AW-A696

Control Board

Model Number AW-A696

Intel® Pentium® III Embedded SBC with six 10/100LAN & SSD

User's Manual

Version 1.2

Manual Edition 1.2, Dec 2005

Trademarks

Limitation of Liability

User's Manual

Table of Contents

Chapter 1 General Information

1.1 Introduction

The AW-A696 is a full function of 5.25" Embedded format SBC board use VIA VT8606 and VT82C686B chipset supports Intel® Socket 370 Celeron®/Pentium® III Tualatin processors. The AW-A696 supports six of Intel 82551QM 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™ type II Socket. The AW-A696 supports up to two USB ports. For the expansion ability, the AW-A696 reserved a mini-PCI slot for flexible expansion capabilities.

1.2 Specification

General Functions

CPU	Intel ® socket 370 Celeron™ /Pentium® III, Tualatin & VIA C3 processors up to 133MHz
BIOS	Award® 256KB Flash BIOS supports console redirection function
Chipset	VIA VT8606 + 82C686B
I/O Chipset	VT82C686B built-in
Memory	Two 168-pin DIMM socket, up to 512MB SDRAM
Enhanced IDE	Supports up to two IDE devices (Ultra DMA33/66/100)
Serial port	Two RS-232 ports, one 9-pin D-Sub connector and one pin header
USB connectors	Onboard pin-header for two USB ports
PCI Slot	One Mini PCI slot
Watchdog Timer	Can generate a system reset, supports software selectable timeout interval
System Monitoring	Supports temp, fan speed and voltages monitoring

CRT Interface

Chipset	VIA Twister chip with integrated Savage4 2D/3D/Video Accelerator
Display Type	Support pin header for CRT Monitor
Memory	Display memory Share system memory 8/16/32MB

Ethernet Interface

Chipset	Six Intel® 82551QM or Realtek® 8139C+ 100Base-TX Fast Ethernet control
Ethernet Interface	PCI 100/10Mbps Ethernet controller, IEEE 802.3U protocol compatible
Bypass	Optional two Ethernet ports bypass
SSD Interface	One 50-pin CompactFlash type II socket™
Mechanical and Environmental	
Power supply voltage	+5V (4.75V to 5.25V) , +12V (11.4V to 12.6V),-12V(-11.4 to –12.6)
Max. Power Requirement	+5V @ 7A, +12V @, 200mA, -12V @ 120mA
Operating temperature	32 to 140℉ (0 to 60℃)
Board size	8.9"(L) x 7.5"(W) (226mm x 192mm)

1.3 Package

Please make sure that the following materials have been packed with the board before starting install your AW-A696.

1. AW-A696 Embedded SBC
2. Quick Setup Manual
3. Cable List:

- 46-ICOM00-00 2.54mm COM Port Cable
- 46-IVGA01-00 2.00mm VGA Cable
- 46-IUSB08-002.54mm USB Cable

Optional Cable

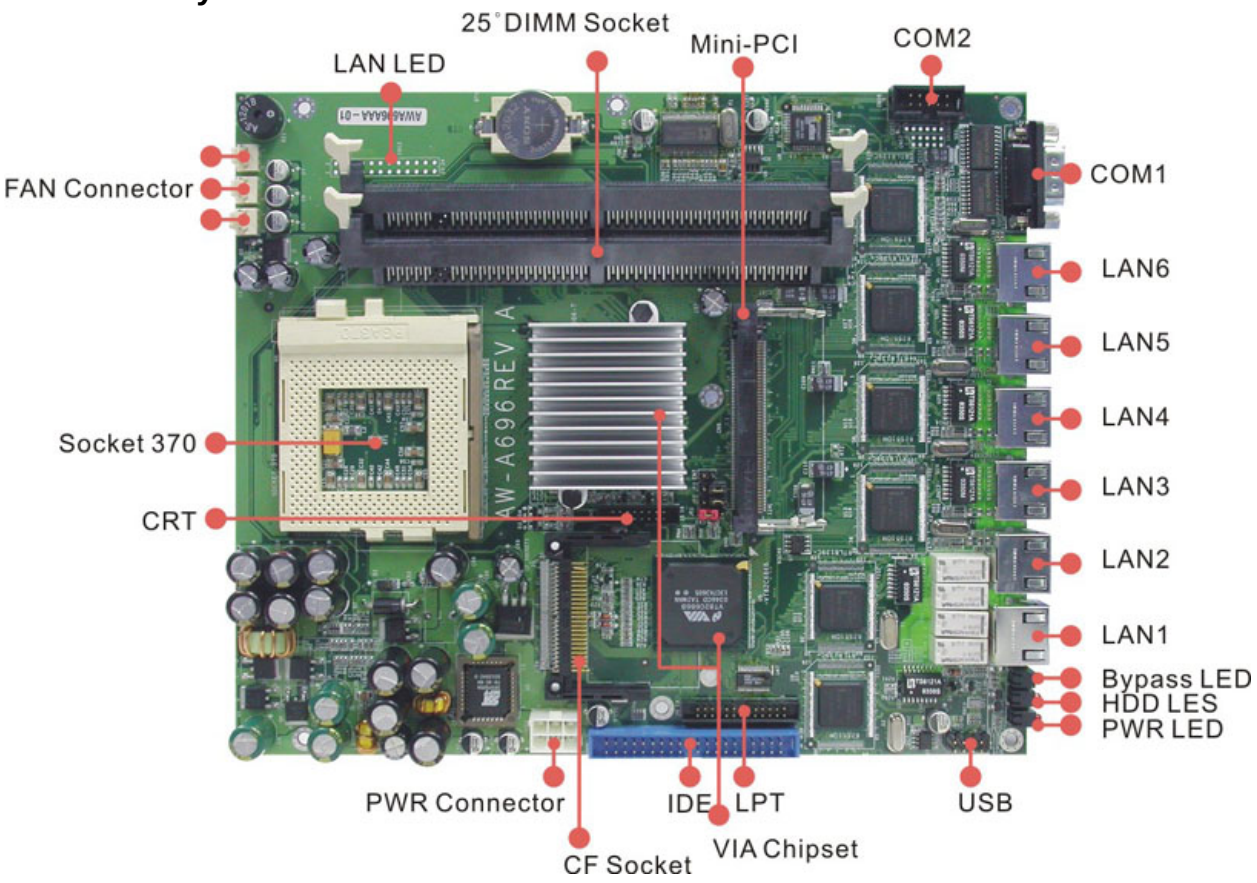
- 46-ATA660-00 IDE Cable
- 46-IPOW20-00 Power Cable

