



VIA C3 Low Power Processors Embedded SBC

User's Manual

Version 1.1

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Chapter 1. General Information

1.1 Introduction

The AW-A695 is a full function of 5.25" Embedded format SBC board use VIA VT8606 and VT82C686B chipset supports processors VIA C3(EBGA packaging) processors. The AW-A695 supports CRT, Intel 82559ER or Realtek RTL8139C Ethernet chipset with RJ45 jack for 10/100Mbps.

The onboard features include two RS-232 serial ports, and onboard SSD interface supports CompactFlash™ Socket.. The AW-A695 supports up to 2 USB ports. For the expansion ability, the AW-A695 reserved a PCI slot for flexible expansion capabilities.

1.2 Specification

General Functions

CPU	VIA C3 (EBGA packaging) CPU
BIOS	Award® 256KB Flash BIOS supports console redirection function
Chipset	VIA VT8606 + VT82C686B
I/O Chipset	Built-in VT82C686B
Memory	One 168-pin DIMM socket supports up to 512Mbytes SDRAM
Enhanced IDE	One IDE connectors and support up to two IDE devices. Support Ultra DMA 33/66/100 mode with data transfer rate up to 100MB/sec.
PCI slot	One 32-bit PCI expansion slot
Serial port	Two RS-232 ports, one DSUB-9P and one pin header
USB connectors	5 x 2 header onboard supports dual USB ports
Watchdog Timer	Can generate a system reset, supports software selectable timeout interval
System Monitoring	Supports temperatures, Fan speed, and voltages monitoring

CRT Interface

Chipset	VIA Twister chip with integrated
Display type	Supports pin header for CRT Monitor
Display memory	Share system memory 8/16/32MB

Ethernet Interface

Chipset	Quadruple Intel® 82559ER or Realtek® RTL8139C 100Base-Tx Fast
----------------	---

	Ethernet controller
Ethernet interface	PCI 100/10 Mbps Ethernet controller. IEEE 802.3U protocol compatible
SSD Interface	50-pin CompactFlash™ Socket
Mechanical and Environmental	
Power supply voltage	+12V (11.4V to 12.6V)
Max. power requirements	5A@ +12V
Operating temperature	32 to 140°F (0 to 60°C)
Board size	8"(L) x 5.75"(W) (203mm x 146mm)

1.3 AW-A695 Package

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

1. AW-A695 VIA C3 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

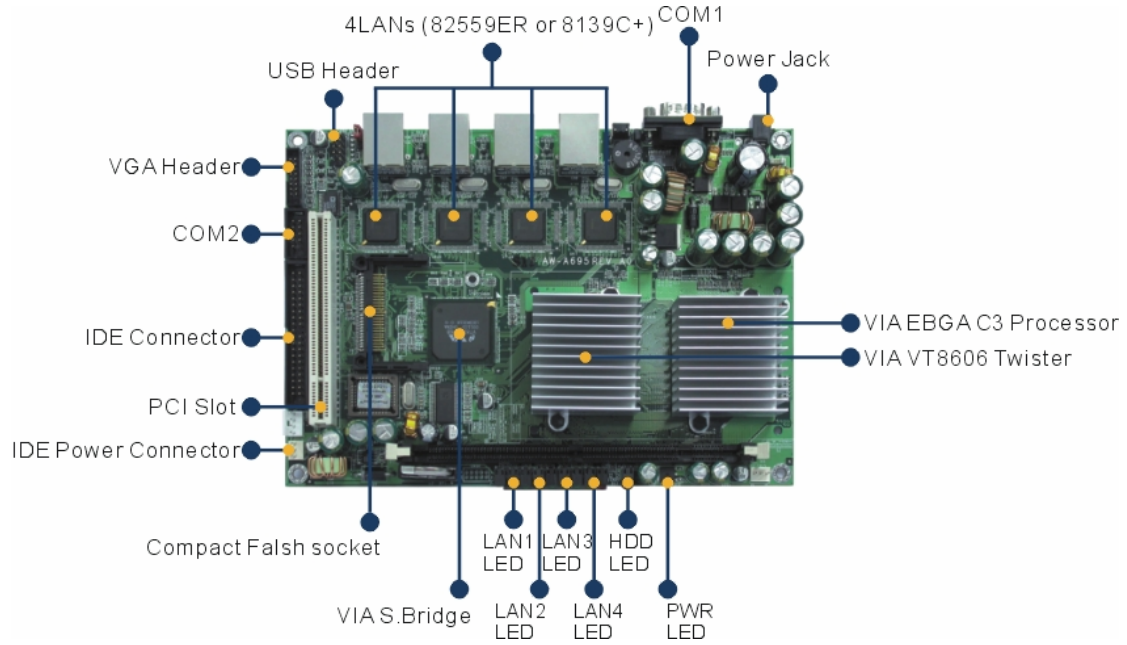
Please make sure you properly ground yourself before handling the AW-A695 board or other system components. Electrostatic discharge can be easily damage the AW-A695 board.

Do not remove the anti-static packing until you are ready to install the AW-A695 board.

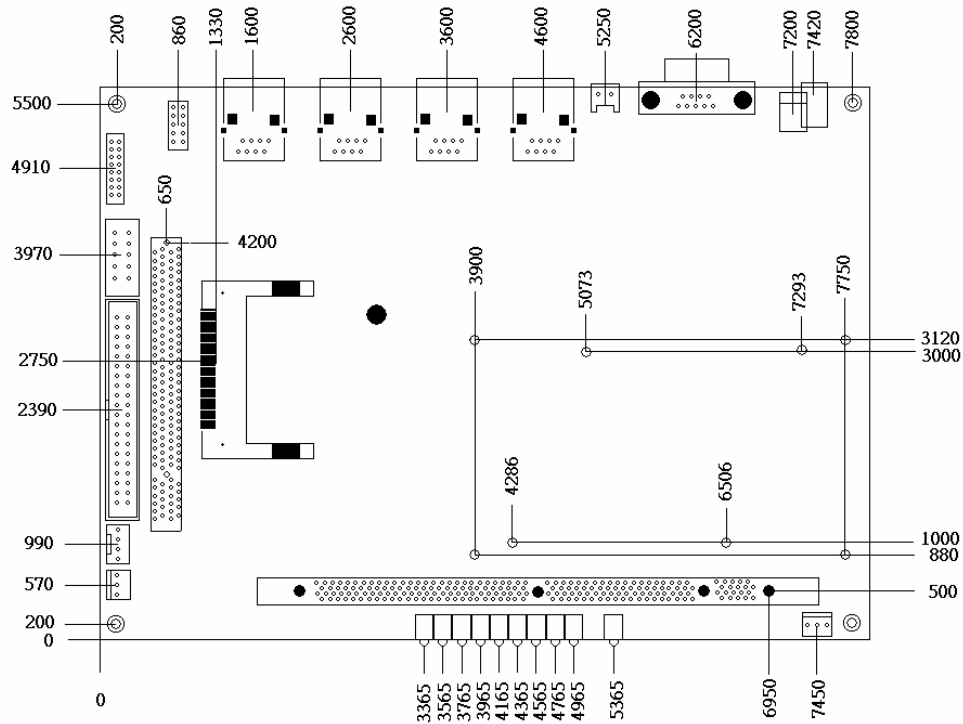
Ground yourself before removing any system component from its protective anti-static packaging. To ground yourself, grasp the expansion slot covers or other unpainted parts of the computer chassis.

Handle the AW-A695 board by its edges and avoid touching its component.

1.4 Board Layout

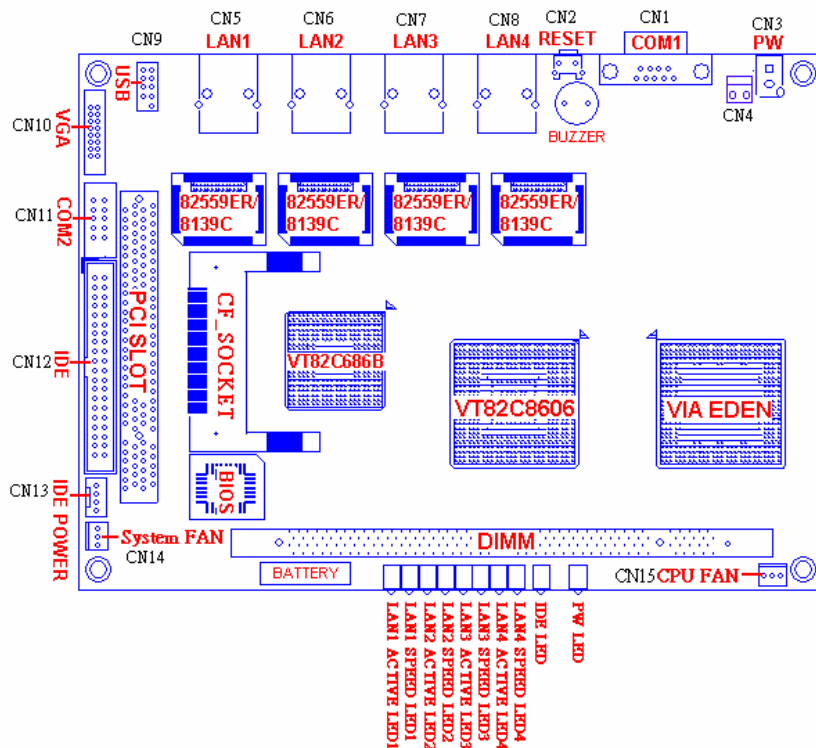


1.5 Board Dimension



Chapter 2. Connectors/Switch Location and Configuration

2.1 Connectors/Jumpers Location and Define



Connector	Description	Connector	Description
CN1	COM Port (D-Sub)	CN10	VGA Pin-header (2mm)
CN2	Reset Button	CN11	COM Port Pin-header
CN3	External Power Jack	CN12	IDE Connector (40 pin; 2.54 mm)
CN4	Internal Power Jack	CN13	IDE Power Connector
CN5	LAN1 RJ-45 Connector	CN14	System Fan Connector
CN6	LAN2 RJ-45 Connector	CN15	CPU Fan Connector
CN7	LAN3 RJ-45 Connector	CN16	Manufacturer Default Using
CN8	LAN4 RJ-45 Connector	CN17/18	LAN LED Pin-Header (Optional)
CN9	USB Pin-header (2.54mm)	CN19	Manufacturer Default Using
JP1	Clear CMOS	CN20	HDD LED Pin-Header
JP2	Watchdog Output Select	CF_Socket	CompactFlash Socket

2.2. Onboard Processors

The AW-A695 onboard built-in VIA Eden, Ezra or LP EBGGA Package processor. The CPU cooler fan will be mounted when board with 800MHz and up CPU and the high profile Heatsink will be mounted when 667MHz CPU.

2.3 Installing Memory

To insert a DIMM Memory:

The AW-A695 supports one 168-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.

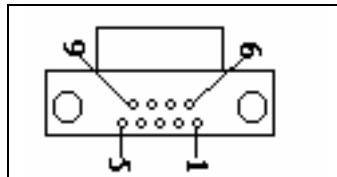
There is only one direction for installing a module in the socket. Do not attempt to force the module into the socket incorrectly.

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.

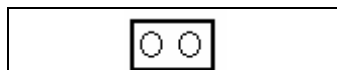
2.4 Connector and Jumper Settings

CN1: COM Port (D-Sub)



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

CN2: Reset Bottom

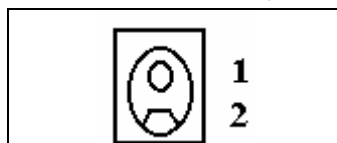


Pin	Define
1	Ground
2	RSTSW#

CN3: External Power Jack

The AW-A695 reserved an external power jack (CN3) and internal power pin header (CN4) for different using of power supply.

