Low Power Embedded SBC with VGA, LAN,
TV-out, Card Bus, Audio & SSD

User's Manual

Version 1.0

Manual edition 1.0, Jan, 2003

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Chapter 1. General Information

1.1 Introduction

The AW-EM650 is a full function of 5.25" Embedded format SBC board use Intel® 815E and ICH2 chipset supports Intel® 400/650MHz (Micro-FCBGA packaging) ultra low power processors and optional Intel® PIII uFCBGA LV processors up to 933MHz and Celeron Socket 479 uFCPGA up to 1.333GHz. The AW-EM650 supports Intel® 82559 Ethernet chipset with RJ45 jack for 10/100Mbps and optional for Realtek 8139C+.

The onboard features include one RS-232 and one RS-232/422/485 serial port, and two USB ports. Also the AW-EM650 supports AC-97 audio interface, CardBus interface with two PCMCIA card slots, TV-out interface with output connector for providing dual RCA video connector and built in one CompactFlash™ socket and one DiskOnChip® socket.

Further to CardBus, it supports any combination of 16-bit and CardBus PC Cards in the two sockets, powered at 5V or 3.3V , as required. It is compliant with the PCI Local Bus Specification, and its PCI interface can act as either a PCI master device or a PCI slave device.

About TV-Out interface, the AW-EM650 built in Chrontel digital TV encoder for TV-Out function; it is a display controller device which accepts a digital graphics input signal, and encodes and transmits data to a TV output (analog composite, s-video or RGB). The TV-Out processor will perform non-interlace to interlace conversion with scaling and flicker filters, and encode the data into any of the NTSC or PAL video standards. The scaling and flicker filter is adaptive and programmable to enable superior text display. Eight graphics resolutions are supported up to 1024 by 768 with full vertical and horizontal underscan capability in all modes. Furthermore, the AW-EM650 built in an low power, single supply, triple video amplifier IC, it can be used in video multiplexing applications.

1.2 Specification

General Functions

CPU	Intel® 400/650MHz uFCBGA ULV processors, PIII uFCBGA LV processors up to 933MHz and Celeron uFCPGA up to 1.333GHz processors
BIOS	Award® 512KB Flash BIOS
Chipset	Intel® 815E +ICH2 Chipset
I/O Chipset	Winbond 83627HF

Memory	Onboard 32/64/128MB and one 144-pin SO-DIMM socket supports up to 512Mbytes SDRAM
Enhanced IDE	Support 2.5" IDE HDD
Serial port	One RS-232 and one RS-232/422/485 serial port
KB/Mouse connector	Supports PS/2 keyboard and PS/2 mouse
USB connectors	Supports two USB ports
Battery	Lithium battery for data retention of up to 10 years (under normal condition)
Watchdog Timer	Can generate a system reset, or PIRQ#E. Support software selectable timeout interval.
CRT Interface	
Chipset	Intel® 815E chip with integrated 2D/3D/Video Accelerator
Display type	Support dual CRT connectors
Display memory	Support max.4MB SDRAM
Ethernet Interface	
Chipset	Intel® 82559 100Base-Tx Fast Ethernet controller and optional for Realtek 8139C+
Ethernet interface	PCI 100/10Mbps Ethernet controller. IEEE802.3U protocol compatible
SSD Interface	One 50-pin CompactFlash™ socket and one 32-pin DiskOnChip® socket
CardBus Interface	
Chipset	TI PCI 1420 Card Bus controller
Interface	Complies with PCMCIA v.2.10 and JEIDA v.4.1 Provide full supports for all Type I/II/III PCMCIA memory, I/O and ATA hard disk cards.
Output connector	Two built-in PCMCIA card slots
TV-out Interface	
Chipset	Chrontel digital TV encoder
TV Format	Supports NTSC and PAL signals format

Output connector	Provides dual RCA(composite) video connectors
Sound Interface	
Chipset	AC 97 codec
Audio Controller	SoundBlaster Pro Hardware and Direct Sound Ready AC97 Digital Audio
Audio interface	Mic in, Speaker out
Mechanical and Environmental	
Power supply voltage	+12V(11.4 to 12.6V)
Max. power requirements	5A@+12V
Operating temperature	32 to 140 (0 to 60 C)
Board size	8"(L) x 5.75"(W) (203mm x 146mm)

1.3 AW-EM650 Package

Please make sure that the following items have been included in the package before installation.

1. AW-EM650 Low Power Embedded SBC
2. Quick Setup
3. Cable: Please refer to Appendix B Optional Cables
4. CD-ROM which contains the following folders:

(1) Manual
(2) System Driver
(3) VGA Driver
(4) Ethernet Driver
(5) Tools

If any of these items are missing or damaged, please contact your dealer from whom you purchased the board at once. Save the shipping materials and carton in the event that you want to ship or store the board in the future. After you unpack the board, inspect it to assure an intact shipment. Do not apply power to the board if it appears to have been damaged.

Leave the board in its original packing until you are ready to install

Precautions

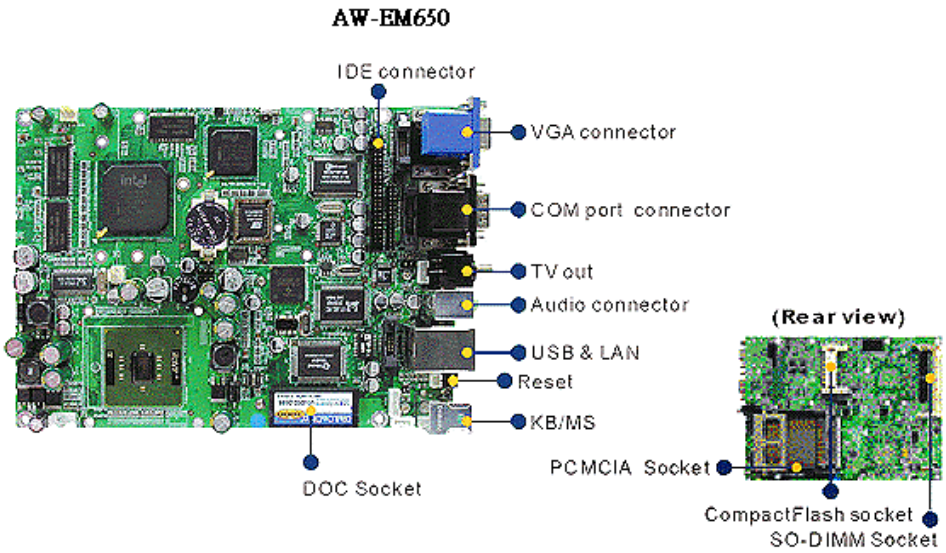
Please make sure you properly ground yourself before handling the AW-EM650 board or other system components. Electrostatic discharge can be easily damage the AW-EM650 board.

Do not remove the anti-static packing until you are ready to install the AW-EM650 board.

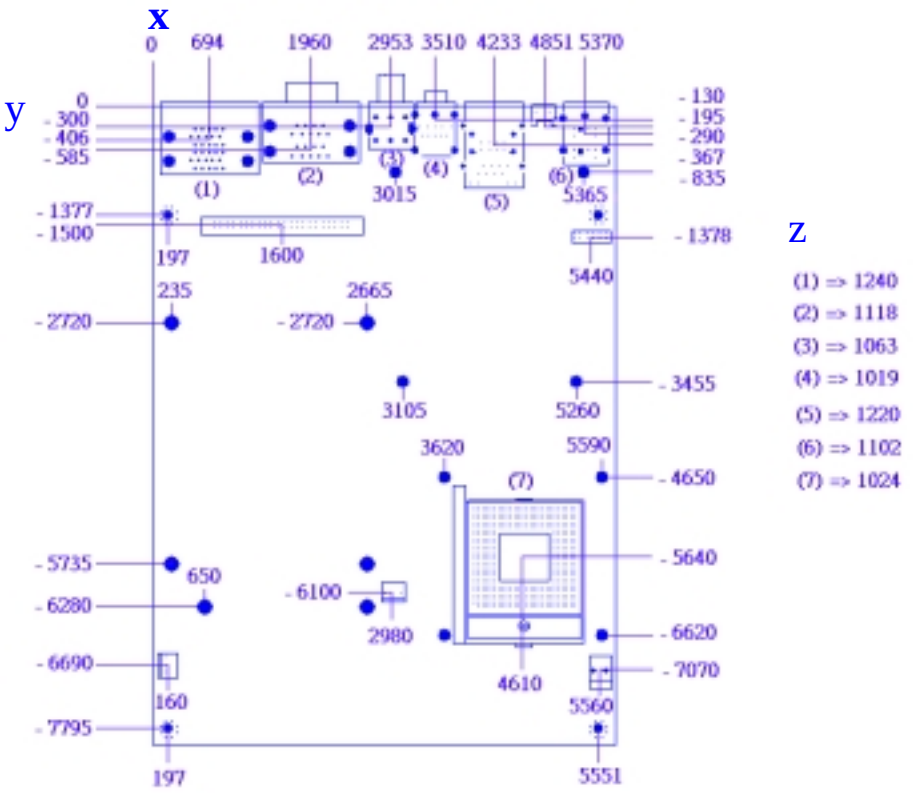
Ground yourself before removing any system component from it protective anti-static packaging. To ground yourself, grasp the expansion slot covers or other unpainted parts of the computer chassis.

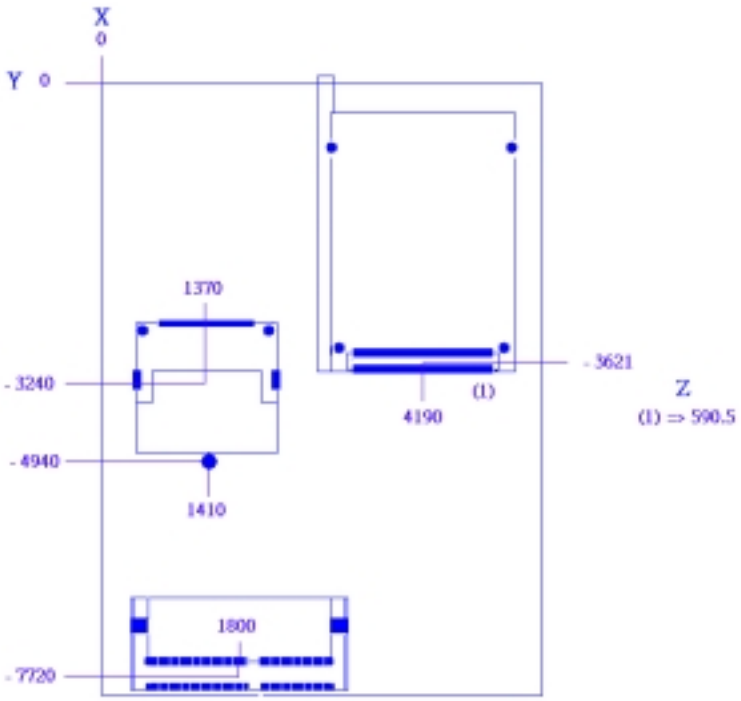
Handle the AW-EM650 board by its edges and avoid touching its component.

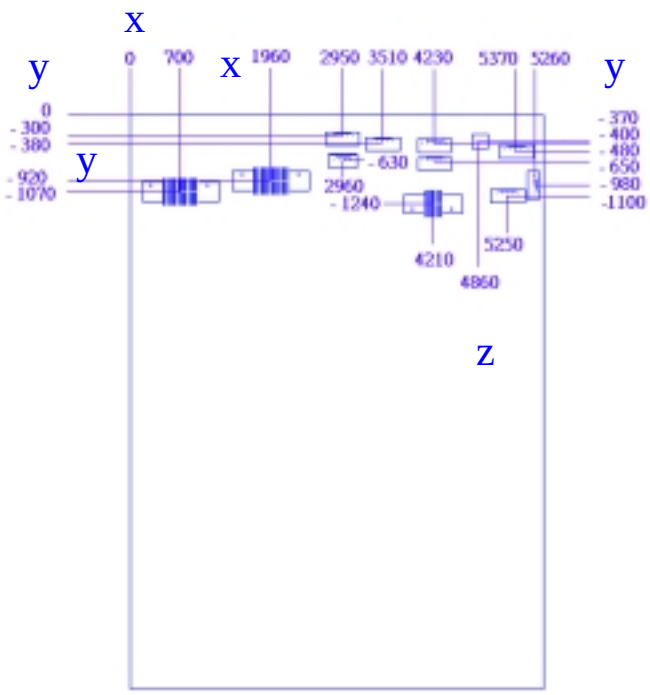
1.4Board Layout



1.5 Board Dimension

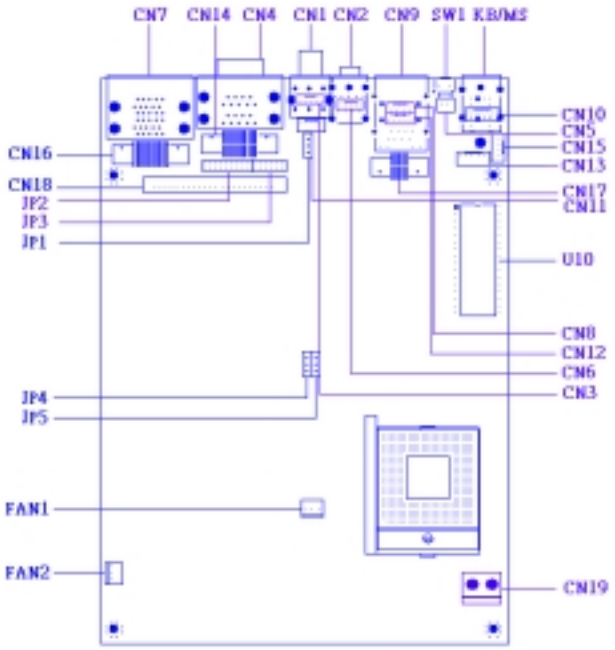

x
y
z
0
694
1960
2953
3510
4233
4851
5370
0
- 300
- 406
- 585
- 130
- 195
- 290
- 367
- 835
(1)
(2)
(3)
(4)
(5)
(6)
3015
5365
- 1377
- 1500
197
1600
- 1378
5440
235
2665
- 2720
- 2720
3105
5260
- 3455
3620
5590
(7)
- 4650
- 5735
650
- 6100
- 5640
- 6280
2980
- 6620
- 6690
4610
- 7070
160
5560
- 7795
197
5551
(1) => 1240
(2) => 1118
(3) => 1063
(4) => 1019
(5) => 1220
(6) => 1102
(7) => 1024


X
0
Y 0
1370
- 3240
- 4940
1410
- 3621
(1)
4190
Z
(1) => 590.5
1800
- 7720


x
y
0
700
x
1960
2950
3510
4230
5370
5260
y
0
- 300
- 380
y
- 920
- 1070
- 630
2960
- 1240
4210
5250
4860
- 370
- 400
- 480
- 650
- 980
-1100
z

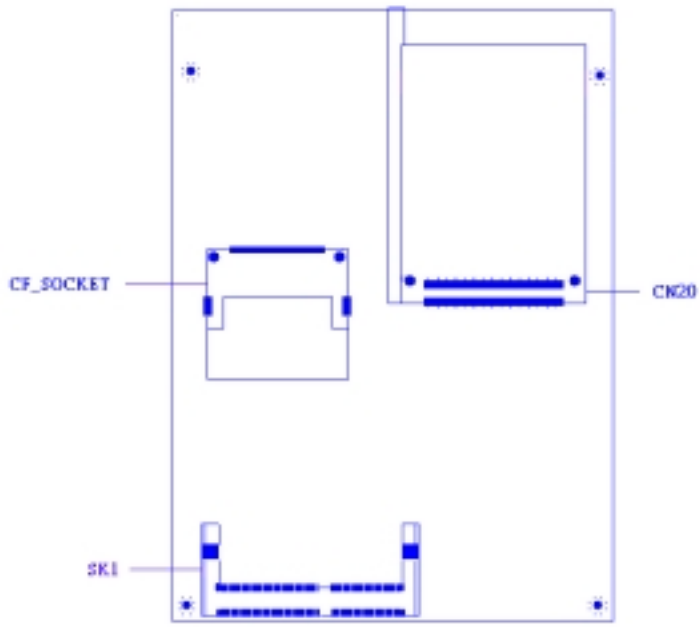
Chapter 2. Connectors/Switch Location and Configuration

2.1 Connectors/Jumpers Location and Define



Location	Description
CN1	TV-OUT(DUAL) CONNECTOR
CN2	AUDIO(SPK & MIC) CONNECTOR
CN3	TV-OUT HEADER (DUAL)
CN4	COM PORT(DUAL) CONNECTOR
CN5	RESET HEADER
CN6	AUDIO HEADER (SPK&MIC)
CN7	VGA(DUAL) CONNECTOR
CN8	USB0 HEADER
CN9	LAN & USB 0/1 CONNECTOR
CN10	KEYBOARD HEADER
CN11	POWER & HDD LED HEADER
CN12	USB1 HEADER
CN13	MOUSE HEADER

CN14	COM PORT HEADER
CN15	LAN LED HEADER
CN16	VGA HEADER (DUAL)
CN17	LAN HEADER
CN18	IDE HEADER
CN19	POWER HEADER
FAN1	FAN CONNECTOR
FAN2	FAN CONNECTOR
SW1	RESET BUTTON
U20	DISK ON CHIP SOCKET



Location	Description
SK1	SODIMM SOCKET
CF_SOCKET1	COMPACT FLASH SOCKET
CN20	PCMCIA SOCKET

2.2. Onboard Processors

The AW-EM650 onboard built-in Intel® 400/650(Micro-FCBGA packaging) ultra low power processors. The CPU cooler fan will be mounted when board with 650MHz CPU and the high profile Heatsink will be mounted when 400MHz CPU.