4. CD-ROM for Drivers, Utilities

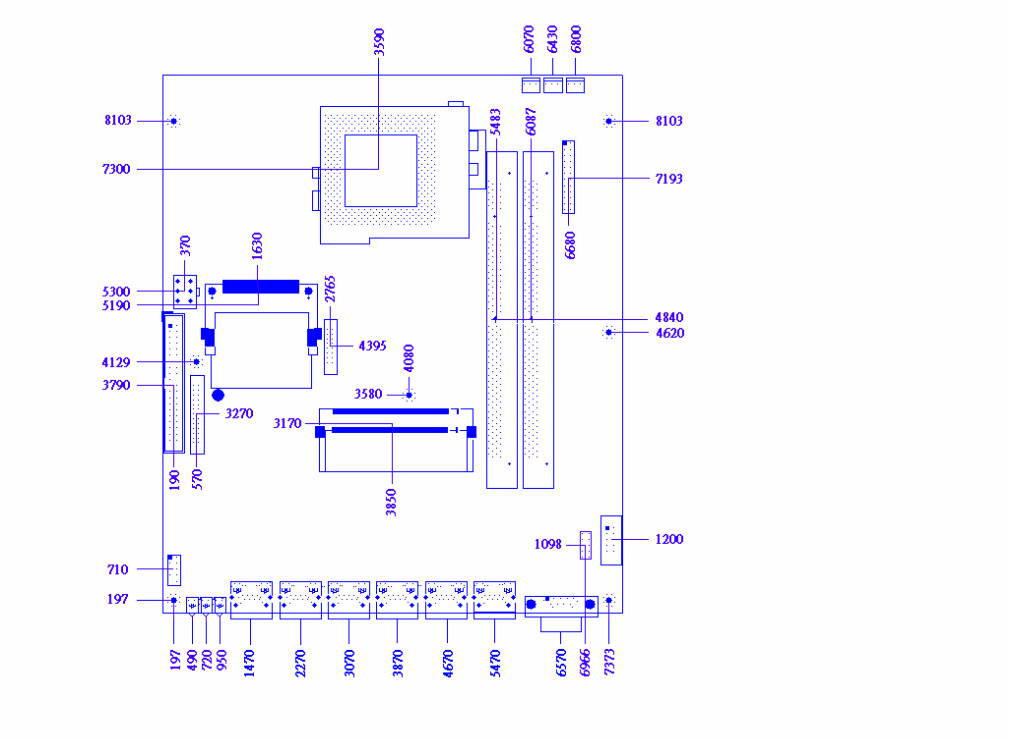
If any of these parts are missing or damaged, please contact your distributor or sales representatives immediately.

Note: for detailed contents of the AW-A696, please refer to the attached CD-ROM.

