

# **EM-561 SERIES**

**5.25" EMBEDDED SBC**  
WITH VGA & THREE 10/100MBPS LAN  
FOR SOCKET370 PENTIUM III PROCESSOR

**USER'S MANUAL**

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# TABLE OF CONTENTS

<b>CHAPTER 1</b>	<b>General Information .....</b>	<b>1</b>
1.1	Introduction .....	1
1.2	Features .....	1
1.3	Specification .....	2
1.4	Unpack Your EM-561 .....	2
1.5	Board Layout .....	3
<b>CHAPTER 2</b>	<b>Installation .....</b>	<b>4</b>
2.1	Hardware Setup and Installation .....	4
2.1.1	CPU Installation and Upgrading .....	4
2.1.2	System Memory Installation .....	5
2.1.3	DiskOnChip Installation .....	6
2.2	Jumper Settings And Connectors .....	6
2.2.1	Board Outline .....	6
2.2.2	Jumper Settings Summary .....	7
2.2.3	I/O Connectors Summary .....	10
<b>CHAPTER 3</b>	<b>BIOS Setup .....</b>	<b>26</b>
3.1	Running Award BIOS.....	26
3.2	CMOS Setup Utility .....	27
3.3	Standard CMOS Setup .....	28
3.4	BIOS Features Setup .....	30
3.5	Chipset Features Setup .....	32
3.6	Integrated Peripherals .....	34
3.7	Power Management Setup .....	36
3.8	PnP/PCI Configuration .....	39
3.9	PC Health Status .....	40
3.10	Frequency / Voltage Control .....	41
3.11	Load Fail-Safe Defaults .....	42
3.12	Load Optimized Defaults .....	42
3.13	Supervisor / User Password .....	43
3.14	Save & Exit Setup .....	43
3.15	Exit Without Saving .....	44
<b>CHAPTER 4</b>	<b>Drivers Support .....</b>	<b>45</b>
4.1	Driver Support .....	45
4.1.1	Core Chip .....	45
4.1.2	Network .....	45
4.1.3	VGA .....	45
4.1.4	Hardware Monitor .....	46
4.2	Driver List .....	46
4.3	Driver Setup and Installation .....	47
4.3.1	Intel 815 Chipset .....	47
4.3.2	Intel Ultra ATA Storage Driver .....	49
4.3.3	VGA Driver .....	51
4.3.4	LAN Driver .....	53
<b>APPENDIX A How To Use Watch-Dog Timer</b>		
<b>Terms and Condition</b>		
<b>RMA Service Request Form</b>		



# CHAPTER 1 General Information

## 1.1 Introduction

The new EM-561 Series embedded SBC is highly configurable with multiple features to suit different types of commercial and industrial needs. Three Ethernet capability of the EM-561 Series gives network administrators another tool to deal with today's changing application needs. The board comes with the top-of-the-line Intel 82559 LAN chips could act as a firewall that sits between the Internet and a company's internal network. This applies to Web (HTTP) servers, FTP servers, SMTP (E-mail) servers or DNS servers. The EM-561 can also be used as an inter-network gateway that connects a number of local networks. Once again, the three Ethernet capability and processing power of the EM-561 Series gives it the ability to perform these functions.

The new EM-561 Series is enhanced with Intel 815E chipset; one 168-DIMM socket support up to 100/133 MHz SDRAM and one **DiskOnChip** from M-System socket support up to 288MB flash memory disk which provide full functionality and performance to be used "exactly" where you need it as well. EM-561 also features high performance VGA display that support resolutions and color depths up to 1600x1200 x256 color at 85Hz.

EM-561 has many expansion function such as one PCI expansion connector with one PCI riser card; one FDD interface support up to two floppy devices ; two IDE ports that support up to four IDE devices and Ultra ATA/100/66/33 interface helps designers and integrators improve system performance by retrieving and sending data faster. Everything you could need is on-board.

In addition, it is equipped with two RS-232 serial ports; four USB ports; one multi-mode parallel port which supports SPP, ECP and EPP modes. It provides more flexible functions to satisfy all users' different application requirements.

The EM-561 also offers several industrial features such as a 16 -level watchdog time-out intervals and contains the health monitoring hardware. The health monitoring IC keeps an eye on the CPU and releases an audio alarm when detecting abnormal operating voltage & temperature or malfunction of the cooling fans. And with its industrial grade reliability, the EM-561 can operate continuously at temperatures up to 60° C (140° F). All these numerous features provide an ideal price/performance solution for commercial and industrial applications where stability and reliability are essential.

## 1.2 Features

- Supports Socket 370 Celeron/Intel® Pentium III Processor, 133MHz FSB
- Intel®815E chipset
- Built-in three 10/100BASE-TX Ports with RJ-45 connectors
- Socket for **DiskOnChip**
- With one PCI expansion slot
- 4 USB ports and supports 4 Ultra ATA 100 devices
- 5.25" Form Factor, special design for firewall and network applications

## 1.3 Specification

### EM-561 Series

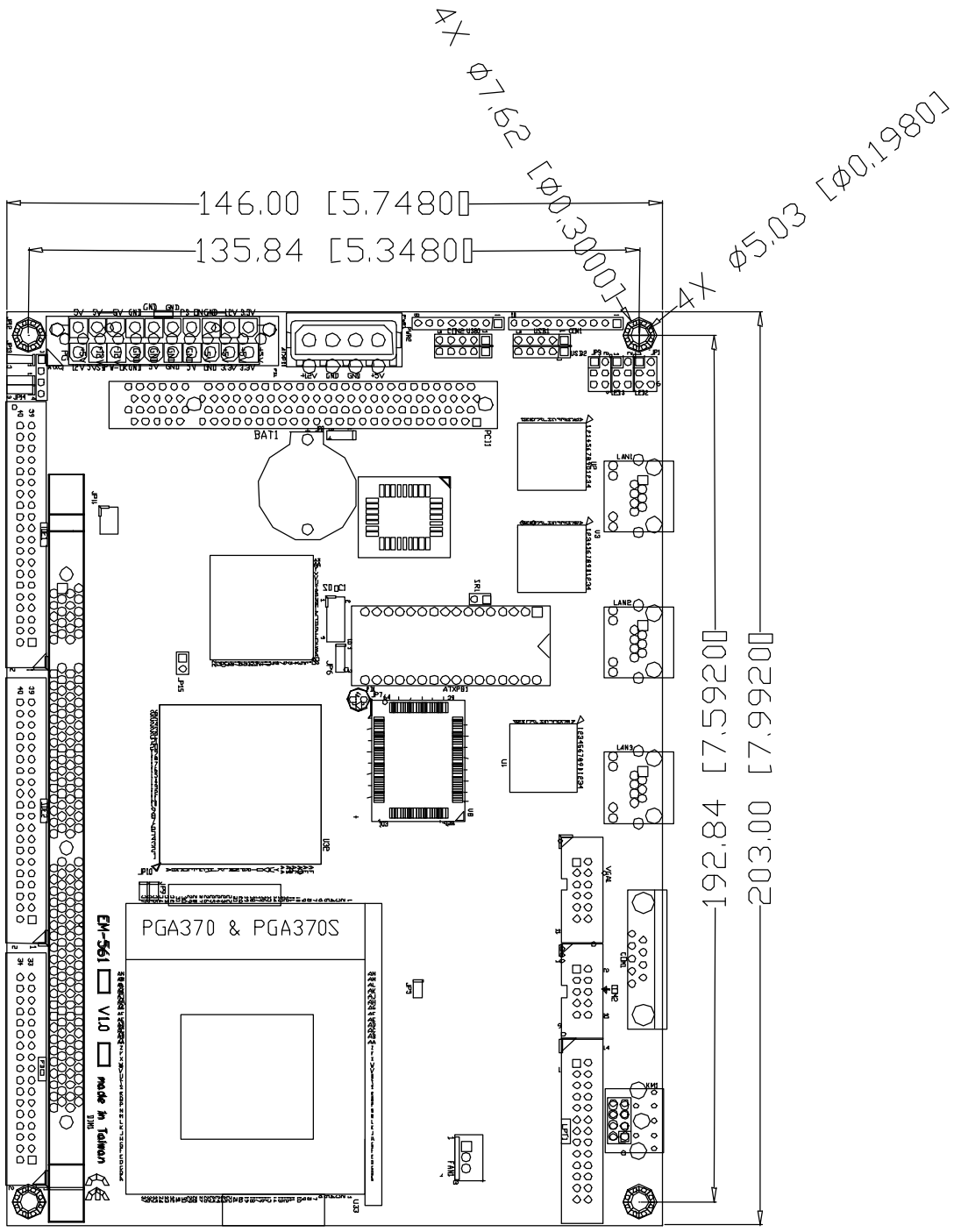
<b>Processor</b>	Intel Pentium III Coppermine / Celeron Processor in Socket 370(66/100/133 MHz) and up to 1GB
<b>Chipset</b>	Intel 815E chipset
<b>System Memory / RAM</b>	One 168-pin DIMM sockets, support 100/133 MHz SDRAM and up to 512 SDRAM
<b>BIOS</b>	Award licensed BIOS
<b>Flash Memory Disk</b>	Reserved socket for DiskOnChip from M-System, support up to 288 MB flash memory disk
<b>Graphics Controller</b>	Internal graphic controller with Intel' s Dynamic Video Memory Technology, resolution up to 1600 x 1200 x 256 colors @ 85 Hz, with VGA 2x6x2.54 mm pin header with housing
<b>Network Interface</b>	Three Intel 82559 chip, support three-10/100 Base-TX Ethernet, three RJ-45 external connectors with ACT LED, LNK LED
<b>IDE Drive Interface</b>	Two PCI IDE ports that support up to four IDE devices and Ultra ATA/100/66/33
<b>Floppy Drive Interface</b>	One FDD port, support up to two floppy devices
<b>Serial Port</b>	Two COM ports, one RS-232 DB-9 connector and one RS-232 2x5x2.54 mm pin header with housing
<b>Parallel Port</b>	One multi-mode parallel port ( SPP / EPP / ECP )
<b>Bus Interface</b>	PCI bus slot
<b>RTC</b>	Internal RTC with Li battery
<b>Keyboard/Mouse</b>	6-pin keyboard/mouse pin header
<b>Watchdog Timer</b>	16-level time-out intervals
<b>Universal Serial Bus</b>	Support 4 USB ports (4x5 pin headers)
<b>Health Monitoring</b>	Enhanced hardware monitor functions with optical sensor
<b>Operating Temperature</b>	0 °C~60 °C
<b>Storage Temperature</b>	-20 °C~70 °C
<b>Humidity</b>	5%~95% RH, non-condensing
<b>Dimensions</b>	203 x 146 x 25 mm 0.5 mm
<b>EMI/EMS</b>	EN 50081-1/1994>EN 55022/1997>EN 61000-3-2/1995 >EN 61000-3-3/1995, EN 50082-1/1994>IEC 1000-4-2/1995, IEC 1000-4-3/1995, IEC 1000-4-4/1995, EN55024
<b>Remark</b>	PCI Rev. 2.2 compliant
<b>ORDERING INFORMATION</b>	<b>EM-561B</b> <b>EM-561C (Customer model No.)</b>

## 1.4 Unpack your EM-561

Before you begin to install your card, please make sure that you received the following materials as listed below:

- EM-561 x 1 pc
- FDD Cable x 1 pc
- IDE Cable x 1 pc
- VGA Cable x 1 pc
- Keyboard and Mouse Cable x 1 set
- Driver Utility CD-ROM x 1 pc
- User's Manual x 1 pc
- 5.25" Embedded Single Board Computer
- 34 to 34-pin Standard Header Flat Ribbon Cable
- 40-pin IDE Cable
- 12-pin Standard Header to 15-pin/3-Row D-Sub Cable
- 8-pin connector to PS/2 Keyboard and Mouse Cable
- Drivers & Utilities
- This User's Manual

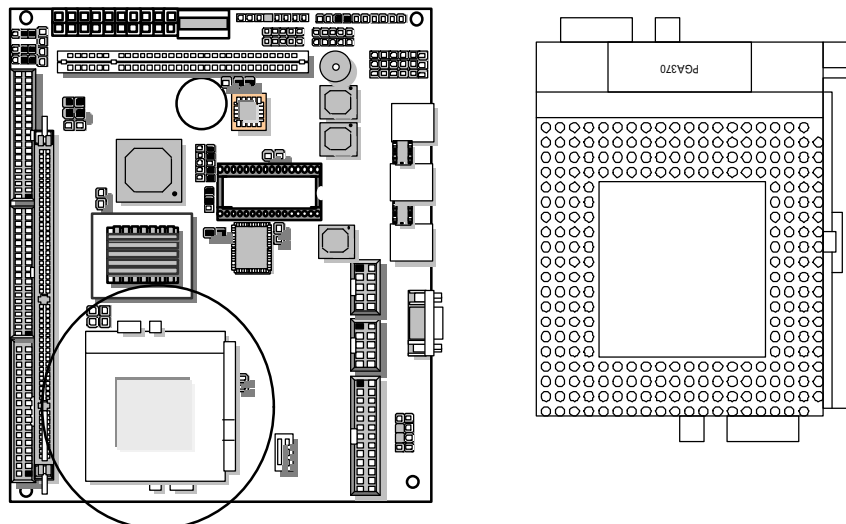
# 1.5 Board Layout



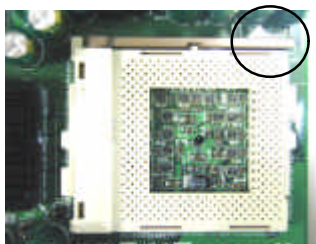
# CHAPTER 2 Installation

## 2.1 Hardware Setup and Installation

### 2.1.1 CPU Installation and Upgrading

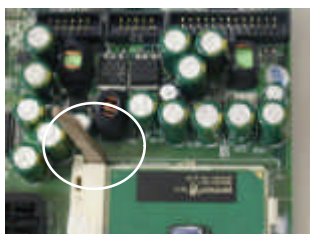


**Step 1:** Locate the ZIF socket and open it by first pulling the lever of socket upward.



**Step 2:** Insert the CPU into the socket. Please keep the lever right angle when inserting CPU.

**Step 3:** When inserting the CPU please note the correct orientation as shown. The notched corner should point toward the end of the lever.



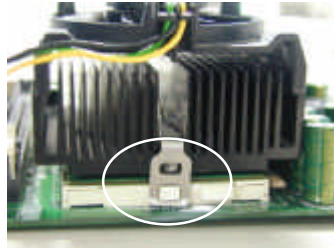
**Step 4:** Push the lever down to close the socket.



