTALL\DISPLAY.LOG

4. After restarting the system, perform the following steps:
  - (1) Open the OS/2 System folder.
  - (2) Open the System Setup folder.
  - (3) Open the Display Driver Install Object.

This step will execute the Display Driver Installation (DSPINSTL) utility program to finish installation of the new drivers.

- (4) When the Display Driver Install window appears, select Primary Display and then select OK.

- (5) When the Primary Display Driver List window appears, select "Chips and Technologies 69000" from the list of adapter types, then select OK or install the video driver.
- (6) When the installation is complete, you will need to shut down and then restart the system for the changes to take effect. Make sure to remove the installation diskette before restarting the system.

## Windows NT 3.51

---

These drivers are designed to work with Microsoft® Windows®.

### Driver Installation

1. Install Windows® NT 3.51 as you normally do for a **VGA** display. Click the **Start** button, go to **Settings** and click **Control Panel** icon. Then choose the **Display** and double click the icon. In the **Display Properties** window, click the **Setting** button, then click the **Display Type** button into the **Display Type** windows, then click **Change** button from the **Adapter Type** icon. And click **Have Disk** button in the change display window.
2. Place the *Supporting CD-ROM* into your CD-ROM drive.  
and type:

```
"cd-rom":\driver\vga\69000\winnt\nt351\Oemsetup.inf
```

"**cd-rom**" : the drive letter of your CD-ROM drive

Select the adapter "Chips and Tech 69000PCI" and click **OK**.

Click **Install** to install the selected driver. Once the installation is complete, shut down and restart the system.

# Windows 98

---

## Driver Installation

1. Install Windows® 98 as you normally do for a **VGA** display. Click the **Start** button, go to **Settings** and click the **Control Panel** icon. Then choose the **Display** and double click the icon. In the **Display Properties** window, click the **Setting** button from the **Display Type window**, and click **Advanced** button in the change display window. Next, select the **Adapter** menu from the many tabs in the **Advanced window**. Then select **Change** from the **adapter** menu, when the **Update Device Driver Wizard** appear, click the **Next** button at the bottom. The next Driver Wizard window will provide you with two choices. Please select **Display a list of all the Drivers in a specific location, so you can select the driver you want**. Following select the **Have Disk** option. You will be asked to provide the manufacturers file from a certain location, select your **CD-ROM drive** and click **Browse**.
2. Insert the *Supporting CD-ROM* into your CD-ROM drive. In the *Select Device* window, click **Have Disk**, select "**Browse**" and find the WIN 98 driver from:

driver\vga\69000\win98\chips98.inf

*Note: If your board is MB-662 Rev. A1.0-01, please try this path:*

*ldriver\vga\69030\win98\chips98.inf.*

And then click **OK**. The name of the *Chips and Technologies, Inc. Video Controller* driver will appear highlighted in the Modules list box. Select "Chips and Tech. 69000" and click **OK**. Click **OK** to start the driver installation.

3. Once the installation is complete, the *Change Display Type* window will reappear. Click **close** to close the window. Then the *Display Properties* window will reappear. Click **Apply** and restart the system for the new settings to take effect.

# Windows NT 4.0

---

## Driver Installation

1. Install Windows® NT 4.0 as you normally do for a **VGA** display. Click the **Start** button, go to **Settings** and click **Control Panel** icon. Then choose the **Display** and double click the icon. In the **Display Properties** window, click the **Setting** button, hit the **Display Type** button into the **Display Type** windows, then click **Change** button from the **Adapter Type** icon. At last, click **Have Disk** button in the change display window.
2. Place the *Supporting CD-ROM* into your CD-ROM drive. In the **Select Device** window, click **Have Disk**, select **Browse** and find the NT 4.0 driver from:

"cd-rom" : \driver\vga\69000\winnt\nt40\Oemsetup.inf

"**cd-rom**" : the drive letter of your CD-ROM drive

*Note: If your board is MB-662 Rev. A1.0-01, please try this path:*

*\driver\vga\69030\nt4.0\Oemsetup.inf.*

And then click **OK**. The name of the *Chips and Technologies, Inc. Video Controller* driver will appear highlighted in the Modules list box. Select Chips and Tech. 69000 and Click **OK**. Click **OK** to start the driver installation.