1.4 Board Layout

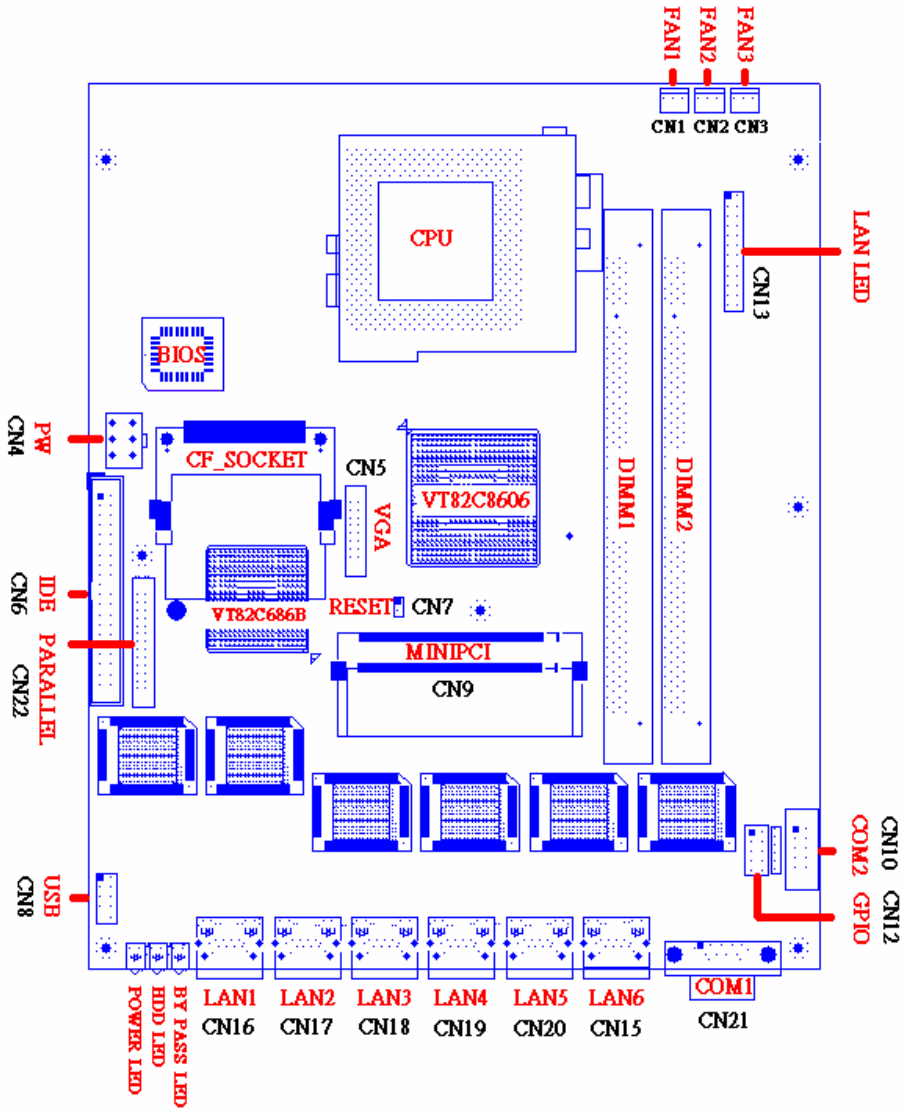


1.5 Board Dimension



Chapter 2 Connectors/Switch Location and Configuration

2.1 Connectors/Jumpers Location and Define



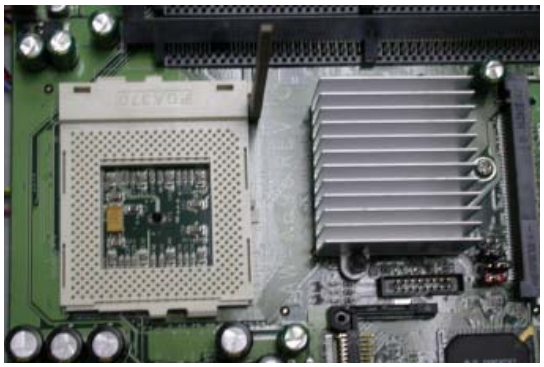
Connector	Define
CN1	FAN1 Connector
CN2	FAN2 Connector
CN3	FAN3 Connector
CN4	6 Pin Power Connector
CN5	VGA Pin Header (2mm)
CN6	IDE Connector (40pin, 2.54mm)
CN7	Reset
CN8	USB Pin-Header (2.54mm)
CN9	Mini PCI Slot
CN10	COM2 Pin-Header
CN12	GPIO LED Pin –Header
CN13	LAN LED Pin-Header
CN15	LAN6 RJ-45 Connector
CN16	LAN1 RJ-45 Connector
CN17	LAN2 RJ-45 Connector
CN18	LAN3 RJ-45 Connector
CN19	LAN4 RJ-45 Connector
CN20	LAN5 RJ-45 Connector
CN21	COM1 D-Sub Connector
CN22	Parallel Pin-Header
JP1	Clear CMOS
JP2	Bypass Always Enabled Select
JP3	Watch Dog or Bypass Select

2.2 Install Processor

2.2.1 Installing CPU:

(1) The CPU has marks with a triangle then make sure the triangle has the same position with CPU socket ; then easily pressing down the processor into the socket.

(2) Then tie the screw of CPU socket beginning from right side; you can refer to below picture.



(3) Now you can to lay aside CPU processor in socket, please see picture.

(4) You can see the CPU socket has a lock sign please push the tappet to lock location.

2.2.2 Remove CPU

(1) First, please push the tappet to unlock location.

(2) Then untie the screw beginning from left side you can refer to below the picture.

(3) Now you can take out the CPU from socket.

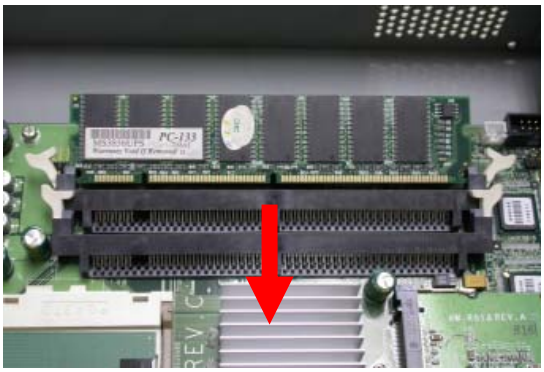
(4) Make sure the tappet put down to lock socket location.

2.3 Installing Memory

To insert a SDRAM Memory: The AW-A696 onboard with two 168-pin DDR DIMM sockets supports up to 512Mbytes DDR SDRAM.