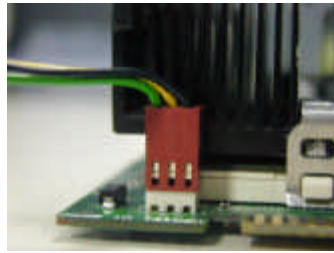


**Step 5:** Attach the heatsink onto the CPU.

**Step 6:** Push the clip of heatsink downward to hook the ear of socket firmly.



**Step 7:** Finally, attach the fan cable to the CPU fan header.

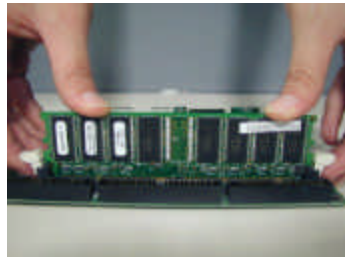


### 2.1.2 System Memory Installation

**Step 1:** Open latches of DIMM socket.



**Step 2:** Insert the RAM module into the DIMM socket.

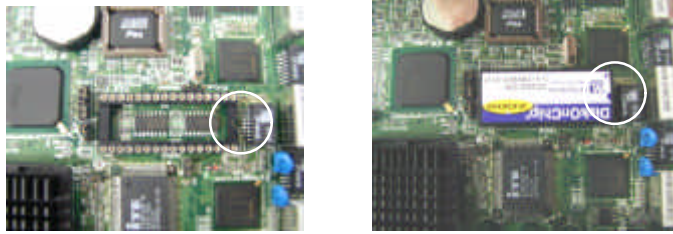


**Step 3:** Press the latches into the notches of the RAM module.



### 2.1.3 DiskOnChip Installation

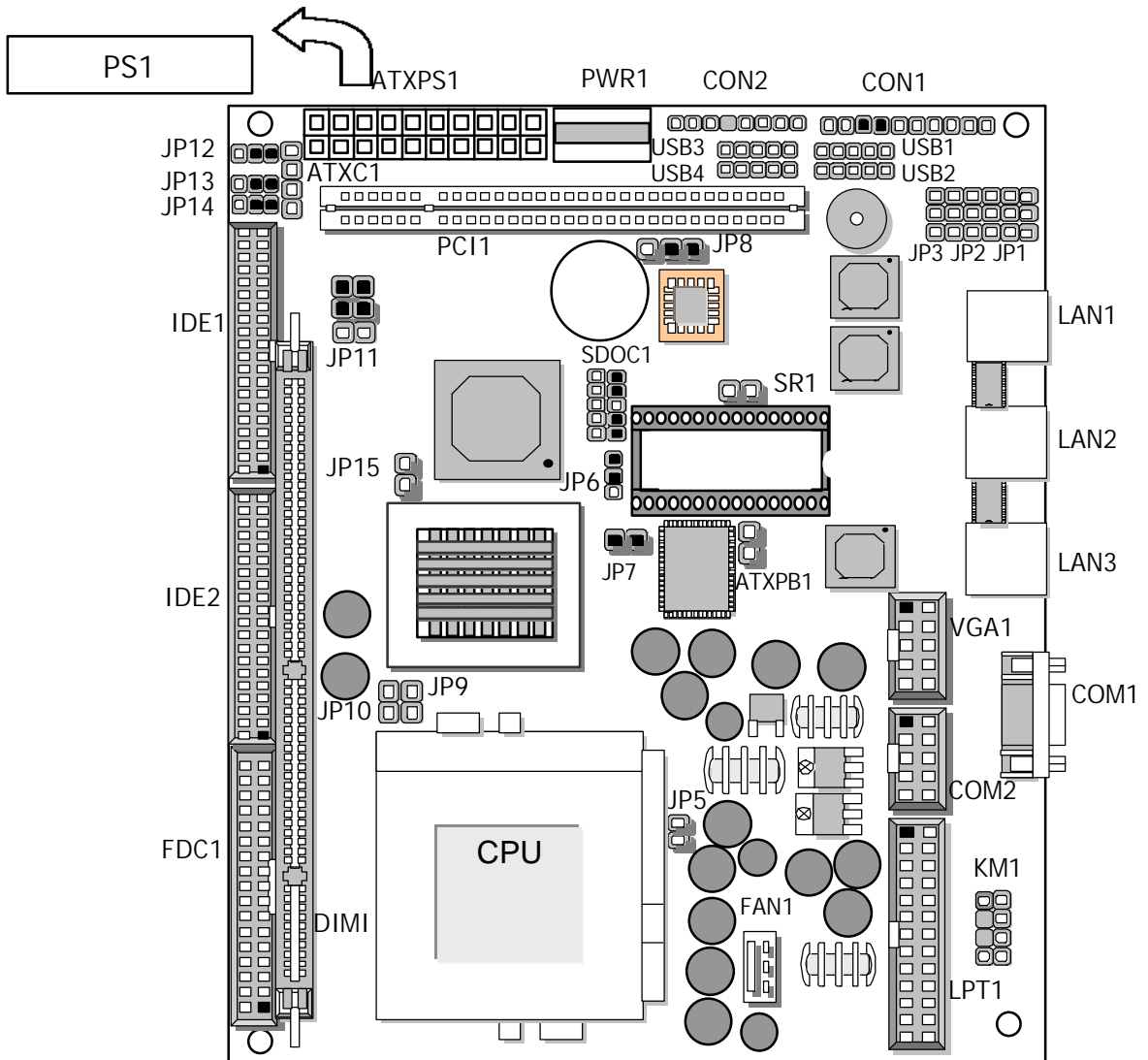
Please make sure the central polarization key on the socket, and place the DiskOnChip as the same direction.



## 2.2 JUMPER SETTINGS AND CONNECTORS

### 2.2.1 Board Outline

AT Power Connector 90° for EM-561C



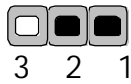
## 2.2.2 Jumper Settings Summary

LOCATION	FUNCTION
JP8	Clear CMOS Data
JP11	Select CPU Clock
JP6	Flash FWH Chip
JP7	Case Open Detect
JP13, JP14	Programming ISP2032A
SDOC1	Select DiskOnChip (Flash Disk) Address
JP5, JP9, JP10, JP12, JP15	Factory use only

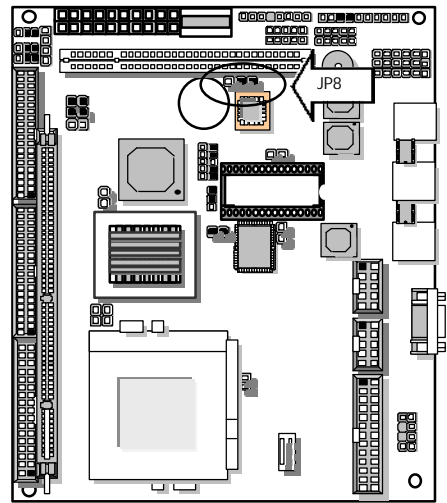
### ✦ JP8: Clear CMOS Data

Description	JP8
Normal (Default)	1-2
Clear CMOS	2-3

#### JP8



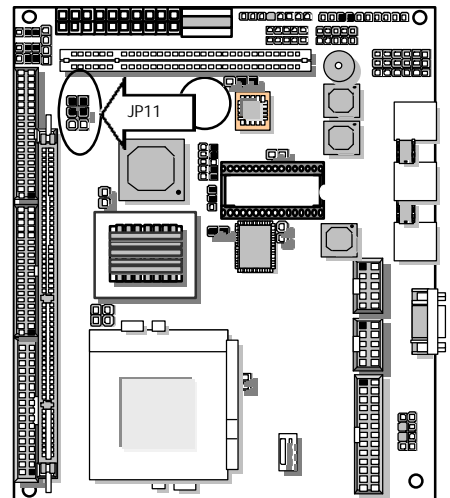
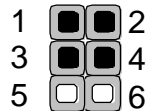
**Note :** If you forget your password, the only way to solve this problem is to discharge the CMOS memory by turning power off and placing a shunt on the S1 (open pad) for 5 seconds, then removing the shunt.



### ✦ JP11: Select CPU Clock

CPU Clock Speed	JP11
66MHz	3-5,4-6
100MHz	1-3,4-6
100/133MHz(Default)	1-3,2-4

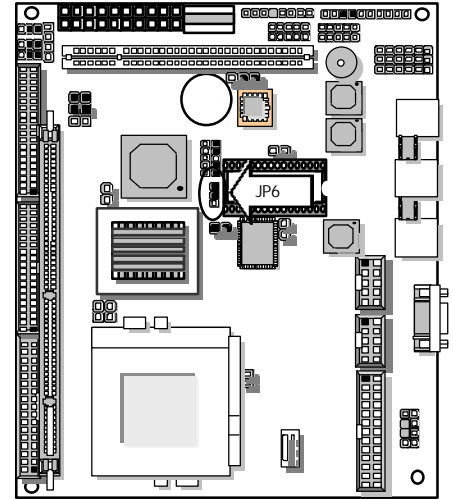
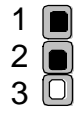
#### JP11



✦ **JP6 : Flash FWH Chip**

Flash FWH chip	JP6
Unlocked (Default)	1-2
Locked	2-3

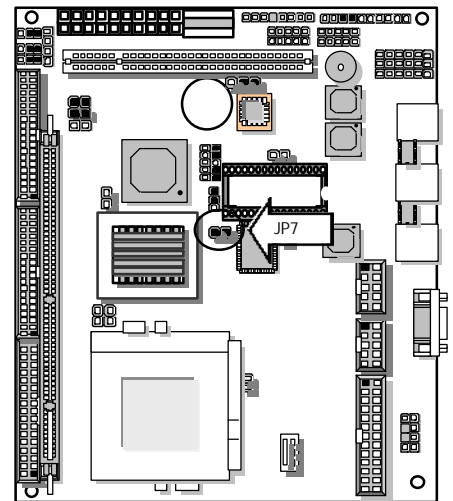
**JP6**



✦ **JP7: Case Open Detect**

Case Open Detect	JP7
Enable (Default)	ON
Disable	OFF

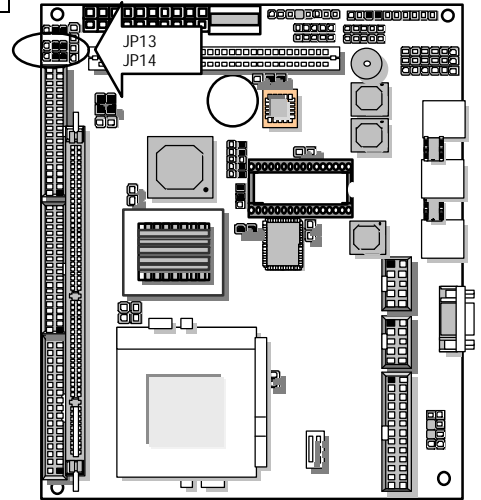
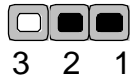
**JP7**



✦ JP13, JP14: Programming ISP2032A

Programming ISP2032A	JP13,JP14
Normal (Default)	1-2
Programming	3-4

JP13, JP14



DOC1 : Select DiskOnChip ( Flash Disk ) Address

Flash Disk Address	Sdoc1
CC00~CFFFH	1-2,9-10
D000 ~D1FFFH	3-4,7-8
D400 ~D5FFFH	3-4,9-10
D800 ~D9FFFH	5-6,7-8
DC00~DDFFFH	5-6,9-10

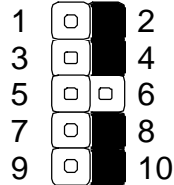
CC00~CFFFH



(Default)

SDOC1

D000~D1FFFH



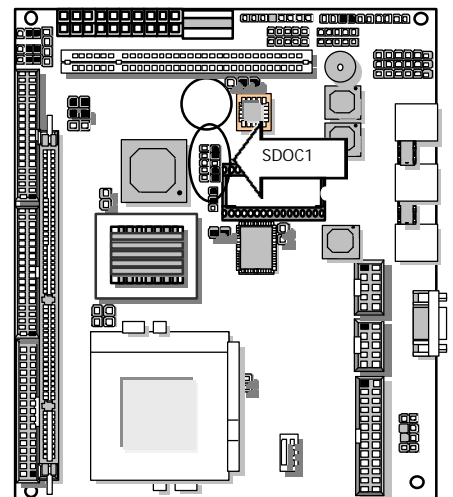
D400~D5FFFH



D800~D9FFFH



DC00~DDFFFH



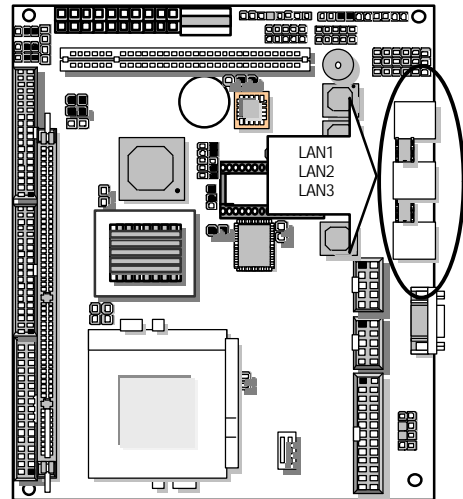
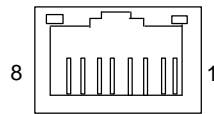
### 2.2.3 I/O Connectors Summary

<b>LOCATION</b>	<b>FUNCTION</b>
LAN1	LAN Connector
LAN2	LAN Connector
LAN3	LAN Connector
PS1	AT Power Connector
KM1	PS/2 Keyboard & Mouse Connector
PWR1	HDD Power Connector
ATXB1	ATX Power(On/Off) Header
ATXC1	ATX Power Header
JP1、JP2、JP3	Extension LAN LED
FAN1	CPU FAN Connector
COM1	RS-232 Serial Port #1 Connector
COM2	Serial Port #2 Connector
CON1	Power LED, Reset, Speaker Connector
USB1、2、3、4	USB Port#1 & #2 & #3 & #4 Connector
FDC1	Floppy Interface Connector
VGA1	VGA Connector
ATXPS1	ATX Power Connector
LPT1	Parallel Port Connector
IDE1	Primary IDE Cable Connector
IDE2	Secondary IDE Cable Connector
PCI1	PCI Slot
SR1	System Status Signal (port 440)

### LAN1, LAN2, LAN3 : LAN Connector

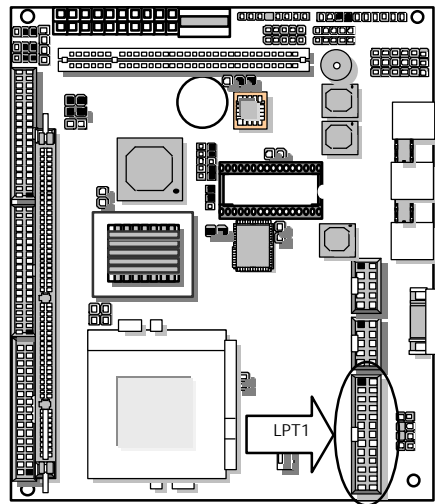
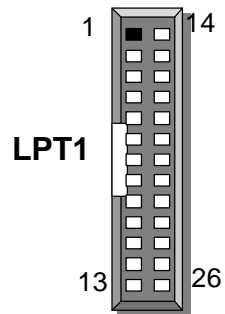
Pin No.	Description
1	TX+
2	TX-
3	RX+
4	NC
5	NC
6	RX-
7	NC
8	NC

### LAN1, LAN2, LAN3



✦ LPT1 : Parallel Connector ( Header )

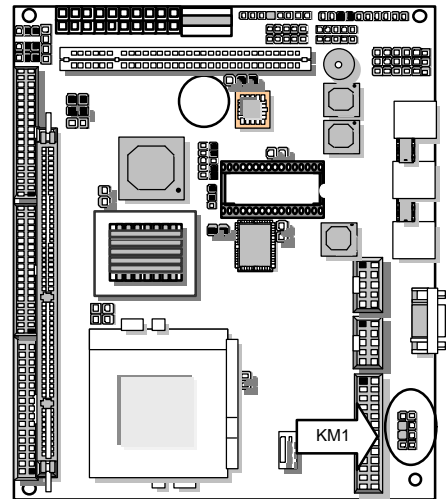
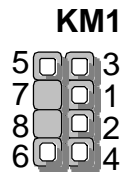
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	Strobe #	14	Auto Form Feed
2	Data0	15	Error #
3	Data1	16	Initialize #
4	Data2	17	Printer Select IN #
5	Data3	18	Ground
6	Data4	19	Ground
7	Data5	20	Ground
8	Data6	21	Ground
9	Data7	22	Ground
10	Acknowledge #	23	Ground
11	Busy	24	Ground
12	Paper Empty	25	Ground
13	Printer Select	26	NC





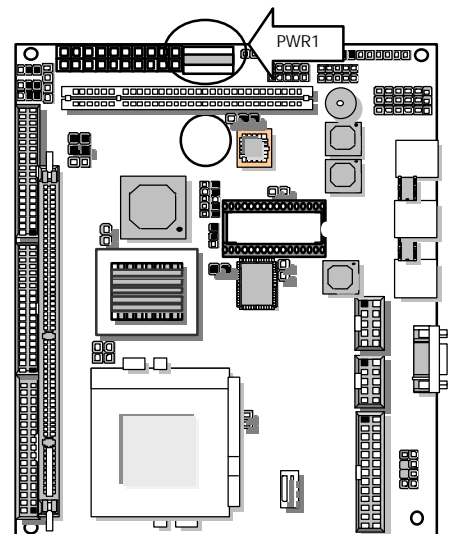
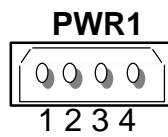
✦ **KM1 : PS/2 Keyboard & Mouse Connector**

Pin No.	Description
1	Keyboard Data
2	Mouse Data
3	Ground
4	+5V
5	Keyboard Clock
6	Mouse Clock
7	NC
8	NC



✦ **PWR1 : HDD Power Connector**

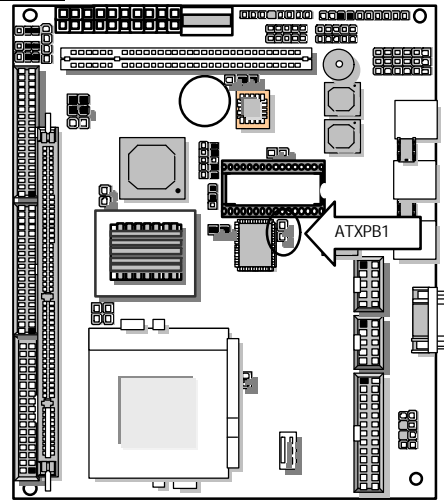
Pin No.	Description
1	+5V
2	Ground
3	Ground
4	+12V