2.3 Installing Memory

To insert a DIMM Memory:

The AW-EM650 supports one 144-pin DIMM sockets, memory up to 512Mbyte.

To Insert a DIMM Memory*:* Please align the module with the socket key and press down until the levers at each end of the socket snap close up.

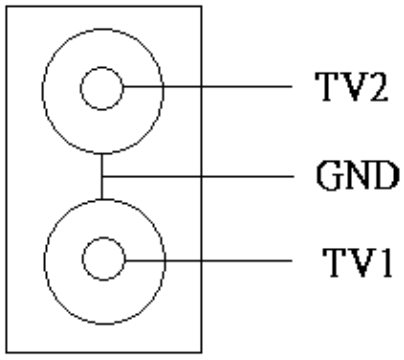
There is only one direction for installing a module in the socket. Do not attempt to force the module into the socket incorrectly.

To Remove a DIMM Memory: To remove a DIMM, press down on the levers at both end of the module until the module pops out

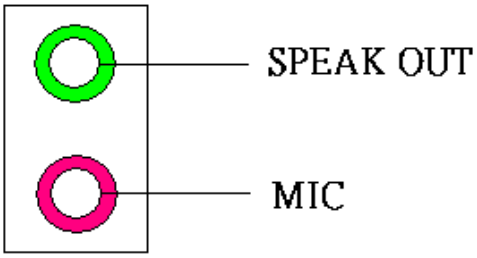
There is only one direction for installing a module in the socket. Do not attempt to force the module into the socket incorrectly.

2.4 Connector and Jumper Settings

CN1: TVOUT (RCA JACK – DUAL)



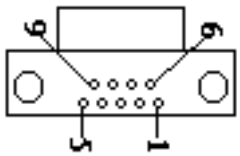
CN2: AUDIO (SPK & MIC)



CN3: TVOUT HEADER (DUAL) – 2mm connector

Pin	Assignment
1	TV1
2	GND
3	NC
4	TV2
5	GND

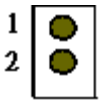
CN4: COM PORT – COM1 & COM 2



Pin	Define
1	DCD
2	RXD
3	TXD
4	DTR
5	Ground
6	DSR
7	RTS
8	CTS
9	RI

CN5: RESET HEADER – 2mm conncctor

Pin	Assignment
1	HWRST
2	GND

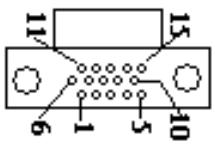


CN6: AUDIO HEADER (SPK & MIC)

Pin	Assignment
1	LINQUTR
2	LINQUTL
3	MIC
4	GND
5	GND

CN7: VGA (DUAL)

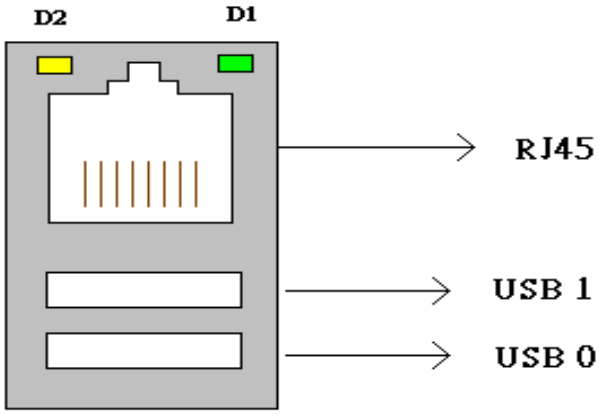
Pin	Signal	PIN	Signal
1	RED	9	NC
2	GREEN	10	Ground
3	BLUE	11	NC
4	NC	12	DDC Data
5	Ground	13	H-SYNC
6	Ground	14	V-SYNC
7	Ground	15	DDC Clock
8	Ground		

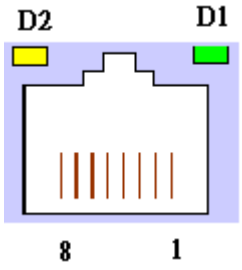


CN8: USB0 HEADER

Pin	Assignment
1	USBVCC0
2	USBDATA0 -
3	USBDATA0 +
4	USBGND0
5	GND

CN9: LAN & USB





D2: Speed indicated LED	
10 Mbps	DIM
100 Mbps	GREEN
D1 :Link/Activity LED	
Link	YELLOW
Activity	BLINKING

CN10: KEYBOARD HEADER

Pin	Assignment
1	KB CLOCK
2	KB DATA
3	NC
4	GND
5	KSMSVCC

CN11: POWER & HDD LED HEADER

Pin	Assignment	Define
1	GND	POWER LED
2	VCC3	
3	IDEACT#	HDD LED
4	VCC3	

CN12: USB1 HEADER

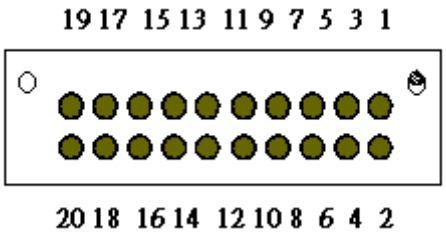
Pin	Assignment
1	USB VCC1
2	USB DATA1 -
3	USB DATA1 +
4	USBGND1
5	GND

CN13: MOUSE HEADER

Pin	Assignment
1	MS CLOCK
2	MS DATA
3	NC
4	GND
5	KBMSVCC

CN14: COM PORT HEADER

Pin	Assignment	Pin	Assignment
1	DCD0#	2	DSR0
3	RXDD0	4	RTS0
5	TXDD0	6	CTS0
7	DTR0	8	SNRI0#
9	GND	10	NC
11	DCD1#	12	DSR1
13	RXDD1#	14	RTS1
15	TXDD1	16	CTS1
17	DTR1	18	SNRI1#
19	GND	20	NC

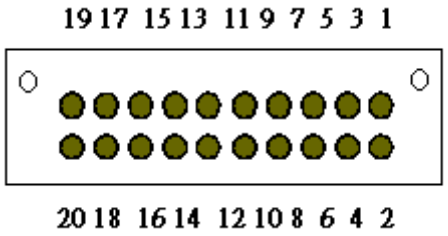


CN15: LAN LED HEADER

Pin	Assignment
1	SPEEED
2	VCC3
3	LINK
4	ACTIVE

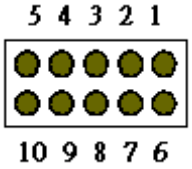
CN16:VGA HEADER (DUAL)

Pin	Assignment	Pin	Assignment
1	RV0	2	GV0
3	BV0	4	CRT0
5	CRT2	6	CRT3
7	HS0	8	VS0
9	5VDDCCL	10	5VDDCDA
11	RV1	12	GV1
13	BV1	14	CRT1
15	CRT2	16	CRT3
17	HS1	18	VS1
19	GND	20	GND



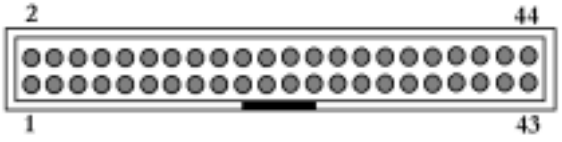
CN17: LAN HEADER

Pin	Assignment	Pin	Assignment
1	TDD +	6	TDD -
2	RDD +	7	RDD -
3	SM	8	SM
4	SH	9	SH
5	GND	10	GND

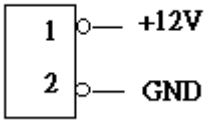


CN18: IDE HEADER

Pin	Signal	Pin	Signal
1	Reset	23	IOW#
2	Ground	24	Ground
3	Data7	25	IOR#
4	Data8	26	Ground
5	Data6	27	IRDY
6	Data9	28	Ground
7	Data5	29	DACK#
8	Data10	30	Ground
9	Data4	31	IRQ14
10	Data11	32	NC
11	Data3	33	Address 1
12	Data12	34	Detect
13	Data2	35	Address 0
14	Data13	36	Address 2
15	Data1	37	Select 0
16	Data14	38	Select 1
17	Data0	39	Active
18	Data15	40	Ground
19	Ground	41	+5V
20	NC	42	+5V
21	DREQ	43	Ground
22	Ground	44	NC



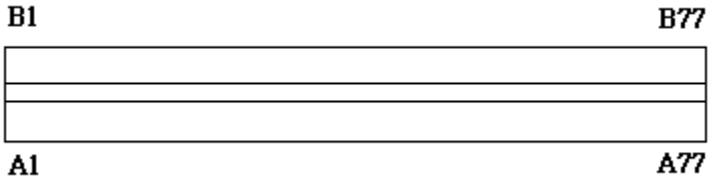
CN19: POWER



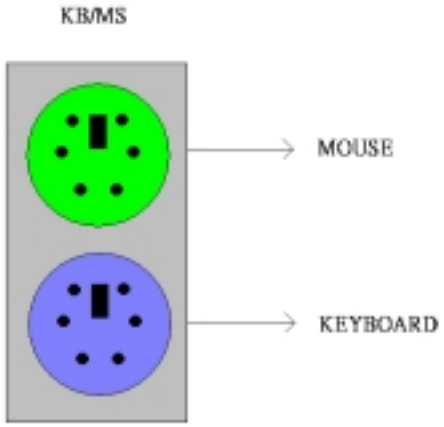
CN20: PCMCIA CONNECTOR

Pin	Signal	Pin	Signal	Pin	Signal	PIN	Signal
A1	GND	A40	+VPPA	B1	GND	B40	+VPPB
A2	GND	A41	ACCLK	B2	GND	B41	BCCLK
A3	ACAD0	A42	GND	B3	BCAD0	B42	GND
A4	ACCD1#	A43	ACTRDY#	B4	BCCD1#	B43	BCTRDY#
A5	ACAD1	A44	ACIRDY#	B5	BCAD1	B44	BCIRDY#
A6	ACAD2	A45	ACFRAME#	B6	BCAD2	B45	BCFRAME#
A7	ACAD3	A46	ACCBE#2	B7	BCAD3	B46	BCCBE#2
A8	ACAD4	A47	ACAD17	B8	BCAD4	B47	BCAD17
A9	GND	A48	ACAD18	B9	GBD	B48	BCAD18
A10	ACAD5	A49	GND	B10	BCAD5	B49	GND
A11	ACAD6	A50	ACAD19	B11	BCAD6	B50	BCAD19
A12	ACAD7	A51	ACAD20	B12	BCAD7	B51	BCAD20
A13	ARSVD/D14	A52	ACVS2#	B13	BRSVD/D14	B52	BCVS2#
A14	ACCBE#0	A53	ACAD21	B14	BCCBE#0	B53	BCAD21
A15	ACAD8	A54	ACRST#	B15	BCAD8	B54	BCRST#
A16	GND	A55	ACAD22	B16	GND	B55	BCAD22
A17	ACAD9	A56	ACSERR#	B17	BCAD9	B56	BCSERR#
A18	ACAD10	A57	GND	B18	BCAD10	B57	GND
A19	ACAD11	A58	ACAD23	B19	BCAD11	B58	BCAD23
A20	ACVS1#	A59	ACREQ#	B20	BCVS1#	B59	BCREQ#
A21	ACAD12	A60	ACAD24	B21	BCAD12	B60	BCAD24
A22	GND	A61	ACCBE#3	B22	GND	B61	BCCBE#3
A23	ACAD13	A62	ACAD25	B23	BCAD13	B62	BCAD25
A24	ACAD14	A63	ACSUDIO	B24	BCAD14	B63	BCAUDIO
A25	ACAD15	A64	ACAD26	B25	BCAD15	B64	BCAD26
A26	ACBE#1	A65	GND	B26	BCCBE#1	B65	GND

A27	ACAD16	A66	ACSTSCHG#	B27	BCAD16	B66	BCSTSCHG#
A28	GND	A67	ACAD27	B28	GND	B67	BCAD27
A29	ACPAR	A68	ACAD28	B29	BCPAR	B68	BCAD28
A30	ARSVD/A18	A69	ACAD29	B30	BRSVD/A18	B69	BCAD29
A31	ACPERR#	A70	ACAD30	B31	BCPERR#	B70	BCAD30
A32	ACBLOCK#	A71	ARSVD/D2	B32	BCBLOCK#	B71	BRSVD/D2
A33	ACGNT#	A72	ACAD31	B33	BCGNT#	B72	BCAD31
A34	ACSTOP#	A73	GND	B34	BCSTOP#	B73	GND
A35	ACINT#	A74	ACLKRUN#	B35	BCINT	B74	BCLKRUN#
A36	ACDEVSEL#	A75	ACCD2	B36	BCDEVSEL#	B75	BCCD2#
A37	+VCCA	A76	GND	B37	+VCCB	B76	GND
A38	+VCCA	A77	GND	B38	+VCCB	B77	GND
A39	+VPPA			B39	+VPPB		



KEYBOARD/MOUSE CONNECTOR (MINI-DIN)

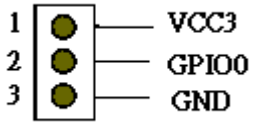


Jumper setting

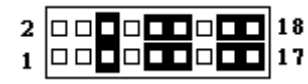
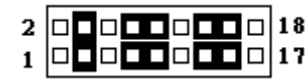
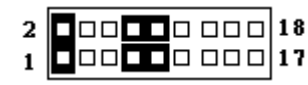
List of Jumpers

Pin	Description
JP1	TV-OUT - NTSC/PAL Signal Select
JP2	RS232/RS422/RS485 Select
JP3	COM1/COM2 RI/Voltage Select
JP4	Clear CMOS
JP5	Watch Dog Timer Action Select

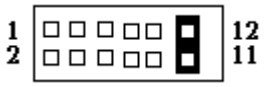
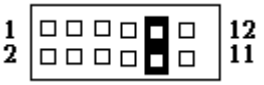
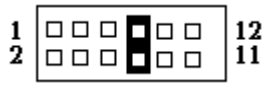
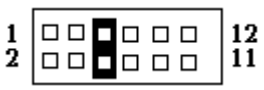
1. JP1 Default : 1-2 NTSC , 2-3 PAL

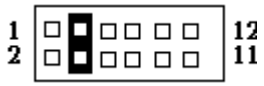
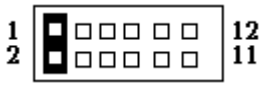


2. JP2 COM2 RS-232/422/485 Selector (Default: RS-232)

Setting		COM Port
	5-6, 9-11, 10-12, 15-17, 16-18	RS-232 (Default)
	3-4, 7-9, 8-10, 13-15, 14-16	RS-422
	1-2, 7-9, 8-10	RS-485

3. JP3 COM1/COM2 RI/Voltage Select

Pin Setting		COM Port	RI/Voltage
	11-12	COM2	+12V
	9-10	COM2	+5V
	7-8	COM2	RI (default)
	5-6	COM1	+12V

	3-4	COM1	+5V
	1-2	COM1	RI (Default)

4. JP4 Clear CMOS

Setting		Define
	1-2	Normal Status (Default)
	2-3	Clear CMOS

5. JP5 Watchdog Timer/Action Select

Setting		Define
	1-2	PIRG#E
	2-3	Watch Dog (Default)

Chapter 3. BIOS Setup

The ROM chip of your AW-EM650 board is configured with a customized Basic Input/Output System (BIOS) from Phoenix-Award BIOS. The BIOS is a set of permanently recorded program routines that give the system its fundamental operational characteristics. It also tests the computer and determines how the computer reacts to instructions that are part of programs.

The BIOS is made up of code and programs that provide the device-level control for the major I/O devices in the system. It contains a set of routines (called POST, for Power-On Self Test) that check out the system when you turn it on. The BIOS also includes CMOS Setup program, so no disk-based setup program is required CMOS RAM stores information for:

- Date and time
- Memory capacity of the main board
- Type of display adapter installed
- Number and type of disk drives

The CMOS memory is maintained by battery installed on the AW-EM650 board. By using the battery, all memory in CMOS can be retained when the system power switch is turned off. The system BIOS also supports easy way to reload the CMOS data when you replace the battery of the battery power lose.

3.1 Quick Setup

In most cases, you can quickly configure the system by choosing the following main menu options:

1. Choose "Load Optimized Defaults" from the main menu. This loads the setup default values from the BIOS Features Setup and Chipset Features Setup screens.
2. Choose "Standard COS Features" from the main menu. This option lets you configure the date and time, hard disk type, floppy disk drive type, primary display and more.
3. In the main menu, press F10 ("Save & Exit Setup") to save your changes and reboot the system.