3. Once the installation is complete, the **Change Display Type** window will reappear. Click **close** to close the window. Then the **Display Properties** window will reappear. Click **Apply** and restart the system for the new settings to take effect.



## **Ethernet Software Configuration**

This chapter describes how to configure the Ethernet Card to match your application requirements.

## Ethernet Driver Installation (Win98)

---

To install the LAN Driver for Realtech 8139.C 10/100 Base Tx RJ-45 follow the directions listed below.

Click the **start** button, select the **setting** button ,and then select **Control Panel** from the list of icons. Double click the **ADD NEW HARDWARE** icon in the control panel page and follow the Set Up Wizard to install the LAN Driver.

When asked, "DO YOU WANT WINDOWS TO SEARCH FOR YOUR NEW HARDWARE?"

Select, "**No I want to select the hardware from a list.**" Choose the **network adapter** option from the ADD NEW HARDWARE WIZARD. Then click the **have disk** button followed by the **browse** button.

Place the *Supporting CD-ROM* into your CD-ROM drive. In the **Select Device** window, click **Have Disk**, select "**Browse**" and find the LAN 8139C driver from:

"cd-rom":\driver\lan\8139\Oemsetup.inf

"**cd-rom**" : the drive letter of your CD-ROM drive

And then click **OK**. The name of the **LAN REALTECH 8139C** driver will appear highlighted in the Modules list box. Select Realtech 8139C and click **OK**. At last, click **OK** to start the driver installation.

Once the installation is complete, restart the system for the new settings to take effect.

## Ethernet Software Configuration

---

The onboard Ethernet interface supports all major network operating systems. I/O addresses and interrupts are easily configured via the Award BIOS Setup. To configure the medium type, to view the current configuration, or to run diagnostics, please refer to the following instructions:

1. Power the mainboard on. Ensure that the RSET8139.EXE file is located in the working drive.
2. At the prompt, type RSET8139.EXE and press <ENTER>. The Ethernet configuration program will then be displayed.
3. This simple screen shows all the available options for the Ethernet interface. Just highlight the option you wish to change by using the Up and DOWN keys. To change a selected item, press <ENTER>, and a screen will appear with the available options. Highlight your option and press <ENTER>. Each highlighted option has a helpful message guide displayed at the bottom of the screen for additional information.
4. After you have made your selections and the configuration is what you want, press <ESC>. A prompt will appear asking if you want to save the configuration. Press "Y" if you want to save.

The Ethernet Setup Menu also offers three very useful diagnostic functions. These are:

1. Run EEPROM test
2. Run Diagnostics on Board
3. Run Diagnostics on Network

Each option has its own display screen which shows the format and result of any diagnostic tests undertaken.



## Audio Setup

This MB-662 is equipped with an audio interface that records and playback CD-quality audio. This chapter provides instructions for installing the software drivers on the included CDROM.

## Introduction

---

The MB-662 on board audio interface provides high-quality stereo sound and FM music synthesis (ESFM) by using the ESS Solo-1 audio controller from ESS Labs, Inc. The audio interface can record, compress, and play back voice, sound, and music with built-in mixer control.

The MB-662 on board audio interface also supports the Plug and Play (PnP) standard and provides PnP configuration for the audio, FM, and MPU-401 logical devices. It is compatible with Sound Blaster<sup>®</sup>, Sound Blaster Pro<sup>®</sup> version 3.01, voice and music functions. The ESFM synthesizer is register compatible with the OPL3 and has extended capabilities.