**ATXB1: ATX Power(On/Off) Header**

Pin No.	Description
1	PANSW
2	GND

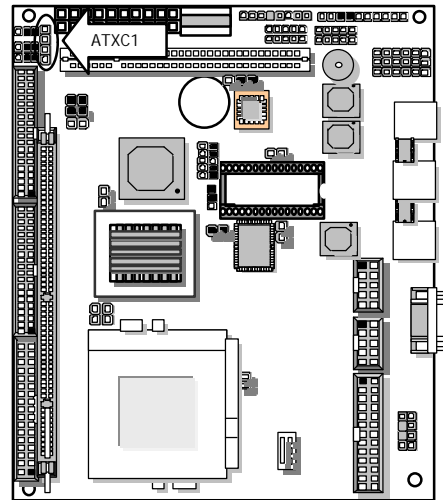
**ATXB1**



**ATXC1: ATX Power Header**

Pin No.	Description
1	GND
2	Standby 5V
3	GND
4	PSON

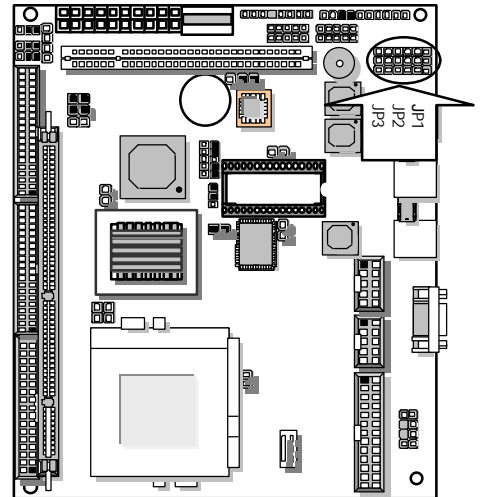
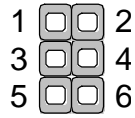
**ATXC1**



**JP1, JP2, JP3 : Extension LAN LED**

Pin No.	Description
1	10/100M LED-
2	10/100M LED+
3	LINK LED-
4	LINK LED+
5	Active LED-
6	Active LED

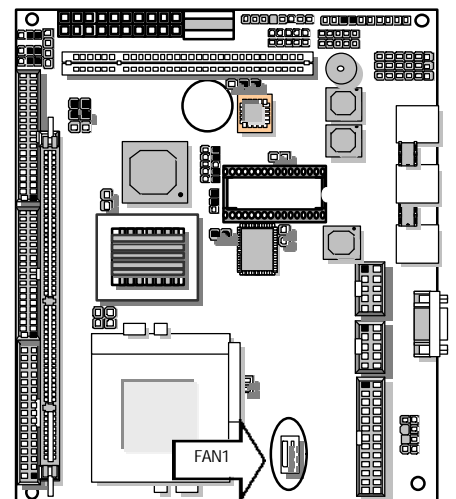
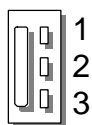
**JP1, JP2, JP3**



**FAN1: CPU FAN Connector**

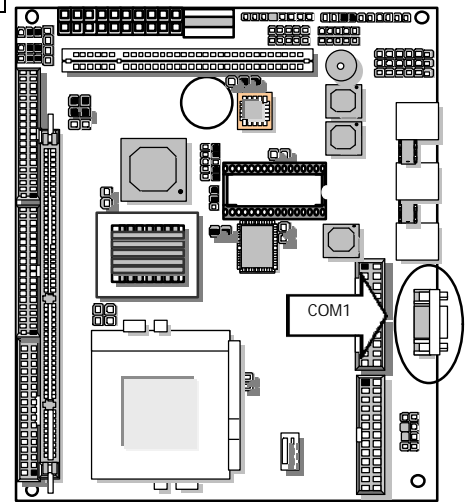
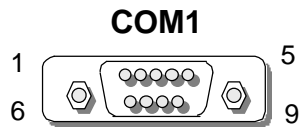
Pin No.	Description
1	Ground
2	+12V
3	FAN Status Signal

**FAN1**



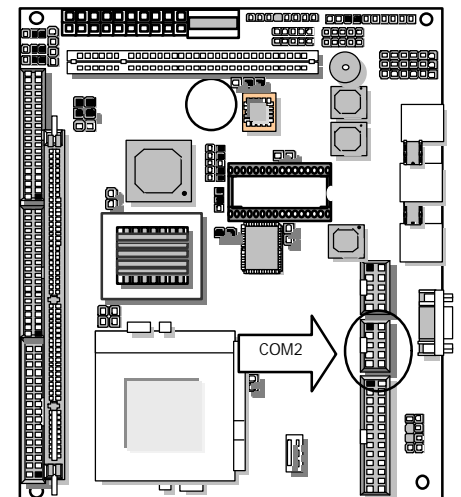
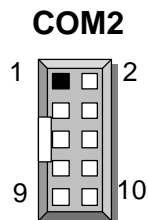
✦ **COM1 : RS-232 Serial Port #1 Connector ( D-Sub )**

Pin No.	Description
1	Data Carrier Detect ( DCDA # )
2	Receive Data ( RXDA )
3	Transmit Data ( TXDA )
4	Data Terminal Ready ( DTRA # )
5	Ground ( GND )
6	Data Set Ready ( DSRA # )
7	Request To Send ( RTSA # )
8	Clear To Send ( CTSA # )
9	Ring Indicator ( RIA # )



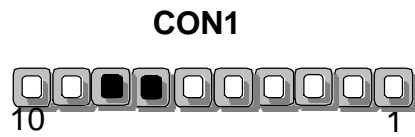
✦ **COM2 : Serial Port #2 Connector ( Header )**

Pin No.	Description
1	Data Carrier Detect ( DCDB # )
2	Receive Data ( RXDB )
3	Transmit Data ( TXDB )
4	Data Terminal Ready ( DTRB # )
5	Ground
6	Data Set Ready ( DSRB # )
7	Request To Send ( RTSB # )
8	Clear To Send ( CTSB # )
9	Ring Indicator ( RIB # )
10	NC

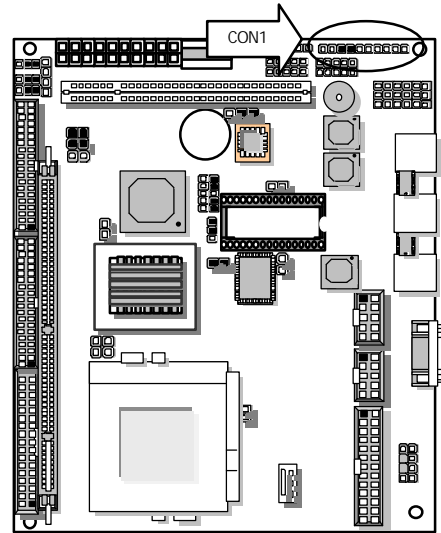


✦ CON1 : Power LED, Reset, Speaker Connector

Pin No.	Description
1	Power LED +
2	GND
3	HDD LED +
4	HDD LED -
5	RESET SW +
6	RESET SW - (GND)
7	External Speaker -
8	Internal Buzzer -
9	NC
10	External Speaker +



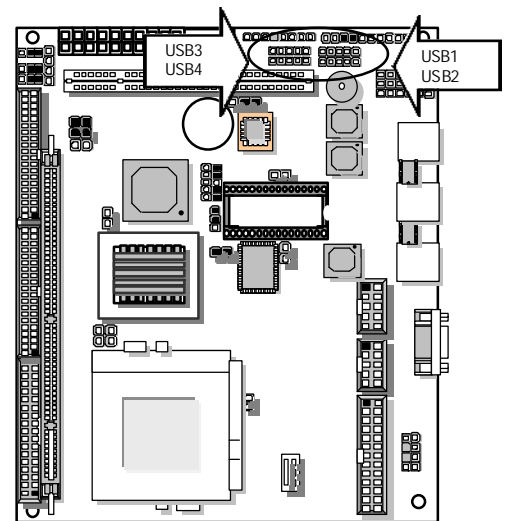
Default : 7-8 (ON)  
Internal Buzzer



**USB1、 2、 3、 4 : USB Port#1 & #2 & #3 & #4 Connector**

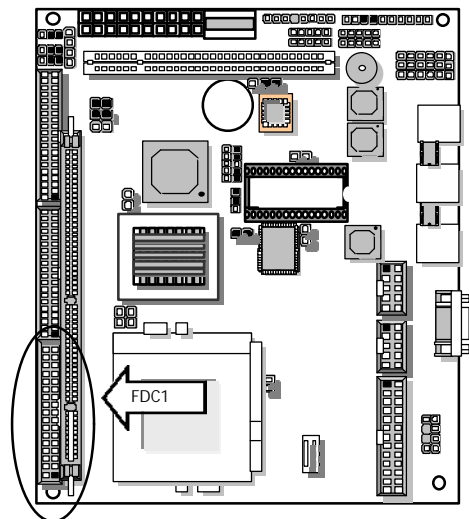
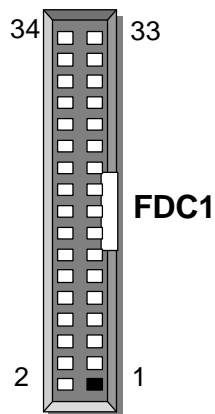
	Pin No.	Description
<b>USB1</b>	1	USB Port#1 Vcc
	2	USB D0-
	3	USB D0+
	4	Ground
	5	USB Port#1 Vcc
<b>USB2</b>	1	USB Port#2 Vcc
	2	USB D1-
	3	USB D1+
	4	Ground
	5	USB Port#2 Vcc
<b>USB3</b>	1	USB Port#3 Vcc
	2	USB D2-
	3	USB D2+
	4	Ground
	5	USB Port#3 Vcc
<b>USB4</b>	1	USB Port#4 Vcc
	2	USB D3-
	3	USB D3+
	4	Ground
	5	USB Port#4 Vcc

**USB1, USB2, USB3, USB4**



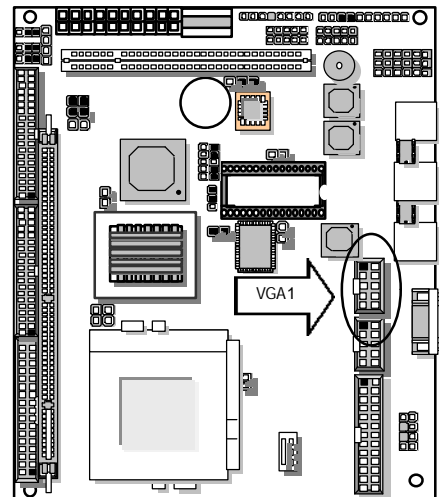
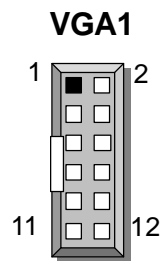
**FDC1 : Floppy Interface Connector ( Header )**

Pin No.	Description	Pin No.	Description
1	Ground	2	Density Select
3	Ground	4	NC
5	Ground	6	NC
7	Ground	8	Index #
9	Ground	10	Motor Enable A #
11	Ground	12	Drive Select B #
13	Ground	14	Drive Select A #
15	Ground	16	Motor Enable B #
17	Ground	18	Direction #
19	Ground	20	Step #
21	Ground	22	Write Data #
23	Ground	24	Write Gate #
25	Ground	26	Track 0 #
27	Ground	28	Write Protect #
29	NC	30	Read Data #
31	Ground	32	Head Side Select #
33	NC	34	Disk Change #



**VGA1 : VGA Connector**

Pin No.	Description	Pin No.	Description
1	Red Signal	2	Ground
3	Green Signal	4	Ground
5	Blue Signal	6	Ground
7	H-SYNC	8	Ground
9	V-SYNC	10	Ground
11	DDC-DATA	12	DDC-Clock

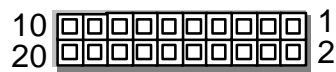




**ATXPS1 : ATX Connector**

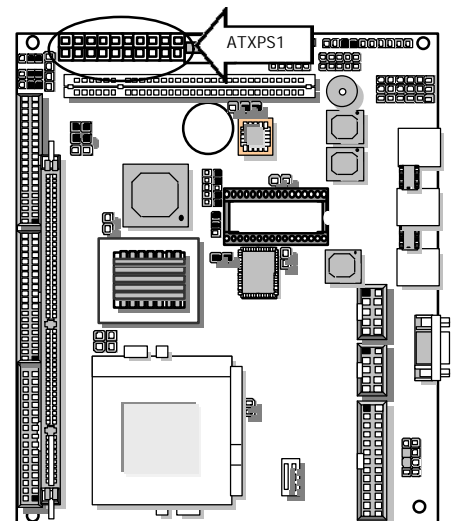
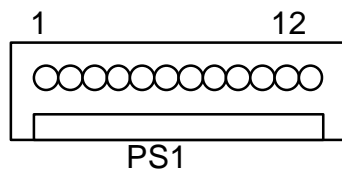
Pin No.	Description	Pin No.	Description
1	VCC3	11	VCC3
2	VCC3	12	- 12V
3	GND	13	GND
4	+5V	14	Power On Switch
5	GND	15	GND
6	+5V	16	GND
7	GND	17	GND
8	Power Good	18	- 5V
9	+5V Stand By	19	+5V
10	+ 12V	20	+5V

**ATXPS1**



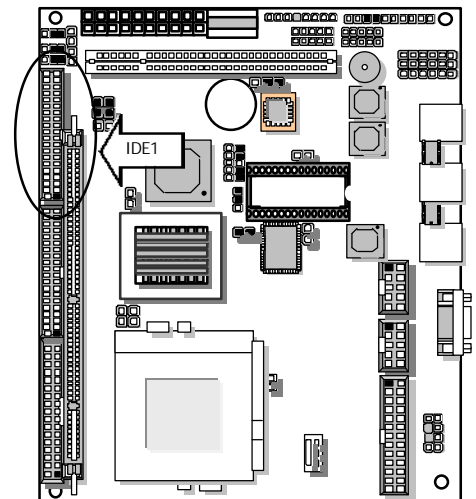
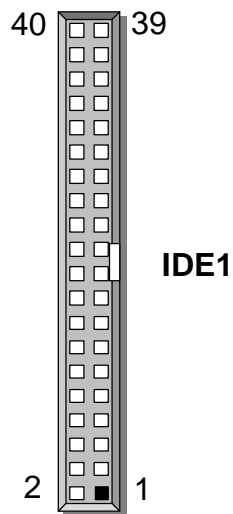
✦ **PS1: AT Power Connector (For EM-561C only)**

Pin No.	Description
1	Power Good
2	+5V
3	+12V
4	-12V
5	GND
6	GND
7	GND
8	GND
9	-5V
10	+5V
11	+5V
12	+5V



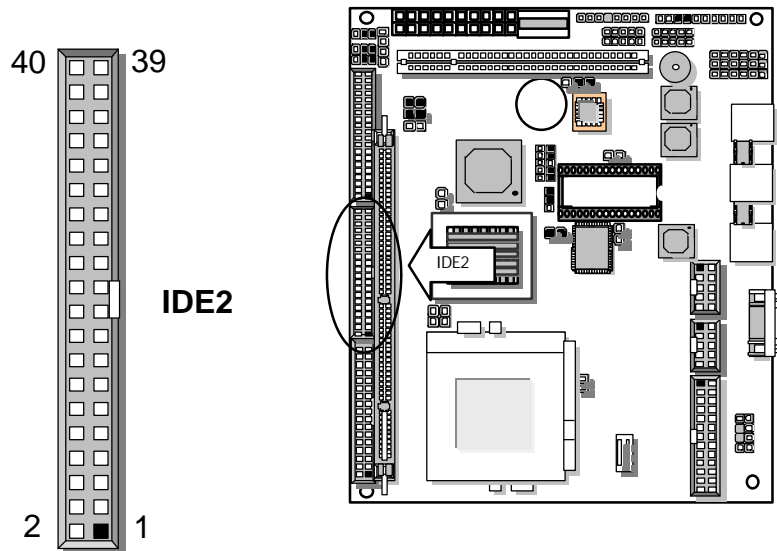
✦ IDE1 : Primary IDE Cable Connector ( Header )

Pin No.	Description	Pin No.	Description
1	Reset #	2	Ground
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	Ground	20	NC
21	DMA REQ	22	Ground
23	IOW #	24	Ground
25	IOR #	26	Ground
27	IOCHRDY	28	NC
29	DMA ACK #	30	Ground
31	Interrupt	32	IOCS16 #
33	SA1	34	DMA66 Detect
35	SA0	36	SA2
37	HDC CS0 #	38	HDC CS1 #
39	HDD Active LED #	40	Ground