3.2 Entering the CMOS Setup Program

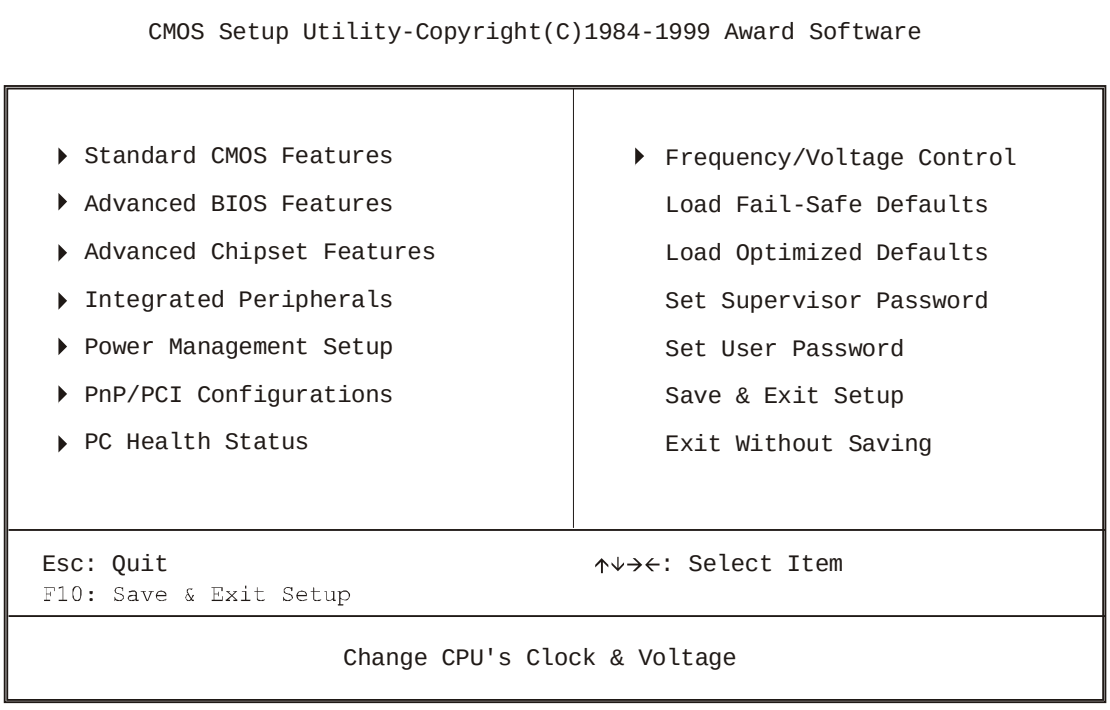
Use the CMOS Setup program to modify the system parameters to reflect the options installed in your system and to customized your system. For example, you should run the Setup program after you:

- Received an error code at startup
- Install another disk drive
- Use your system after not having used it for a long time
- Find the original setup missing
- Replace the battery
- Change to a different type of CPU
- Run the Phoenix-Award Flash program to update the system BIOS

Run the CMOS Setup program after you turn on the system. On-screen instructions explain how to use the program.

⇩ **Enter the CMOS Setup program's main menu as follows:**

1. Turn on or reboot the system. After the BIOS performs a series of diagnostic checks, the following message appears:
   "Press DEL to enter SETUP"
2. Press the <DEL> key to enter CMOS Setup program. The main menu appears:



3. Choose a setup option with the arrow keys and press <Enter>. See the following sections for a brief description of each setup option.

In the main menu, press F10 ("Save & Exit Setup) to save your changes and reboot the system. Choosing "EXIT WITHOUT SAVING" ignores your changes and exits the program. Pressing <ESC> anywhere in the program returns you to the main menu.

3.3 Menu Options

The main menu options of the CMOS Setup program are described in the following and the following sections of this chapter.

Option	Function
Standard CMOS Features	This setup page includes all the items in standard compatible BIOS
Advanced BIOS features	This setup page includes all the item of Award special enhanced features.
Advanced Chipset Features	This setup page includes all the items of chipset special features.
Integrated peripherals	This setup page includes all onboard peripherals.
Power Management Setup	This setup page includes all the items of Green function features.
PnP/PCI Configurations	This setup page includes all the configurations of PCI & PnP ISA resources.
PC Health Status	This setup page is the System auto detect including temperature, voltage, fan, speed .
Frequency Control	This setup page is CPU clock and frequency ratio control.
Load Fail-Safe Defaults	Fail-Safe Defaults are the BIOS default values for the minimal/stable performance for your system to operate.
Load Optimized Defaults	Optimized Defaults are the factory setting for optimal performance system operations.
Set Supervisor password	Change, set, or disable password, It allows you to limit access to the system and Setup,or just to Setup.
Set User password	Change, Set, or disable password, It allows you to

	limit access to the system.
Save & Exit Setup	Save CMOS value setting to CMOS and exit setup.
Exit Without Saving	Abandon all CMOS value changes and exit setup.

⇩ Use the Standard CMOS Setup option as follows:

1. Choose "Standard CMOS Features" from the main menu. The following screen appears:

```
Phoenix - AwardBIOS CMOS Setup Utility
Standard CMOS Features

  Date (mm:dd:yy)       Sun, jan 3 2003        |        Item Help
  Time (hh:mm:ss)       20 : 56 : 24           |
                                               | Menu Level ▸
▸ IDE Primary Master    Press Enter None       | Change the day, month,
▸ IDE Primary Slave     Press Enter None       | year and century
▸ IDE Secondary Master  Press Enter None       |
▸ IDE Secondary Slave   Press Enter None       |
                                               |
  Drive A                None                  |
  Drive B                None                  |
                                               |
  Video                  EGA/VGA               |
  Halt On                All, But Keyboard     |
                                               |
  Base Memory              640K                |
  Extended Memory        129024K               |
  Total Memory           130048K               |

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

2. Use the arrow keys to move between fields. Modify the selected field using the PgUP/PgDN/+/- keys. Some fields let you enter numeric values directly.

Date and Time Configuration:

Type the current date

Hard Disks:

Choose from "Auto", "User" or "None"

If your drive is not one of the predefined types, choose "User" and enter the following drive specifications: Cylinders, heads, Wpcom, L-Zone, sectors and mode.

Consult the documentation received with the drive for the values that will give you optimum performance.

Video:

Choose: MONO,

CGA 40

CGA 80 , or
EGA/VGA

Halt On:

Controls whether the system stops in case of an error detected during power up.

Choose: All Errors (Default)

No Errors

All, But Keyboard

All, But Diskette

All, But Disk/Key

3. After you have finished with the Standard CMOS Features program, press the <ESC> key to return to the main menu.

Advanced BIOS Features Setup

⇩ **Use the Advanced CMOS Setup option as follows:**

1. Choose "BIOS Features Setup" from the main menu. The following screen appears:

```
                Phoenix - AWardBIOS CMOS Setup Utility
                        Advanced BIOS Features

Virus Warning                 <Disabled>      |        Item Help
CPU Internal Cache            <Enabled>       |
External Cache                <Enabled>       |  Menu Level  ▸
CPU L2 Cache ECC Checking     <Enabled>       |  Allow you to change
Processor Number Feature      <Enabled>       |  the VIRUS warning
Quick Power On Self Test      <Enabled>       |  feature for IDE Hard
First Boot Device             <HDD-0>         |  Disk boot sector
Second Boot Device            <HDD-1>         |  protection. If this
Third Boot Device             <CDROM>         |  function is enabled
Fourth Boot Device            <Disabled>      |  and someone attempt to
Typematic Rate Setting        <Disabled>      |  write data into this
Typematic Rate (Chars/Sec)    6               |  area.  BIOS will show
Typematic Delay (Msec)        250             |  a warning message on
Security Option               Setup           |  screen and alarm beep
OS Select For DRAM > 64MB     Non - OS2       |

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

2. Use the arrow keys to move between items and to select values. Modify the selected fields using the PgUP/PgDN keys. Press the <F1> "Help" key for information on the available options:

Virus Warning:
When enabled, any attempt to write to 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 disk to reboot and clean your system. The default setting is **Disabled**.

CPU Internal Cache:
Enables the CPU internal cache. The default setting is Enabled.

External Cache:
Enables the external cache. The default setting is Enabled .

CPU L2 Cache ECC Checking:
Enables/disables checking of the CPU L2 cache ECC function.

Process Number Feature:
Enables/disables Processor Number. (For Intel Pentium III processors only)

Quick Power On Self Test:
Speed up POST after turning on the computer. When enabled, this setting will shorten or skip some check items during POST.

First Boot Device:
By default, the BIOS attempts to first boot from drive A: and then , if unsuccessful, from derive C: You can change this sequence from Floppy, LS/ZIP,HDD-0~3,SCSI ,CDROM, Disable, LAN.

Second Boot Device:
By default, the BIOS attempts to first boot from drive A: and then , if unsuccessful, from derive C: You can change this sequence from Floppy, LS/ZIP,HDD-0~3,SCSI ,CDROM, Disable, LAN.

Third Boot Device:

By default, the BIOS attempts to first boot from drive A: and then , if unsuccessful, from derive C: You can change this sequence from Floppy, LS/ZIP,HDD-0~3,SCSI ,CDROM, Disable, LAN.

Boot Other Device:
Enabled: select your boot device priority function.
Disabled : Disabled this function .

Typematic Rate Setting:
Choose Enabled or Disabled. Enable his option to adjust the keystroke repeat rate. Adjust the rate via Typematic Rate Delay and Typematic Rate

Typematic Rate (Chars/Sec):
Choose the rate at which character keeps repeating.

Typematic Delay (Msec):
Choose the delay between holding down a key and when the character begins repeating.

Security Option :
Choose Setup or System. This option lets you specify whether a password is required every time the system boots or only when an attempt is made to enter the CMOS Setup program.

"Setup" –The password prompt only appears if you attempt to enter the CMOS Setup program.

"System" – The password prompt appears each time the system is booted .

Note: The password function is disabled by default .For a description of enabling the password function, refer to the section" Supervisor Password & User Password " later in this chapter.

OS Select For DRAM >64MB :
Non- OS2 :Using non-OS2 operating system.
OS2 :Using OS2 operating system and RAM > 64MB

HDD S.M.A.R.T. :
Enabled :Enable HDD S.M.A.R.T. Capability.
Disabled :Disable HDD S.M.A.R.T. Capability.

Report No FDD For WIN 95 :
Enable this item for NSTL testing only, it will report no FDD for windows 95 when the floppy disk is not installed .

Video BIOS Shadow:
When enabled, the ROM BIOS on the video display card is copied into system DRAM to enhance performance. The default setting is Enabled.

Shadow Option Group:
When enabled, the ROM on the expansion card with the specific addresses is copied into system DRAM. It will also reduce the memory availability between 640KB and 1024KB. The default setting for this feature is Disabled.

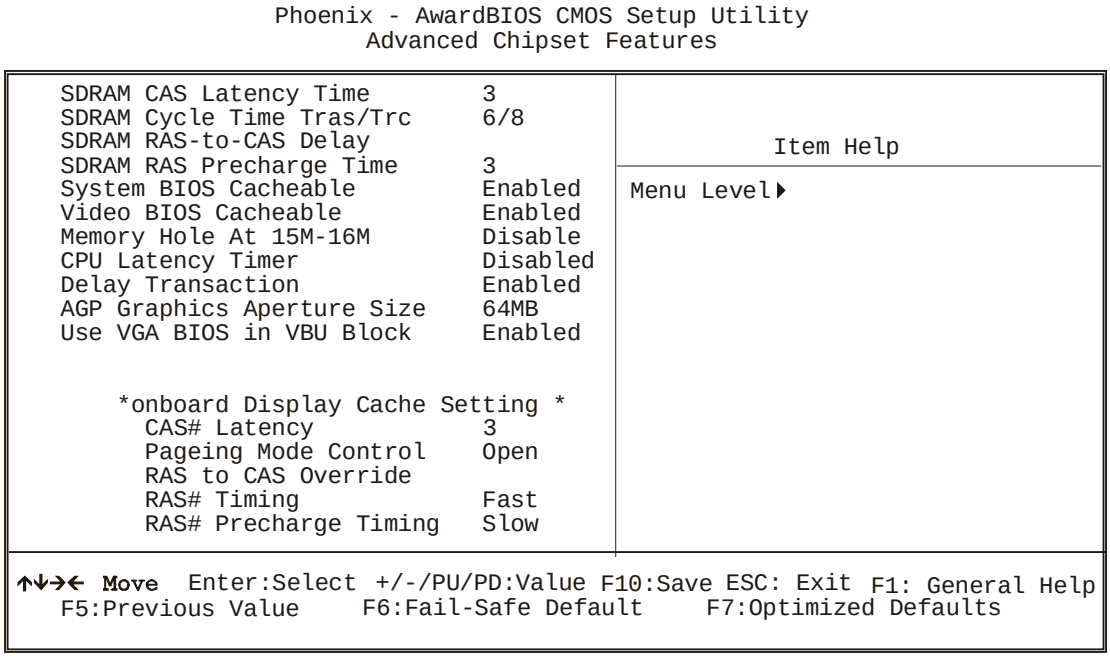
3. After you have finished with the BIOS Features Setup, press the <ESC> key to return to the main menu.

Advanced Chipset Features Setup
Use this setup to enable/disable features of the main board's chipset registers. The chipset manages bus speed and access to system memory resources such as DRAM .It also coordinates the communications between the conventional ISA bus and the PCI bus . **These items should never need to be changed** .The default settings have been chosen because they provide the best operating conditions for your system .
The first chipset settings deal with CPU access to DRAM. The default timings have been carefully chosen and should only be altered if data is lost . Such a scenario might well occur if your system has mixed-speed DRAM chips installed, so that greater delays may be required to preserve the integrity of data held in the slower memory chips .

Change these setting only if you are thoroughly familiar with the chipset.

⇩ **Use the Chipset Features Setup option as follows:**

1. Choose "Advanced Chipset Features Setup" from the main menu. The following screen appears:



2. Move between items and select values by using the arrow keys. Modify the selected fields using the PnUP/PgDN keys. For information on the various options, press <F1> key.

SDRAM Cycle Time Tras/Trc :

6/8 : Set DRAM Tras/Trc Cycle time is 6/8 SCLKs .

5/7 : Set DRAM tras/Trc Cycle time is 5/7 SCLKs.

SDRAM RAS –to –CAS Delay :

Set SDRAM RAS# to CAS# delay 3 SCLKs.

Set SDRAM RAS# to CAS# delay 2 SCLKs.

System BIOS Cacheable:

Enabled: Enable System BIOS Cacheable.

Disabled: Disable System BIOS cacheable.

Memory Hole AT 15M-16M:

Choose Enabled / Disabled. When enabled, you can reserve a system memory area for special ISA cards. The chipset accesses code/data of these from the ISA bus directly .

Normally, these areas are reserved for memory – mapped I/O cards.

CPU Latency Timer:
Configuration options: Enable or Disable

Delayed Transaction:
Choose: Enabled / Disabled if you have an ISA card compatibility problem. When enabled, this option lets you control the Delayed Transaction function of the chipset. This function is used to meet the latency of the PCI cycle to or from the ISA bus .
On-Chip Video Windows Size :
Set Graphics Aperture size to 32MB.
Set Graphics Aperture Size to 64MB.
Use VGA BIOS in VBU Block:
Enabled: Enable VGA BIOS Update
Disables: Disable this Function.
Local Memory Frequency:
100MHz :Video RAM Run 100MHz
133MHz :Video RAM Run 133MHz

Initial Display Cache :
When enabled, this option lets you change the following display cache timing .
CAS#Latency :
Configuration Options :2T,3T
Paging Mode Control:
Open: Enable display cache paging mode
RAS-to-CAS Override:
Configuration Options :By CAS#LT,Override

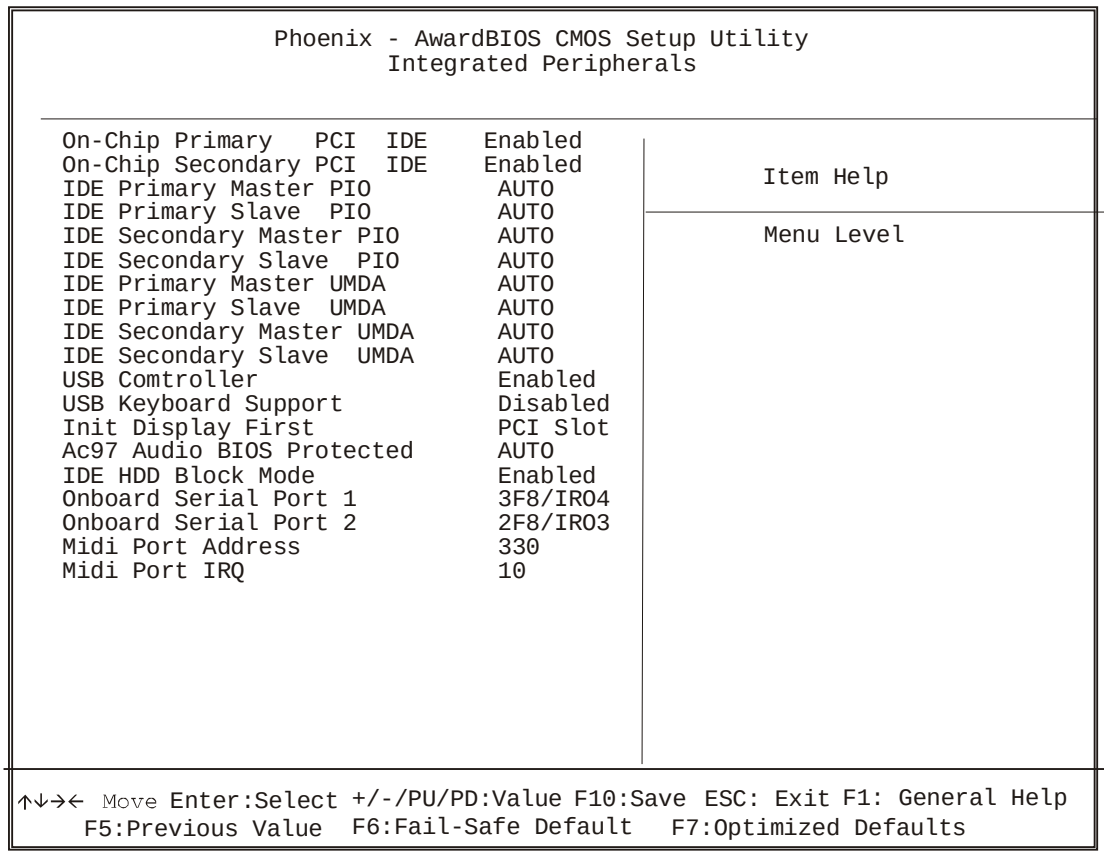
RAS#Timing :
Configuration Options :Fast , Slow

RAS#Precharge Timing :
Configuration Options:Fast,Slow

3 After you have finished with Chipset Feature Setup, press the <ESC> key to return the main menu.

⇩ **Use the Integrated Peripherals Setup option as follows:**

1. Choose "Integrated Peripherals Setup" from the main menu. The following screen appears:



2. Move between items and select values by using the arrow keys. Modify the selected fields using the PgUP/PgDN keys. Please press the <F1> key for information on the various options.