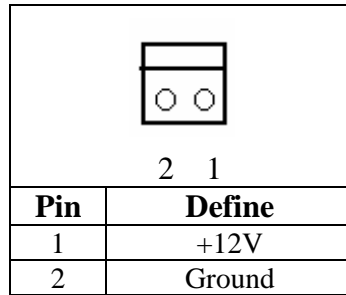
The external power jack with inner diameter 2.5 ϕ & outer diameter 6.0 ϕ power jack



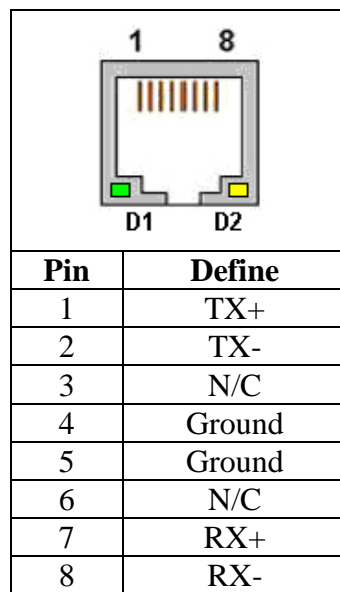
Pin	Define
1	+12V
2	Ground

CN4: Internal Power Jack

The AW-A695 with one internal power jack (3.96mm pitch)



CN5, CN6, CN7, CN8: LAN1-LAN4 RJ-45 Connector

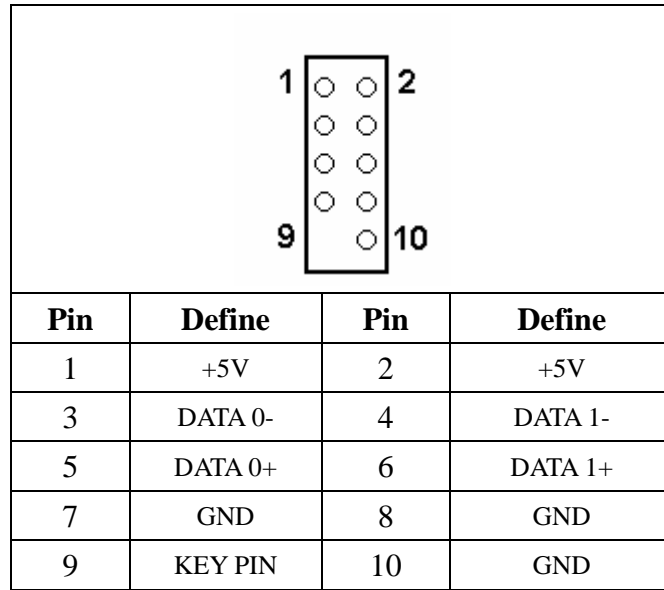


LED:

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

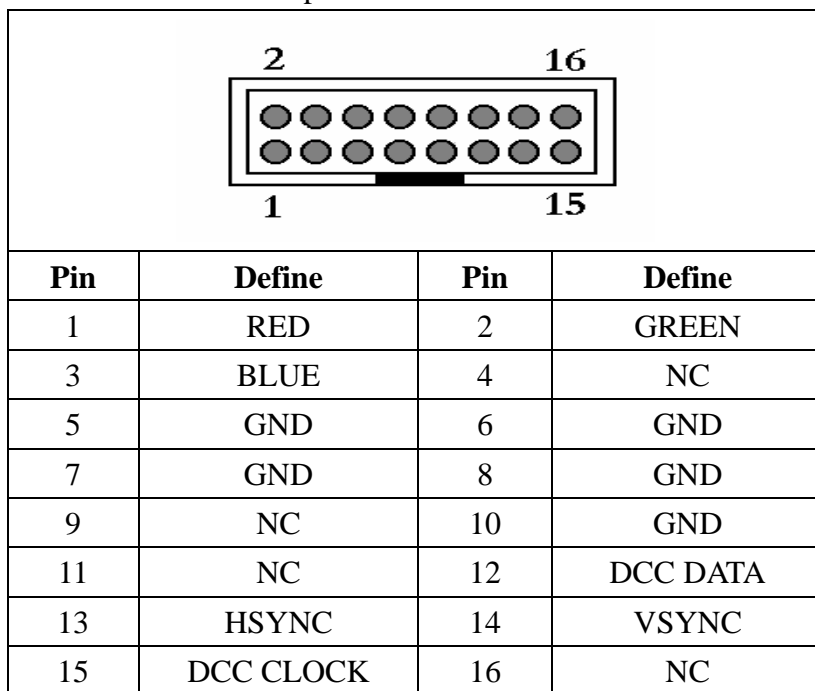
CN9: USB Pin-header (2.54mm)

The AW-A695 supports dual USB ports

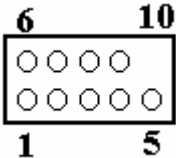


CN10: VGA Pin-header (2mm)

The AW-A695 reserved one VGA pin header

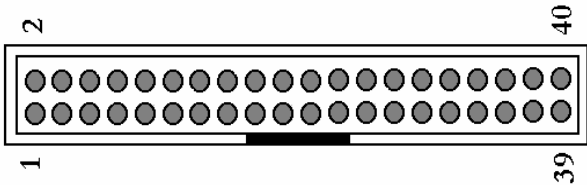


CN11: COM Port Pin-header

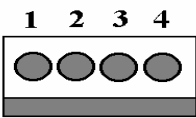
			
Pin	Define	Pin	Define
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	GND	10	Key Pin

CN12: IDE Connector (40 pin; 2.54 mm)

The AW-A695 supports one 2.54mm pitch 40-pin pin header for up to two IDE devices.

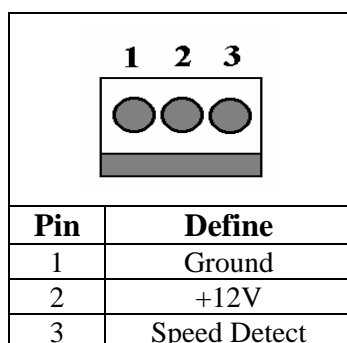
			
Pin	Define	Pin	Define
1	RESET*	2	GND
3	DATA 7	4	DATA 8
5	DATA 6	6	DATA 9
7	DATA 5	8	DATA 10
9	DATA 4	10	DATA 11
11	DATA 3	12	DATA 12
13	DATA 2	14	DATA 13
15	DATA 1	16	DATA 14
17	DATA 0	18	DATA 15
19	GND	20	KEY PIN
21	DREQ	22	GND
23	DIOW*	24	GND
25	DIOR*	26	GND
27	IOCHRDY	28	CSEL
29	DACK*	30	GND
31	IRQ14	32	N/C
33	A1	34	DETECT
35	A0	36	A2
37	HD SELECT 0*	38	HD SELECT 1*
39	ACTIVE*	40	GND

CN13: IDE Power Connector

			
Pin	Define	Pin	Define
1	+12V	2	GND
3	GND	4	+5V

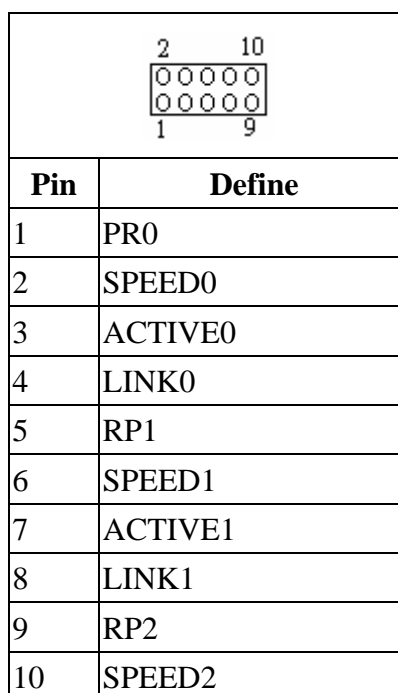
CN14, CN15: System and CPU Fan Connector

The onboard supports eight digital input and eight output which using a 2.0mm pitch connector

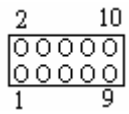


CN16/CN19: Manufacturer Default Using


CN17: LAN LED Header (2.54mm Pitch) Optional



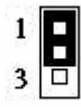
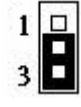
CN18: LAN LED Header (2.54mm Pitch) Optional

	
Pin	Define
1	ACTIVE2
2	LINK2
3	RP4
4	SPEED3
5	ACTIVE3
6	LINK3
7	NC
8	NC
9	NC
10	NC

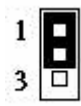
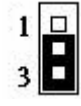
CN20: HDD LED Pin-Header

	
Pin	Define
1	HDD LED
2	VCC

JP1: Clear CMOS

Setting		Define
	1-2	Hold Data (Default)
	2-3	Clear CMOS

JP2: Watchdog Output Select

Setting		Define
	1-2	IRQ11
	2-3	Reset (Default)

CF_Socket: Please refer to the Appendix C Installing CompactFlash Memory

Chapter 3. BIOS Setup

The ROM chip of your AW-A695 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-A695 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 key to enter CMOS Setup program. The main menu appears:

Phoenix - AwardBIOS COS Setup Utility

<ul style="list-style-type: none">▶ Standard CMOS Features▶ Advanced BIOS Features▶ Advanced Chipset Features▶ Integrated Peripherals▶ Power Management Setup▶ PnP/PCI Configurations▶ PC Health Status	<ul style="list-style-type: none">▶ Frequency/Voltage ControlLoad Fail-Safe DefaultsLoad Optimized DefaultsSet Supervisor PasswordSet User PasswordSave & Exit SetupExit Without Saving
Esc: Quit F10: Save & Exit Setup	↑↓→←: Select Item
Change CPU's Clock & Voltage	

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.

STANDARD CMOS FEATURES:

Configure the date & time, hard disk drive type, floppy disk drive type, primary display type and more

ADVANCED BIOS FEATURES:

Configure advanced system options such as enabling/disabling cache memory and shadow RAM

ADVANCED CHIPSET FEATURES:

Configure advanced chipset register options such DRAM timing

INTEGRATED PERIPHERALS:

Configure onboard I/O functions

POWER MANAGEMENT SETUP:

Configure power management features such as timer selects

PNP/PCI CONFIGURATION:

Configure Plug & Play IRQ assignments and PCI slots

PC HEALTH STATUS:

Configure the CPU speed and, if the optional Winbond W83627HF system monitor IC is installed, view system information

FREQUENCY/VOLTAGE CONTROL

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

LOAD FAIL-SAFE DEFAULT:

Loads BIOS default values. Use this option as diagnostic aid if your system behaves erratically

LOAD OPTIMIZED DEFAULTS:

Use this menu to load the BIOS default values that are factory settings for optimal performance system operations.

SET SUPERVISORS & USER PASSWORD:

Configure the system so that a password is required when the system boots or you attempt to enter the CMOS setup program. When you log in with this password, you will be able to enter the COS Setup main menu, but you can not enter other menus in the CMOS Setup program.

SAVE & EXIT SETUP:

Save changes of values to CMOS and exit the CMOS setup program

EXIT WITHOUT SAVING:

Abandon all CMOS changes and exit the CMOS setup program

Standard CMOS Features 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		Item Help
Standard CMOS Features		
Date (mm:dd:yy)	Fri, Aug 30 2002	
Time (hh:mm:ss)	10 : 1 : 40	
▶ IDE Primary Master	(ST51270A)	Menu Level ▶
▶ IDE Primary Slave	(None)	Change the day, month,
▶ IDE Secondary Master	(None)	year and century
▶ IDE Secondary Slave	(None)	
Drive A	(None)	
Drive B	(None)	
Video	(EGA/VGA)	
Halt On	(All, But Keyboard)	
Base Memory	640K	
Extended Memory	224736K	
Total Memory	245760K	
↑↓→← 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.

Drive A & B:

Select the correct specifications for the floppy disk drive installed in the computer.

None: No floppy disk drive installed

360K/1.2M 5.25" standard drive

720K/1.44M/2.88M 3.5" standard drive

Video:

Choose: EGA/VGA

CGA 40 Color Graphics adapter, power up in 40 columns mode

CGA 80 Color Graphics adapter, power up in 80 columns mode

Mono Monochrome adapter, includes high resolution monochrome adapters

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 BIOS Features Setup option as follows:

1. Choose “Advanced BIOS Features Setup” from the main menu. The following screen appears:

Phoenix - AwardBIOS CMOS Setup Utility
Advanced BIOS Features

Virus Warning <Disabled> CPU Internal Cache <Enabled> External Cache <Enabled> CPU L2 Cache ECC Checking <Enabled> Quick Power On Self Test <Enabled> First Boot Device <HDD-0> Second Boot Device <HDD-1> Third Boot Device <CDROM> Boot Other Device <Enabled> Boot Up Numlock Status <On> Security Option <Setup> Baud Rate 19200 Agent Connect Via <Null> Agent Wait Time (Min) <1> Agent After Boot <Enabled> Console Redirection <Enabled>	Item Help Menu Level ▶ Allow you to change 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
↑↓→← 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/External Cache:

The Cache memory is additional memory that is much faster than conventional system memory. Most of modern PCs have additional external cache memory. When the CPU requests data, the system transfers the requested data from the main DRAM into cache memory. The external cache field may not appear if your system doesn't have external cache memory.