✦ IDE2 : Secondary IDE Cable Connector ( Header )

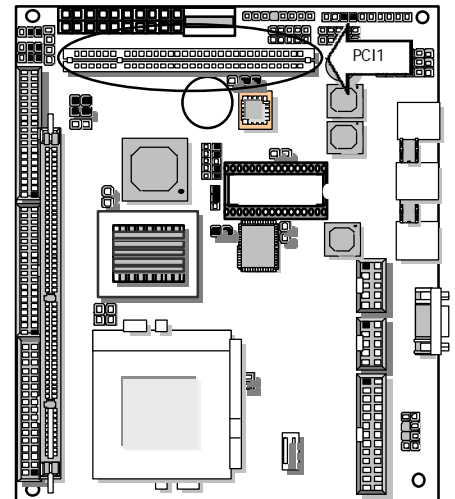
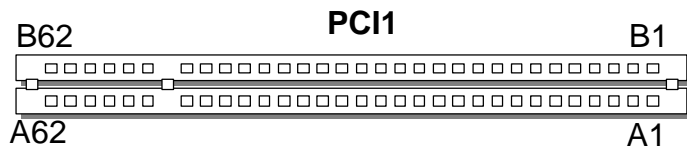
Pin No.	Description	Pin No.	Description
1	Reset #	2	Ground
3	Data 7	4	Data 8
5	Data 6	6	Data 9
7	Data 5	8	Data 10
9	Data 4	10	Data 11
11	Data 3	12	Data 12
13	Data 2	14	Data 13
15	Data 1	16	Data 14
17	Data 0	18	Data 15
19	Ground	20	NC
21	DMA REQ	22	Ground
23	IOW #	24	Ground
25	IOR #	26	Ground
27	IOCHRDY	28	NC
29	DMA ACK #	30	Ground
31	Interrupt	32	IOCS16 #
33	SA1	34	DMA66 Detect
35	SA0	36	SA2
37	HDC CS0 #	38	HDC CS1 #
39	HDD Active LED#	40	Ground



✦ PCI1: PCI SLOT

Pin No.	Description	Pin No.	Description
A1	TRST#	B1	-12V
A2	+12V	B2	TCK
A3	TMS	B3	GND
A4	TDI	B4	TDO
A5	+5V	B5	+5V
A6	INTA#	B6	+5V
A7	INTC#	B7	INTB#
A8	+5V	B8	INTD#
A9	RSVD	B9	PRST1#
A10	5V/IO	B10	RSVD
A11	RSVD	B11	PRST2#
A12	GND	B12	GND
A13	GND	B13	GND
A14	RSVD	B14	RSVD
A15	RST#	B15	GND
A16	5V/IO	B16	CLK
A17	GNT#	B17	GND
A18	GND	B18	REQ#
A19	RSVD	B19	5V/IO
A20	AD30	B20	AD31
A21	+3.3V	B21	AD29
A22	AD28	B22	GND
A23	AD26	B23	AD27
A24	GND	B24	AD25
A25	AD24	B25	+3.3V
A26	IDSEL	B26	C/BE3#
A27	+3.3V	B27	AD23
A28	AD22	B28	GND
A29	AD20	B29	AD21
A30	GND	B30	AD19
A31	AD18	B31	+3.3V
A32	AD16	B32	AD17
A33	+3.3V	B33	C/BE2#
A34	FRAME#	B34	GND
A35	GND	B35	IRDY#
A36	TRDY#	B36	+3.3V
A37	GND	B37	DEVSL#
A38	STOP#	B38	GND
A39	+3.3V	B39	LOCK#
A40	SDONE	B40	PERR#
A41	SBO#	B41	+3.3V
A42	GND	B42	SERR#
A43	PAR	B43	+3.3V
A44	AD15	B43	C/BE#
A45	+3.3V	B44	AD14
A46	AD13	B45	GND
A47	AD11	B46	AD12
A48	GND	B48	AD10
A49	AD9	B49	GND
A52	C/BE0#	B52	AD8
A53	+3.3V	B53	AD7
A54	AD6	B54	+3.3V
A55	AD4	B55	AD5
A56	GND	B56	AD3

Pin No.	Description	Pin No.	Description
A57	AD2	B57	GND
A58	AD0	B58	AD1
A59	5V/IO	B59	5V/IO
A60	REQ64#	B60	ACK64#
A61	+5V	B61	+5V
A62	+5V	B62	+5V



**SR1: System Status Signal (Port 440)**

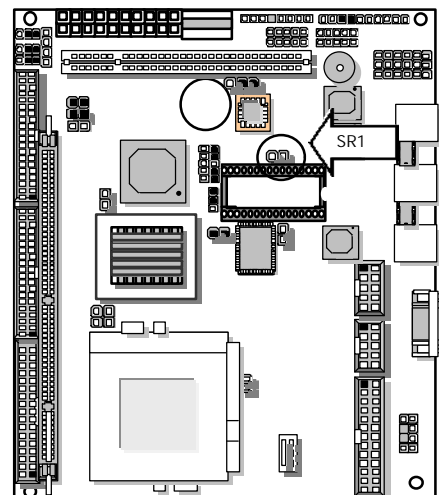
Pin No.	Description
1	LED + Signal
2	LED - Signal



EX. For System Status Signal (Port 440 , bit 3)

```
C:\DOS> DEBUG
-O 440 8
SR1 LED always on

C:\DOS> DEBUG
-O 440 0
SR1 LED flashing
```



## **CHAPTER 3. Bios Setup**

Award's ROM BIOS provides a built-in Setup program that allows user to modify the basic system configuration and settings. The modified data will be stored in a battery-backed CMOS RAM so that these data will be retained even when the power is turned off. In general, the information saved in the CMOS RAM stay unchanged unless there is configuration change in the system, such as hard drive replacement or new equipment is installed.

### **3.1 Running AWARD BIOS**

The Setup Utility is stored in the BIOS ROM. When the power of the computer system is turned on, a screen message appears to give you an opportunity to call up the Setup Utility; while the BIOS will enter the Power On Self Test (POST) routines. The POST routines perform various diagnostic checks while initializing the board hardware. If the routines encounter an error during the tests, the error will be reported in either of the two different ways, hear a series of short beeps or see an error message on the screen display. There are two kinds of error: fatal or non-fatal. The system can usually continue to boot up sequence with the non-fatal errors. Non-fatal error messages usually appear on the screen along with the following instructions:

" Press <F1> to RESUME "

Write down the message and press the F1 key to continue the boot up sequence. After the POST routines are completed, the following message appears:

" Press DEL to enter SETUP "

#### **Entering Setup**

Turn on the power of the computer system and press <Del> immediately. If you don't have the chance to respond, reset the system by simultaneously typing the <Ctrl>, <Alt> and <Delete> keys, or by pushing the ' Reset ' button on the system cabinet. You can also restart by turning the system OFF then ON.

## 3.2 CMOS Setup Utility

To access the AWARD BIOS SETUP program, press the <DEL> key. The screen display will appear as shown below:

### Main Program Screen

CMOS Setup Utility – Copyright © 1984-2001 Award Software	
Standard CMOS Features	Frequency/Voltage Control
Advanced BIOS Features	Load Fail-Safe Defaults
Advanced Chipset Features	Load Optimized Defaults
Integrated Peripherals	Set Supervisor Password
Power Management Setup	Set User Password
PnP/ PCI Configurations	Save & Exit Setup
PC Health Status	Exit Without Saving
Esc : Quit                                      ⏮ ⏪ ⏩ ⏭ : Select Item	
F10 : Save & Exit Setup	
Time, Date, Hard Disk Type....	

This screen provides access to the utility's various functions.

Listed below is explanation of the keys displayed at the bottom of the screen:

<ESC> : Exit the utility.

<⏮ ⏪ ⏩ ⏭ > Use arrow keys ⏮ ⏪ ⏩ ⏭ to move cursor to your desired selection.

<F1> General Help

<F5> Previous Values

<F6> Fail-Safe Defaults

<F7> Optimized Defaults

<F10> Saves all changes made to Setup and exits program.

+/-/PU/PD Change Value

**Standard CMOS Setup:** Use this menu for basic system configurations.

**Advanced BIOS Features:** Use this menu to set the Advanced Features available on your system.

**Advanced Chipset Features:** Use this menu to change the values in the chipset registers and optimize your system's performance.

**Integrated Peripherals:** Use this menu to specify your settings for integrated peripherals.

**PnP/PCI Configuration:** This entry appears if your system supports PnP/PCI.

**PC Health Status:** This entry shows your PC health status. If Hardware Monitor Chipset is installed.

**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/settings for optimal performance system operations.

**Load Optimized Defaults:** Use this menu to load the BIOS default values that are factory settings for optimal performance system operations.

**Set Supervisor Password:** Use this menu to set Supervisor Passwords.

**Set User Password:** Use this menu to set User Passwords.

**Save & Exit Setup:** Save CMOS value changes to CMOS and exit setup.

**Exit Without Saving:** Abandon all CMOS value changes and exit setup.

### 3.3 Standard CMOS Setup

When you select the "STANDARD CMOS SETUP" on the main program, the screen display will appear as :

#### Standard CMOS Setup Screen

CMOS Setup Utility – Copyright © 1984-2001 Award Software  
Standard CMOS Features

Date (mm:dd:yy)	Fri, Sep 7 2001	Item Help
Time (hh:mm:ss)	16 : 33 : 54	Menu Level
IDE Primary Master	None	Change the day, month, year and century
IDE Primary Slave	None	
IDE Secondary Master	None	
IDE Secondary Slave	None	
Drive A	1.44M, 3.5 in.	
Drive B	None	
Video	EGA/VGA	
Halt On	No, Errors	
Base Memory	640K	
Extended Memory	260096K	
Total Memory	261120K	

⏏ 🖨️ 🌙 🔄 Move Enter: Select +/-/PU/PD: Value F10: Save Esc: Exit F1: General Help  
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

The Standard CMOS Setup utility is used to configure the following components such as date, time, hard disk drive, floppy drive, display and memory. Once a field is highlighted, on-line help information is displayed in the left bottom of the Menu screen.

**Date :** Month, Date, Year.

**Time :** Hour, Minute and Second. Use 24-hour clock format (for p.m. time, add 12 to the hour number, e.g. you would enter 4:30 p.m. as 16:30). When you select the "STANDARD CMOS SETUP" on the main program, the screen display will appear as:

#### **Primary Master / Primary Slave**

**Secondary Master / Secondary Slave:** Press PgUp / <+> or PgDn / <-> to select Manual, None, Auto type. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use Manual to define your own drive type manually.



If you select Manual, related information is asked to be entered to the following items. Enter the information directly from the keyboard. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.

If the controller of HDD interface is SCSI, the selection shall be

**"None"**

If the controller of HDD interface is CD-ROM, the selection shall be

**"None"**

Here is a brief explanation of drive specifications:

- ✦ **Access Mode:** The settings are Auto, Normal, Large, LBA.
- ✦ **Cylinder:** Number of cylinders
- ✦ **Head:** Number of heads
- ✦ **Precomp:** Write precomp
- ✦ **Landing Zone:** Landing Zone
- ✦ **Sector:** Number of sectors

**Drive A and 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, 3.5in	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

- Note :
1. Not Installed could be used as an option for diskless workstations..
  - 2.Highlight the listing after each drive name and select the appropriate entry.

**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 POST and continue the boot-up process. These are the selections:

No errors	Whenever the BIOS detects a non-fatal error the system will not be stopped and you will be prompted
All errors	The system boot will be stopped for any error that may be detected.
All, But Keyboard	The system boot will not stop for a keyboard error ; it will stop for all Other errors.
All, But Diskette	The system boot will not stop for a disk error ; it will stop for all other Errors.
All, But Disk/Key	The system boot will not stop for a keyboard or disk error ; it will stop for all other errors.

**Base / Extended / Total Memory:** The three items show the memory status of your system (read only).

### 3.4 Advanced BIOS Features Setup

When you select the "BIOS FEATURES SETUP" on the main program, the screen display will appear as:

#### Advanced BIOS Features Setup Screen

CMOS Setup Utility – Copyright © 1984-2001 Award Software  
Advanced BIOS Features

		Item Help
Virus Warning	Disabled	Menu Level Allows you to choose the VIRUS warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep.
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	CDROM	
Boot Other Device	Enabled	
Swap Floppy Drive	Disabled	
Boot Up Floppy Seek	Disabled	
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	
Report No FDD for WIN 95	No	
Small Logo (EPA) Show	Disabled	

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

**Virus Warning :** The default setting of the Virus Warning is "Disabled". When it is enabled, any attempt to write the boot sector and partition table will halt the system and cause a warning message to appear. If this happens, you can use an anti-virus utility on a virus free, bootable floppy diskette to reboot, to clean and to investigate your system.

**CPU Internal Cache :** The default setting is "Enabled". This setting enables the CPU internal cache.

**External Cache :** The default setting is "Enabled". This setting enables the external cache.

**CPU L2 Cache ECC Checking :** The default setting is "Enabled". When you select Enabled, memory checking is enabled when the external cache contains ECC SRAMs.

**Processor Number Feature :** The default setting is "Enabled". Enable to show the Pentium !!! CPU serial number.

**Quick Power On Self Test :** The default setting is "Enabled". This speeds up the Power On Self Test (POST) by skipping some items that are normally checked during the full POST. If your system is functioning normally, you can choose this feature to speed up the booting process.

**First / Second / Third / Other Boot Device :** The BIOS attempts to load the operating system from the devices in the sequence selected in these items. The settings are Floppy,

LS/ZIP, HDD-0/HDD-1/HDD-2/HDD-3, SCSI, CDROM, LAN, and Disabled

**Swap Floppy Drive** : The default setting is "Disabled". This setting gives you an option to swap A and B floppy disks. Normally, the floppy drive A is the one at the end of the cable and drive B is at the other end. If you set this option to "Enabled", the Drive A will function as Drive B, and vice-versa under the DOS.

**Boot Up Floppy Seek** : The default setting is "Disabled". When enabled, the BIOS will check whether there is a floppy disk drive installed.

**Boot Up NumLock Status** : The default setting is "On". If set "Off", the cursor controls will function on the numeric keypad.

**Gate A20 Option** : The default setting is "Fast". This is the optimal setting for the CPU card. The other option is "Normal".

**Typematic Rate Setting** : The default setting is "Disabled". If enabled, you can set the typematic rate and typematic delay.

**Typematic Rate (Chars/Sec)** : This setting controls the speed at which the system registers the repeated keystrokes. The choices range from 6 to 30 Chars/Sec. The default setting is "6" Chars/Sec.

**Typematic Delay (M/Sec)** : This setting controls the time between the display of the first and second characters. There are four delay choices: 250ms, 500ms, 750ms and 1000ms. The default setting is "250" ms.

**Security Option** : This setting controls the password in the main screen. The options are "Setup" and "System". Select "Setup" and it will protect the Setup Utility settings from being tampered with. Select "System" if you want to use password feature every time the system boots up. The default setting is "Setup". You can create your password by using the "SUPERVISOR/USER PASSWORD" utility on the main program screen.

**OS Select For DRAM > 64MB** : The default setting is "Non-OS2". Set to "OS2" if the system memory size is greater than 64MB and the operating system is OS/2.

**Report No FDD For WIN 95** : Select "Yes" to release IRQ6 when the system contains no floppy drive, for compatibility with Windows 95 logo certification. In the Integrated Peripherals screen select "Disabled" for the Onboard FDC Controller field.

**Small Logo (EPA) Show**: The default setting is "Enabled" which will display EPA logo (small) on the screen during POST process.

### 3.5 Advanced Chipset Features Setup

When you select the "CHIPSET FEATURES SETUP" on the main program, the screen display will appear as:

#### Advanced Chipset Features Setup Screen

CMOS Setup Utility – Copyright © 1984-2001 Award Software  
Advanced Chipset Features

SDRAM CAS Latency Time	3	Item Help
SDRAM Cycle Time Tras/Trc	Auto	Menu Level
SDRAM RAS-to -CAS Delay	Auto	
SDRAM RAS Precharge Time	Auto	
System BIOS Cacheable	Enabled	
Video BIOS Cacheable	Enabled	
Memory Hole At 15M-16M	Disabled	
CPU Latency Timer	Enabled	
Delayed Transaction	Enabled	
AGP Graphics Aperture Size	64MB	
System Memory Frequency	Auto	
Power-Supply Type	ATX	
On-Chip Video window size	64MB	

⏏ ⌨ ⌂ ⏪ ⏩ Move Enter: Select +/-/PU/PD: Value F10: Save Esc: Exit F1: General Help  
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

This screen controls the settings for the board's chipset. All the entries on the screen are automatically configured. However, you can change it according to your operating environment.