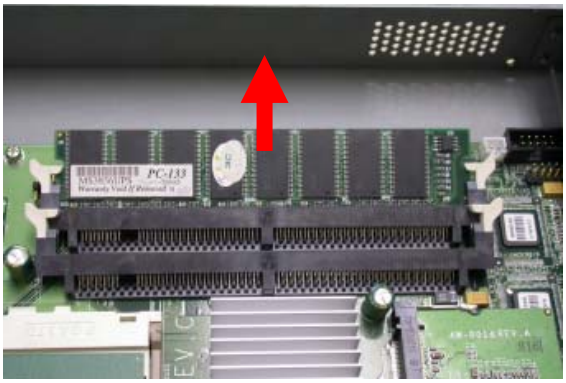
To Insert a DIMM Memory*:* Please align the module with the socket key and press down until the levers at each end of the socket snap close up.

There are two directions for installing a module in the socket. Do not attempt to force the module into the socket incorrectly.



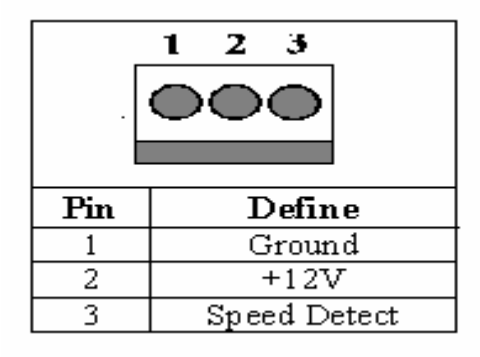
To Remove a DIMM Memory: To remove a DIMM, press down on the levers at both end of the module until the module pops out

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



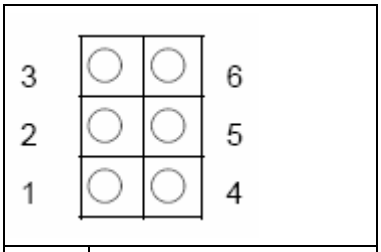
2.4 Connector and Jumper Settings

CN1- 3: FAN 1-3 Connector



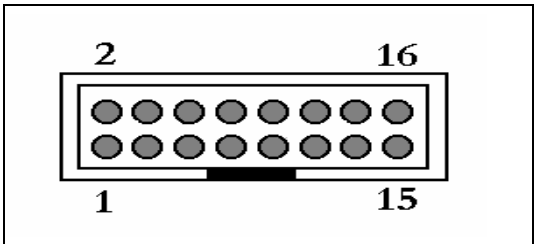
Pin	Define
1	Ground
2	+12V
3	Speed Detect

CN4: 6 Pin Power Connector



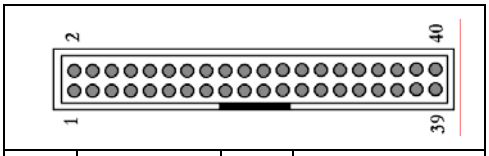
Pin	Define
1	+12V
2	GND
3	+5V
4	-12V
5	GND
6	+5V

CN5: VGA Pin Header (2mm)



Pin	Define	Pin	Define
1	RED	2	Green
3	Blue	4	NC
5	GND	6	GND
7	GND	8	GND
9	NC	10	GND
11	NC	12	DCC DATA
13	HSYNC	14	VSYNC
15	DCC CLOCK	16	NC

CN6: IDE Connector (40Pin,2.54mm)

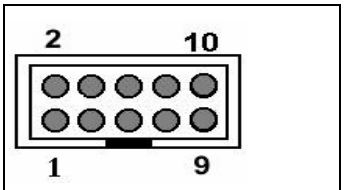


Pin	Define	Pin	Define
1	RESET*	2	GND
3	DATA 7	4	DATA 8
5	DATA 6	6	DATA 9
7	DATA 5	8	DATA 10
9	DATA 4	10	DATA 11
11	DATA 3	12	DATA 12
13	DATA 2	14	DATA 13
15	DATA 1	16	DATA 14
17	DATA 0	18	DATA 15
19	GND	20	KEY PIN
21	DREQ	22	GND
23	DIOW*	24	GND
25	DIOR*	26	GND
27	IOCHRDY	28	GND
29	DACK*	30	GND
31	IRQ14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

CN7: Reset

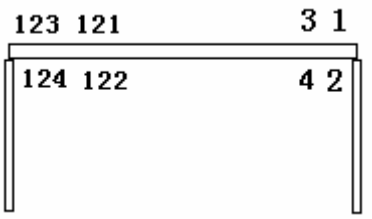
Pin	Define
1	Reset #
2	GND

CN8:USB Pin-Header(2.54mm)



Pin	Define
1	+5V
2	+5V
3	Data0-
4	Data1-
5	Data0+
6	Data01+
7	Ground
8	Ground
9	NC
10	Ground