Choose: Enabled, Disabled

CPU L2 Cache ECC Checking:

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

Quick Power On Self Test:

Select Enabled to reduce the amount of time required to run the power-on-self-test (POST). A quick POST skips certain steps. The manufacturer recommend that you normally disable quick POST.

Choose: Enabled, Disabled

First/Second/Third Boot Device:

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

Choose: Floppy, LS-120, HDH-0, 1, 2, 3, SCSI, CDROM, ZIP100, USB-FDD, USB-ZIP, USB-CDROM, USB-HDD, LAN, Disabled

Boot Other Device:

If your boot device is not included the following devices Floppy , LS120, HDD0/1, SCSI, CDROM, you may set First/Second/Third boot devices to disable and enable the boot other device function, the system will automatically boot the other device.

Choose: Enabled, Disabled

Boot Up NumLock Status:

Choose On or Off. On puts the numeric keypad in Num Lock mode at boot-up.

Off puts the numeric keypad in arrow key mode at boo-up

Security Option:

Choose Setup or System. This 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.

Baud Rate:

The data transfer rate (bit per second) to agent. Choose 9600/19200/38400/57600/115200 item.

Agent Wait Time (Min):

Agent negotiate time, choose 1/2/4/8 min.

Agent After Boot:

Choose enabled to enable agent administrate this board after boot.

Console Redirection:

Set the Console Redirection <Enabled>

This function is let you to connect the Server by hyper terminal to monitor Client, it has to be worked under DOS mode. The Client terminal doesn't need the graphic function.

Advanced Chipset Features Setup

↓ Use the Advanced Chipset Features Setup option as follows:

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

Phoenix - AwardBIOS CMOS Setup Utility
Advanced Chipset Features

DRAM Timing By SPD <Enabled> X DRAM Clock Host CLK X SDRAM Cycle Length 3 X Bank Interleave Disabled Memory Hole <Disabled> System BIOS Cacheable <Enabled> Video RAM Cacheable <Enabled> Frame Buffer Size <16M> AGP Aperture Size <64M> OnChip USB <Enabled> USB Keyboard Support <Enabled> USB Mouse Support <Disabled> PCI Dynamic Bursting <Enabled> PCI Master 0 WS Write <Enabled> PCI Delay Transaction <Disabled> PCI#2 Access #1 Retry <Enabled> AGP Master 1 WS Write <Disabled> AGP Master 1 WS Read <Disabled>	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 fields using the PnUP/PgDN keys. For information on the various options, press <F1> key.

DRAM Timing By SPD:

It lets you select the value in this field, depending on the board paged DRAMs or EDO (Extended Data Output) DRAMs.

Choose: Enabled / Disabled

DRAM Clock:

It lets you control the DRAM speed.

Choose: Host Clock, HCLK-33M, HCLK+33M

SDRAM Cycle Length:

It sets the CAS latency timing.

Choose: 3 / 2

Bank Interleave:

Choose: 2 Bank / 4 Bank / Disabled

Memory Hole:

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

System BIOS Cacheable:

Choose Enabled or Disabled. When enabled, caching of the system BIOS at F0000h-FFFFFh, enhancing system performance. However, if any program writes to this memory area, a system error may result.

Video RAM Cacheable:

Choose: Enabled / Disabled

Frame Buffer Size:

Choose: 2M / 4M / 8M / 16M / 32M

AGP Aperture Size:

Enter a value from 4MB to 128MB to determine the effective size of the graphics aperture sued in the particular PAC configuration. The larger the value, the better the AGP performance.

OnChip USB:

You could enable this function if the system contains USB (Universal Serial Bus) controller and USB keyboard. When disabled, the system will not be able to access USB keyboard.

Choose: Enabled / Disabled

USB Keyboard/Mouse Support:

You could enable this function if the system contains USB controller and USB keyboard/mouse

Choose: Enabled / Disabled

PCI Dynamic Bursting:

When enabled, every write transaction goes to the write buffer. Burstable transaction then burst on the PCI bus and nonburstable transaction do not.

Choose: Enabled/Disabled

PCI Master 0 WS Write:

When enabled, writes to the PCI bus are executed with zero wait state.

Choose: Enabled/Disabled

PCI Delay Transaction:

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

Choose: Enabled/Disabled

PCI#2 Access #1 Retry:

When enabled, PCI#2 will be disconnected if max retried are attempted without success (Default). When disabled PCI#2 will be connected until access finished.

AGP Master 1 WS Write:

System will run single wait state delay before write data from buffer, the system will run twice wait states if set to disable.

AGP Master 1 WS Read:

System will run single wait state delay before read data from buffer, the system will run twice wait states if set to disable

Integrated Peripherals

↓ Use the Integrated Peripherals Setup option as follows:

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

Phoenix - AwardBIOS CMOS Setup Utility
Integrated Peripherals

On-Chip IDE Channel0	<Enabled>	Item Help
On-Chip IDE Channel1	<Enabled>	
IDE Prefetch Mode	<Enabled>	Menu Level ▶
Primary Master PIO	<Auto>	
Primary Slave PIO	<Auto>	
Secondary Master PIO	<Auto>	
Secondary Slave PIO	<Auto>	
Primary Master UDMA	<Auto>	
Primary Slave UDMA	<Auto>	
Secondary Master UDMA	<Auto>	
Secondary Slave UDMA	<Auto>	
Init Display First	<PCI Slot>	
IDE HDD Block Mode	<Enabled>	
Onboard Serial Port 1	<Auto>	
Onboard Serial Port 2	<Auto>	
↑↓→← 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 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:

The system supports for two IDE channels. Select Enabled to activate the primary IDE interface. Select Disabled to deactivate this interface

IDE Prefetch Mode:

The onboard IDE interface supports IDE Prefetch Mode, for faster drive accesses. If you install a primary and/or secondary add in IDE interface, set the field to Disabled if the interface doesn't support prefetch.

Choose: Enable/Disable

IDE Primary/Secondary Master/Slave PIO:

Auto/Mode0/Mode1/Mode2/Mode3/Mode4

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.

IDE Primary/Secondary Master/Slave UDMA:

Auto, Mode0, Mode1, Mode2, Mode3, Mode4

UltraDMA33/66/100 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver. If your hard drive and your system software both support UltraDMA33/66/100, select Auto to enable BIOS support.

Init Display First:

This item allows you to active PCI slot or onboard first

IDE HDD Block Mode:

Select Enabled only if your hard drives support block mode.

Onboard Serial Port 1 and Serial Port 2:

Choose: Auto

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.

Phoenix - AwardBIOS CMOS Setup Utility		Item Help
Power Management Setup		Menu Level ▶
▶ Power Management	<Press Enter>	
PM Control by APM	<Yes>	
Video Off Option	<Suspend -> Off>	
Video Off Method	<V/H SYNC+Blank>	
MODEM Use IRQ	<3>	
Soft-Off by PWRTBN	<Instant-Off>	
Wake Up Events	<Press Enter>	
↑↓→← 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 the PgUP/PgDN keys. For information on the various options, press <F1> key.

Power Management:

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

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

"Min Saving" - Predefine timer value of 4-12 min.

"Max Saving" – Predefine timer value of 1 minute

PM Control by APM:

When the advanced power management is installed on the system, users would select "Yes" to save more power.

Choose: Yes / No

Video Off Option:

Select the power saving modes when the monitor is blank.

Always on: Monitor remains “on” during power Saving modes.

Suspend-off: Monitor is blank when system is in suspension mode

Suspend: Off monitor is blank when the

Standby-off: System is in either suspension or standby mode.

All modes-off: Monitor is blank when the system is in any power saving mode.

Video Off Method:

Choose V/H SYNC+Blank, DPMS, Blank Screen

When power management blanks the screen and turns off vertical and horizontal scanning. The DPMS (Display Power Management System) setting allows the BIOS to control the video card if it has the DPMS features. If you don't have a Green monitor, use the Blank Screen option

Modem Use IRQ:

Choose the IRQ used by the modem.

Default: Disabled

Soft-Off by PWRTBN:

Press the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has “hung:

Default: Instant-Off

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

PNP/PCI Configuration

This option is used to configure Plug and Play 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.

Phoenix - AwardBIOS CMOS Setup Utility		Item Help
PnP/PCI Configurations		
PNP OS Installed	<No>	Menu Level ▶
Reset Configuration Date	<Disabled>	
Resources Controlled By	<Auto(ESCD)>	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
X IRQ Resources	Press Enter	
X DMA Resources	Press Enter	
PCI/VGAS Palette Snoop	<Disabled>	
Assign IRQ For VGA	<Disabled>	
Assign IRQ For USB	<Enabled>	
↑↓→← 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 fields using the PgUP/PgDN keys. For information on the various options, please press <F1> key.

PNP OS Installed:

Select Yes if the system operating environment is Plug and Play aware.

Select No if you need the BIOS to configure non-boot devices

Choose: No, Yes

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:

Choose Auto or Manual. This option specifies whether resources are controlled by automatic or manual configuration

IRQ Resources:

- IRQ-3 Assigned to <PCI Device>
- IRQ-4 Assigned to <PCI Device>
- IRQ-5 Assigned to <PCI Device>
- IRQ-7 Assigned to <PCI Device>
- IRQ-9 Assigned to <PCI Device>
- IRQ-10 Assigned to <PCI Device>
- IRQ-11 Assigned to <PCI Device>
- IRQ-12 Assigned to <PCI Device>
- IRQ-14 Assigned to <PCI Device>
- IRQ-15 Assigned to <PCI Device>

PCI/VGA Palette Snoop:

Enabling this item informs the PCI/VGA card to keep silent when palette register is updated

Assign IRQ for VGA/USB:

Choose Enabled/Disabled to specify whether the VGA/USB uses on IRQ or not. an IRQ or not.

3. Please press the <ESC> key to return the main menu after finishing with the PNP/PCI Configuration Setup.

PC Health Status Configuration Setup

Choose “PC Health Status Configuration Setup” from the main menu, the following screen appears:

Phoenix - AwardBIOS Setup Utility
PC Health Status

CPU Temperature 27 C/80 F System Temperature 24 C/75 F FAN1 Speed 6800 RPM FAN2 Speed 6800 RPM Vcore 1.36 V 2.5V 2.56 V 3.3V 3.38 V 5V 5.25 V 12V 12.22 V	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	

Frequency/Voltage Control Option

Choose the "Frequency/Voltage Control" from main menu, the following screen appears:

Phoenix - AwardBIOS CMOS Setup Utility
Frequency/Voltage Control

		Item Help
VIA C3 Clock Ration	<Default>	Menu Level ▶ This item is for VIA C3 CPU Ratio adjustment
CPU Host Clock (CPU/PCI)	<Default>	
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC: Exit F1: General Help F5:Previous Value F6:Fail-Safe Default F7:Optimized Defaults		

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 BIOS default values. Press the <Y> key and then press <Enter> if you want to load the BIOS default.

Phoenix - AwardBIOS CMOS Setup Utility

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	word
PnP/PCI Configura	Load Fail-Safe Defaults (Y/N)? N etup
PC Health Status	Exit Without Saving
Esc : Quit	↑↓→← : Select Item
F10 : Save & Exit Setup	(Shift)F2: Change Color
Time, Date, Hard Disk Type...	

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.

Phoenix - AwardBIOS CMOS Setup Utility

Standard CMOS Features	Frequency/Volage Control
Advanced BIOS Features	Load Fail-Safe Defaults
Advanced Chipset Features	Load Optimized Defaults
Integrated Peripherals	Set Supervisor Password
Power Management	word
PnP/PCI Configura	Load Optimized Defaults (Y/N)? N
PC Health Status	Exit Without Saving
Esc : Quit	↑↓→← : Select Item
F10 : Save & Exit Setup	(Shift)F2: Change Color
Time, Date, Hard Disk Type...	

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.

Phoenix - AwardBIOS CMOS Setup Utility

Standard CMOS Features	Frequency/Volage Control
Advanced BIOS Features	Load Fail-Safe Defaults
Advanced Chipset Features	Load Optimized Defaults
Integrated Peripherals	Set Supervisor Password
Power Management	word
PnP/PCI Configura	etup
PC Health Status	Exit Without Saving
Enter Password:	
Esc : Quit	↑↓→← : Select Item
F10 : Save & Exit Setup	(Shift)F2: Change Color
Time, Date, Hard Disk Type...	

After you use this option to enable a password function, use the “Security Option” in “BIOS Feature Setup” to specify whether a password is required every time the system boots or only when an attempt is made to enter the CMOS Setup program.

Save and Exit Setup

This function automatically saves all CMOS values before exiting Setup.