On-Chip IDE Channel 0 and Channel 1:

Enable or Disable onboard 1st cahnnel IDE port

On-Chip secondary PCI IDE :

Enable or Disable onboard 2nd cahnnel IDE port

IDE Primary Master PIO:

Auto :BIOS will automatically detect the Primary Master PIO IDE Accessing mode.

Mode 0 ~ 4 :Manually set the IDE Accessing mode.

IDE Primary Slave PIO:

Auto :BIOS will automatically detect the Primary Slave PIO IDE Accessing mode.
Mode 0 ~ 4 :Manually set the IDE Accessing mode.

IDE secondary Master PIO:

Auto :BIOS will automatically detect the second Master PIO IDE Accessing mode.
Mode 0 ~ 4 :Manually set the IDE Accessing mode.

IDE secondary Slave PIO:

Auto :BIOS will automatically detect the second Slave PIO IDE Accessing mode.
Mode 0 ~ 4 :Manually set the IDE Accessing mode.

IDE Primary Master UDMA:

Auto: BIOS will automatically detect the Primary Master UDMA IDE Accessing mode.
Mode 0 ~ 4 :Manually set the IDE Accessing mode.

IDE Primary Salve UDMA:

Auto: BIOS will automatically detect the Primary Slave UDMA IDE Accessing mode.
Mode 0 ~ 4 :Manually set the IDE Accessing mode.

IDE Secondary Master UDMA:

Auto: BIOS will automatically detect the Second Master UDMA IDE Accessing mode.
Mode 0 ~ 4 :Manually set the IDE Accessing mode.

IDE Secondary Salve UDMA:

Auto: BIOS will automatically detect the Second Salve UDMA IDE Accessing mode.
Mode 0 ~ 4 :Manually set the IDE Accessing mode.

USB controller:

Enable USB controller
Disable USB controller

USB Keyboard Support:

Enable USB keyboard Support.
Disable USB Keyboard Support.

Init Display First:

PCI Slot : Set init Display First to PCI slot .
Onboard: Set init Display First to onboard AGP

AC97 Audio :
Enabled : Enable AC97 Audio.
Disabled : Disable AC97 Audio
Auto : Set AC97 Audio to AUTO

IDE HDD Block Mode:
Enabled : Enable IDE HDD Block Mode
Disabled :Disable IDE HDD Block Mode.

Onboard Serial Port 1 :
Auto: BIOS will automatically setup the port 1 address.
3F8/IRQ4 :Enable onboard Serial port 1 and address is 3F8.
2F8/IRQ3:Enable onboard Serial port 1 and sddress is 2F8.
3E8/IRQ4 :Enable onboard Serial port 1 and address is 3E8.
2E8/IRQ3 :Enable onboard Serial port 1 and address is 2E8.
Disabled :Disable onboard Serial port 1

Onboard Serial Port 2 :
Auto: BIOS will automatically setup the port 1 address.
3F8/IRQ4 :Enable onboard Serial port 1 and address is 3F8.
2F8/IRQ3:Enable onboard Serial port 1 and sddress is 2F8.
3E8/IRQ4 :Enable onboard Serial port 1 and address is 3E8.
2E8/IRQ3 :Enable onboard Serial port 1 and address is 2E8.
Disabled :Disable onboard Serial port 1

Midi Port Address:
Disabled: Disable this Function
300 :Set onboard Midi Port at 300
330:Set onboard Midi Port at 330

Midi Port IRQ :
Set Midi Port IRQ

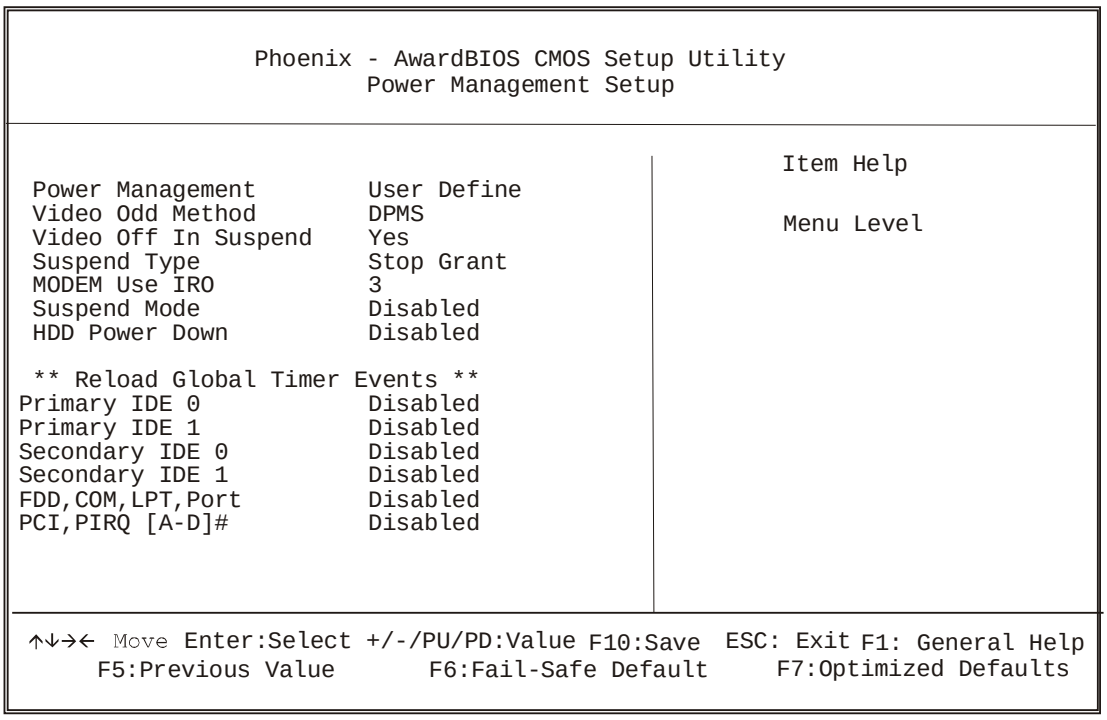
2 After you have finished with the Power Management Setup, press the <ESC> key to return the main menu.

Power Management Setup

The Power Management Setup controls the board's "green" features. To save energy these features shut down the video display and hard disk drive.

⇩**Use the Power Management Setup option as follows:**

1. Choose "Power Management Setup" from the main menu. The following screen appears.



2. Move between items and select values by using the arrow keys. Modify the selected field the PgUP/PgDN keys. For information on the various options, press <F1> key.

Power Management:

Choose Disable, User Define, Min Saving or Max. Saving.

"Disable" – Global Power Management will be Disabled.

"User Define" – Lets ou specify when the HDD and system will shut down.

"Min Saving " – Predefine timer value of 4-12 minute.

"Max Saving " – Predefine timer value of 1 minute.

Video Off Method:

This determines the manner in which the monitor is blanked.

V/H SYNC+Blank :This selection will cause the system to turn off the vertical and horizontal synchronization ports and writes blank to the video buffer.
Blank screen :This option only writes blank to the video buffer. If you don't have a " "green monitor" use this item.
DPMS: This option allows the BIOS to control the video card if it has the DPMS features.

Video Off in Suspend:
Yes: Enable video off in suspends.
No: Disabled video off in suspends.
Suspend Type: Set Suspend type is stop grant.
Set Suspend type is power on Suspend.
Mode Use IRQ : Choose the IRQ used by the modem.
Suspend Mode: Sets the time for Suspend mode or disable it .
Reload Global Timer Events: Choose Enable or Disable
"Enable: -Causes the Doze mode,Standby mode, and Suspend mode to reload .
"Disable"-The Doze mode,Standby mode, and Suspend mode will not reload .

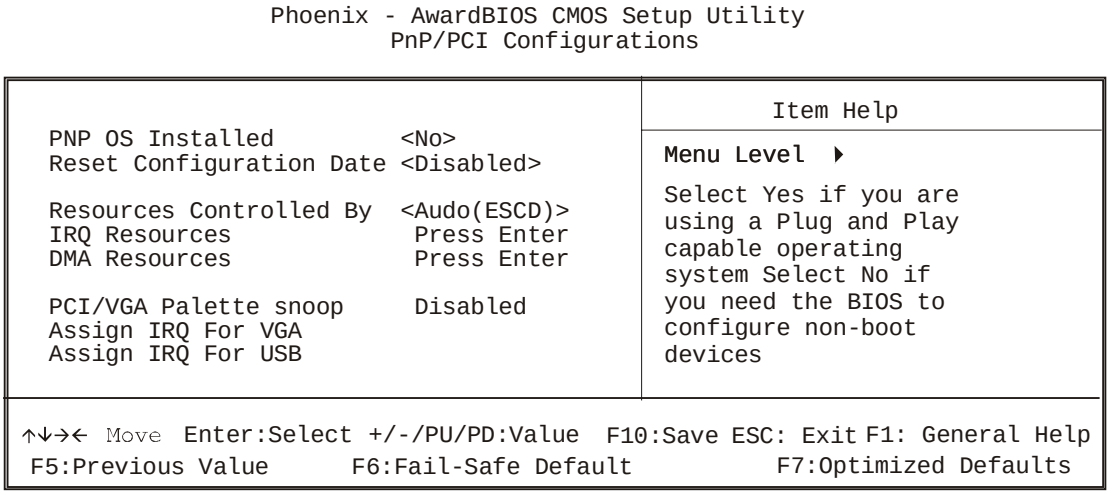
3. After you have finished with the Power Management Setup, press the <ESC> key to return to the main menu.

PNP/PCI Configuration

This setup is used to configure Plug "n" Play IRQ assignments and route PCI interrupts to designated ISA interrupts.

⇩ **Use the PNP/PCI Configuration Setup option as follows:**

1. Choose "PNP/PCI Configuration Setup" from the main menu, the following screen appears.



2. Move between items and select values by using the arrow keys. Modify the selected fields using the PgUP/PgDN keys. For information on the various options, please press <F1> key.

PNP OS Installed:

Select Yes or No. When yes is selected, an IRQ will be assigned by the OS .

Reset Configuration Data:

Choose Enable or Disable

"Enable" – PNP configuration data is reset in BIOS

"Disable" – PNP configuration date is retained in BIOS

Resources Controlled By:

Manual: User can set the PnP resource (I/O Address, IRQ & DMA channels) used by legacy ISA Device.

Auto:BIOS automatically use these PnP resource.

IRQ Resources:

Choose Legacy ISA or OCI/ISA PnP.

Determines whether the DMA is assigned to the ISA bus and thus is not available to any PCI slot .

DMA Resources:

Choose Legacy ISA or OCI/ISA PnP.

Determines whether the DMA is assigned to the ISA bus and thus is not available to

any PCI slot .

Memory Resource:

N/A: Disable the MEM .Block using .

C800 ~ dc00:Select the MEM.Block starting address.

PPCI/VGA Palette Snoop:

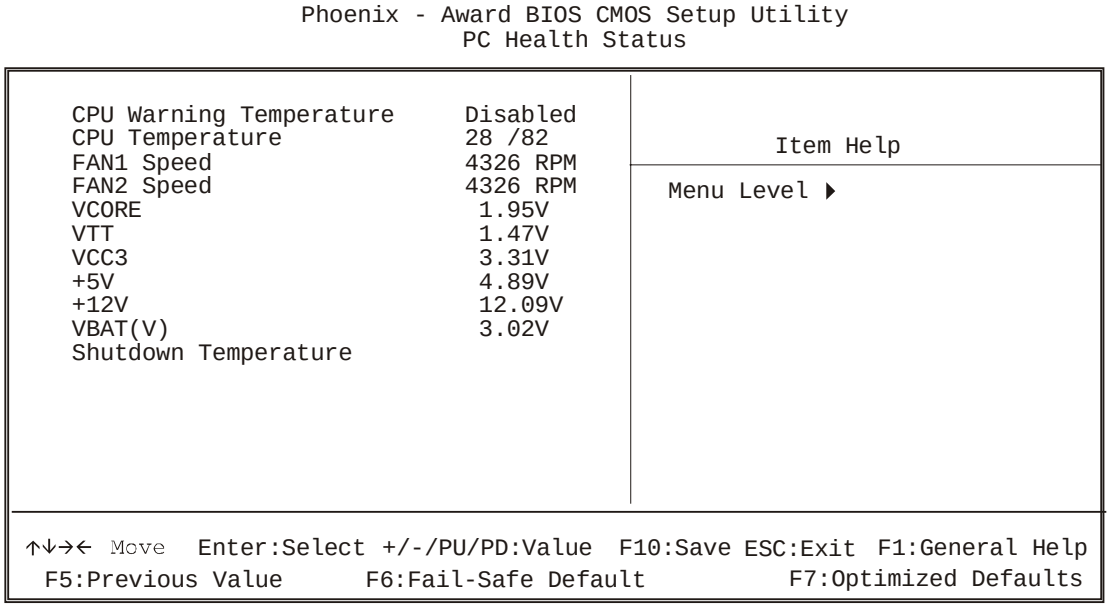
Enable :For having Video Card on ISA Bus and VGA Card on PCI Bus .

Disable:For VGA Card only.

PC Health Status

Use the PC Health Status as follows:

1. Choose "PC Health Status " from the main menu.,The following screen appears:



2 Move between items and select values by using the arrow keys. Modify the selected field using the PgUp/PgDn keys .For information on the various, options, press the <F1> key.

CPU Warning Temperature :

Choose 70℃.158℉,50℃/122℉,53℃/127℉,56℃/133℉,60℃/140℉,63℃/145℉,66℃/151℉ or Disable the CPU Warring Temperature setting ,the board will generate a beep alarm.

Current CPU Temp:

Displays the current Socket 370 temp.

Fan1,Fan2,Speed

Displays the running speeds of FAN1 and FAN2,respectively. If "0" appears, the fan is either defective , not connected ,or does not meet standard specification.

Voltage Indicators:

Displays voltage values detected by the Winbond W83627HF system monitor IC.

3 After you have finished with the CPU Features Setup, press the <ESC> key to return to the main menu.

Frequency Control

⇨ **Use the PNP/PCI Configuration Setup option as follows:**

1. Choose the "Frequency Control" from main menu, the following screen appears:

```
Phoenix - AwardBIOS CMOS Setup Utility
Frequency/Voltage Control
```

CPU HOST/SDRAM CLOCK Default CPU Clock Ratio X3	Item Help Menu Level
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC: Exit F1: General Help F5:Previous Value F6:Fail-Safe Default F7:Optimized Defaults	

2 Move between items and select values by using the arrow keys. Modify the selected field using the PgUp/PgDn keys .For information on the various, options, press the <F1> key.

3.After you have finished with the setup, press the <ESC> key to return to the main menu.

Load Fail-Safe Defaults

This option loads the troubleshooting default values permanently stored in the BIOS ROM. This is useful if you are having problems with the main board and need to debug or troubleshoot the system. The loaded default settings do not affect the Standard CMOS Setup screen.

To use this feature , highlight it on the main screen and press <Enter> . A line will appear on the screen asking if you want to load the Fail-Safe default values. Press the <Y> key and then press <Enter> if you want to load the BIOS default.