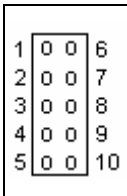
CN9: Mini PCI Slot



Pin	Define	Pin	Define
1	TIP	2	RING
3	8PMJ-33	4	8PMJ-13
5	8PMJ-63	6	8PMJ-23
7	8PMJ-73	8	8PMJ-43
9	8PMJ-83	10	8PMJ-53
11	LED1_GRNP	12	LED2_YELP
13	LED1_GRNN	14	LED2_YELN
15	CHSGND	16	RESERVED
17	INTB/D#	18	5V
19	3.3V	20	INTA/C#
21	RESERVED	22	RESERVED
23	GND	24	3.3VAUX
25	CLK	26	RST#
27	GND	28	3.3V
29	REQ#	30	GNT#
31	3.3V	32	GND
33	AD{31}	34	PME#
35	AD{29}	36	RESERVED
37	GND	38	AD{30}
39	AD{27}	40	3.3V
41	AD{25}	42	AD{28}
43	RESERVED	44	AD{26}
45	C/BE[3]#	46	AD{24}
47	AD{23}	48	IDSEL
49	GND	50	GND
51	AD{21}	52	AD{22}
53	AD{19}	54	AS{20}
55	GND	56	PAR
57	AD{17}	58	AD{18}
59	C/BE[2]#	60	AD[16]
61	IRDY#	62	GND
63	3.3V	64	FRAME#
65	CLKRUN#	66	TRDY#
67	SERP#	68	STOP#
69	GND	70	3.3V
71	PERP	72	DEVSEL#
73	CB/E[1]	74	GND
75	AD[14]	76	AD[15]
77	GND	78	AD[13]
79	AD[12]	80	AD[11]
81	AD[10]	82	GND
83	GND	84	AD[09]

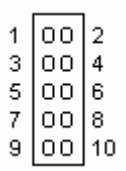
85	AD[06]	86	C/BE[0]#
87	AD[07]	88	3.3V
89	3.3V	90	AD[06]
91	AD[05]	92	AD[04]
93	RESERVED	94	AD[02]
95	AD[03]	96	AD[00]
97	5V	98	RESERVED_ WIP4
99	AD[01]	100	RESERVED_ WIP4
101	GND	102	GND
103	AC_SYNC	104	M66EN
105	AC_SDATA_IN	106	AC_SDATA_ OUT
107	AC_BIT_CLK	108	AC_CODEC_ ID0#
109	AC_CODEC_ ID1#	110	AC_RESET#
111	MOD_AUDIO_ MOD	112	RESERVED
113	AUDIO_GND	114	GND
115	SYS_AUDIO_ OUT	116	SYS_AUDIO_ IN
117	SYS_AUDIO_ OUT G	118	SYS_AUDIO_ IN G
119	AUDIO_GND	120	AUDIO_GND
121	RESERVED	122	MPCIACT#
123	VCC5VA	124	3.3VAUX

CN10: COM2 Pin-Header



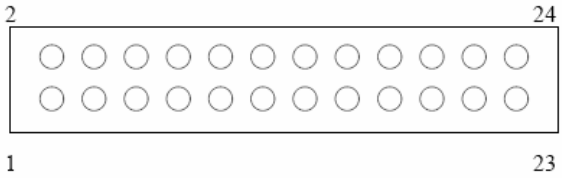
Pin	Define	Pin	Define
1	DCD#	6	DSR#
2	RXD#	7	RTS#
3	TXD#	8	CTS#
4	DTR#	9	RI#2
5	Ground	10	NC

CN12: GPIO Led Pin-Header



Pin	Define	Pin	Define
1	GPIN0	2	GPOUT0
3	GPIN1	4	GPOUT1
5	GPIN2	6	GPOUT2
7	GPIN3	8	GPOUT3
9	Ground	10	VCC

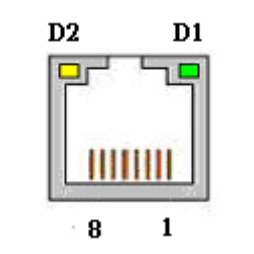
CN13: LAN LED Pin Header



Pin	Define
1	RP0
2	Speed0
3	Active0
4	Link0
5	RP1
6	Speed1
7	Active1
8	Link1
9	RP2
10	Speed2
11	Active2
12	Link2
13	RP3
14	Speed3

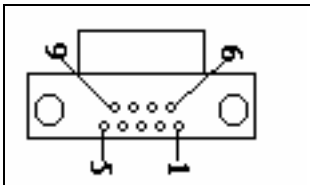
15	Active3
16	Link3
17	RP4
18	Speed4
19	Active4
20	Link4
21	RP5
22	Speed5
23	Active5
24	Link5

CN14: CN15-CN20:RJ45-Connector



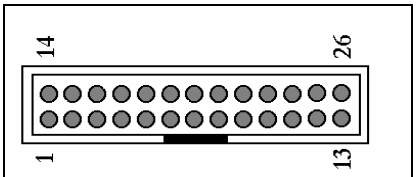
Pin	Define
1	TX+
2	TX-
3	RX+
4	Chassis Ground
5	Chassis Ground
6	RX-
7	Chassis Ground
8	Chassis Ground
D1 :Link/Activity LED	
Link	YELLOW
Activity	BLINKING
D2: Speed indicated LED	
10 Mbps	DIM
100 Mbps	GREEN

CN21: COM1 D-Sub Connector



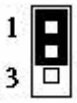
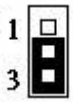
Pin	Define
1	DCD
2	RXD
3	TXD
4	DTR
5	Ground
6	DSR
7	RTS
8	CTS
9	RI

CN22: Parallel connector. 2mm

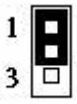
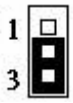


Pin	Define	Pin	Define
1	STROBE	14	AUTOFD
2	PD0	15	ERR
3	PD1	16	INT
4	PD2	17	SLCTIN
5	PD3	18	Ground
6	PD4	19	Ground
7	PD5	20	Ground
8	PD6	21	Ground
9	PD7	22	Ground
10	ACK*	23	Ground
11	BUSY	24	Ground
12	PE	25	Ground
13	SLCT	26	Ground

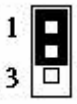
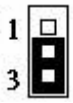
JP1: Clear CMOS

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

JP2: Bypass Always Enabled Select

Pin		Setting
	1-2	Bypass Always Enabled
	2-3	Normal (Default)