Phoenix - AwardBIOS CMOS Setup

▶ Standard CMOS Features	▶ Frequency/Volage Control
▶ Advanced BIOS Features	Load Fail-Safe Defaults
▶ Advanced Chipset Features	Load Optimized Defaults
▶ Integrated Peripherals	Set Supervisor Password
▶ Power Management	Set User Password
▶ PnP/PCI Configuration	Save & Exit Setup
▶ PC Health Status	Exit Without Saving
Esc : Quit	↑↓→← : Select Item
F10 : Save & Exit Setup	(Shift)F2: Change Color
Time, Date, Hard Disk Type...	

Exit Without Saving

Use this function to exit Setup without saving the CMOS value.

Phoenix - AwardBIOS CMOS Setup Utility

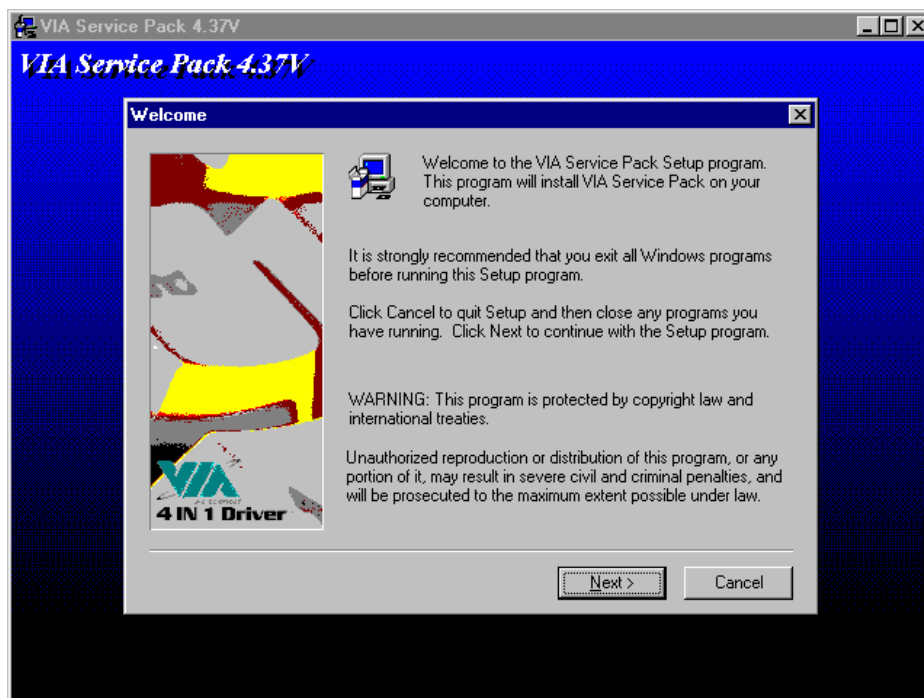
▶ Standard CMOS Features	▶ Frequency/Volage Control
▶ Advanced BIOS Features	Load Fail-Safe Defaults
▶ Advanced Chipset Features	Load Optimized Defaults
▶ Integrated Peripherals	Set Supervisor Password
▶ Power Management	Set User Password
▶ PnP/PCI Configuration	Save & Exit Setup
▶ PC Health Status	Exit Without Saving
Esc : Quit	↑↓→← : Select Item
F10 : Save & Exit Setup	(Shift)F2: Change Color
Time, Date, Hard Disk Type...	

Chapter 4. Driver Utility

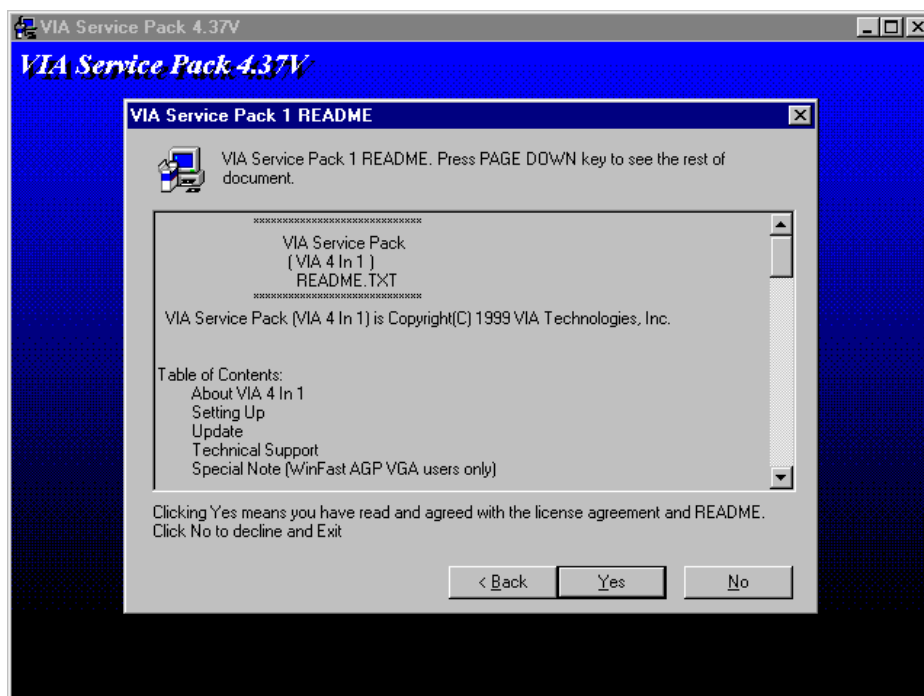
The system driver installation procedure must be performed first.

4.1 System Driver Installation

1. Insert the AW-A695 CD-ROM driver into the CD-ROM Drive
2. Select the Drivers/system file to click the Setup icon.
3. Click **Next**



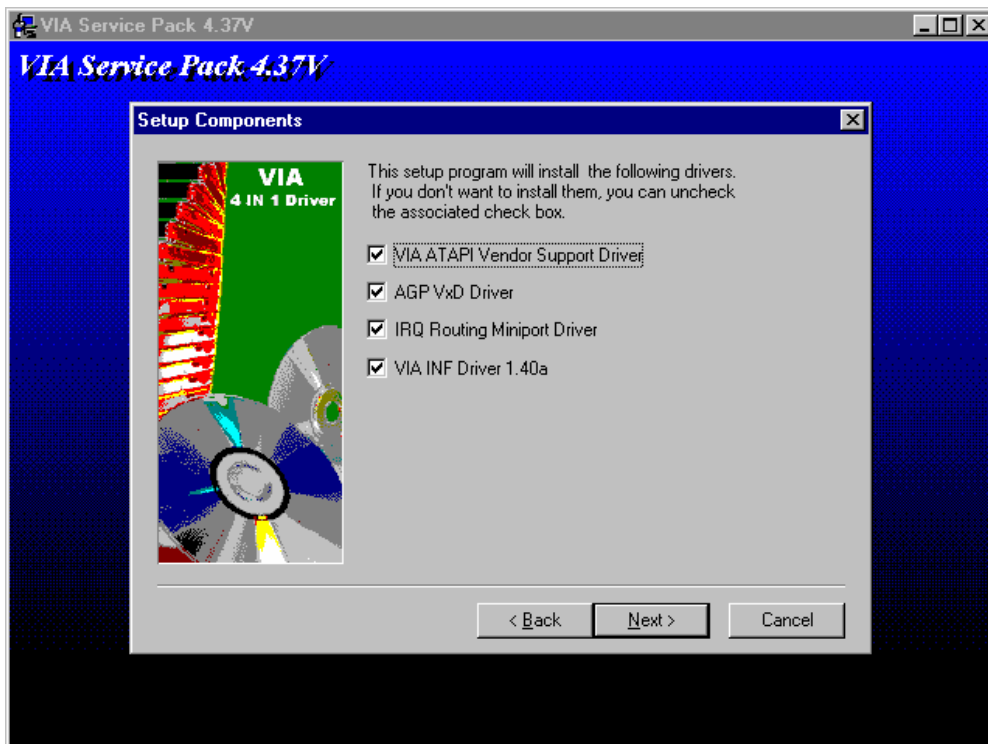
4. Click **Yes**



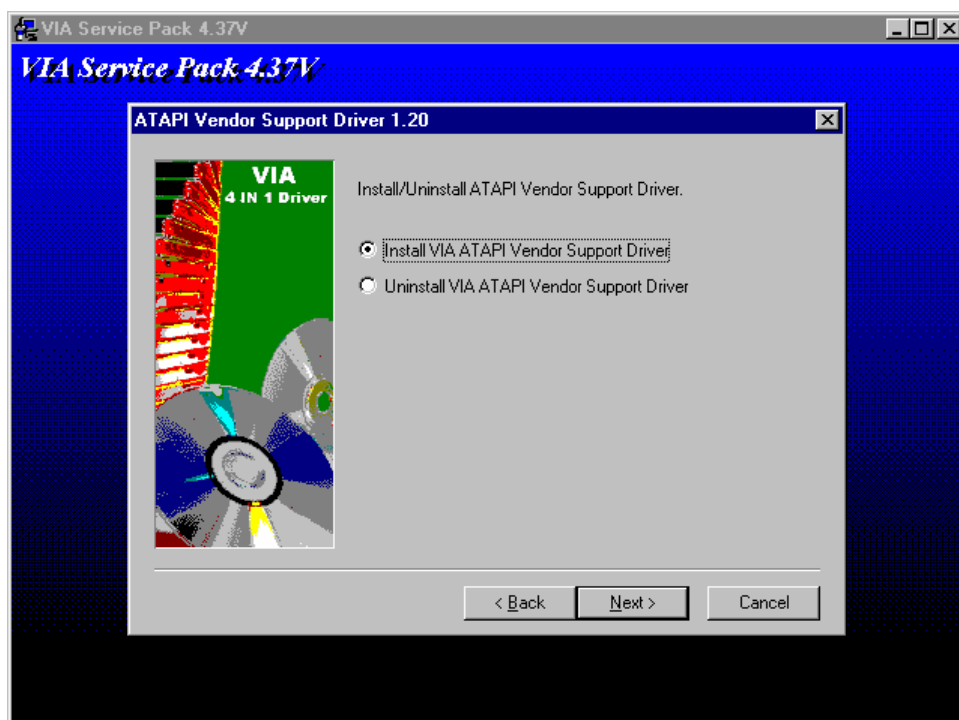
5. Select **Normally Install**, and then click **Next**



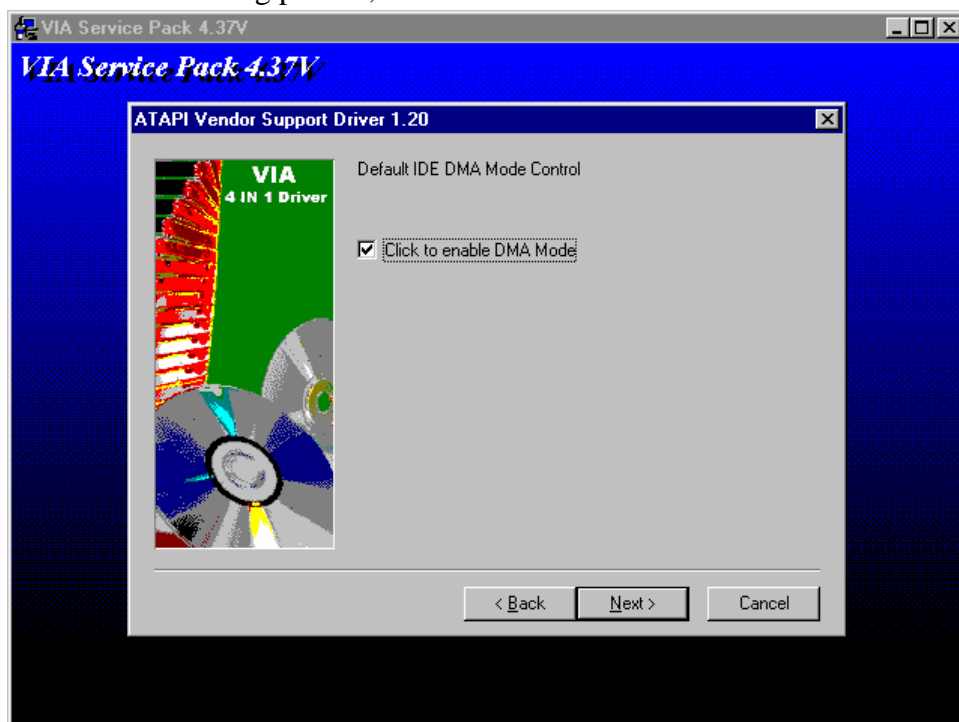
6. Remain the default setting, and then click **Next**