Load Optimized Defaults

This option loads optimized settings stored in the BIOS ROM. The auto-configured

settings do not affect the Standard CMOS Setup screen.

To use this feature, highlight it on the main screen and press <Enter>. A line will appear on the screen asking if you want to load the Optimized Default Values. Press the <Y> key and then press <Enter> if you want to load the SETUP default.

Supervisor/User Password

The password options let you prevent unauthorized system boot-up or unauthorized use of CMOS setup. The Supervisor Password allows both system and CMOS Setup program access; the User Password allows access to the system and the CMOS Setup Utility main menu.

The password functions are disabled by default. You can use these options to enable a password function or, if a password function is already enabled, change the password.

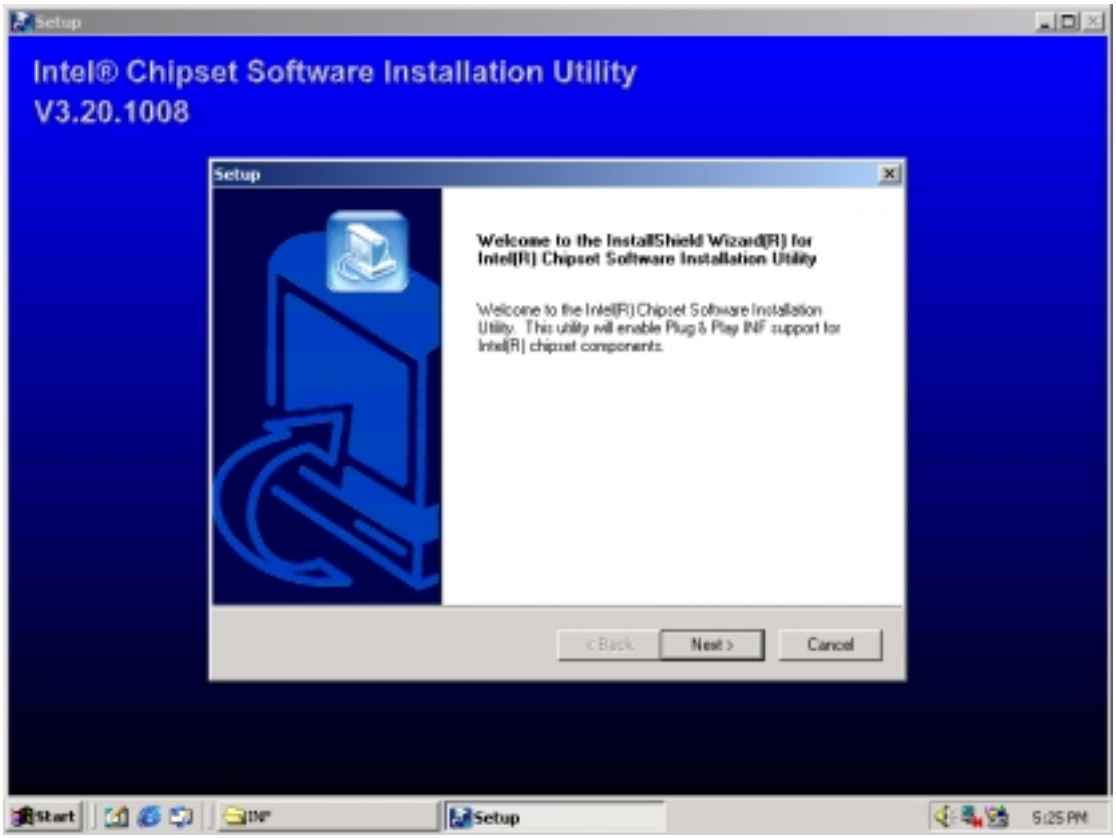
To change a password, first choose a password option from the main menu and enter the current password. Then type your new password at the prompt. The password is case sensitive and you can use up to 8 alphanumeric characters. Press <Enter> after entering the password. At the Next Prompt, confirm the new password by typing it and pressing <Enter> again.

Chapter 4. Driver Utility

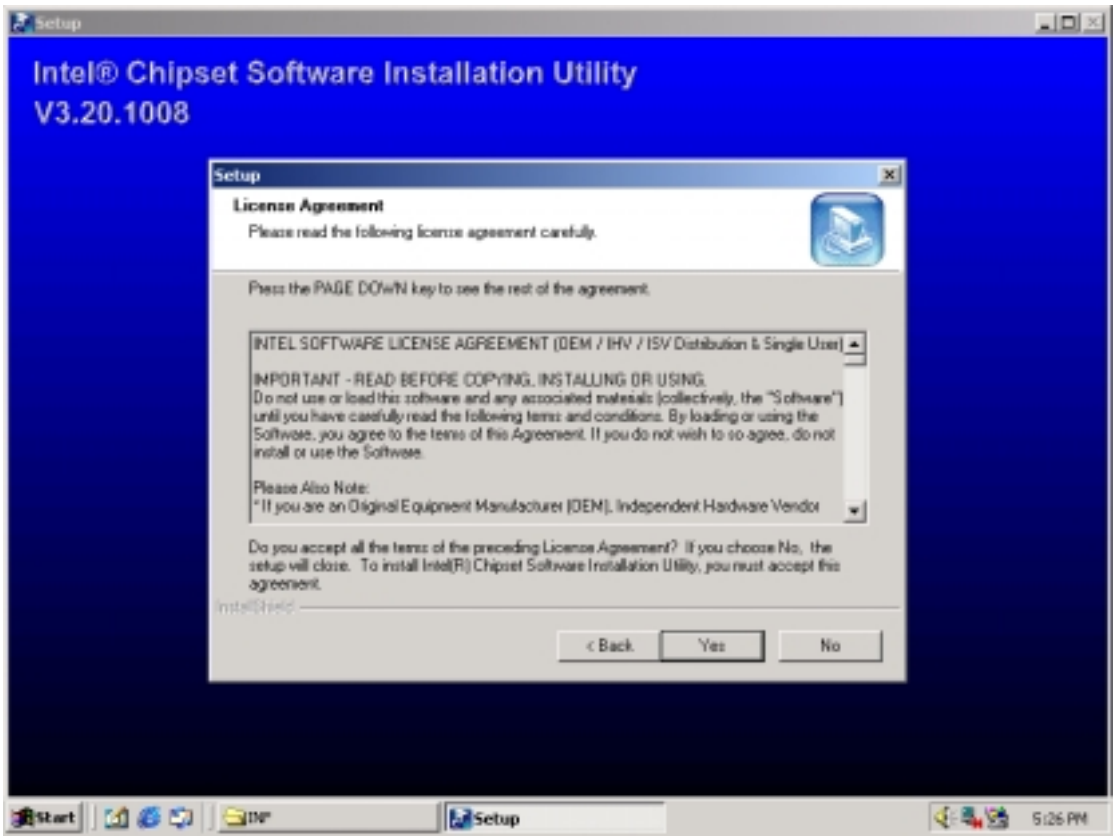
The system driver installation procedure must be performed first.

4.1 System Driver Installation

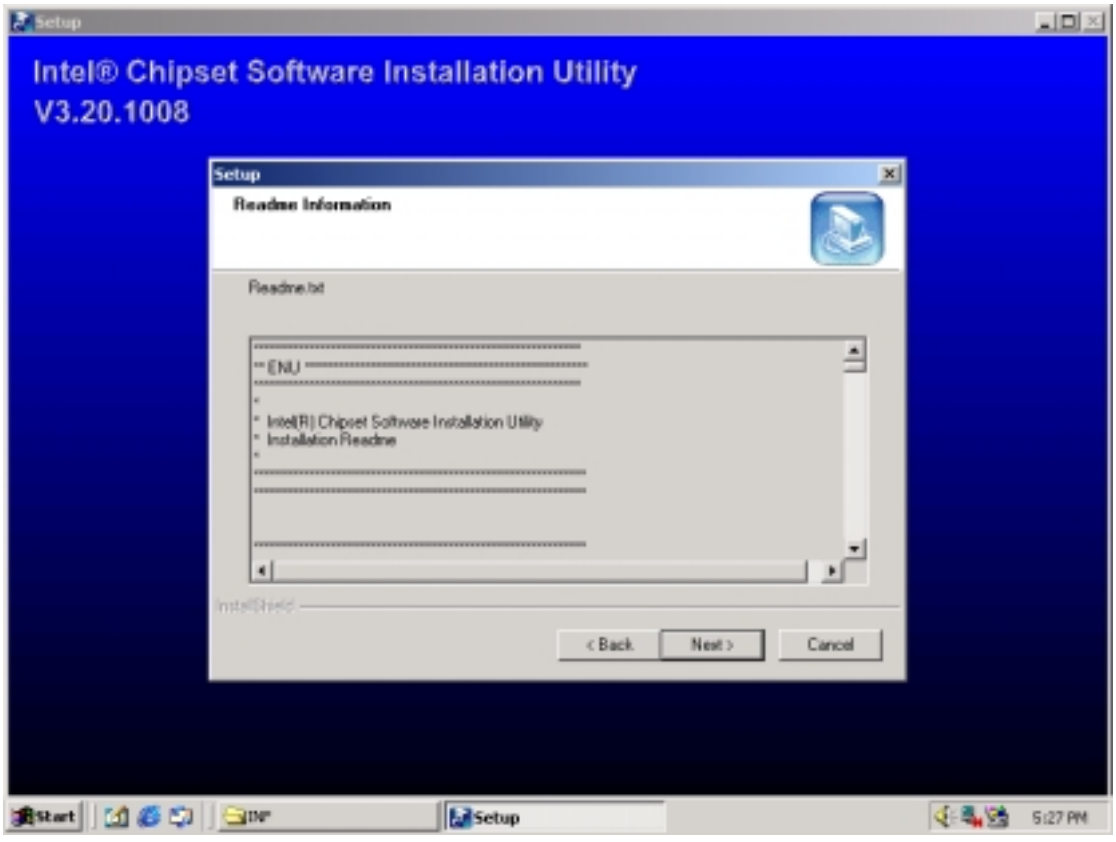
1. Insert the AW-EM650 CD-ROM driver into the CD-ROM Drive
2. Select the Drivers/system file to click the Setup icon.
3. Click **Next**



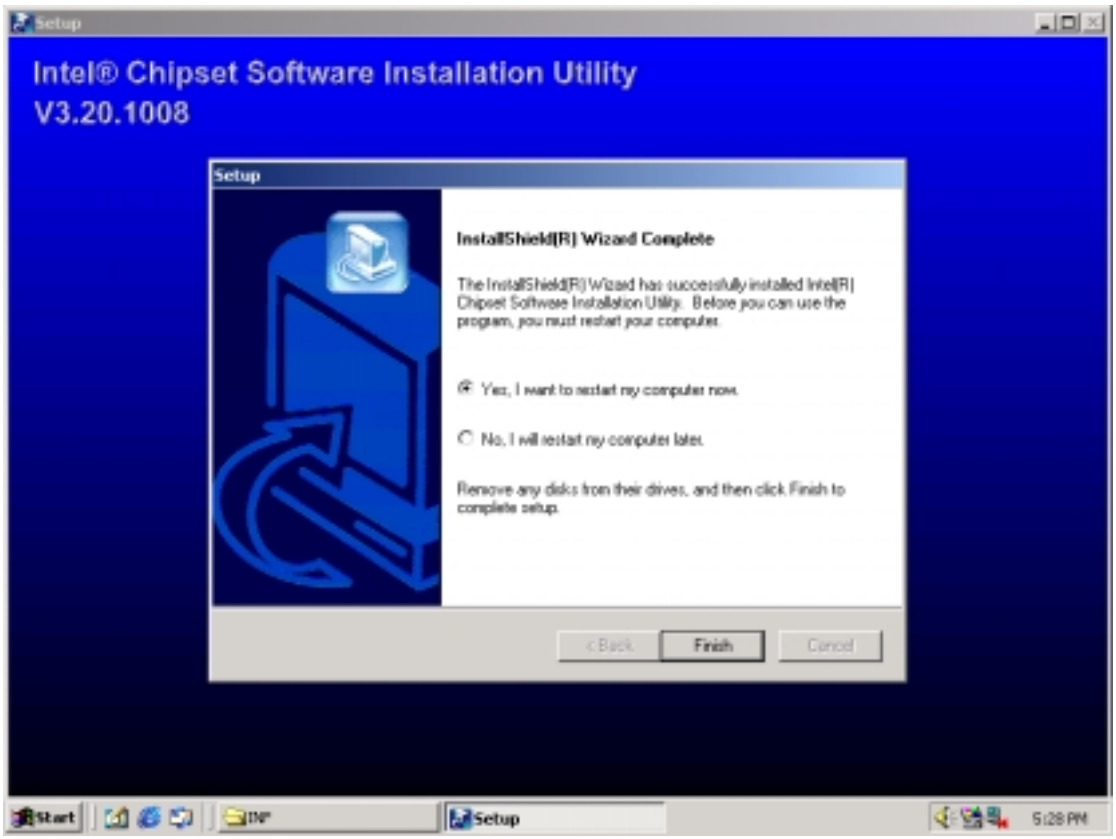
4. Click **Yes**


Setup
Intel® Chipset Software Installation Utility
V3.20.1008
Setup
License Agreement
Please read the following license agreement carefully.
Press the PAGE DOWN key to see the rest of the agreement.
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software")
until you have carefully read the following terms and conditions. By loading or using the
Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not
install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor
Do you accept all the terms of the preceding License Agreement? If you choose No, the
setup will close. To install Intel(R) Chipset Software Installation Utility, you must accept this
agreement.
InstallShield
< Back
Yes
No
Start
Setup
5:26 PM

5. Click **Next**


Setup
Intel® Chipset Software Installation Utility
V3.20.1008
Setup
Readme Information
Readme.txt
-- ENU --
*
* Intel(R) Chipset Software Installation Utility
* Installation Readme
*
InstallShield
< Back
Next >
Cancel
Start
Setup
5:27 PM

6. Click **Finish**



Installation process is completed and allowed the system to reboot.

4.2 VGA Driver Installation

1. Install the AW-EM650 CD ROM into the CD-ROM Drive
2. Select the Drivers/vga/9x file to click the Setup icon

A driver installation screen will appear, please follow the onscreen instruction to install the driver in sequence

3.Click **Next**


Intel(R) 810/810E/815/815E/815EM Chipset Graphics Driver Software Setup
Intel(R) Chipset Graphics Software
Intel(R) 810/810E/815/815E/815EM Chipset Graphics Driver Software Setup
Welcome to the InstallShield(R) Wizard for Intel(R) 810/810E/815/815E/815EM Chipset Graphics Driver Software
Welcome. This program will install Intel(R) 810/810E/815/815E/815EM Chipset Graphics Driver Software on your computer. It is strongly recommended that you exit all Windows programs before running this Setup program.
< Back
Next >
Cancel
Start
Graphics
Intel(R) 810/810E/81...
4:54 PM

4. Click **Yes**


Intel(R) 810/810E/815/815E/815EM Chipset Graphics Driver Software Setup
Intel(R) Chipset Graphics Software
Intel(R) 810/810E/815/815E/815EM Chipset Graphics Driver Software Setup
License Agreement
Please read the following license agreement carefully.
Press the PAGE DOWN key to see the rest of the agreement.
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor
Do you accept all the terms of the preceding License Agreement? If you choose No, the setup will close. To install Intel(R) 810/810E/815/815E/815EM Chipset Graphics Driver Software, you must accept this agreement.
InstallShield
< Back
Yes
No
Start
Graphics
Intel(R) 810/810E/81...
4:55 PM

3. Click **Finish**

Installation process is completed and allowed the system to reboot

4.3 Ethernet Driver Installation

The AW-EM650 supports four Ethernet Controller by using Intel® 82559 or Realtek® 8139C+ Chipset.

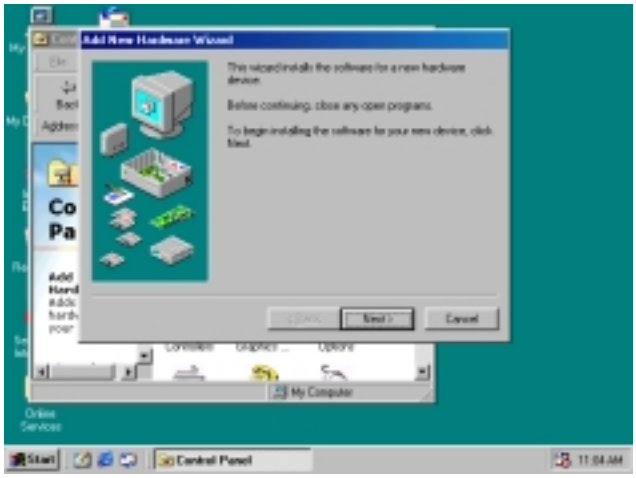
4.3.1 Intel® 82559 Ethernet Installation

Installation for Windows95/98

Please install Ethernet drivers as follows:

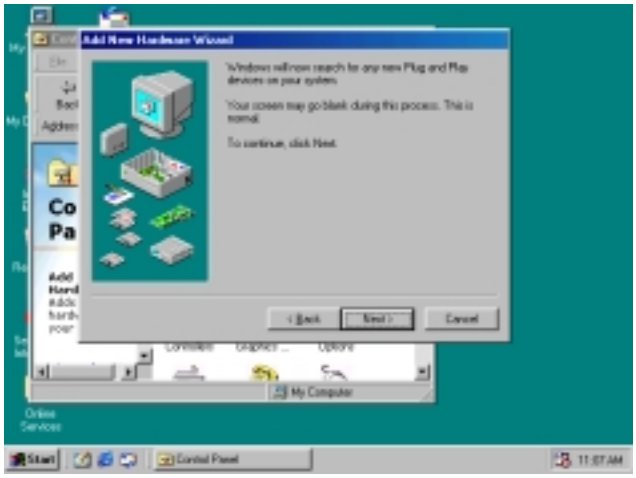
1. Click **"Start"**, go to **"Setting"** and click **"Control Panel"**. Choose the **"Add New Hardware"** icon and double-click the icon, the next configuration screen will appear.