JP3: Watch Dog or Bypass Select

Pin		Setting
	1-2	Watch Dog (Default)
	2-3	Bypass Mode

Chapter 3. BIOS Setup

The ROM chip of your AW-A696 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-A696 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

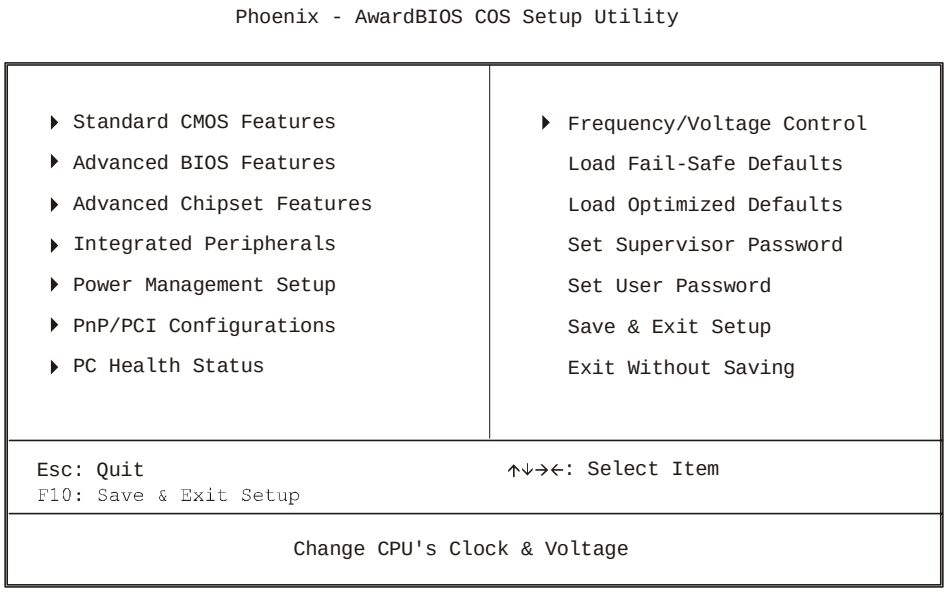
Use the CMOS Setup program to modify the system parameters to reflect the options installed in your system and to customized your system. For example, you should run the Setup program after you:

- 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.

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 cannot enter other menus in the CMOS Setup program.

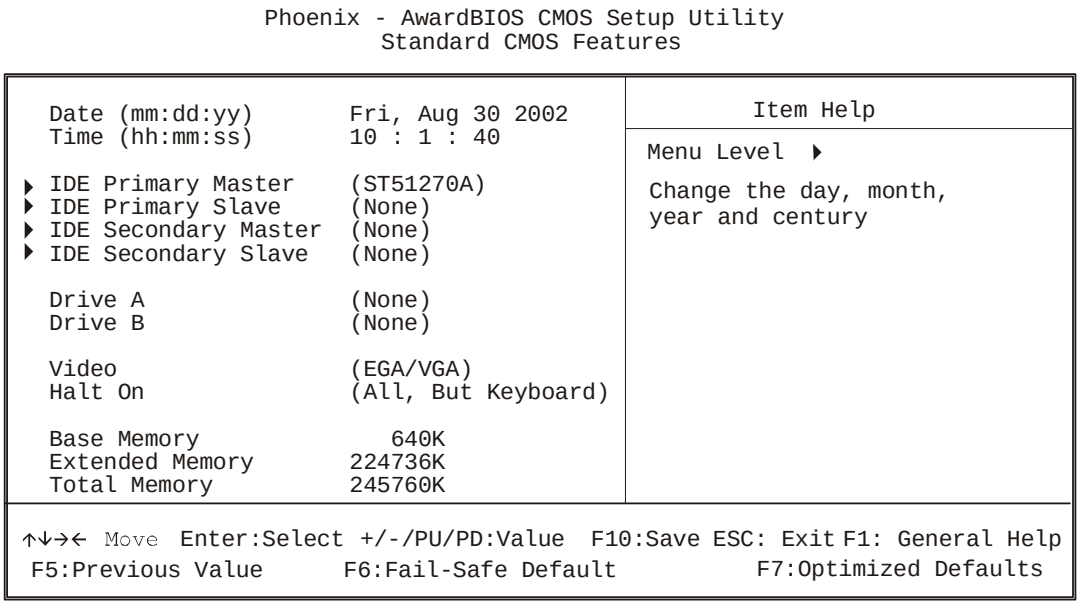
SAVE & EXIT SETUP:
Save changes of values to CMOS and exit the CMOS setup program

EXIT WITHOUT SAVING:
Abandon all CMOS changes and exit the CMOS setup program

3.4 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:



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

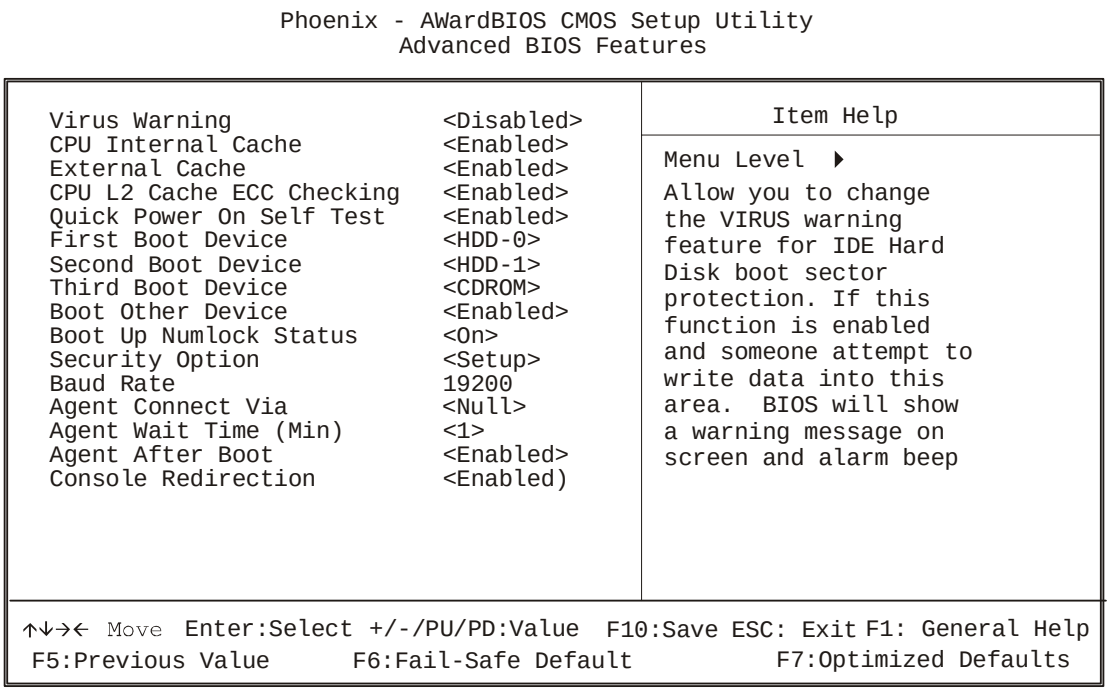
All, But Disk/Key

3. After you have finished with the Standard CMOS Features program, press the <ESC> key to return to the main menu.
4.

3.5 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:



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 recommends 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 selected sequence 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:

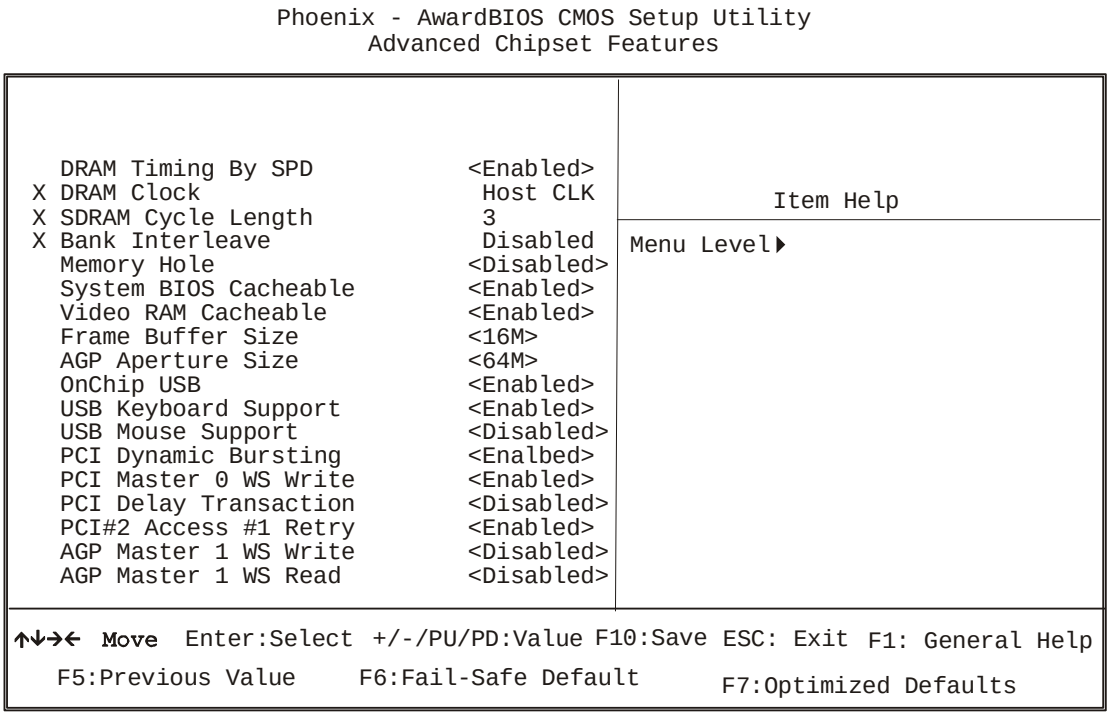
Set the Console Redirection <Enabled>

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.

3.6 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:



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.