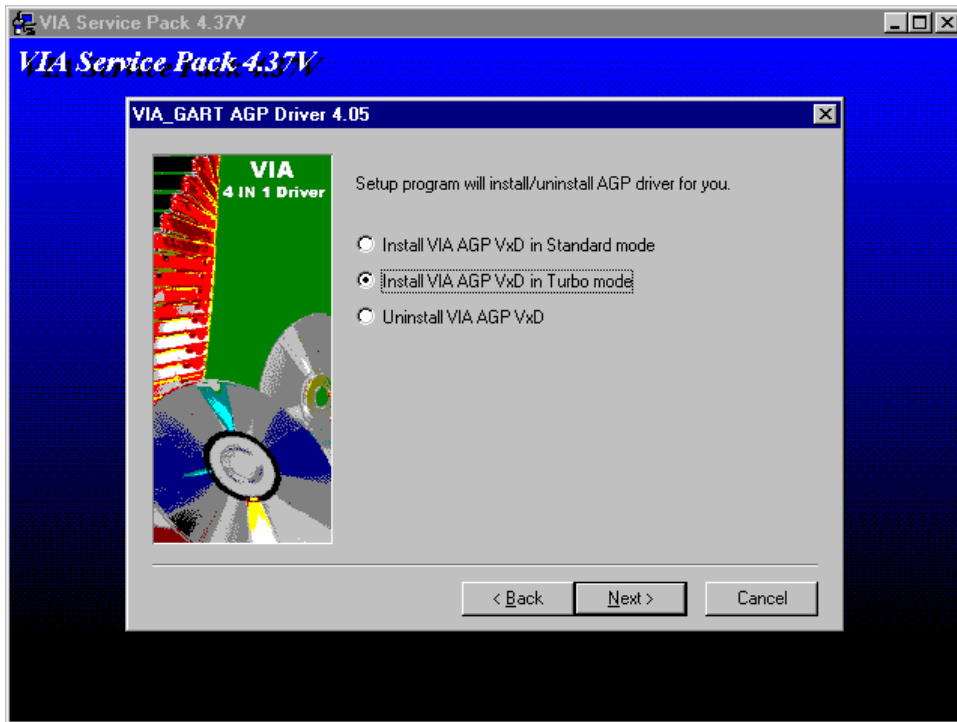
7. Click Next



8. As the following picture, click Next

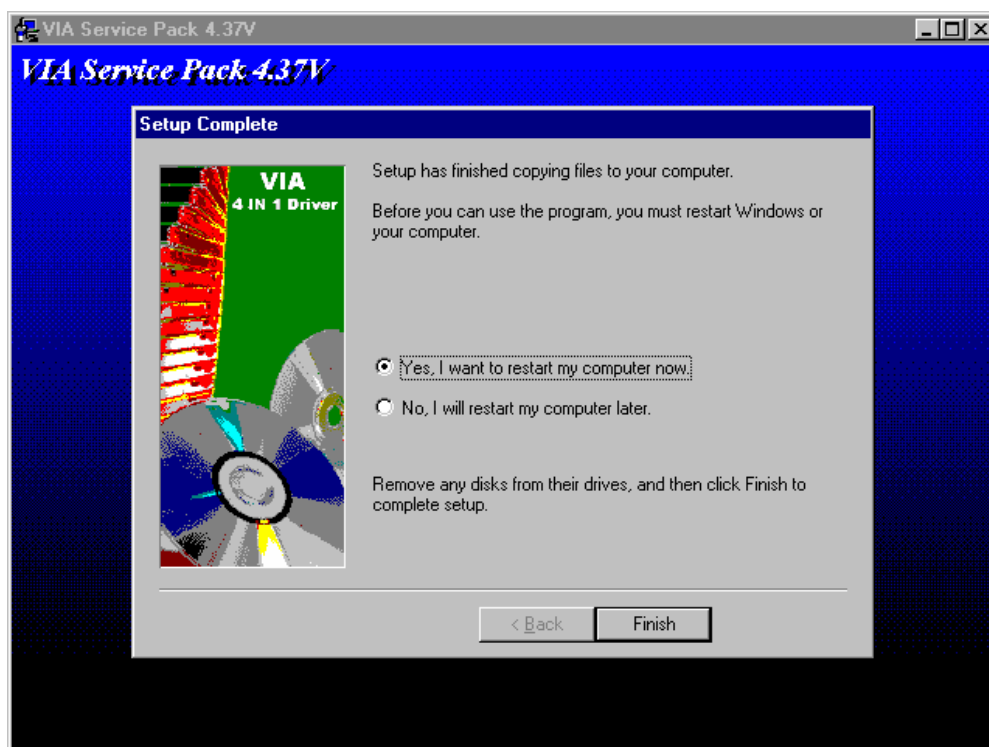


9. Select **Install VIA AGP VxD in Turbo Mode**, and click **Click**



10. Click **Next**



11. Click Finish

Installation process is completed and allowed the system to reboot.

4.2 VGA Driver Installation

1. Install the AW-A695 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. At last, click Next



4. Click Next

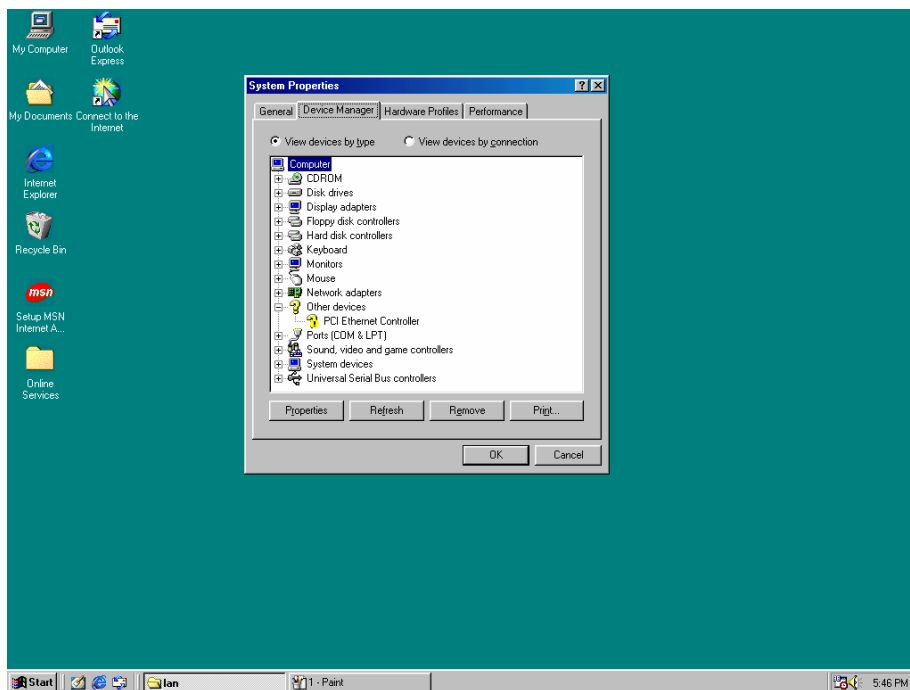
Installation process is completed and allowed the system to reboot

4.3 Ethernet Driver Installation

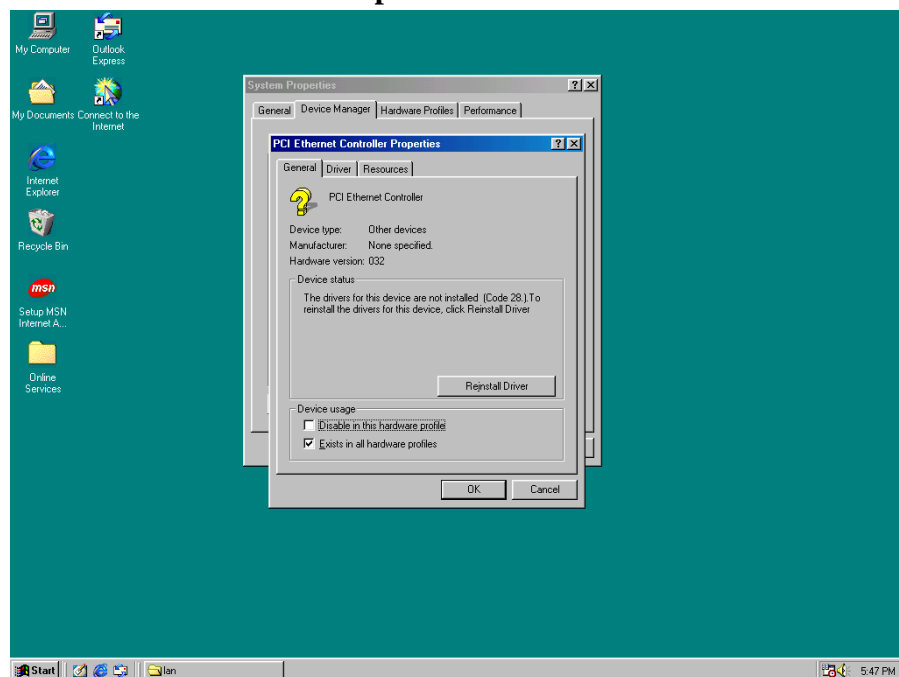
The AW-A695 supports four Ethernet Controller by using Intel® 82559ER or Realtek® 8139C Chipset.