**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 :** This item allows you to select the SDRAM cycle length. The settings are 2 or 3.

**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.

**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 settings are "Enabled" and "Disabled".

**Video RAM Cacheable :** Select "Enabled" allows caching of the video BIOS, resulting in better system performance. However, if any program writes to this memory area, a system error may result. The settings are: "Enabled" and "Disabled".

**Memory Hole At 15M-16M :** In order to improve performance, certain space in memory can be

reserved for ISA cards. This memory must be mapped into the memory space below 16MB.

Enabled	Memory hole supported
Disabled (default)	Memory hole not supported

**CPU Latency Timer:** Selecting "Enable", the CPU cycle will only be deferred after it has been in a Snoop Stall for 31 clocks and another ADS# has arrived. Select "Disable", the CPU cycle will be deferred immediately after the GMCH receives with PCI specification version 2.1.

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

**AGP Graphic Aperture Size :** Select the size of the Accelerated Graphics Port (AGP) aperture. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation.

**System Memory Frequency :** Select the Onboard Display Cache frequency. The settings are 100MHz, 133MHz or Auto.

**Power-Supply Type:** This option allows the user to set the Power Supply. The settings are "AT", "ATX". The Default Setting is "AT".

**On Chip Video Window Size:** This option allows the user to set the on-chip video window size for VGA driver use.

### 3.6 Integrated Peripherals

When you select the "INTEGRATED PERIPHERALS" on the main program, the screen display will appear as:

#### Integrated Peripherals Setup Screen

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Integrated Peripherals

		Item Help
On-Chip Primary PCI IDE	Enabled	Menu Level
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	
IDE HDD Block Mode	Enabled	
POWER ON Function	BUTTON ONLY	
X KB Power ON Password	Enter	
X Hot Key Power ON	Ctrl-F1	
Onboard FDC Controller	Enabled	
Onboard Serial Port 1	3F8/IRQ4	
Onboard Serial Port 2	2F8/IRQ3	
UART Mode Select	Normal	
X UR2 Duplex Mode	Half	
Onboard Parallel Port	378/IRQ7	
Parallel Port Mode	SPP	
X ECP Mode Use DMA	3	
PWRON After PWR-Fail	Off	

⏏ 🖨️ ☺ ↻ Move Enter: Select +/-/PU/PD: Value F10: Save Esc: Exit F1: General Help  
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

**On-Chip Primary PCI IDE** : The chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the primary IDE interface. Select Disabled to deactivate this interface. The settings are "Enabled" and "Disabled".

**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 settings are "Enabled" and "Disabled".

**IDE(Primary / Secondary)(Master / Slave) PIO** : The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device. The settings are "Auto", "Mode 0", "Mode 1", "Mode 2", "Mode 3", "Mode 4".

**IDE Primary / Secondary Master / Slave UMDA :** Ultra DMA/66 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 98 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/66, select Auto to enable BIOS support. The settings are "Auto" and "Disabled".

**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 decide to active whether PCI Slot of VGA card or AGP first. The settings are "PCI Slot" and "AGP Slot".

**IDE HDD Block Mode :** Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support. The settings are "Enabled" and "Disabled".

**Power On Function:** this function allows you to select the item to power on the system. The settings are: Button Only, Mouse Left, Mouse Right, Password, Hotkey, and Keyboard98.

**KB Power On Password:** Normally, this item is unselectable. To enable this function, choose the "Password" setting in **POWER ON Function**. This will allow you to input the password for the KB power on function.

**Hot Key Power On:** If POWER ON Function is set to "Hot Key", and then you can assign a hot key combination in the field for the PS/2 keyboard to power on the system. Available options are "Ctrl-F1" through "Ctrl-F2".

**Onboard FDC Controller :** Select Enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install an add-in FDC or the system has no floppy drive, select Disabled in this field.

**Onboard Serial Port 1 / 2:** Select a logical COM port address for the first and second serial ports.

**UART Mode Select :** The UART serial port on your system may offer a variety of infrared port modes. Click here for a description of various modes. (Click your browser's Back button, or your right mouse button, to return to this page).

**UART 2 Duplex Mode:** This item allows you to select the IR half/full duplex function. The default setting is "Half"

**Onboard Parallel Port :** This item allows you to determine onboard parallel port controller I/O address setting. The settings are "378H/IRQ7", "278H/IRQ5", "3BC/IRQ7", "Disabled".

**Parallel Port Mode:** There are four options "Normal" (default), "ECP", "ECP/EPP" and "EPP/SPP". Change the mode from "Normal" to the enhanced mode only if your peripheral device can support it. When it is set to ECP mode, the printer port always uses DMA3.

**ECP Mode Use DMA :** Select a DMA channel for the parallel port for use during ECP mode. The settings are "3" and "1".

**PWRON After PWR-Fail:** This item allows you to determine how the system will power on after a power failure.

### 3.7 Power Management Setup

The "Power Management Setup" controls the CPU card's "Green" features. When you select the "POWER MANAGEMENT SETUP" on the main program, the screen display will appear as:

#### Power Management Setup Screen

CMOS Setup Utility – Copyright © 1984-2001 Award Software  
Power Management Setup

ACPI FUNCTION	Disabled		Item Help
ACPI Suspend Type	S1 (POS)		Menu Level
Power Management	User Define		
Video Off Method	Blank Screen		
Video Off In Suspend	No		
Suspend Type	Stop Grant		
MODEM Use IRQ	NA		
Suspend Mode	Disabled		
HDD Power DOWN	Disabled		
Soft-Off by PWR-BTTN	Instant – off		
Wake-Up by PCI card	Enabled		
Power On by Ring	Enabled		
Resume by Alarm	Disabled		
X Date (of Month) Alarm	0		
X Time (hh:mm:ss) Alarm	0 : 0 : 0		
** Reload Global timer Events**			
Primary IDE 0	Disabled		
Primary IDE 1	Disabled		
Secondary IDE 0	Disabled		
Secondary IDE 1	Disabled		
FDD, COM, LPT Port	Disabled		
PCI PIRO [ A-D ]#	Disabled		

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F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

**ACPI Function :** This item allows you to enable or disable the Advanced Configuration and Power Management (ACPI). The settings are "Enabled" and "Disabled".

**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 chipset) and hardware maintains all system context.
----------	---

#### **Power Management :**

Power Management	User Define	Item Help
HDD Power Down	Disable	Menu Level
Doze Mode	Disable	
Suspend Mode	Disable	

⏏ ⌨ ⌂ ⏪ Move Enter: Select +/-/PU/PD: Value F10: Save Esc: Exit F1: General Help  
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

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

There are four selections for Power Management, three of which have fixed mode setting.

Disable (Default)	No power management. Disables all four modes.
Min. Power Saving	Minimum power management. Doze Mode=1hr. Standby Mode =1hr., Suspend Mode=1hr., and HDD Power Down=15min.
Max. Power Saving	Maximum power management. –Only available for SL CPU' s. Doze Mode=1min., Standby Mode=1min., Suspend Mode=1min., and HDD Power Down=1min.
User Defined	Allows you to set each mode individually. When not disabled, each of the ranges are from 1 min. to 1 hr. except for HDD Power Down which ranges from 1 min. to 15 min. and disabled.

**Video Off Option :** This option is for choosing the setting in which the monitor will turn off. The default setting is "Suspend".

N/A	Always turn on.
Doze	During Doze mode, the monitor will be turned off.
Standby	During Standby mode, the monitor will be turned off.
Suspend	During Suspend mode, the monitor will be turned off.

**Video Off Method :** This determines the manner in which the monitor is blanked. The default setting is "V/H SYNC+Blank".

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

**Suspend Mode :** Option are from "1 Min" to "1 Hour" and "Disable". The CPU clock will be stopped and the video signal will be suspended, if no Power Management events occur for a specified length of time. Full power function will return when a Wake-Up event is detected.

**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. The default setting is "3".

**HDD Power Down :** Options are from "1 Min." to "15 Min." and "Disable". The IDE hard drive will spin down if it is not accessed within a specified length of time.

**Soft-Off by PWR-BTTN :** Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state. The settings are: "Delay 4 Sec.", "Instant-Off".

**Wake-up by PCI Card:** This will enable the system to wake up through PCI Card peripheral. The settings are : Enabled and Disabled.

**Power On by Ring :** When Enabled, an input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) awakens the system from a soft off state.

**Resume by Alarm:** This function is for setting date and time for your computer to boot up. During "Disabled", you cannot use this function. During "Enabled", choose the Date and Time Alarm:

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

Note: If you have change the setting, you must let the system boot up until it goes to the operating system, before this function will work.

**Reload Global Timer Events** : When Enabled, an event occurring on each device listed below restarts the global time for Standby mode.

**Primary IDE 0**

**Primary IDE 1**

**Secondary IDE 0**

**Secondary IDE 1**

**FDD, COM, LPT Port**

**PCI PIRQ [A-D] #**

After you have made your selection in the POWER MANAGEMENT SETUP, press the <ESC> key to go back to the main program screen.

### 3.8 PnP/PCI Configuration

Both the ISA and PCI buses on the CPU card use system IRQs & DMAs. You must set up the IRQ and DMA assignments correctly through the PnP/PCI Configuration Setup utility, otherwise the SBC will not work properly.

When you select the "PnP /PCI CONFIGURATION" on the main program, the screen display will appear as:

#### PnP/PCI Configuration Setup Screen

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#### PnP/PCI Configurations

PNP OS Installed	No	Item Help 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	
Memory Resources	Press Enter	
PCI/VGA Palette Snoop	Disabled	
INT Pin 1 Assignment	Auto	
INT Pin 2 Assignment	Auto	
INT Pin 3 Assignment	Auto	
INT Pin 4 Assignment	Auto	

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F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

**PnP OS Installed :** When set to "Yes", BIOS will only initialize the PnP cards used for booting (VGA, IDE, SCSI). The rest of the cards will be initialized by the PnP operating system like Windows® 95 or 98. When set to "No", BIOS will initialize all the PnP cards. So, for non-PnP operating system (DOS, Netware®), this option must set to "Yes".

**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. The settings are : "Enabled and Disabled".

**Resource Controlled By :** The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows®98. 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 settings are "Auto(ESCD)", "Manual".

**IRQ Resources :** When resources are controlled manually, assign each system interrupt as one of the following types, depending on the type of device using the interrupt.

**DMA Resources :** The sub menu can let you control the DMA resource.

**Memory Resources:** Select a base address and length for the memory area used by any peripheral that requires high memory.

**PCI/VGA Palette Snoop :** Leave this field at "Disabled". The settings are "Enabled", "Disabled".

### 3.9 PC Health Status

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

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PC Health Status

Shutdown Temperature	Disabled	Item Help
CPU_Voltage	1.58V	Menu Level
3V STANDBY	3.26V	
+3.3V	3.21V	
+5V	4.83V	
+12V	11.64V	
-12V	( - )12.11V	
-5V	( - ) 5.15V	
+1.8V	1.61V	
CPU Temperature	38	
Fan 1 Speed	4687 RPM	

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F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

**Shutdown Temperature :** This option is for setting the Shutdown temperature level for the processor. When the processor reach the temperature you set, this will shutdown the system. The item you can select including the 60 /140 , 65 /148 , 70 /158 and Disable.

**CPU Voltage :** This item shows the current CPU voltage. (Read only)  
Including 3V standby, +3.3V, +5V, +12V, -12V, -5V, +1.8V

**CPU Temperature :** This item shows the current CPU temperature.(Read only)

**FAN 1 Speed :** This item shows the FAN 1 speed.(Read only)

### 3.10 FREQUENCY / VOLTAGE CONTROL

This section is for setting CPU Frequency / Voltage Control.

CMOS Setup Utility – Copyright © 1984-2001 Award Software  
 Frequency/ Voltage Control

Auto Detect DIMM/PCI Clk	Enabled	Item Help
Spread Spectrum	Disabled	Menu Level
CPU Host /PCI Clock /PC133	Default	
CPU Clock Ratio	X3	

⏏ ⏴ ⏵ ↻ Move Enter: Select +/-/PU/PD: Value F10: Save Esc: Exit F1: General Help  
 F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

**Auto Dect DIMM/PCI Clk :** This item allows you to enable / disable auto detect DIMM / PCI Clock. The settings are “Enabled” and “Disabled”.

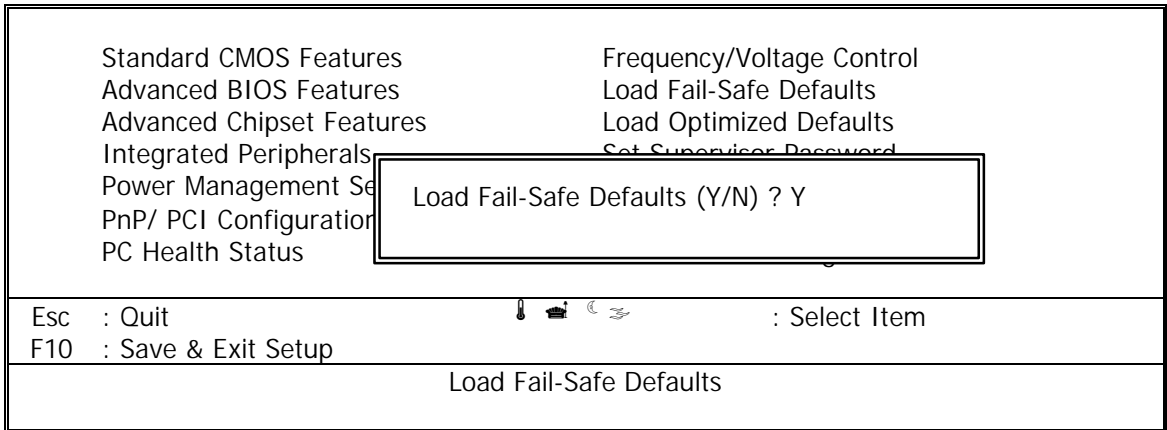
**Spread Spectrum Modulated:** When the system clock generator pulses, the extreme values of the pulse generate excess EMI. Enabling pulse spectrum spread modulation changes the extreme values from spikes to flat curves, thus reducing EMI. This benefit may in some cases be outweighed by problems with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

**CPU Host Clock/PCI Clock/ PC133 :** This item allows you to select the CPU Host / PCI Clock. The item you can select including 100/33MHz, 103/34MHz, 110/34MHZ, 115/38MHz and Default.

**CPU Clock Ratio:** This item allows you to set up the CPU clock ratio. This function depends on your CPU specification and the change might not take affect due to the CPU specification limitation.