2. **"Add New Hardware Wizard"** shown this wizard installs the software for a new hardware device. Before continuing, close any open programs. To begin installing the software for your new device, click "Next>", go to the next step of installation.

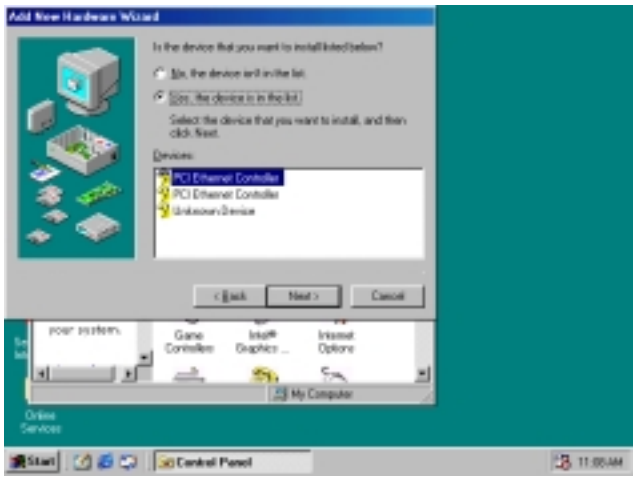


3. **"Add New Hardware Wizard"** shown Windows will no search for any new Plug and Play devices on your system. Your screen may go black during this process. This is normal.

   To continue, click "Next>" to the next step of installation.

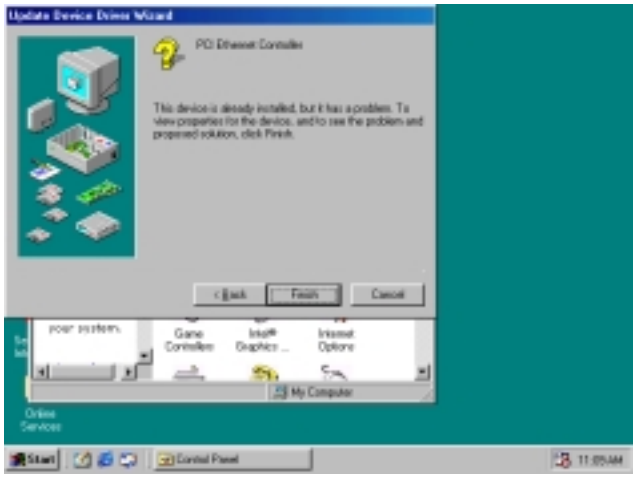


4. Please select the device that you want to install, and then click "Next>" to the next step of installation.



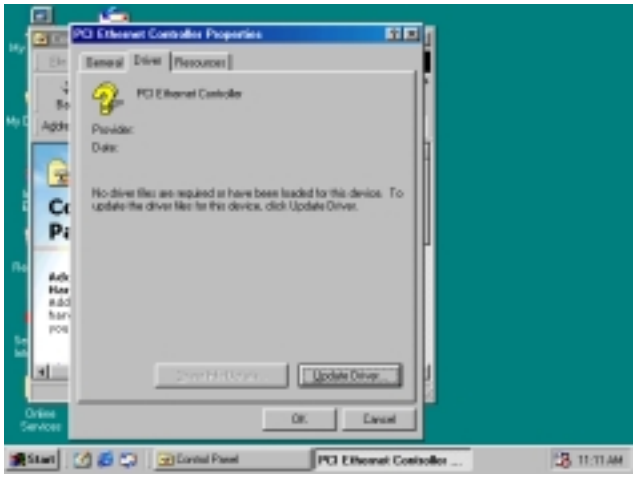
5. This is Update Device Driver Wizard.

   This device is already installed, but it has a problem. To view properties for the device, and to see the problem and proposed solution, please click "Finish" to the next step of installation



6. This is PCI Ethernet Controller Properties screen.

   No driver files are required or have been loaded for this device. To update the driver files for this device, please click "Update Driver" to the next step of installation

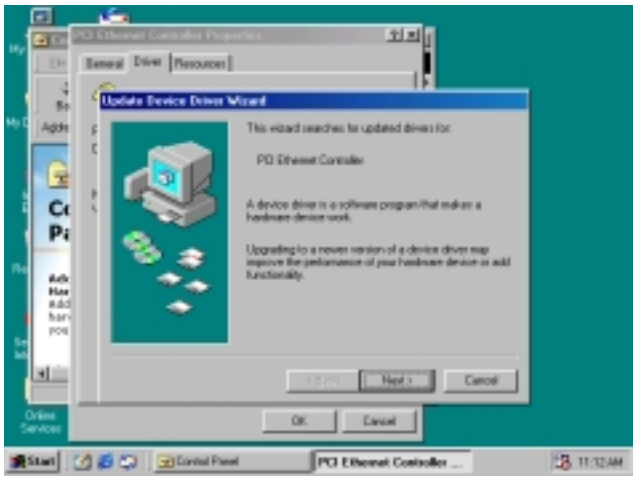


7. This Wizard searches for update drivers for:

   PCI Ethernet Controller

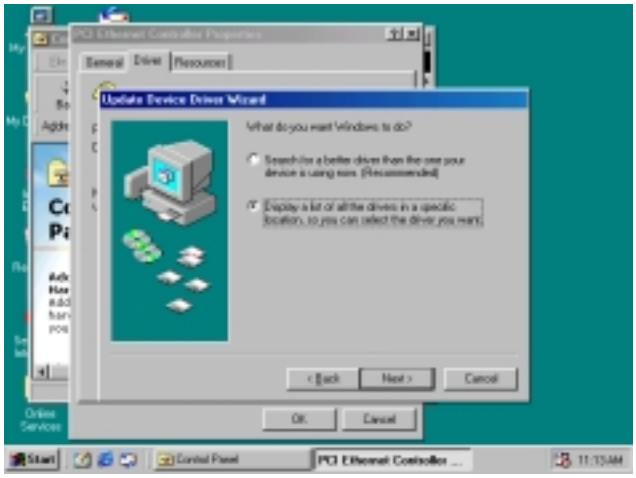
   A device driver is a software program that makes a hardware device work.

   Updating to a newer version of a device driver may improve the performance of your hardware device or add functionality, please click "Next>" to the next step of installation

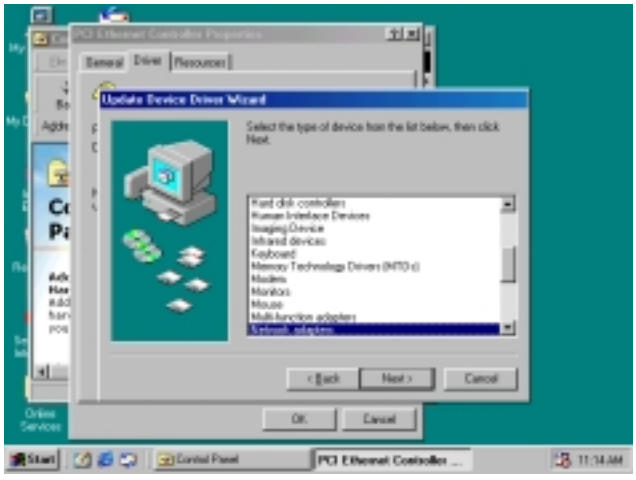


8. This is Update Device Driver Wizard. What do you want Windows to do? Please choose "Display a list of all the drivers in a specific location, so you can select the driver you want.

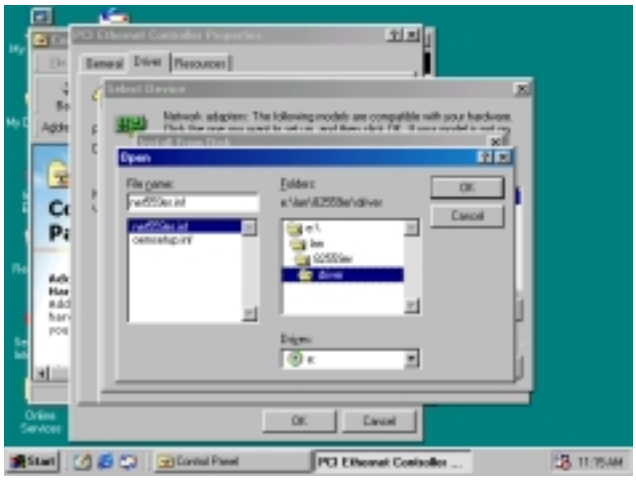
   Please click "Next>" to the next step of installation



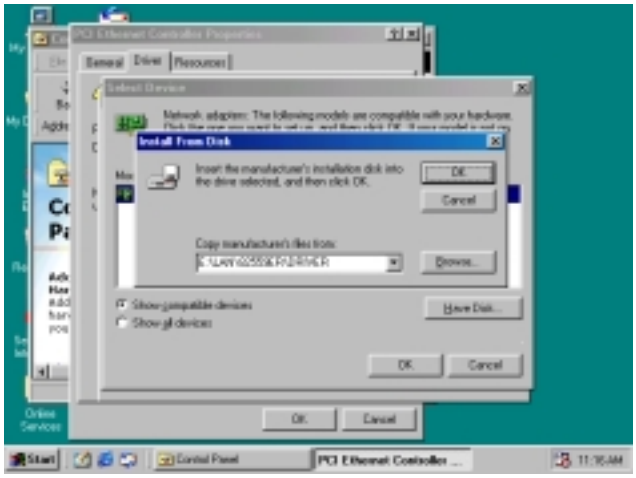
9. This s screen for selecting the type of device from the list, then click "Next>" to next step of installation



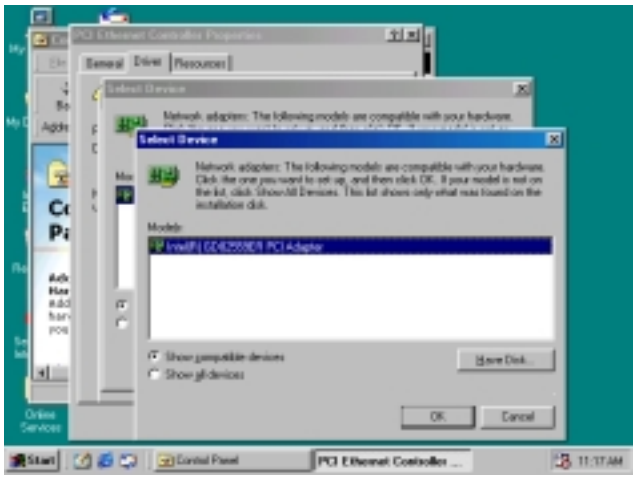
10. This is to show the "Folders", please click "OK" to the next step of installation.



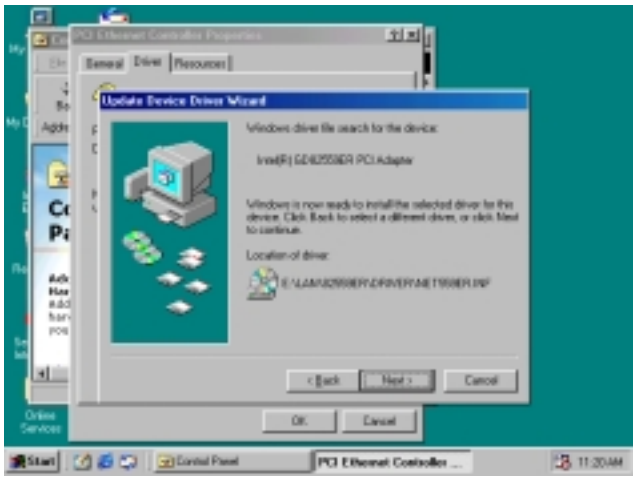
11. This is Install from Disk. Please insert the manufacturer's installation disk into the drive selected, and then please click "OK" to next step of installation.



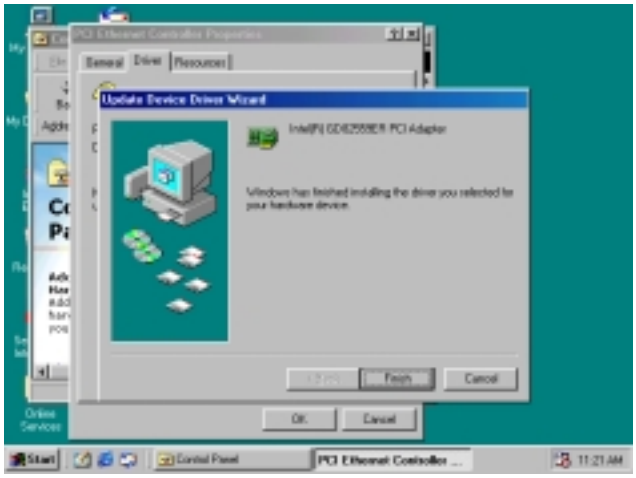
12. This is Select Device screen. Network adapters: The following models are compatible with your hardware. Click the one you want to set up, and then click "OK". If your model is not on the list, please click Show All Devices. This list shows only what was found on the installation disk



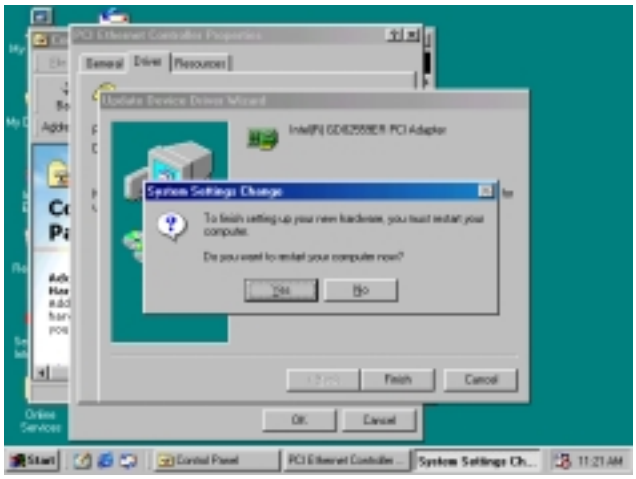
13. This is Update Driver Wizard. Windows is now ready to install the selected driver for this device. Please click Back to select a different driver, or click Next to continue.



14. This screen shown Windows has finished installing the driver you selected for your hardware device. Please click "Finish" to the next step of installation



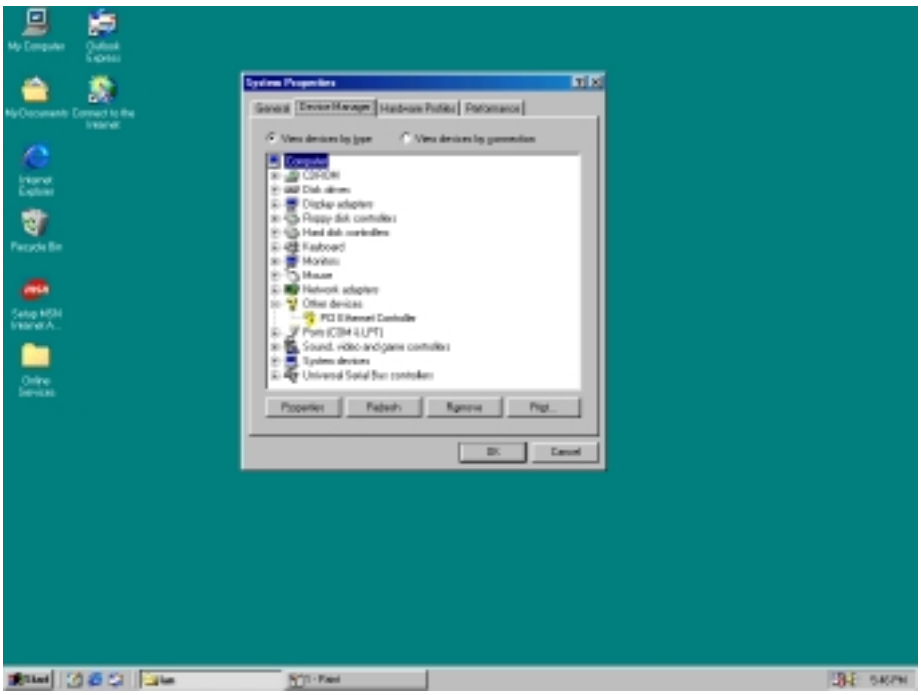
15. This screens the System Settings Change. To finish setting up your new hardware, you must restart your computer. Please click "YES" to restart your computer.