4.3.1 Realtek 8139C Ethernet Installation

1. Insert the AW-A695 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

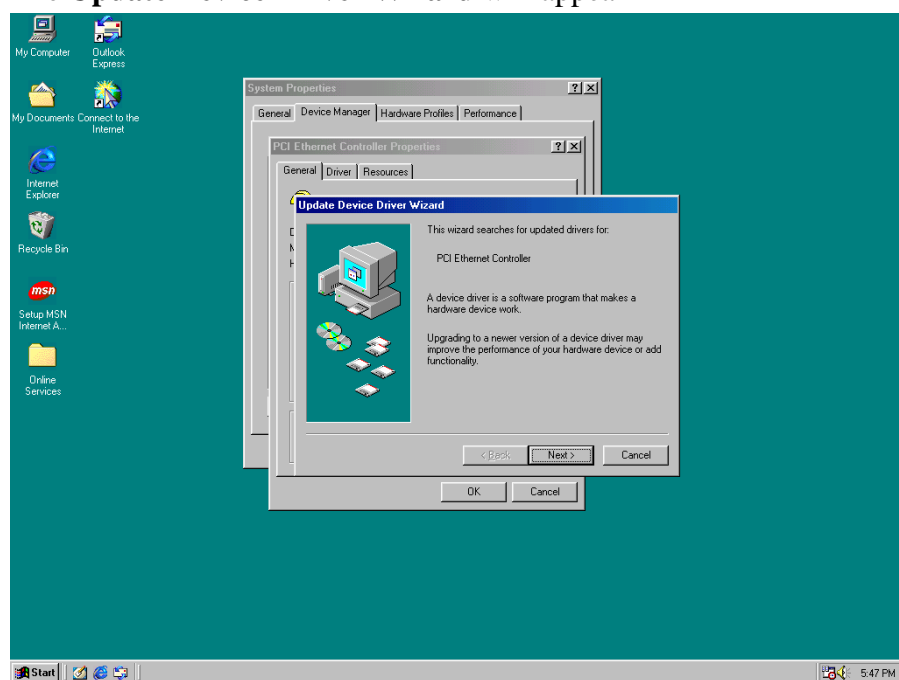


Another file will appear below this file, and then click on the file

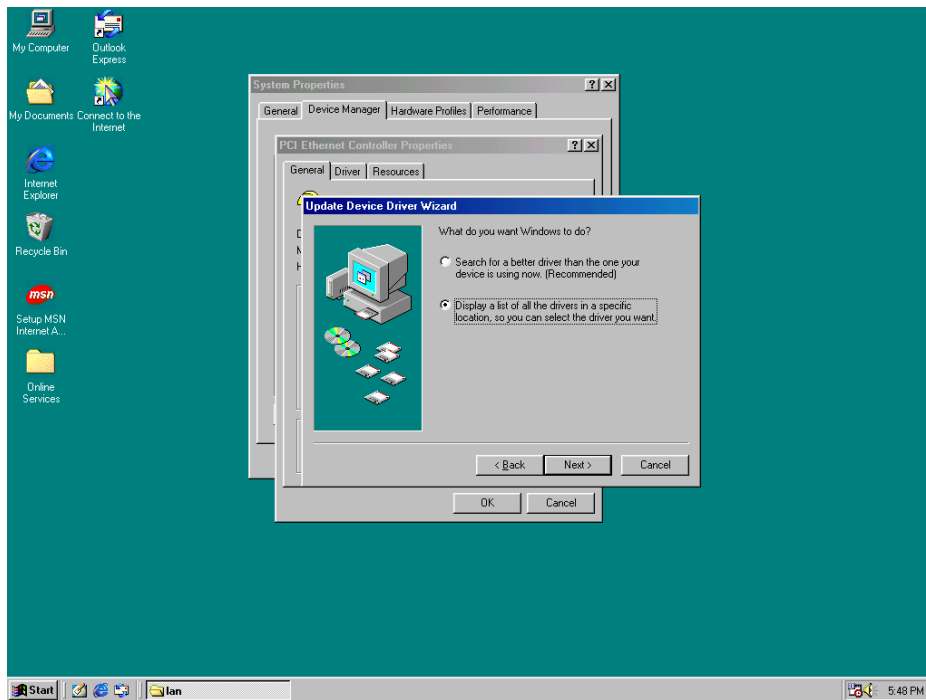
8. Click the **Driver** Tab

9. Click the **Update Driver** Button

The **Update Device Driver Wizard** will appear

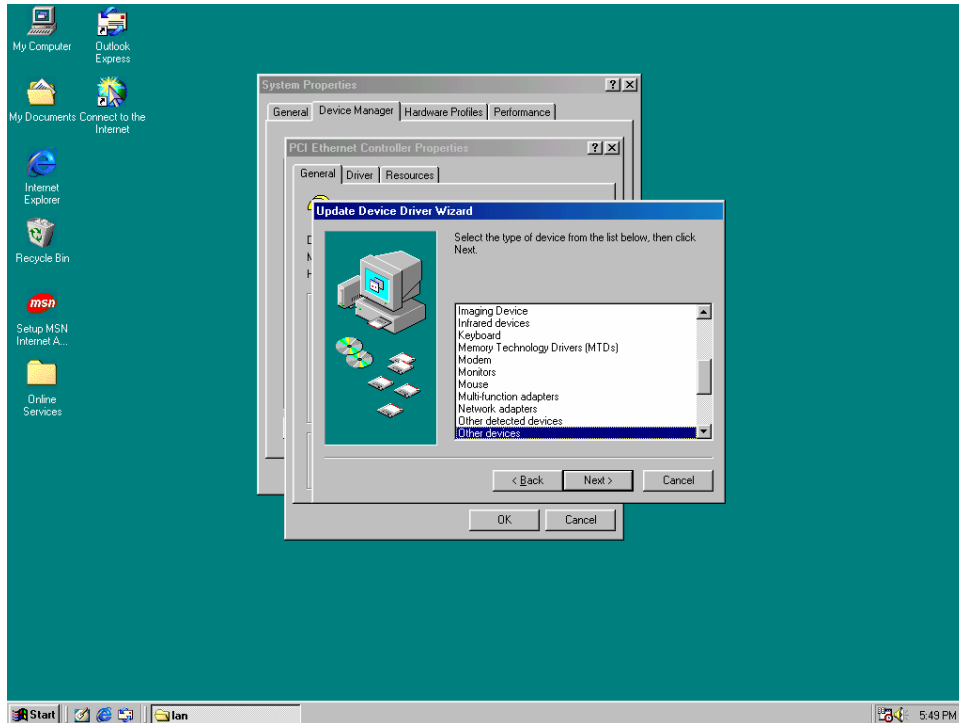


10. Click Next

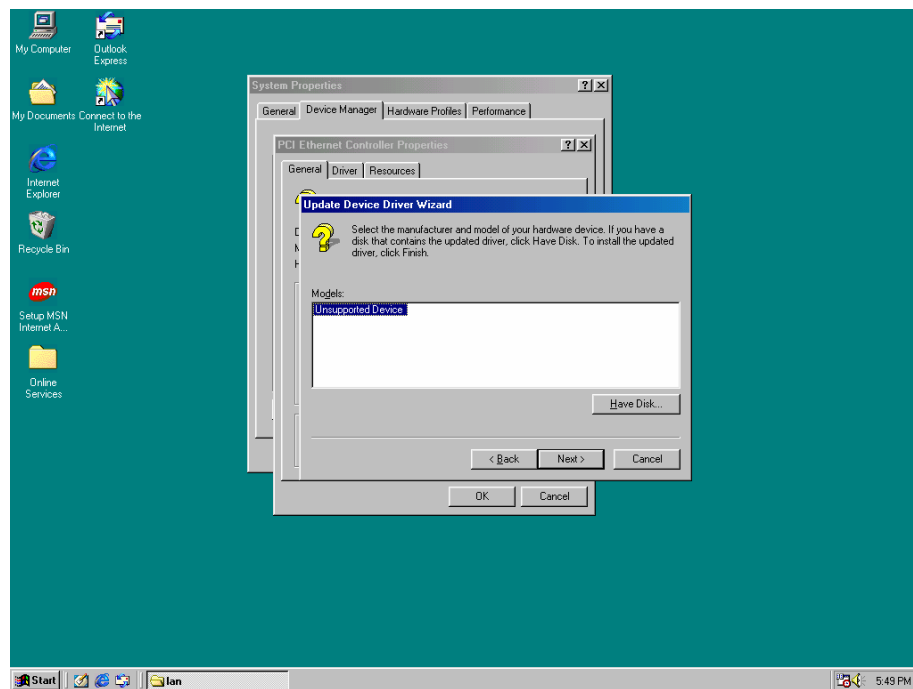


11. Select CD ROM Drive, D/Drivers/lan/Win98, and click Next

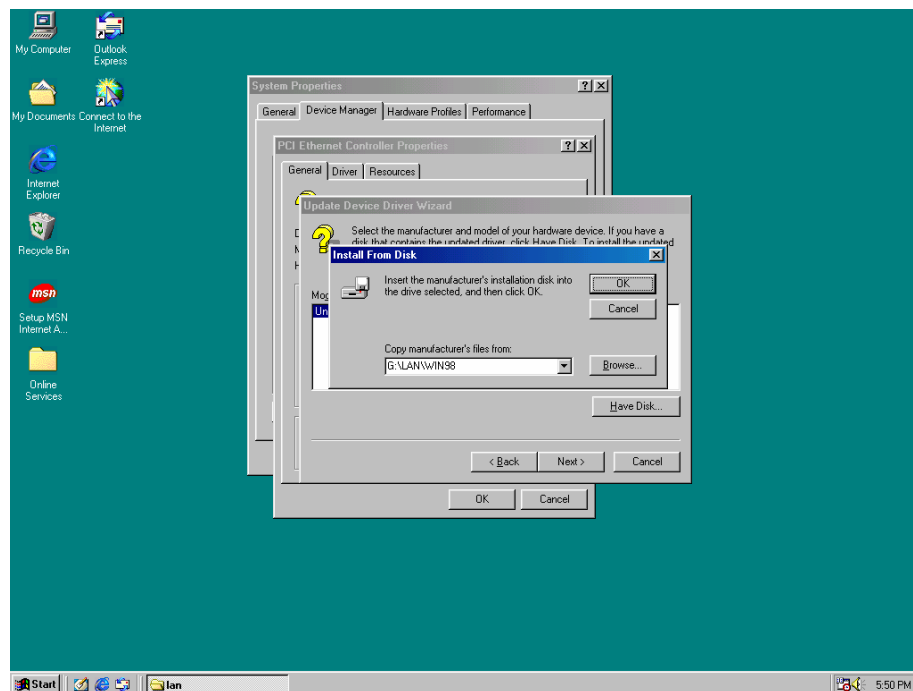
Notice: We take the LAN installation under Win98 for example only; please choose the file depending on your Windows OS.



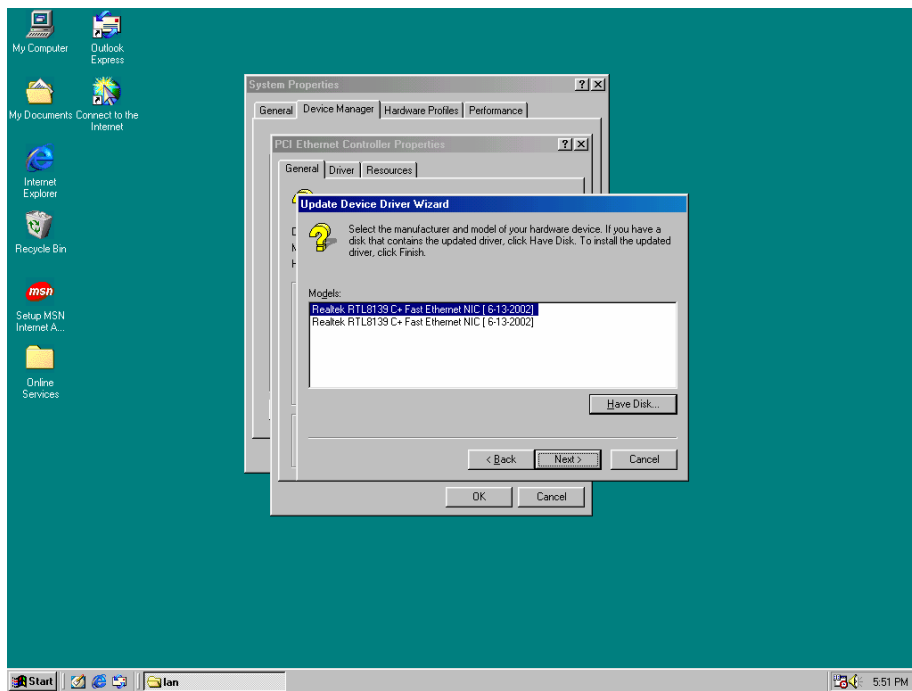
12. Select “Next”



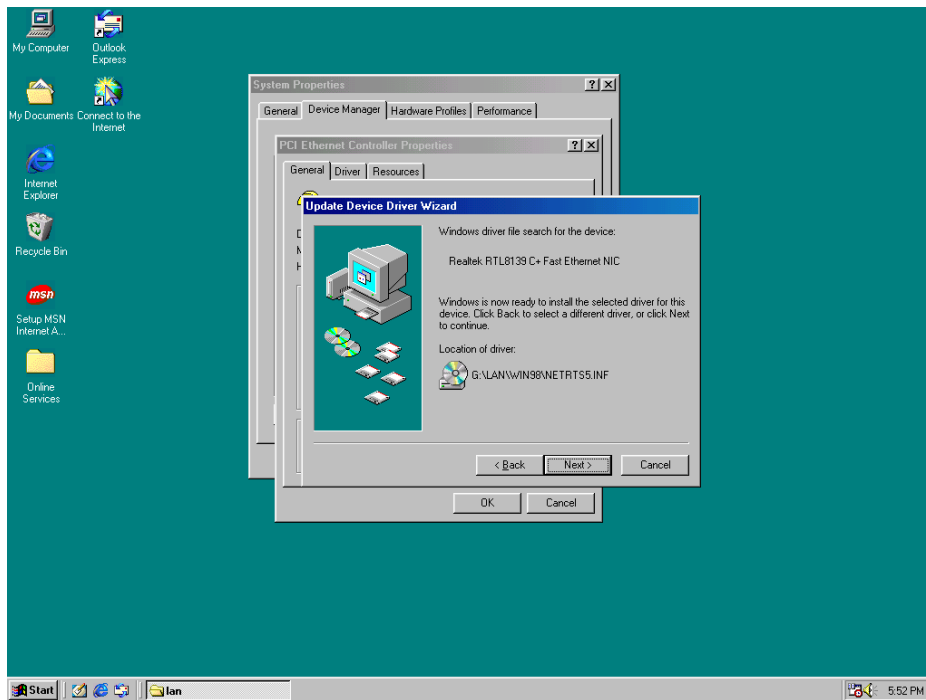
13. Select “Next”