### 3.11 Load Fail-Safe Defaults

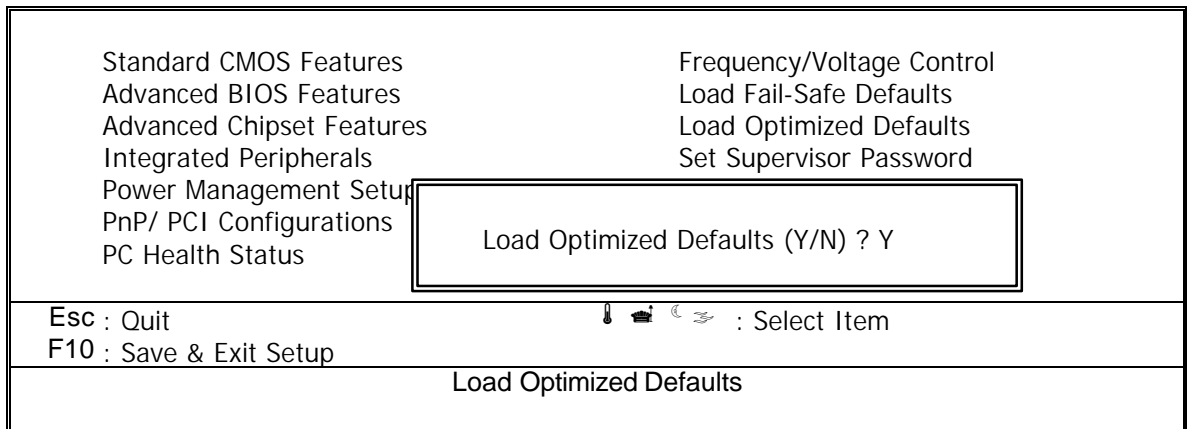
When you press "Enter" on this item, you get a confirmation dialog box with a message similar to :



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

### 3.12 LOAD OPTIMIZED DEFAULTS

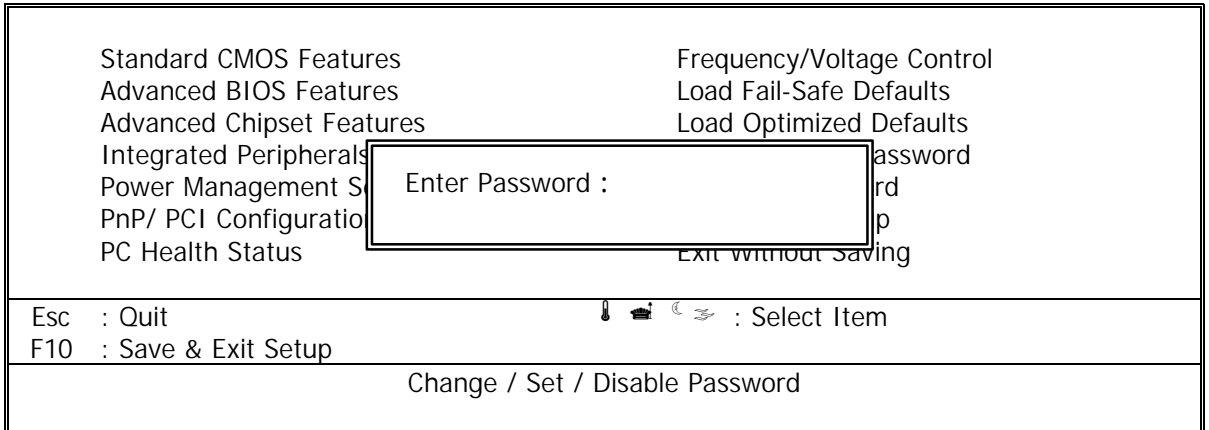
When you press "Enter" on this item, you get a confirmation dialog box with a message similar to :



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

### 3.13 Set Supervisor/User Password

The "SUPERVISOR/USER PASSWORD" utility sets the password. The SBC is shipped with the password disabled. If you want to change the password, you must first enter the current password, then at the prompt -- enter your new password. The password is case sensitive, and can be up to 8 alphanumeric characters. Press <Enter> after you have finished typing in the password. At the next prompt, confirm the new password by re-typing it and pressing <Enter> again. When you are done, the screen automatically reverts to the main screen. Remember that when you use this feature, the "Security Option" line in BIOS FEATURES SETUP will determine when entering the password will be required.



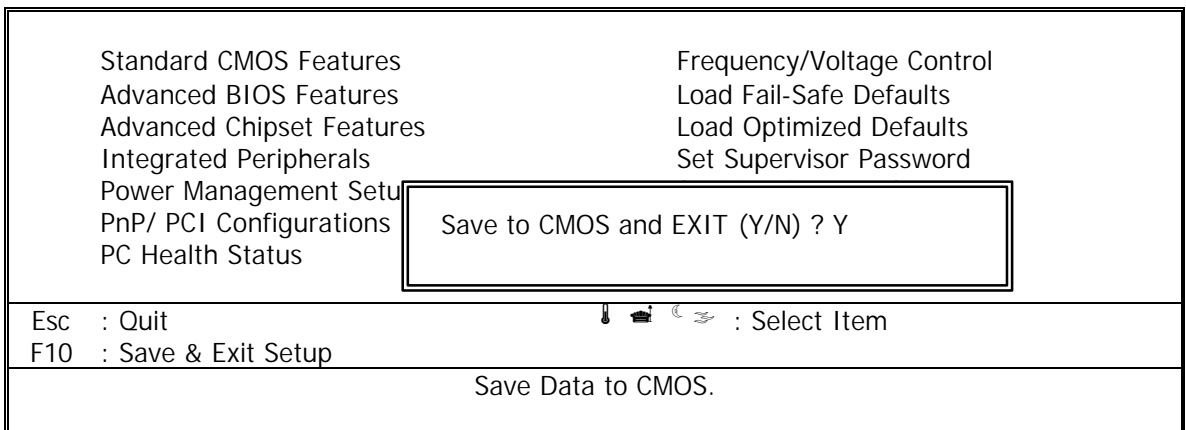
**To disable the password**, press the <Enter> key instead of entering a new password when the "Enter Password" in the dialog box appears. A message will appear confirming that the password is disabled.

If you have set both supervisor and user password, only the supervisor password allows you to enter the BIOS SETUP PROGRAM.

**Note :** If you forget your password, the only way to solve this problem is to discharge the CMOS memory by turning power off and placing a shunt on the S1 (open pad) for 5 seconds, then removing the shunt.

### 3.14 SAVE & EXIT SETUP

Select this option and press the <Enter> key to save the new setting information in the CMOS memory and continue with the booting process.



### 3.15 EXIT WITHOUT SAVING

Select this option and press the <Enter > key to exit the Setup Utility without recording any new values or changing old ones

Standard CMOS Features	Frequency/Voltage Control
Advanced BIOS Features	Load Fail-Safe Defaults
Advanced Chipset Features	Load Optimized Defaults
Integrated Peripherals	Set Supervisor Password
Power Management Set	
PnP/ PCI Configurations	Quit Without Saving (Y/N) ? N
PC Health Status	
Esc : Quit	
F10 : Save & Exit Setup	
Abandon all Data	



## CHAPTER 4. Drivers Support

### 4.1 Driver Support

#### 4.1.1 CORE CHIP

For installing Microsoft Windows operating system (95/98/ME/NT/200), you will need some device drivers. These drivers could be found in "EM-561 Series" directory on "Drivers CDROM". It is strongly recommended to use the driver provided instead of the ones supported by Microsoft Windows system.

In "EM-561 Series" directory, there are three main sub-directories: Corechip, VGA and Ethernet. Please refer to the explanation below for the explanation and installation.

##### **Corechip:**

Two sub-directories: "ide\_exe" and "System". You might find "it8888" sub-directory only in some earlier version of "Driver CDROM" and it is not necessary to install this driver any more.)

##### **Corechip/ide\_exe**

This directory contains Intel Ultra ATA Storage Driver 6.0. Please run the installing program **intelata603\_multi.exe** under Microsoft Windows systems.

##### **Corechip/System**

This directory contains Intel(R) Chipset Software Installation Utility. It will install to the target system the Windows\* INF files that outline to the operating system how the chipset components will be configured. This is needed for the proper functioning of the following features:

- Core PCI and ISA PnP Services
- AGP Support
- IDE/ATA33/ATA66 Storage Support
- USB Support
- Identification of Intel Chipset Components in Device Manager

Please refer to the **readme.txt** in directory Corechip/System/Disk1 before running the installing program **setup.exe**

#### 4.1.2 NETWORK

##### **Ethernet**

The directory contains Intel(R) PRO LAN Adapter drivers (release 4.1.1). There are drivers for Microsoft Windows 95/98/ME/NT/2000, Novell NetWare Servers & Clients, Microsoft DOS and IBM OS2. Please refer to **readme.txt** and **relnotes.txt** before installing the driver.

#### 4.1.3 VGA

VGA: Sub-directories are listed below.

##### **VGA/vga\_linux:**

The directory contains RPM for driving Intel 810 & 815 Chipset Family under Linux System. Please refer to **release\_linux.pdf** for installation information.

##### **VGA/vga\_nt4**

The directory contains graphics drivers for Intel(R) 810/810E/815/815E Chipsets in Microsoft Windows NT4.0. Please refer to **readment4.txt** first before running the auto-installing program **winnt4m60.exe**.

### VGA/vga\_w2k

The directory contains graphics drivers for Intel(R) 810/810E/815/815E Chipsets in Microsoft Windows 2000. Please refer to **readmewin2k.txt** first before running the auto-installing program **win2km60.exe**.

### VGA/win9x

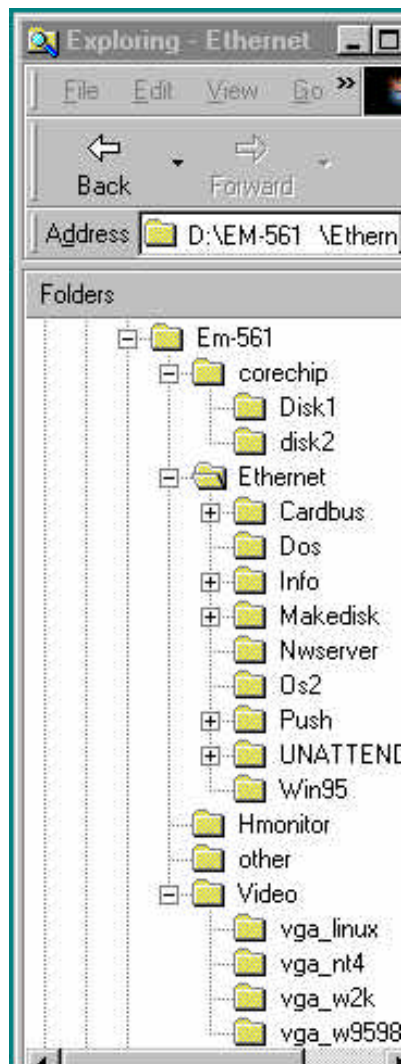
The directory contains graphics drivers for Intel(R) 810/810E/815/815E Chipsets in Microsoft Windows 95/98/Millennium. Please refer to **readme.txt** first before running the auto-installing program **setup.exe**.

#### 4.1.4 HARDWARE MONITOR

### Hmonitor

The directory contains graphics drivers for Intel(R) 810/810E/815/815E Chipsets. Please refer to **readme.txt** before running the auto-installing program **Install.exe**.

## 4.2 DRIVER SUPPORT LIST

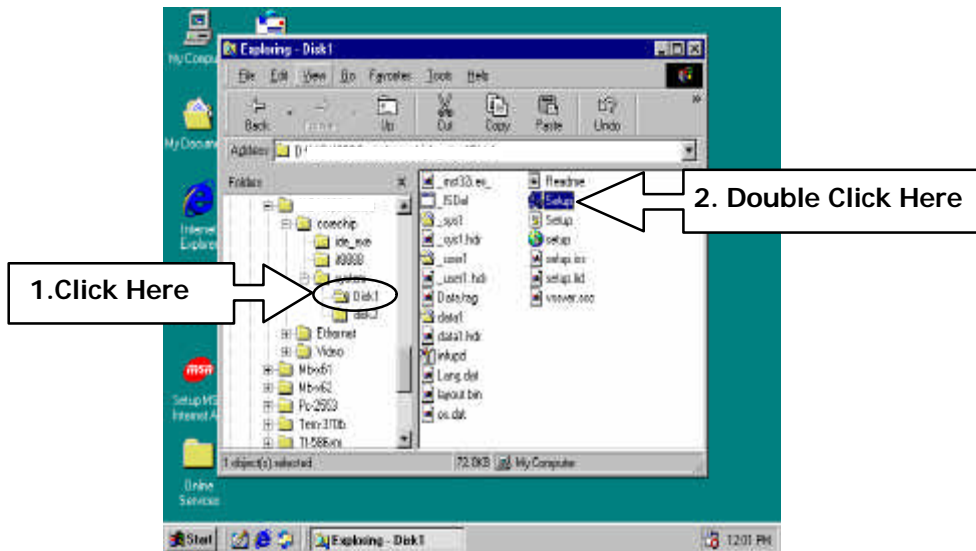


## 4.3 DRIVER SETUP & INSTALLATION

### 4.3.1 Intel 815 chipset Driver Setup

Setp 1. Run Driver CD-ROM

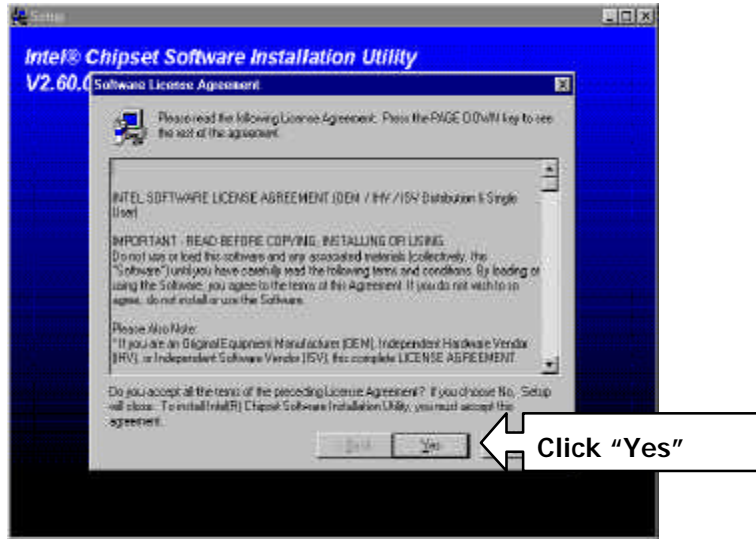
Setp 2. Directory: EM-561 Series / corechip / Disk1/ Setup.exe



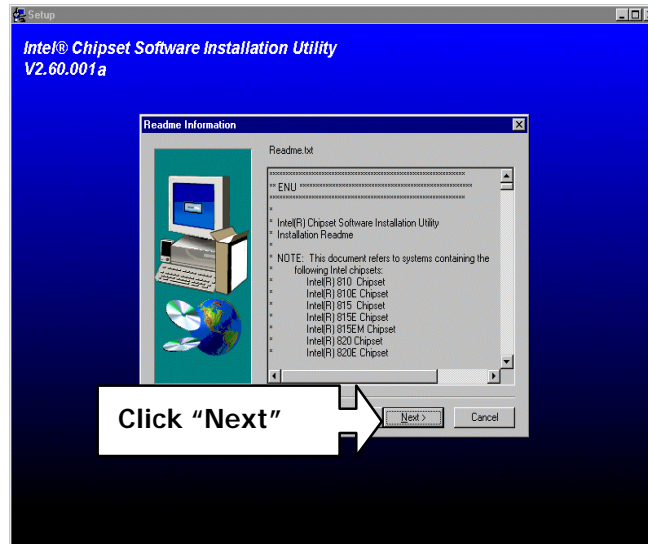
Setp 3.



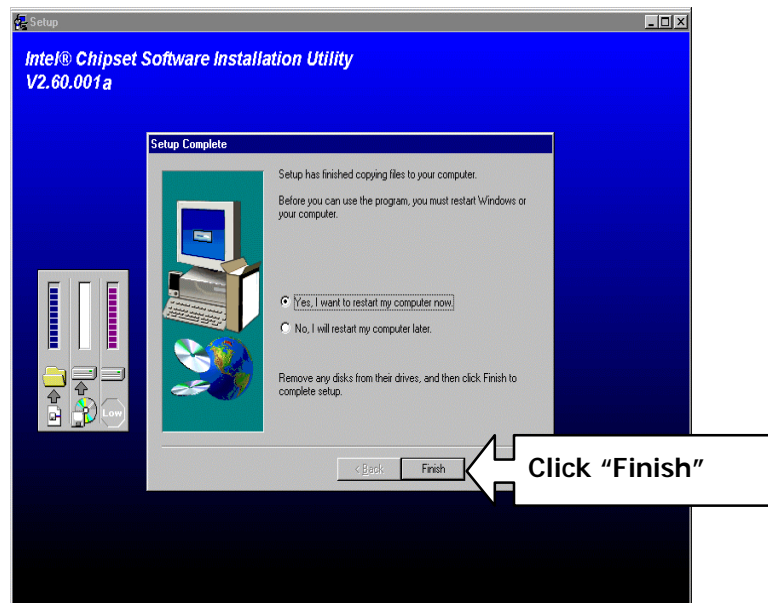
Setp 4.



Setp 5.