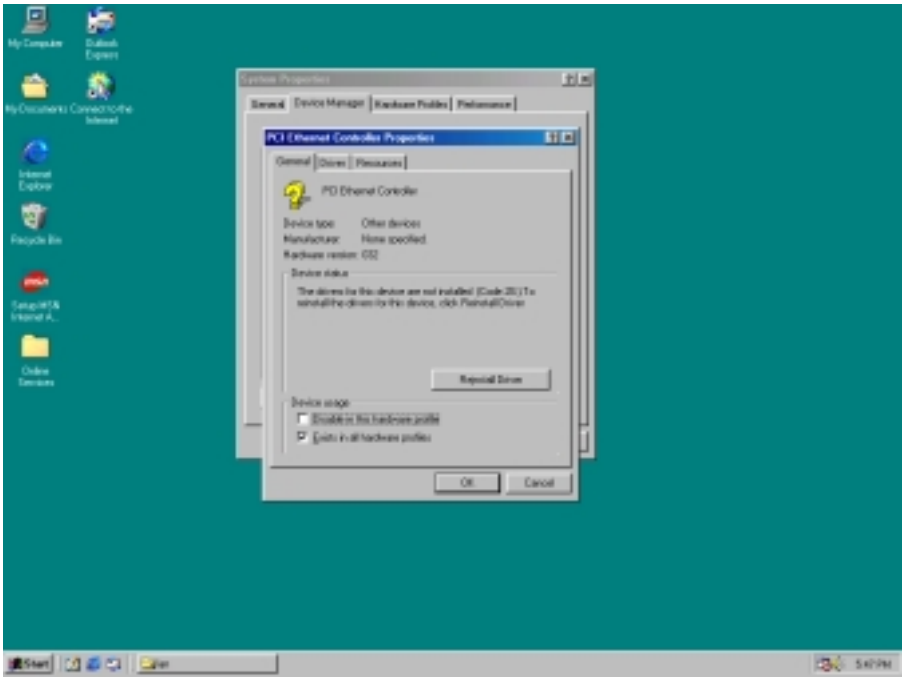
4.3.2 Realtek 8139C+ Ethernet Installation

1. Insert the AW-EM650 CD ROM into the CD-ROM Drive
2. Click the **Start** button
3. Select the **Setting** item
4. Click the **Control Panel** item

5. Select the **Systems** icon to open the **System Properties** box
6. Click the **Device Manager** tab



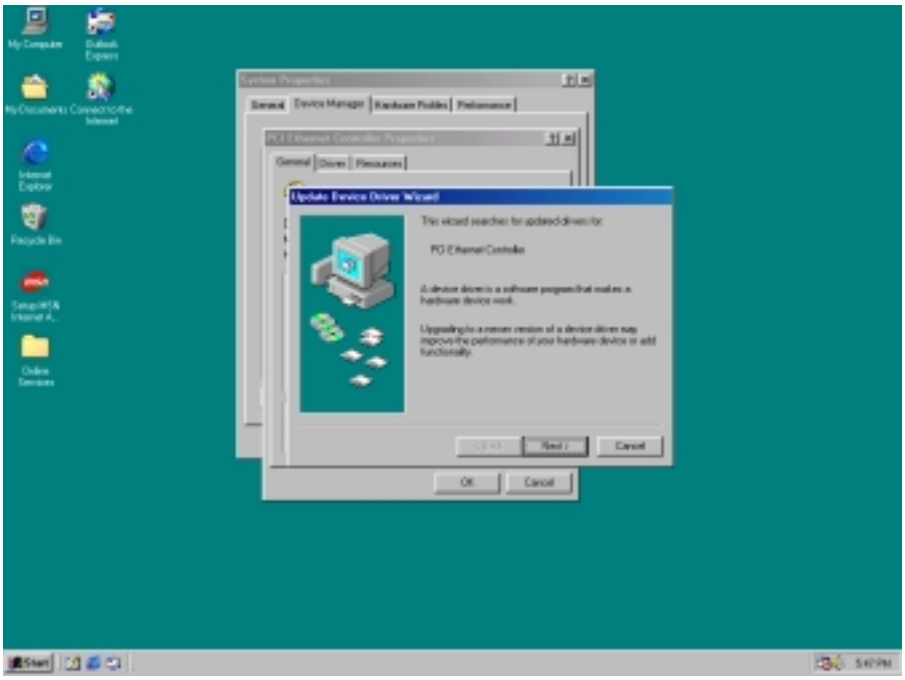
7. Select the **Network Adapters** item



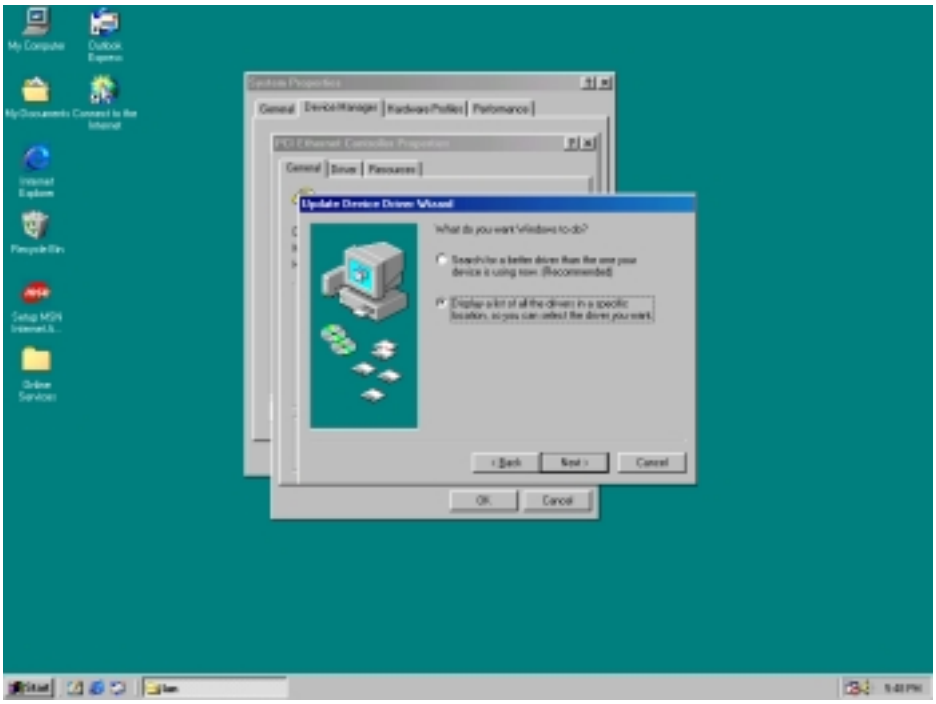
Another file will appear below this file, and then click on the file

8. Click the **Driver** Tab
9. Click the **Update Driver** Button

The **Update Device Driver Wizard** will appear

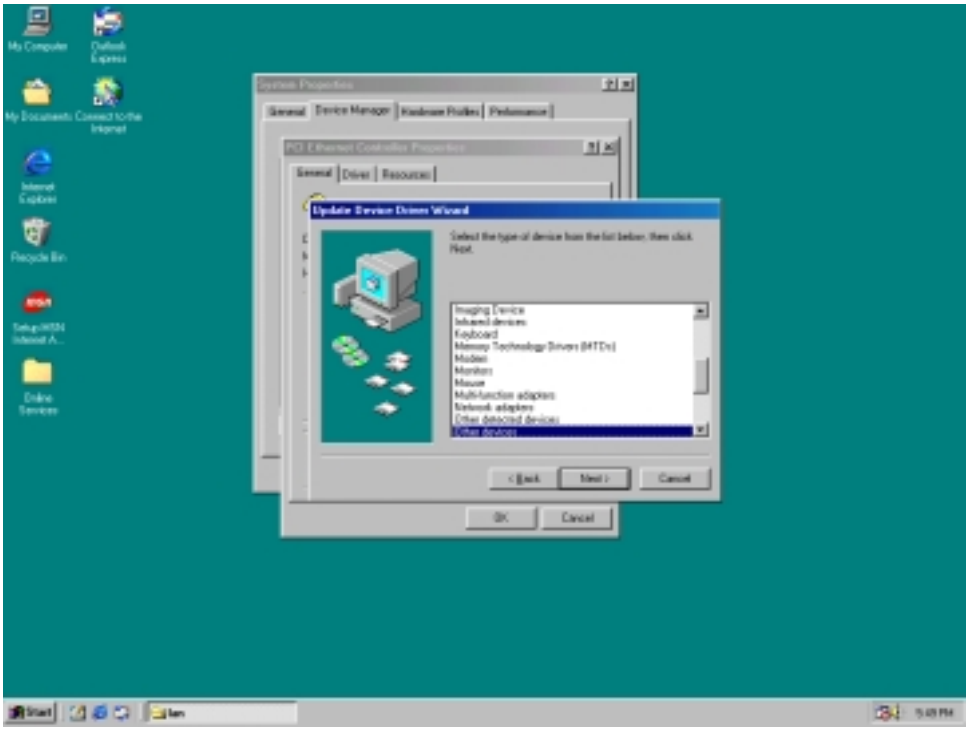


10. Click **Next**

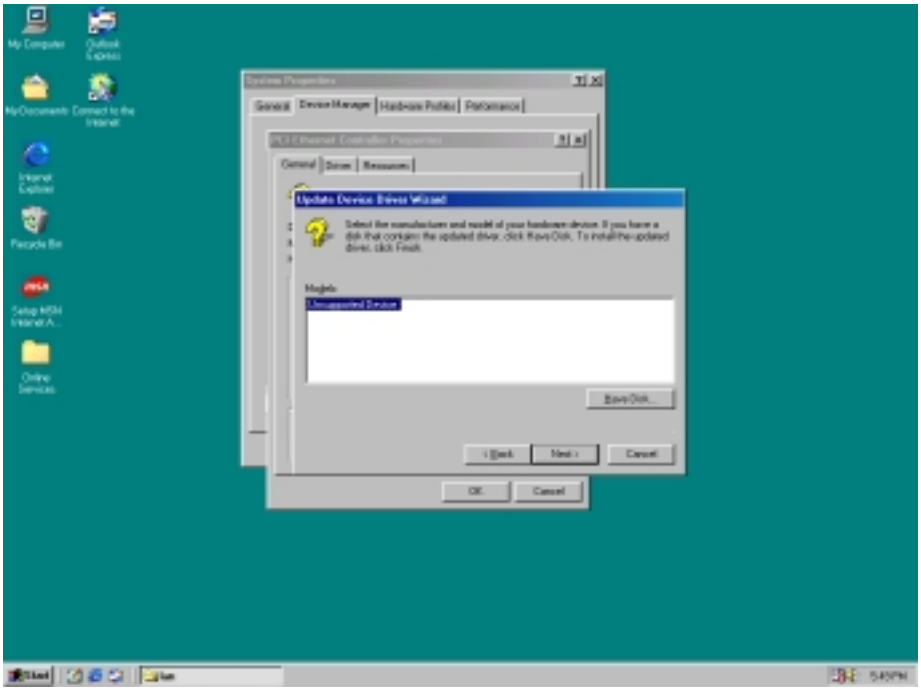


11. Select CD ROM Drive, **D/Drivers/lan/Win98,** and click **Next**

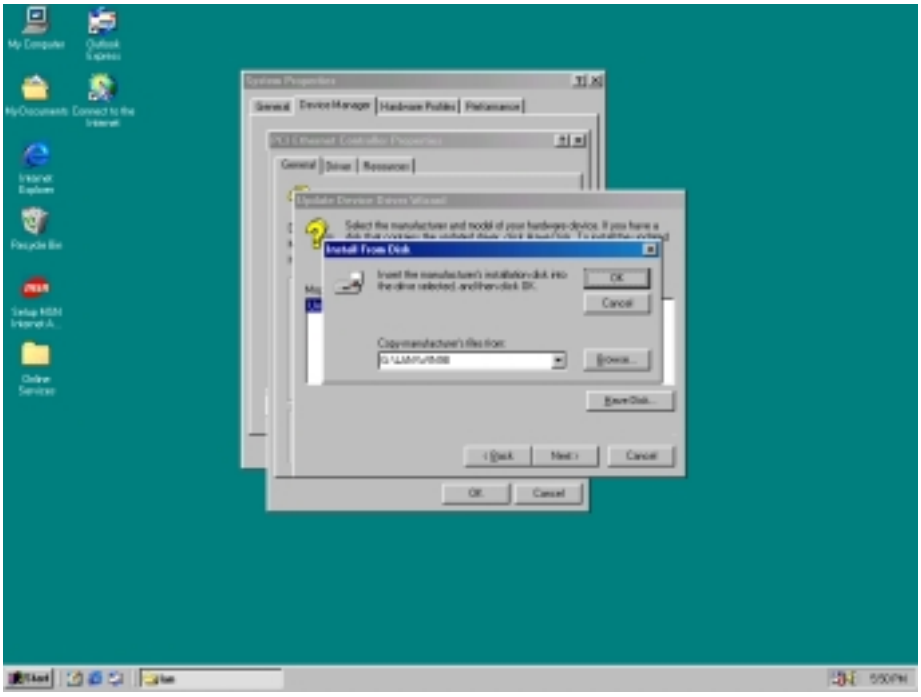
Notice: We take the LAN installation under Win98 for example only; please choose the file depending on your Windows OS.