## Setting Up in Windows 98

---

*The Supporting CD-ROM* contains the Windows 98 drivers. Please see the online help for details. Here we take Windows 98 for example.



**Note:** Refer to your Windows 98 manual or online help for any questions on Windows 98.

## Installing the Drivers and Applications

After turning on the system, Windows 98 begins loading and starts detecting new hardware installed in the system.



*Tip: If you want to install the drivers manually, or your Windows 98 does not detect the new audio hardware, please perform the same installation procedure as described in NT 4.0 section.*

1. When Windows 98 detects the presence of the onboard audio chip, it begins to build the ESS Solo-1 driver database. The New Hardware Found dialog box displays.
2. Select Driver from disk provided by hardware manufacturer and click OK. Windows 98 prompts you for the driver disk.
3. Specify the path of the **Supporting CD-ROM** as follows, then click OK. The system will copy the necessary driver files to your hard disk drive.

**"cd-rom"**:driver\audio\win9x\Oemsetup

**"cd-rom"**: the driver letter of your CD-ROM drive



*Tip: Prepare the Windows 98 CD-ROM disk before setting up the onboard audio. Windows 98 will prompt you to insert the Windows 98 CD-ROM disk when you install the joystick or MIDI device.*



*Note: If the file being copied is older than the file currently existing in your system, we suggest you to keep the existing file.*

4. Windows 98 makes changes to the system settings and begins detecting the following new hardware components:
  - Gameport Joystick
  - ES1938 PCI Audio Drive
  - ES1938 DOS Emulation
5. Upon initial installation, the setup process begins setting up the software.
6. Windows 98 makes final changes to the system settings, and you will be prompted to re-boot the system.

# Setting Up in NT4.0

---

## Installing the Audio Drivers

Follow these steps to install the audio drivers:

### Driver Installation

1. Execute the installation wizard named "SETUP" in the following *directory*:  
"cd-rom" : \driver\sound\nt4.0\Setup.exe  
"cd-rom" : the drive letter of your CD-ROM drive
2. After the *ESS Solo-1 Audio Drive Installation* window shows up, click on the **Next** button.
3. Simply follow the instructions to finish the installation.



## **Programming the Watchdog Timer**

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.

# Programming the Watchdog Timer

---

## How to Program the WATCHDOG TIMER

1. To set the time-out interval of watchdog timer:
  - output the desired value to port **0x443**. Since the data is of 1 byte, the maximum value will be 255. In our design 2 ~ 255 will denote 2 ~ 255 sec.
  - outportb(0x443, 30 <HEX>); // set watchdog to 30 seconds***
2. To set the time-out event:
  - output data to **port 0x444**,
  - Timeout=SEC.Q=1
  - WDRST=IRQSET=3 & TIMEOUT
  - IRQ15=IRQSET=2 & TIMEOUT
  - IRQ11=IRQSET=4 & TIMEOUT
  - IRQ10=IRQSET=5 & TIMEOUT
  - outportb(0x444, 3); // set time-out event to reset-system***
3. To disable watchdog timer:
  - output value 0 to port 0x443
  - outportb(0x443, 0); // disable watchdog timer***
4. To enable or refresh watchdog timer(the watchdog timer will return to its initial value, then count down):
  - access the I/O port **0x443**, e.g.

```
outportb(0x443, data); // refresh watchdog timer
```

\* note: if you want to refresh the watchdog timer, you have to disable it first.

## **Demo program**

```
outportb(0x444, 3); // set time-out event to reset-system  
outportb(0x443x 10); // set time-out interval to 10 seconds  
customer_job(); // execute your job here, be sure your  
job will finished within 10 seconds  
outportb(0x443, 0); // refresh watchdog timer, otherwise  
the system will reset after time-out  
outputb(0x443, 20); // set time-out interval to 20 seconds  
another_job(); // another job finished in 20 seconds  
outportb(0x443, 0) // disable watchdog timer  
...  
...
```