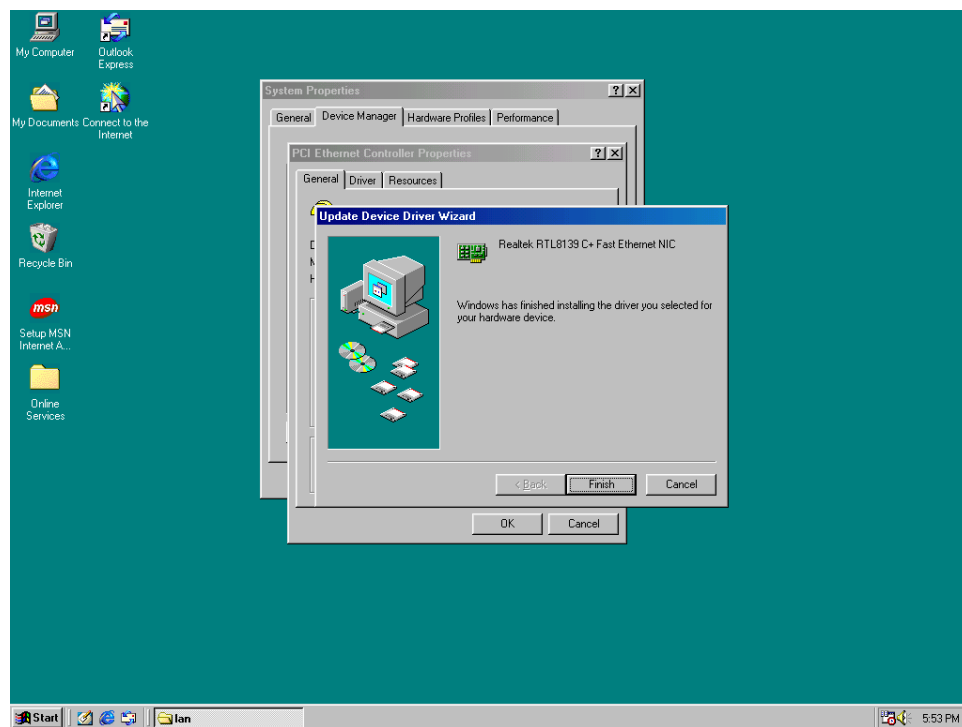


14. Select "Next"

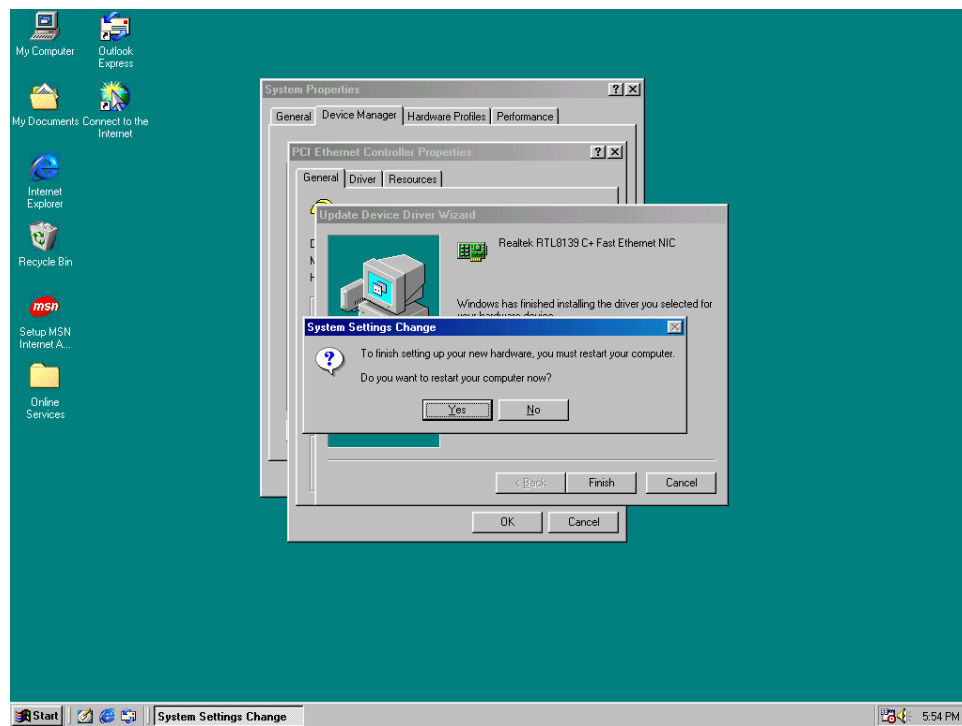


15. Click "Next"



16. Click **Finish**

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



4.3.2 Intel® 82559ER Ethernet Installation

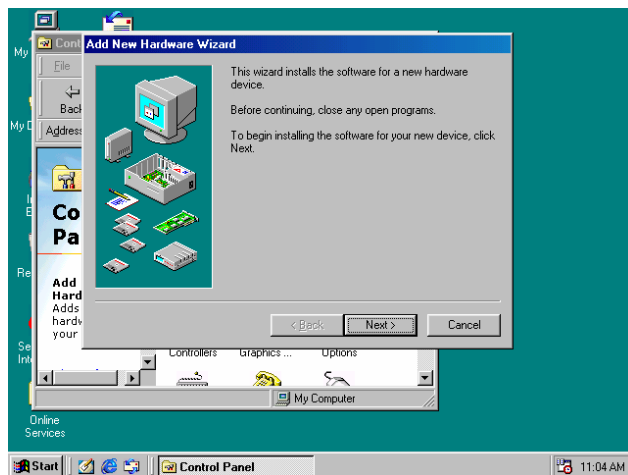
Installation for Windows95/98

Please install Ethernet drivers as follows:

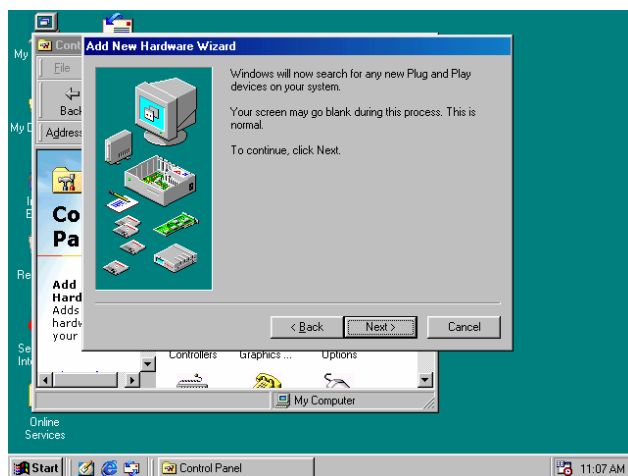
1. Click **“Start”**, go to **“Setting”** and click **“Control Panel”**. Choose the **“Add New Hardware”** icon and double-click the icon, the next configuration screen will appear.



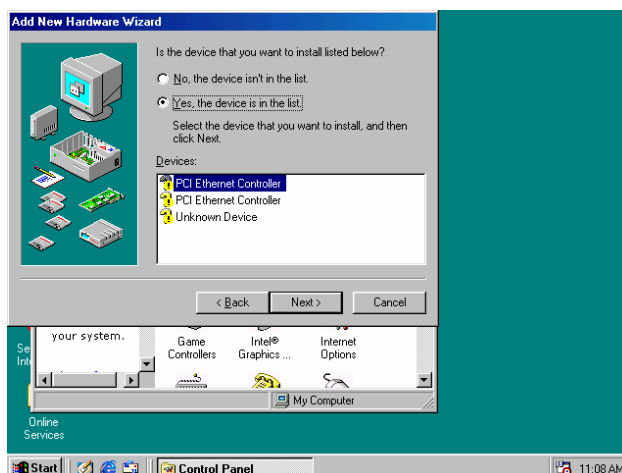
2. **“Add New Hardware Wizard”** shown this wizard installs the software for a new hardware device. Before continuing, close any open programs. To begin installing the software for your new device, click **“Next>”**, go to the next step of installation.



3. **“Add New Hardware Wizard”** shown Windows will now 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.

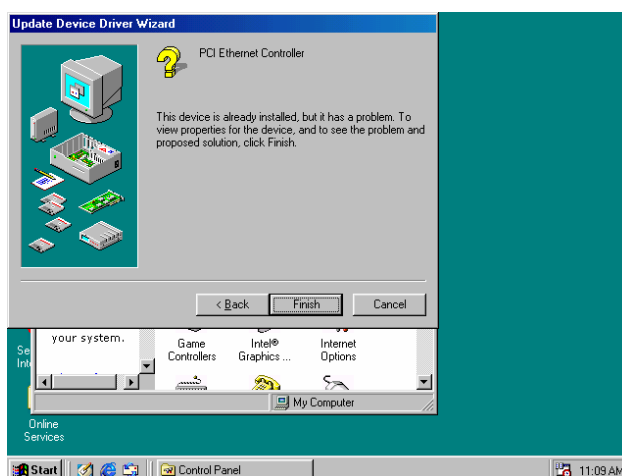


4. Please select the device that you want to install, and then click "Next>" to the next step of installation.

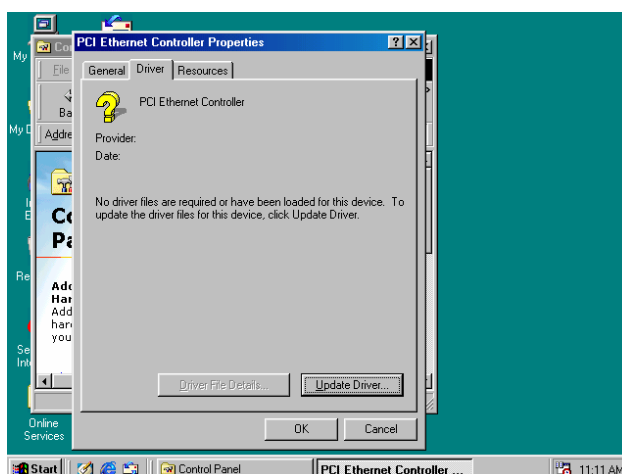


5. This is Update Device Driver Wizard.

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

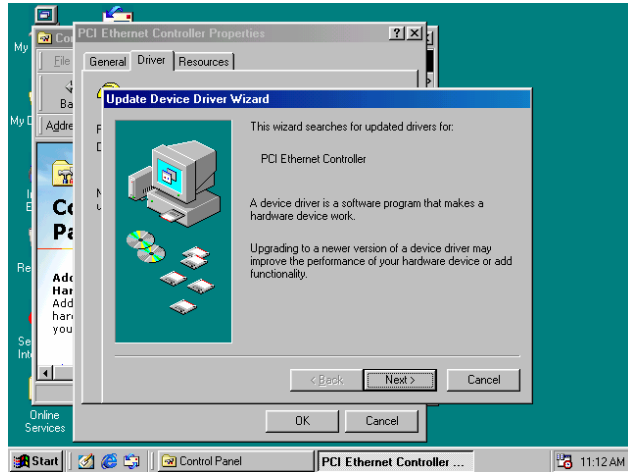


7. This Wizard searches for update drivers for:

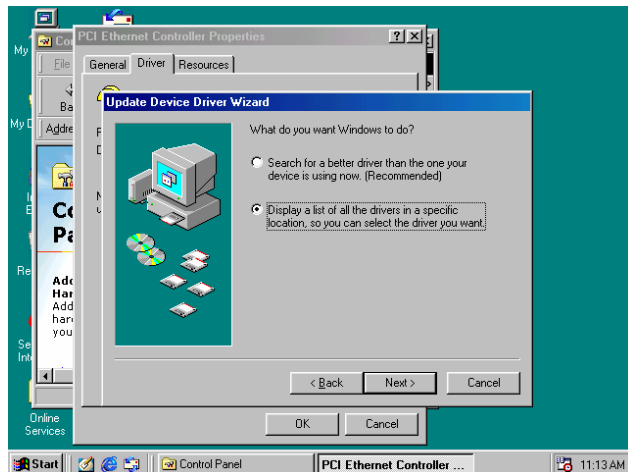
PCI Ethernet Controller

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

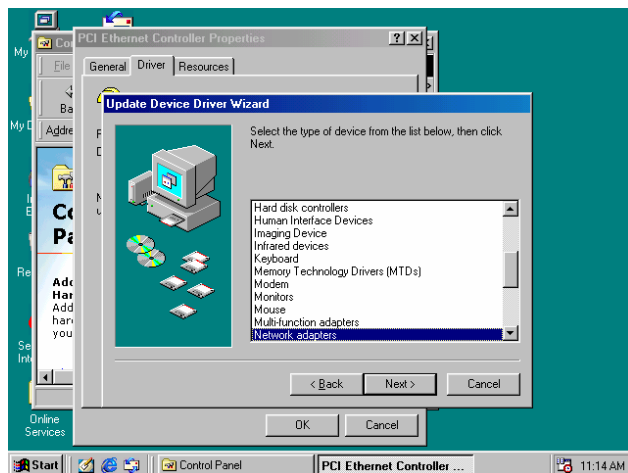
Updating to a newer version of a device driver may improve the performance of your hardware device or add functionality, please click "Next>" to the next step of installation