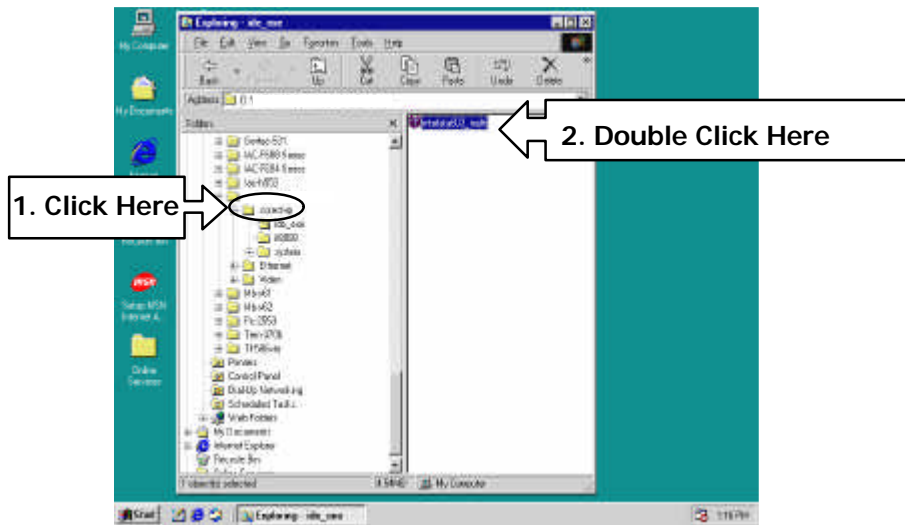


Setp6

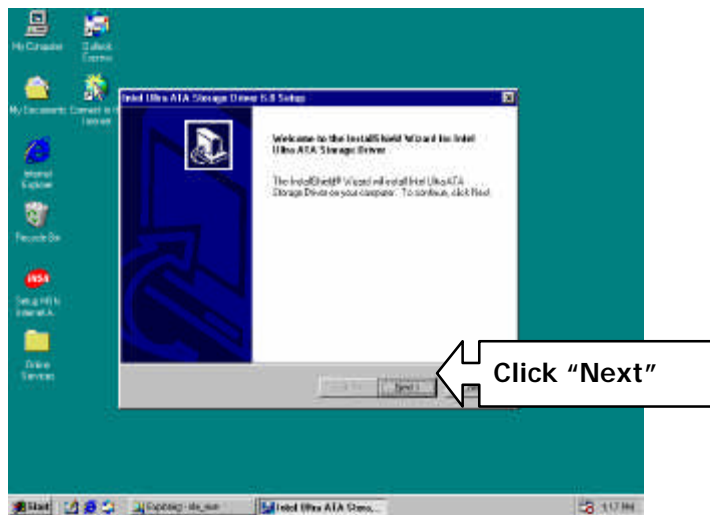


### 4.3.2 Intel Ultra ATA Storage Driver Install

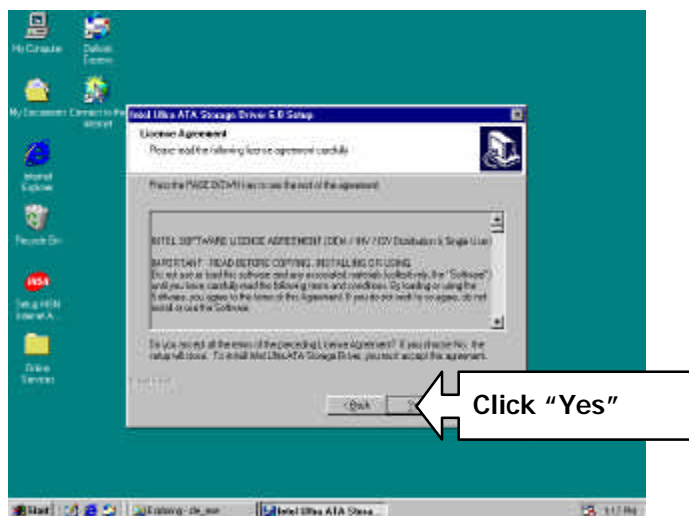
Step 1. Directory: EM-561 Series / corechip / intelata063\_multi.exe



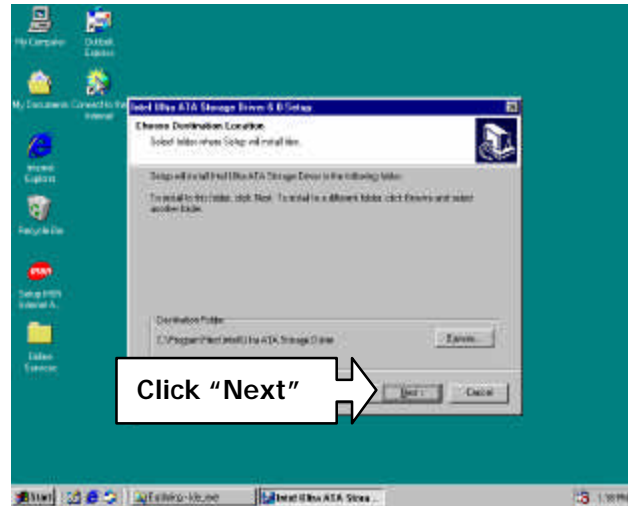
Step 2.



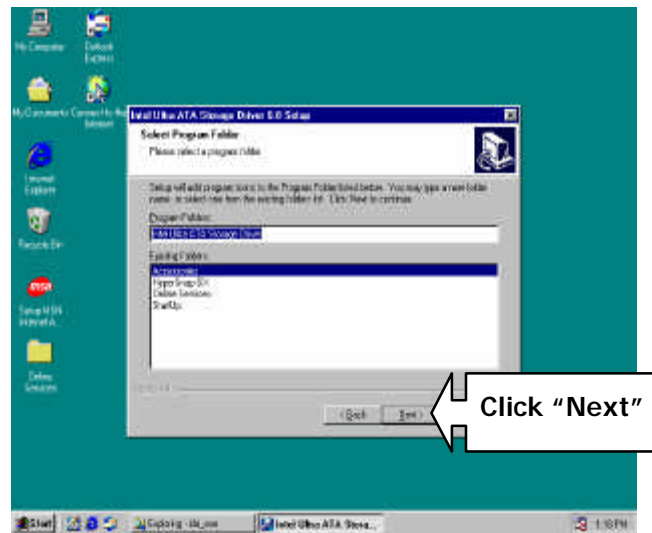
Step 3.



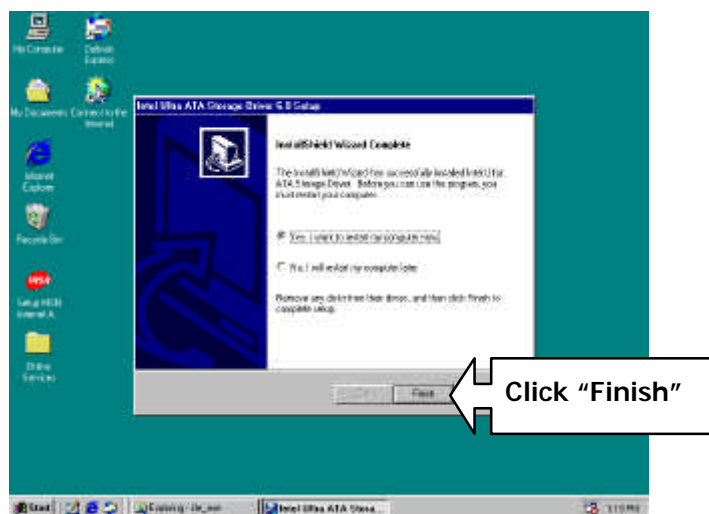
Step 4.



Step 5.

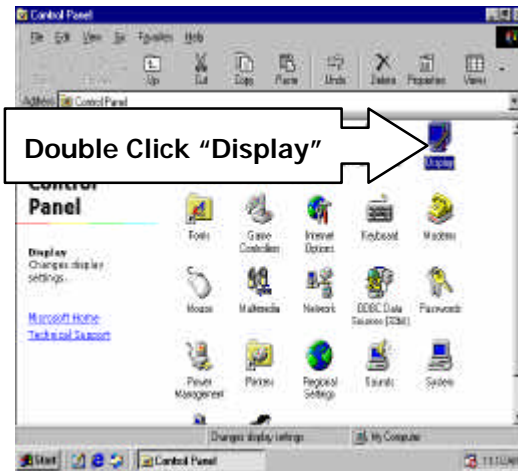


Step 6.

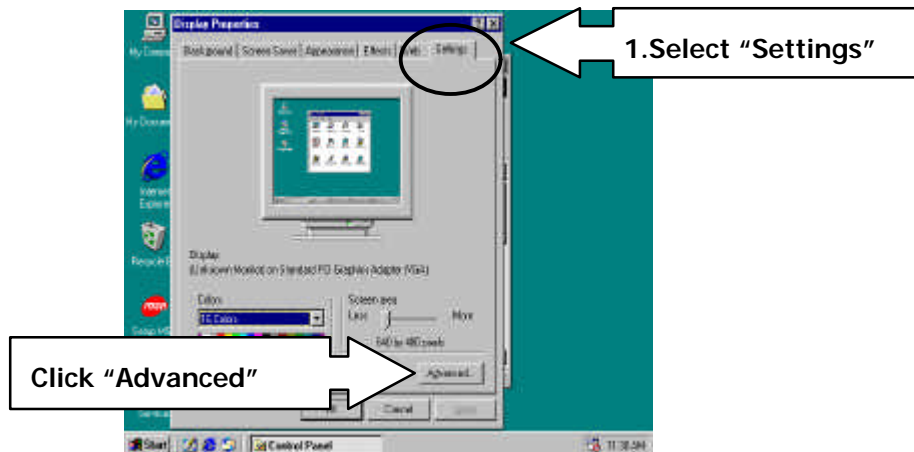


### 4.3.3 VGA Driver Install

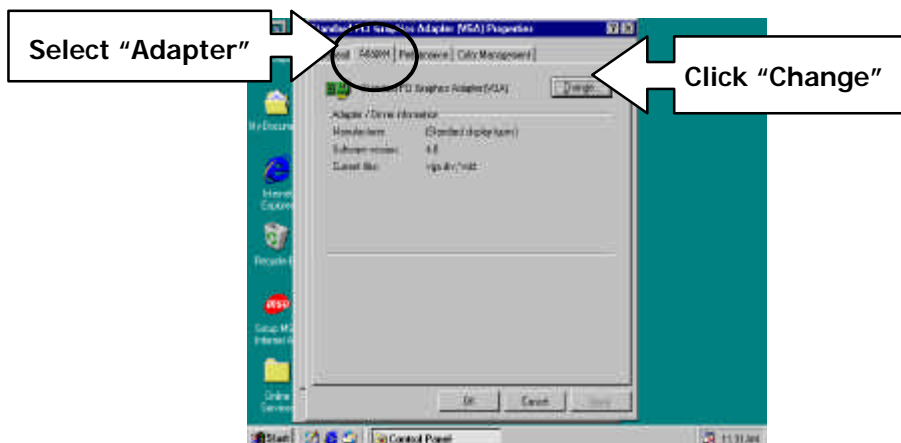
#### Step 1



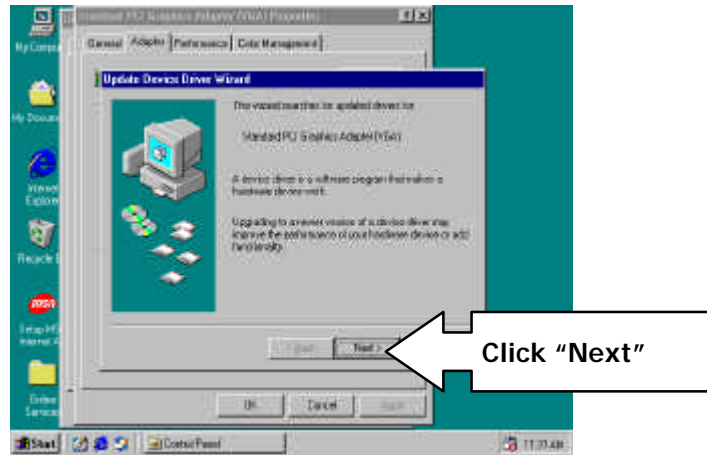
#### Step 2.



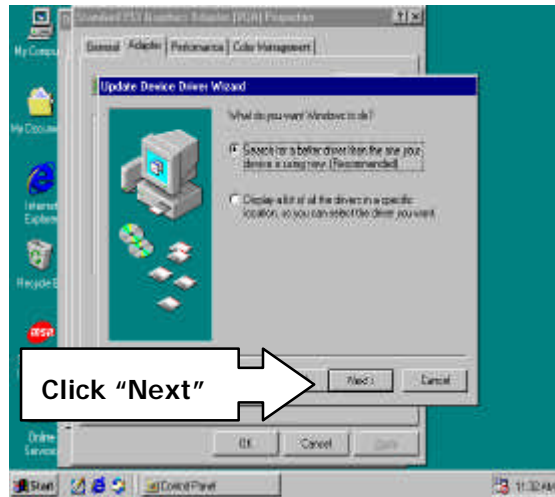
#### Setp 3.



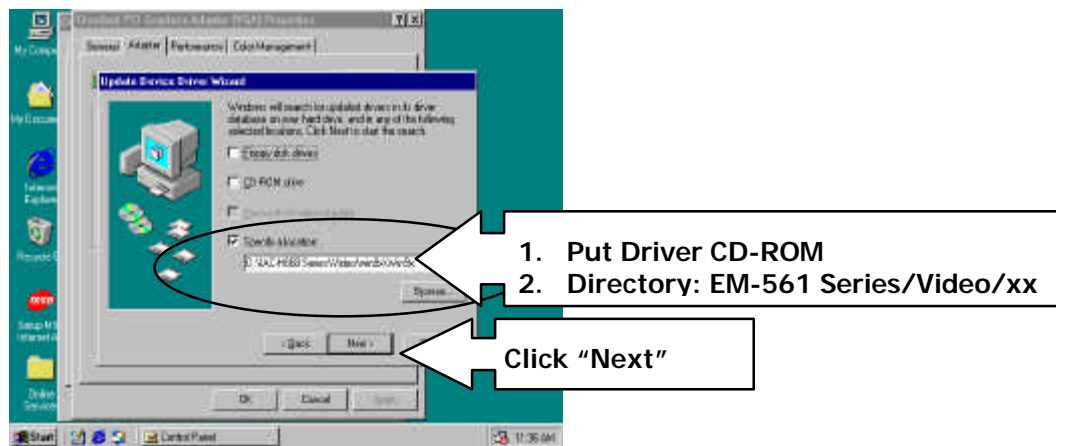
Step 4.



Step 5.

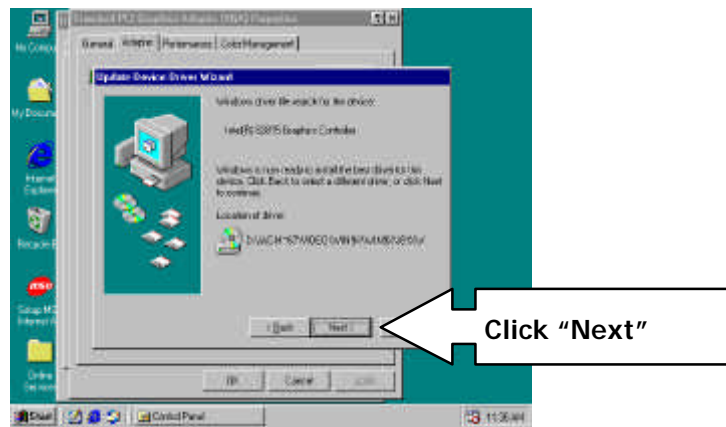


Step 6.

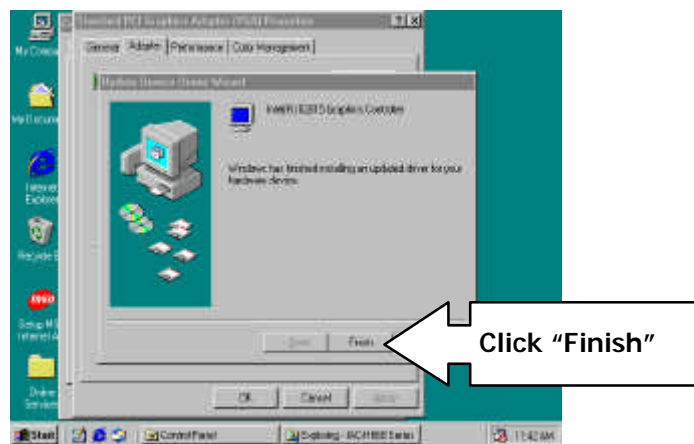




Step 7.

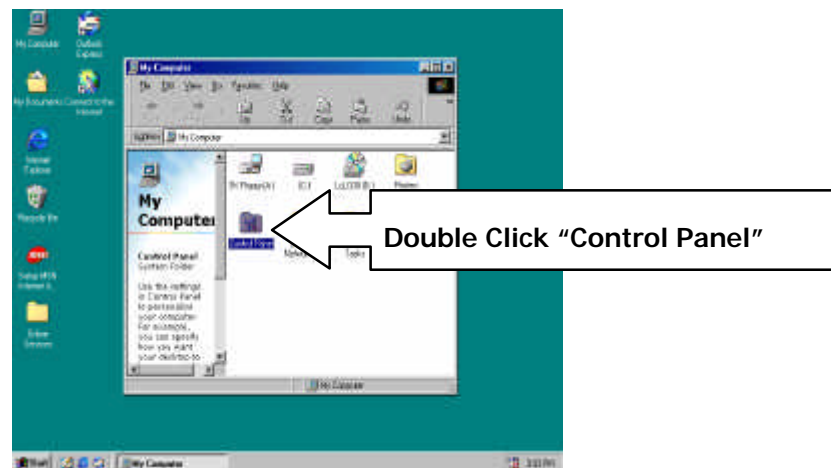


Step 8.