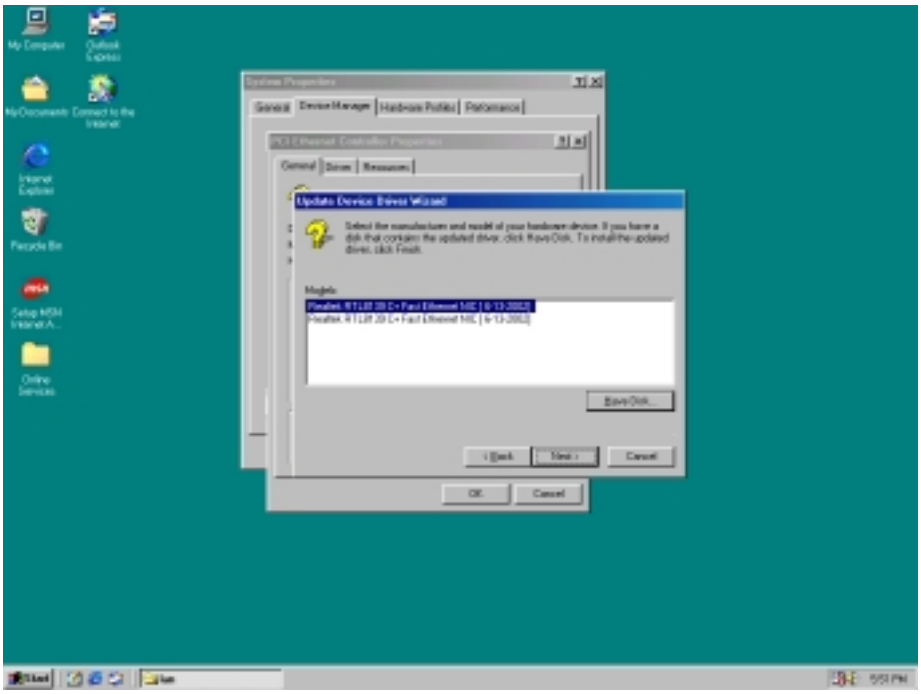
12. Select **"Next"**



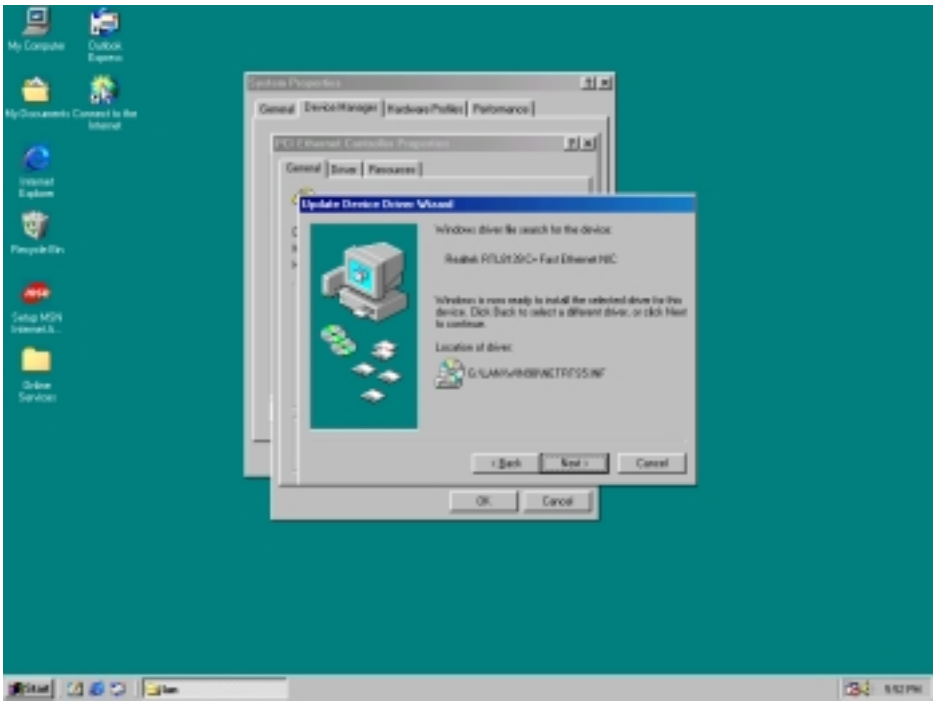
13. Select **"Next"**



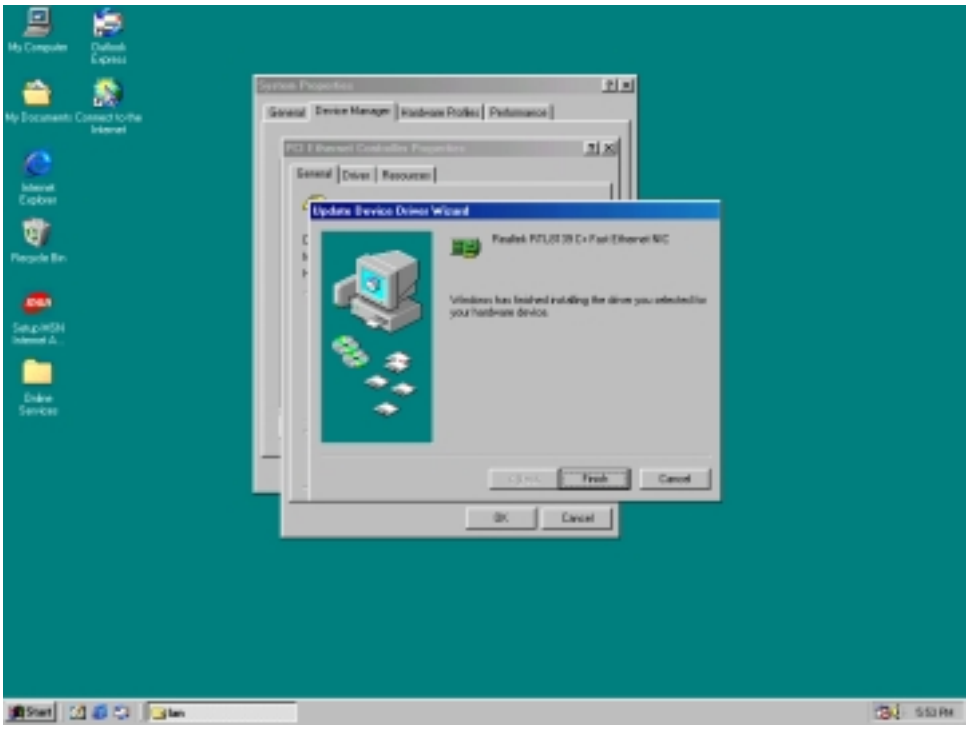
14. Select "**Next"**



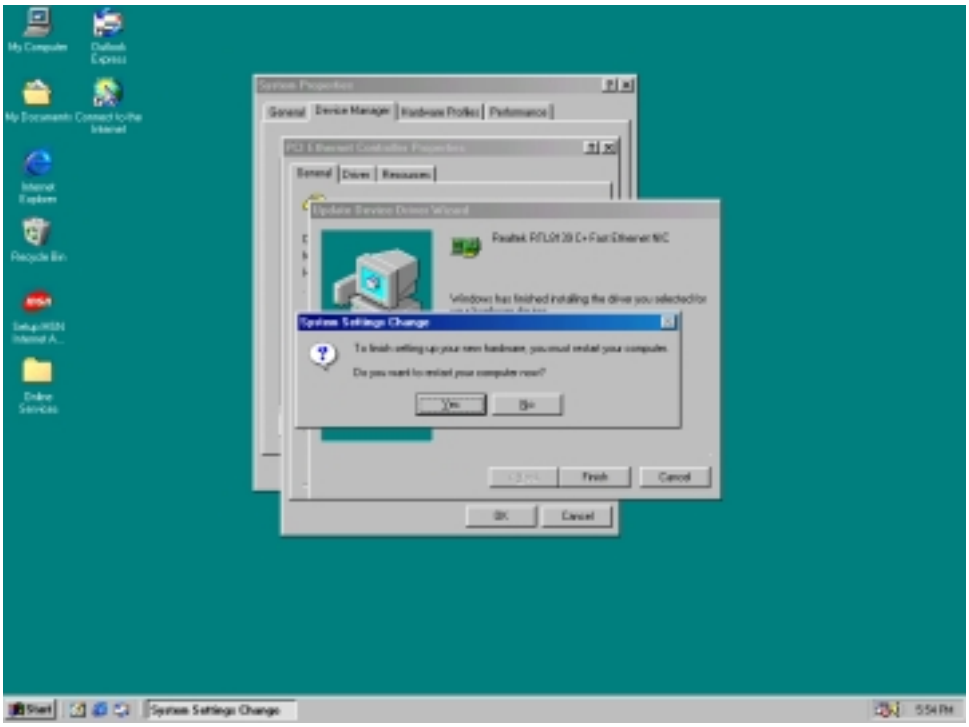
15. Click "**Next"**



16. Click **Finish**



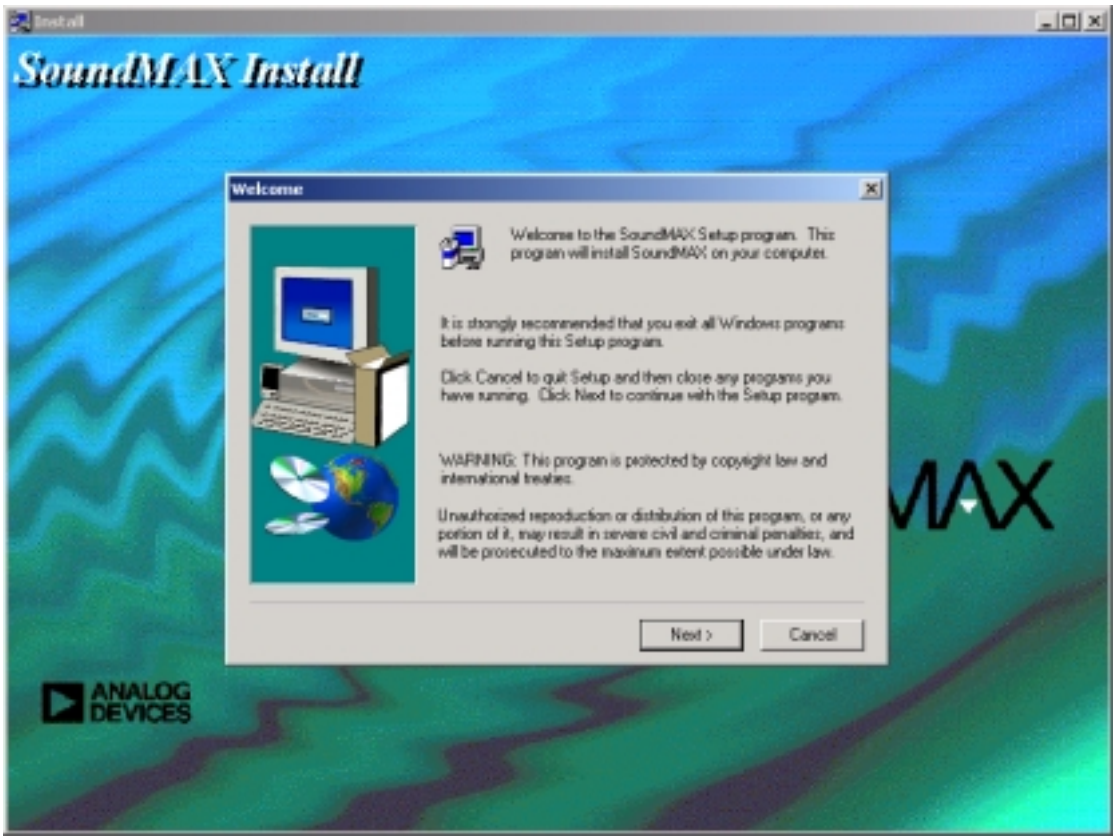
Installation process is completed shutdown the computer and will allow the system to reboot



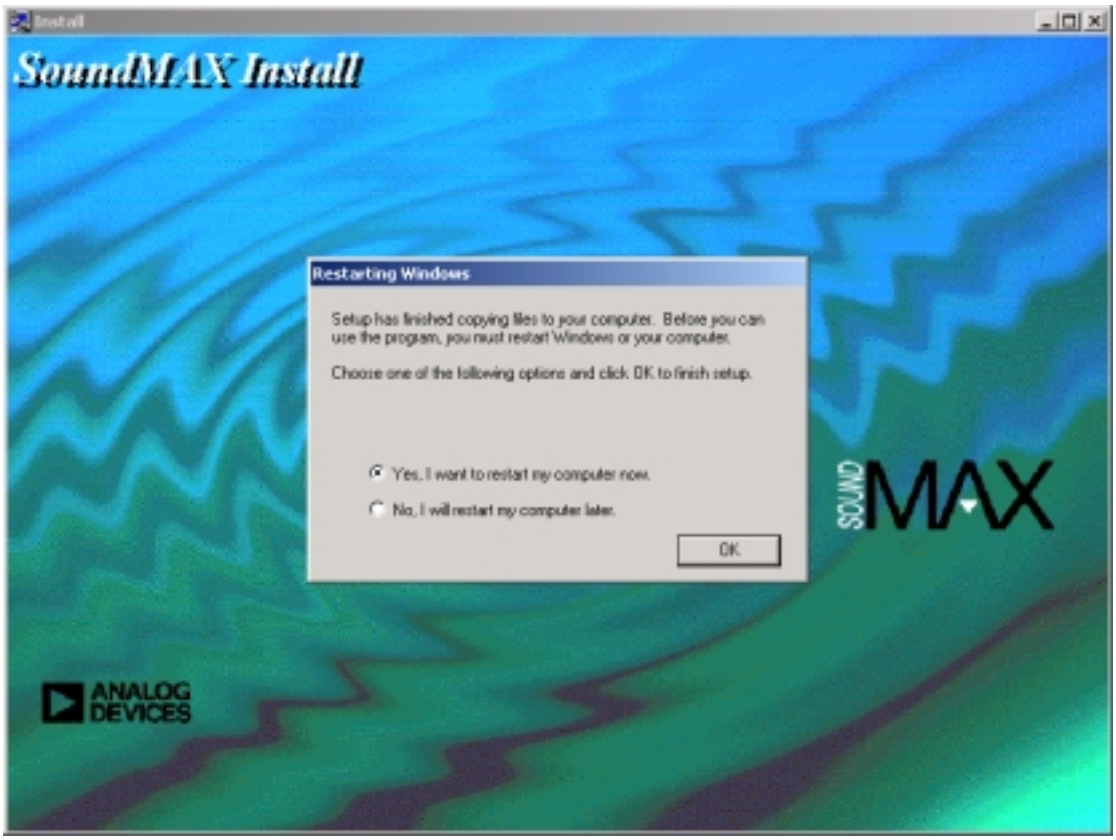
4.3.3 AC'97 Audio Driver

Insert the Drivers and Utilities CD into the CD ROM drive

Click Next


Install
SoundMAX Install
Welcome
Welcome to the SoundMAX Setup program. This program will install SoundMAX on your computer.
It is strongly recommended that you exit all Windows programs before running this Setup program.
Click Cancel to quit Setup and then close any programs you have running. Click Next to continue with the Setup program.
WARNING: This program is protected by copyright law and international treaties.
Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.
Next >
Cancel
ANALOG DEVICES
MAX

2 Click Yes


Install
SoundMAX Install
Restarting Windows
Setup has finished copying files to your computer. Before you can use the program, you must restart Windows or your computer.
Choose one of the following options and click OK to finish setup.
Yes, I want to restart my computer now.
No, I will restart my computer later.
OK
ANALOG DEVICES
MAX

Installation process is completed and allowed the system to reboot.

Appendix A :System Resource

Interrupt Controller

The AW-EM650 is a fully PC compatible control board, it consists of 16 ISA interrupt request lines and most of them already in used by other part of the board..

System IRQs are available to cards installed in the ISA expansion Bus first. Any remaining IRQs then may be assigned to this PCI Bus. You are able to use the Microsoft's Diagnostic(MSD.EXE) utility include in Windows director to see their map.

IRQ	Assignment
IRQ0	System Timer Output
IRQ1	Keyboard
IRQ2	Interrupt rerouting from IRQ8 through IRQ15
IRQ3	Serial Port 2
IRQ4	Serial Port 1
IRQ5	Ethernet Controller
IRQ6	Floppy Disk Controller
IRQ7	Parallel Port 1
IRQ8	Real Time Clock
IRQ9	Ethernet Controller
IRQ10	Reserved
IRQ11	Reserved
IRQ12	USB Controller
IRQ13	Math Coprocessor
IRQ14	Primary IDE Controller
IRQ15	Secondary IDE Controller

DMA Channel Assignment

Channel 4 is by default used to cascade the two controllers

Channel	Assignment
DMA0	Available fir PCI and ISA Slot
DMA1	Available for PCI And ISA Slot
DMA2	Floppy Disk Controller
DMA3	Available for PCI and ISA Slot
DMA4	Cascade
DMA5	Available for PCI and ISA Slot
DMA6	Available for PCI and ISA Slot
DMA7	Available for PCI and ISA Slot

Memory Map

The following table indicates memory of AW-EM650. The address ranges specify the runtime code length.

Memory below 1MB (1Mb ~ 640KB)

Address Range	Type	Owner
A0000~AFFFF	ISA	VGA Adapter
B0000~BFFFF	ISA	VGA Adapter
C0000~CBFFF	ISA	Adapter ROM
F0000~FFFFF	ISA	System BIOS

Memory above 1MB (1MB ~ 142336KB)

Address Range	Type	Owner
E0000000~E7FFFFFF	PCI	VGA Adapter
E4000000~E5FFFFFF	PCI	PCI – PCI Bridge
E6000000~E607FFFF	PCI	VGA Adapter

System Memory Map

Start High	Start Low	Size High	Size Low	Type
00000000	00000000	00000000	0009FC00	Available
00000000	000F0000	00000000	00010000	Reserved
00000000	FFB00000	00000000	00500000	Reserved
00000000	0009FC00	00000000	00000400	Reserved
00000000	00100000	00000000	07E00000	Available

I/O Map

The addresses shown in the table are typical locations.

I/O Port	Assignment
0 ~ F	AT DMA Controller
20 ~ 21	AT Interrupt Controller
40 ~ 43	82C54 Compatible Programmable Timer
60	8042 Compatible keyboard Controller
61	AT Style Speaker
64	8042 Compatible keyboard Controller
70 ~ 71	Real Time Clock
81 ~ 83	AT DMA Controller
87	AT DMA Controller
89 ~ 8B	AT DMA Controller
8F ~ 91	AT DMA Controller
A0 ~ A1	AT Interrupt Controller
C0 ~ DF	AT DMA Controller
F0 ~ FF	Math Coprocessor
170 ~ 177	IDE Controller
1F0 ~ 1F7	IDE Controller
294 ~ 297	PCI Bus
2F8 ~ 2FF	Communication Port (COM2)
376	IDE Controller
3B0 ~ 3BB	VGA Adapter
3C0 ~ 3DF	VGA Adapter
3E0 ~ 3E1	PCMCIA Bridge
3F6	IDE Controller
3F8 ~ 3FF	Communication Port (COM1)
400 ~ 4BF	PCI Bus
4D0 ~ 4D1	PCI Bus
500 ~ 50E	SM Bus
CF8 ~ CFF	PCI Bus
D000~D01E	USB Controller
D800~D81E	USB Controller
DC00~DCFE	Multimedia Controller
E000~E03E	Multimedia Controller
F000~F00E	IDE Controller

Appendix B: Optional Cable List

Part No.	Cable Description	AW-EM650 Connector	Terminating Connector
46-I03IDE-00	IDE Cable	CN18	2mm, 44-pin IDE Cable, 3cm
46-I00IDE-00	IDE Cable	CN18	2mm, 44-pin Dual IDE Cable, 20cm
46-IPOW02-00	Power Cable	CN19	3.96mm – 15CM
46-IAUD02-00	Audio Cable	CN6	2mm, Audio Cable, 15cm
46-ICOM3B-00	I/IO Cable	CN14	1.27mm, COM1/COM2 Cable w/bracket, 15cm
46-IKB001-00	KB/MS Cable	CN10/CN13	2mm, 5-pin mini-circular DIN, 15cm
46-ILAN03-00	10/100Base-T LAN Cable	CN17	1.27mm, RJ-45 Module, 15cm
46-IUSB2B-00	USB Cable	CN8/CN12	2mm, 1-channel USB Cable w/bracket, 15cm
46-IVGA2B-00	CRT VGA Cable	CN16	1.27mm, dual-ports 15-pin D-Sub Ports w/bracket, 15cm
46-TV0003-00	TV-OUT Cable	CN3	2mm TV-Out Cable, 15cm