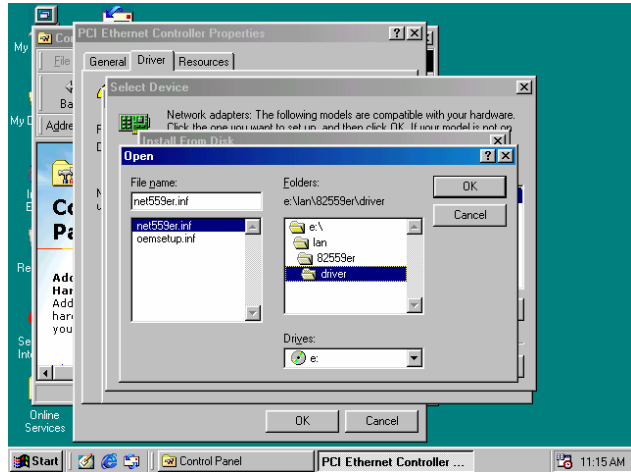
8. This is Update Device Driver Wizard. What do you want Windows to do? Please choose "Display a list of all the drivers in a specific location, so you can select the driver you want." Please click "Next>" to the next step of installation



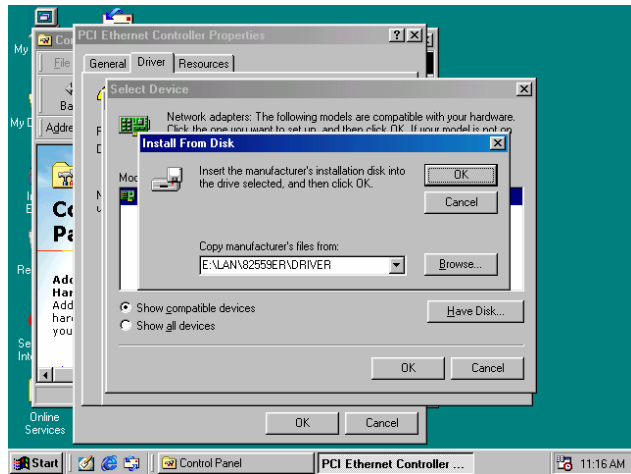
9. This is screen for selecting the type of device from the list, then click "Next>" to next step of installation



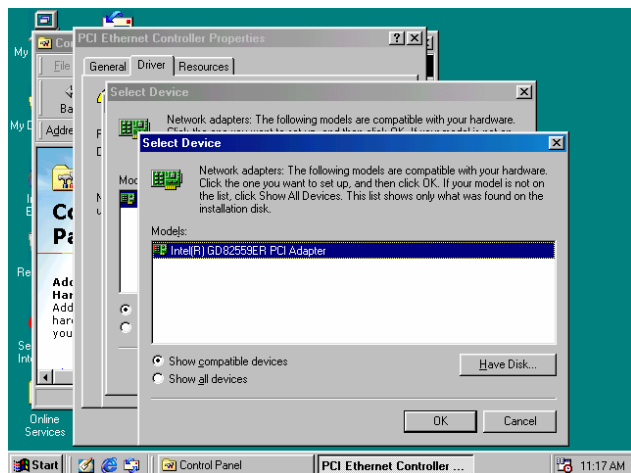
10. This is to show the “Folders”, please click “OK” to the next step of installation.



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.

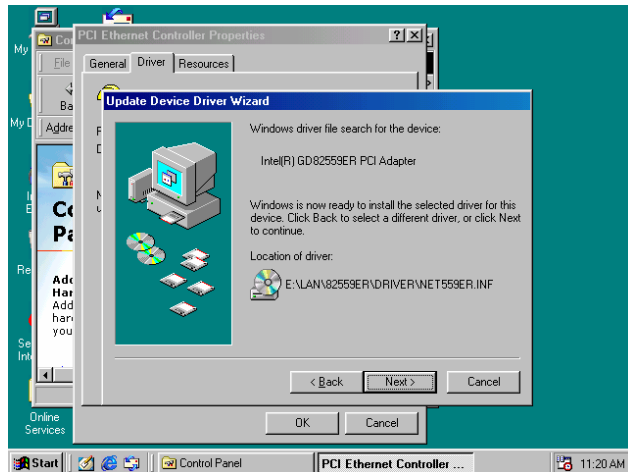


12. This is Select Device screen. Network adapters: The following models are compatible with your hardware. Click the one you want to set up, and then click “OK”. If your model is not on the list, please click Show All Devices. This list shows only what was found on the installation disk

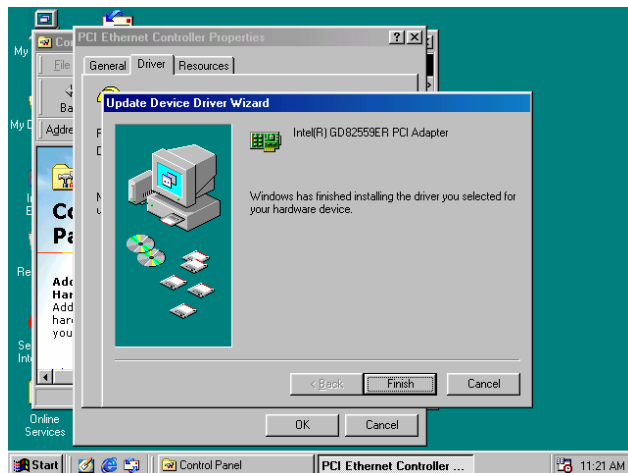


13. This is Update Driver Wizard.

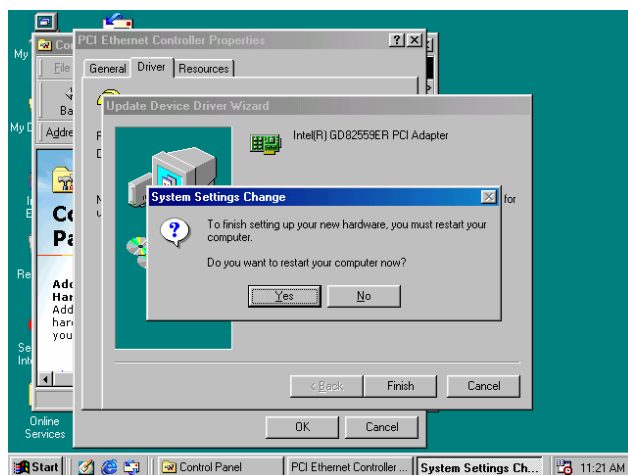
Windows is now ready to install the selected driver for this device. Please click Back to select a different driver, or click Next to continue.



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.



Appendix A: Programming the Watchdog Timer

The AW-A695 provides a watchdog timer that resets the CPU or generates an interrupt if processing comes to a stop. This function ensures greater system reliability in industrial stand-alone and unmanned environments.

In order to enable the watchdog timer, you have to output the value of the watchdog timer interval to the controller. The value range is from 01H to FFH, and the related time watchdog timer interval is 1 sec to 255 sec.

Data	Timer Interval
00	0 sec
01	1 sec
02	2 sec
*	*
*	*
FF	255 sec

If you want to program the watchdog timer, you must write timer value to I/O Port 444(hex) when using Intel LAN chipset and 200(hex) by using Realtek LAN chipset.

For example (Intel 82559 or 82559ER LAN)

ASSEMBLY LANGUAGE

START Watchdog Timer	DOS DEBUG
MOV DX, 444H	OUT 444, XX
MOV AL, XXH	
OUT DX, AL	
STOP Watchdog Timer	
MOV DX, 441H	IN 441
IN AL, DX	

Note: Before you restart Watchdog Timer, you must stop Watchdog Timer first.

For example (Realtek 8139x LAN)

ASSEMBLY LANGUAGE

START Watchdog Timer	DOS DEBUG
MOV DX, 200H	OUT 200, XX
MOV AL, XXH	
OUT DX, AL	
STOP Watchdog Timer	
MOV DX, 201H	IN 201
IN AL, DX	

Note: Before you restart Watchdog Timer, you must stop Watchdog Timer first.

Note: "XX" timer value

Appendix B :System Resource

Interrupt Controller

The AW-A695 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. Both of ISA and PCI expansion cards may need to use IRQs, please make sure that the IRQs do not conflict if you would like to use extra add-on cards.

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 AMI Diagnostic utility 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	Ethernet Controller
IRQ8	Real Time Clock
IRQ9	Reserved
IRQ10	Ethernet Controller
IRQ11	USB Controller
IRQ12	Motherboard Resource
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	Reserved
DMA1	Reserved
DMA2	Floppy Disk Controller
DMA3	Reserved
DMA4	Cascade
DMA5	Reserved
DMA6	Reserved
DMA7	Reserved

Memory Map

The following table indicates memory of AW-A695. 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~C7FFF	ISA	Adapter ROM
C8000~CBFFF	ISA	Adapter ROM
F0000~FFFFF	ISA	System BIOS

Memory above 1MB (1MB ~ 244736KB)

Address Range	Type	Owner
E0000000~E7FFFFFFF	PCI	PCI – PCI Bridge
E8000000~EBFFFFFF7	PCI	Host Bridge
EC000000~EDFFFFFFF	PCI	PCI – PCI Bridge
EF000000~EF0000FF	PCI	Ethernet Controller
EF001000~EF0010FF	PCI	Ethernet Controller

System Memory Map

Start High	Start Low	Size High	Size Low	Type
00000000	00000000	00000000	000A0000	Available
00000000	000F0000	00000000	00010000	Reserved
00000000	FFFF0000	00000000	00010000	Reserved
00000000	00100000	00000000	0EF00000	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
220 ~ 22E	Sound Card
2F8 ~ 2FF	Communication Port (COM2)
376	IDE Controller
3B0 ~ 3BB	VGA Adapter
3C0 ~ 3DF	VGA Adapter
3F0 ~ 3F5	FDD Controller
3F6	IDE Controller
3F7	FDD Controller
3F8 ~ 3FF	Communication Port (COM1)
4D0 ~ 4D1	PCI Bus

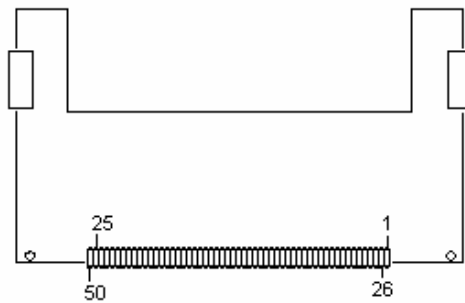
4000~407F	PCI Bus
4080~40FF	PCI Bus
5000~501F	PCI Bus
6000~607F	PCI Bus
D000~D00E	IDE Controller
D400~D41E	USB Controller
D800~D81E	USB Controller
DC00~DCFE	Ethernet Controller
E000~E0FE	Ethernet Controller
E400~E4FE	Ethernet Controller
E800~E8FE	Ethernet Controller

Appendix C: Installing CompactFlash Memory

CompactFlash™ is a very small removable mass storage device, it provides complete PCMCIA-ATA functionality and compatibility plus TrueIDE functionality compatible with ATA/ATAPI-4.

CompactFlash storage products are solid state, meaning they contain no moving parts, and provide users with much greater protection of their data than conventional magnetic disk device.

Pin	Assignment	Pin	Assignment	Pin	Assignment	Pin	Assignment	Pin	Assignment
1	Ground	11	Ground	21	D00	31	D15	41	RESET
2	D03	12	Ground	22	D01	32	CS	42	ORDY
3	D04	13	VCC	23	D02	33	NC	43	NC
4	D05	14	Ground	24	WP	34	IOR	44	REG
5	D06	15	Ground	25	NC	35	IOW	45	LED
6	D07	16	Ground	26	NC	36	WE	46	BVD
7	CS	17	Ground	27	D11	37	RDY/BSY	47	D08
8	Ground	18	A02	28	D12	38	VCC	48	D09
9	Ground	19	A01	29	D13	39	SCSE;	49	D10
10	Ground	20	A00	30	D14	40	NC	50	Ground



Appendix D: Optional Cable List

User's manual

Part No.	Cable Description	AW-A695 Connector	Terminating Connector
46-IVGA01-00	VGA Cable	CN10	2.00mmCRT D-Sub VGA Cable
46-ICOM00-00	COM Port Cable	CN11	2.54mm,22cm, COM2 D-Sub Cable
46-ATA660-00	IDE Cable	CN12	2.54mm, 46cm, ATA-66/100 IDE Cable
46-IUSB04-00	Two-channel USB Cable	CN9	2.54mm, 2-channel USB Cable
46-I001X4-00	IDE Power Cable	CN13	2.54mm, IDE Power Cable