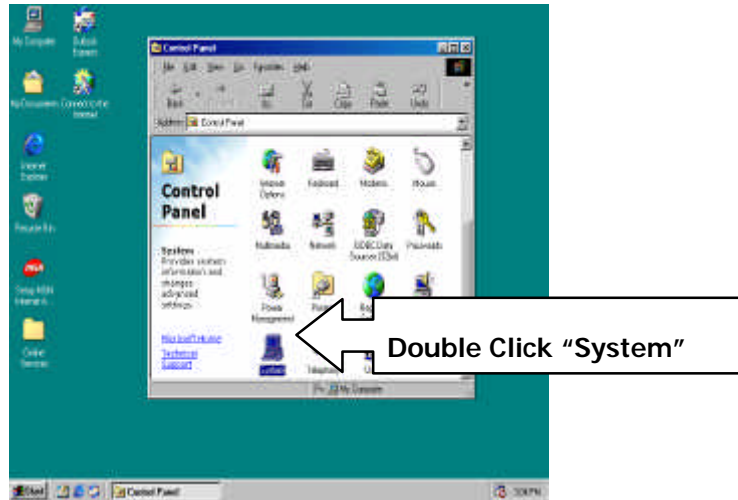


#### 4.3.4 LAN Driver Install

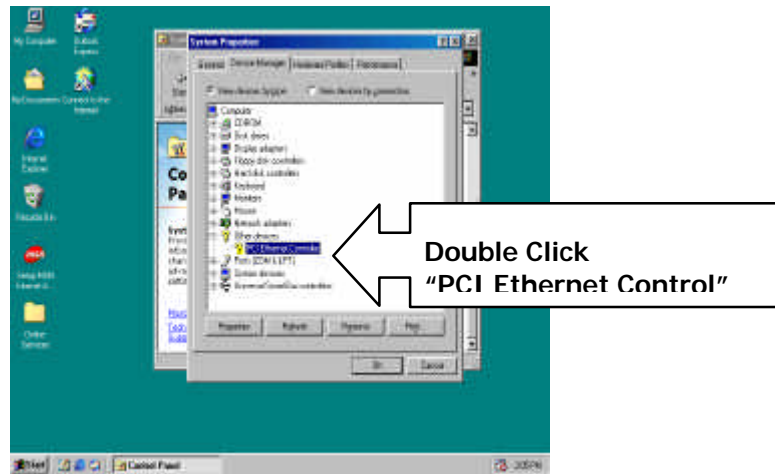
Setp 1.



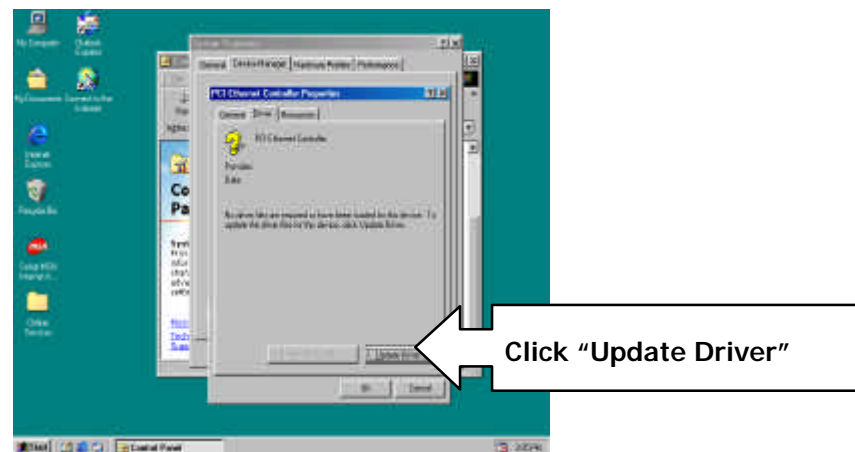
Setp 2.



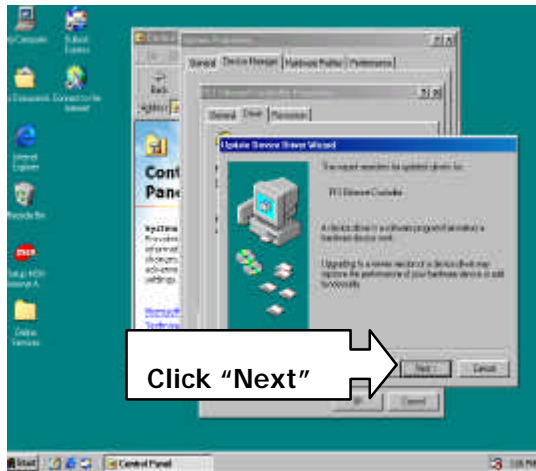
Setp 3.



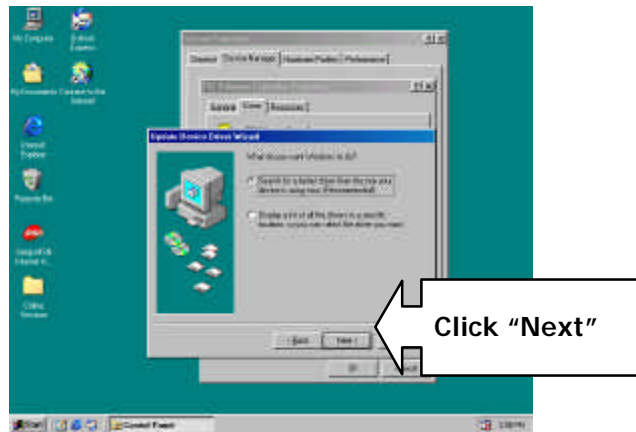
Setp 4.



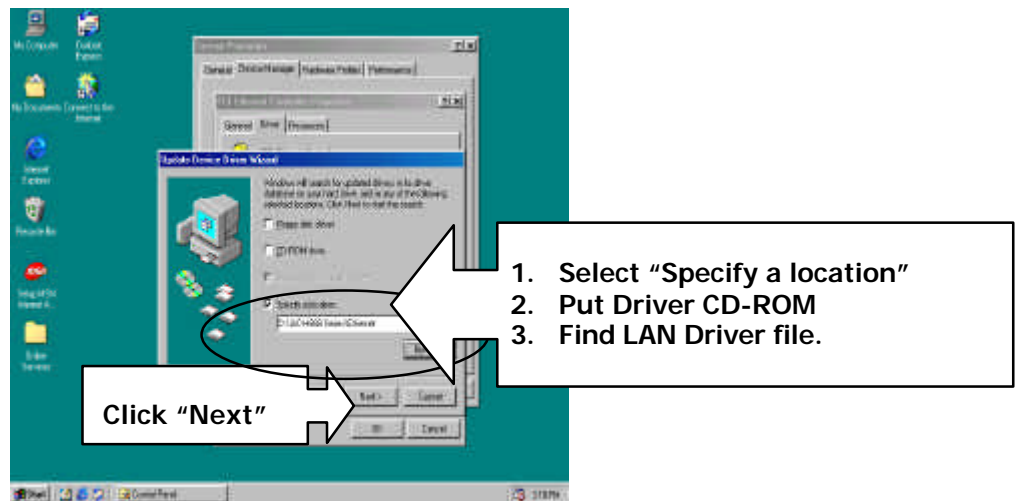
Setp 5.



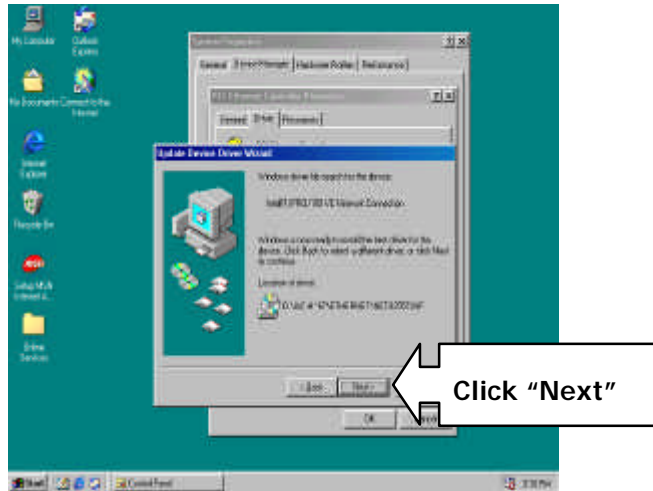
Setp 6.



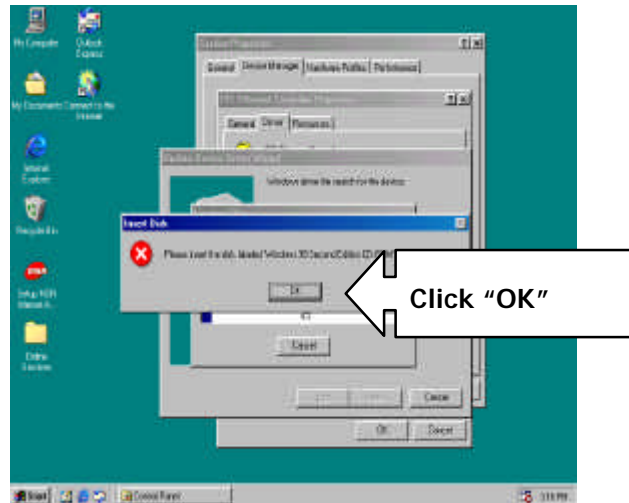
Setp7.



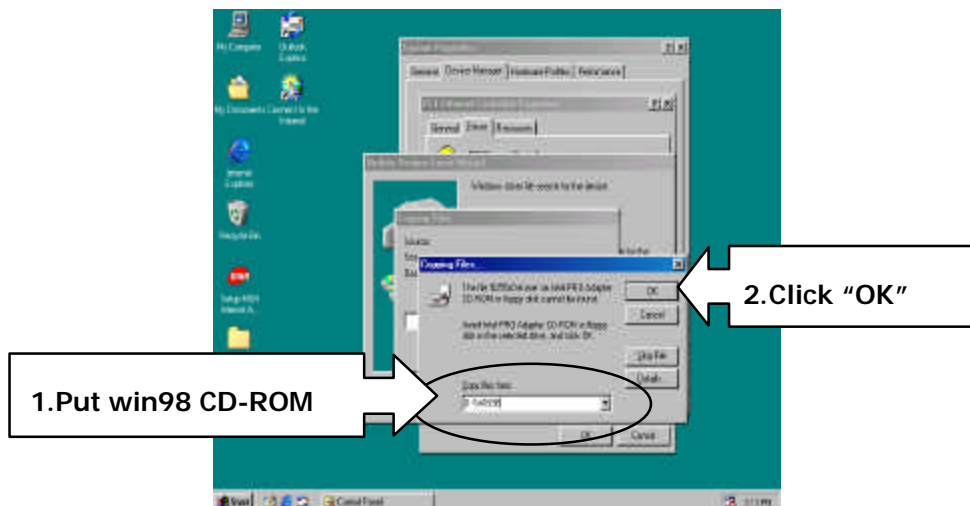
Setp 8.



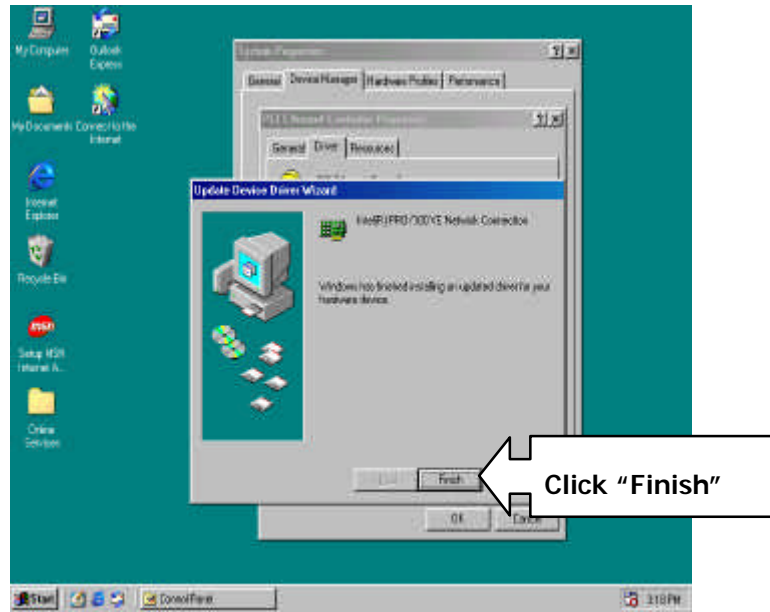
Setp 9.



Setp 10.



Setp 11.



## APPENDIX A. How to use watch-dog timer

To use the watch-dog timer :

- Step 1.** Enable and retrigger the Watch-Dog timer : Output port **443H**  
**Step 2.** Disable : Output port **441H**

### EX.1: For DOS

Execute the **DEBUG.EXE** file under DOS, Then key-in **O443**. The system will reboot automatically according to the time-out you set.

**Enable**  
C:\DOS> DEBUG  
O 443 0~F

**Disable**  
C:\DOS> DEBUG  
O 441 0~F

### EX.2: For assemble Language

**Enable :**

```
:  
:  
MOV DX, 443H  
OUT DX , AL  
:  
:
```

**Disable :**

```
:  
:  
MOV DX, 441H  
OUT DX , AL  
:
```

# Terms and Conditions

---

Date:1997.10.20

## Warranty Policy

1. All products are warranted against defects in materials and workmanship on a period of two years from the date of purchase by the customer.
2. The buyer will bear the return freight charges for goods that are returned for repair within the warranty period whereas manufacturer will bear the other way after repair.
3. The buyer will pay for repair (for the replaced materials plus service time) and transportation charges (both ways) for items after the expiration of the warranty period.
4. If the RMA Service Request Form does not meet the stated requirement as listed on "RMA Service " , RMA goods will be returned at the customer expense.
5. The following conditions are excluded from this warranty :
  - A. Improper or inadequate maintenance by the customer.
  - B. Unauthorized modification or misuse.
  - C. Operation outside of the environmental specifications for the product.

## RMA Service

### **1. Request a RMA# :**

Complete and fax to Supplier the "RMA Request Form" to obtain a RMA number.

### **2. Shipping:**

- A. The customer is requested to fill up the problem code as listed . If none of the code is selected, please write the symptom description on the remark.
- B. Ship the defective units with freight prepaid.
- C. Mark the RMA # clearly on the box.
- D. Shipping damage as a result of inadequate packing is the customer's responsibility.
- E. Use the original packing materials whenever possible .

### **3. All RMA# are valid for 30 days only:**

When RMA goods are received after valid RMA# period , the goods will be rejected.

# RMA Service Request Form

When requesting RMA service, please fill out this "RMA Service Request Form".  
**Without this form your RMA will be REJECTED!!!**

<b>RMA No:</b>	Reasons to Return: Testing Purpose	Repair(Please include failure details)
Company:	Contact Person:	
Phone No.	Purchased Date:	
Fax No.:	Applied Date:	
Return Shipping Address: _____		
Shipping by:    Air Freight    Sea    Express: _____    Others: _____		

Item	Model Name	Serial Number	Configuration

Item	Problem Code	Failure Status

**\*Problem Code:**

- |                        |                              |                    |                          |
|------------------------|------------------------------|--------------------|--------------------------|
| 01: D.O.A.             | 07: BIOS Problem             | 13: SCSI           | 19: DIO                  |
| 02: Second Time R.M.A. | 08: Keyboard Controller Fail | 14: LPT Port       | 20: Buzzer               |
| 03: CMOS Data Lost     | 09: Cache RMA Problem        | 15: PS2            | 21: Shut Down            |
| 04: FDC Fail           | 10: Memory Socket Bad        | 16: LAN            | 22: Panel Fail           |
| 05: HDC Fail           | 11: Hang Up Software         | 17: COM Port       | 23: CRT Fail             |
| 06: Bad Slot           | 12: Out Look Damage          | 18: Watchdog Timer | 24: Others (Pls specify) |

**Request Party**

**Confirmed By Supplier**

\_\_\_\_\_  
**Authorized Signatures / Date**

\_\_\_\_\_  
**Authorized Signatures / Date**