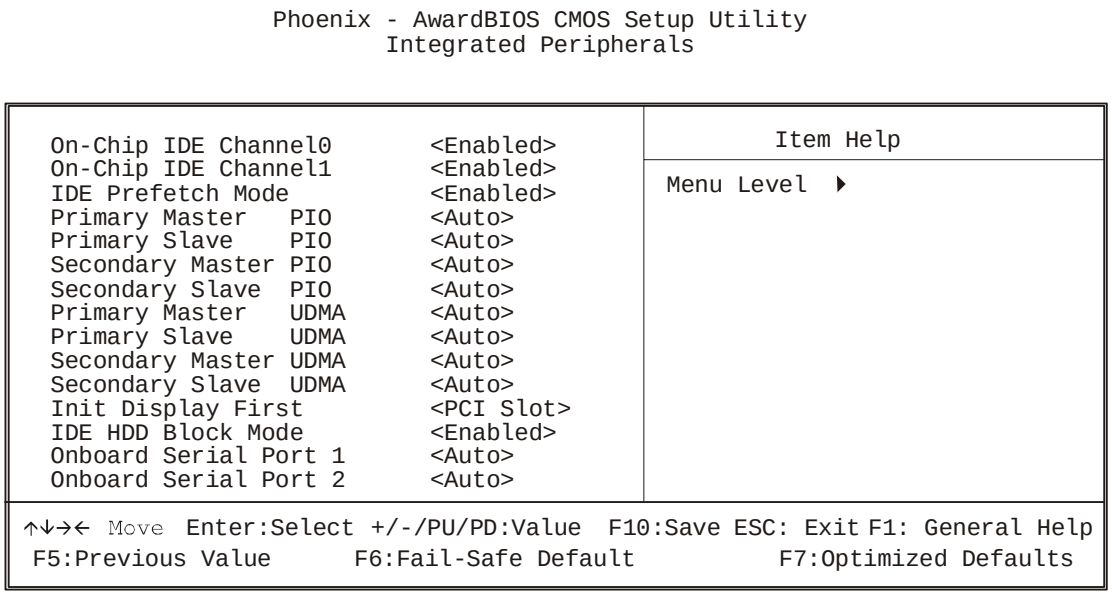
AGP Master 1 WS Write:
System will run single wait state delay before write data from buffer, the system will run twice wait states if set to disable.

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

3.7 Integrated Peripherals

⇩**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:

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:

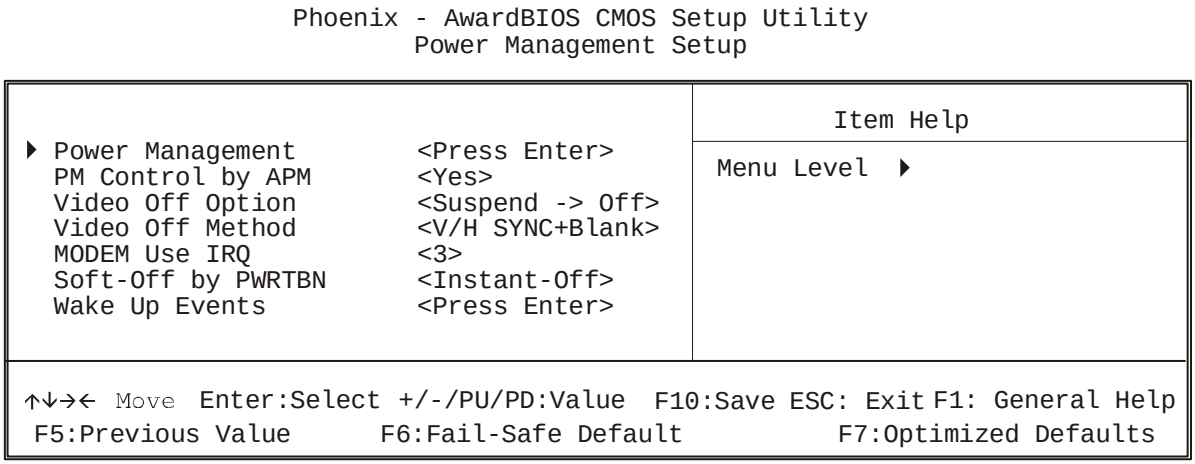
Choose: Auto

3.8 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.

"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

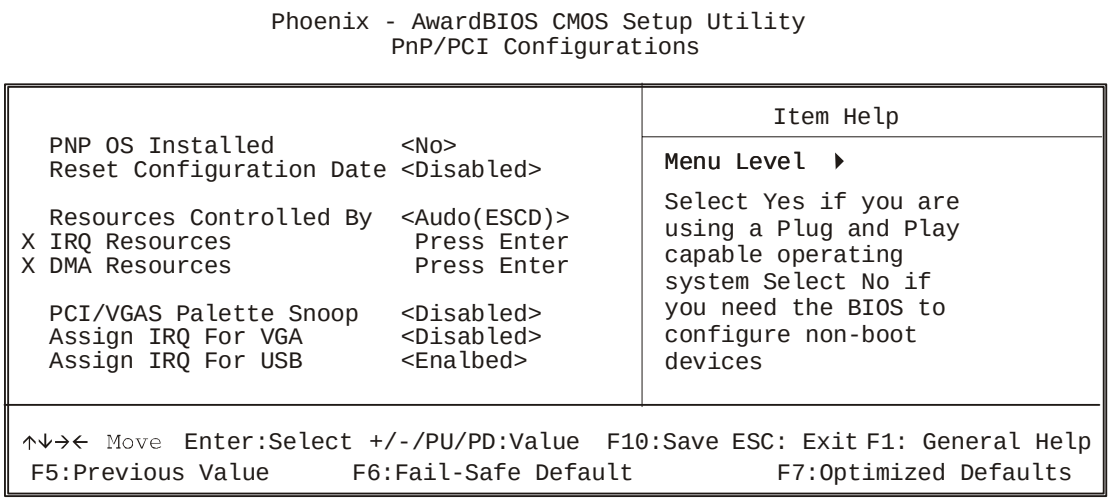
3. After you have finished with the Power Management Setup, press the <ESC> key to return to the main menu.

3.9 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.



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>

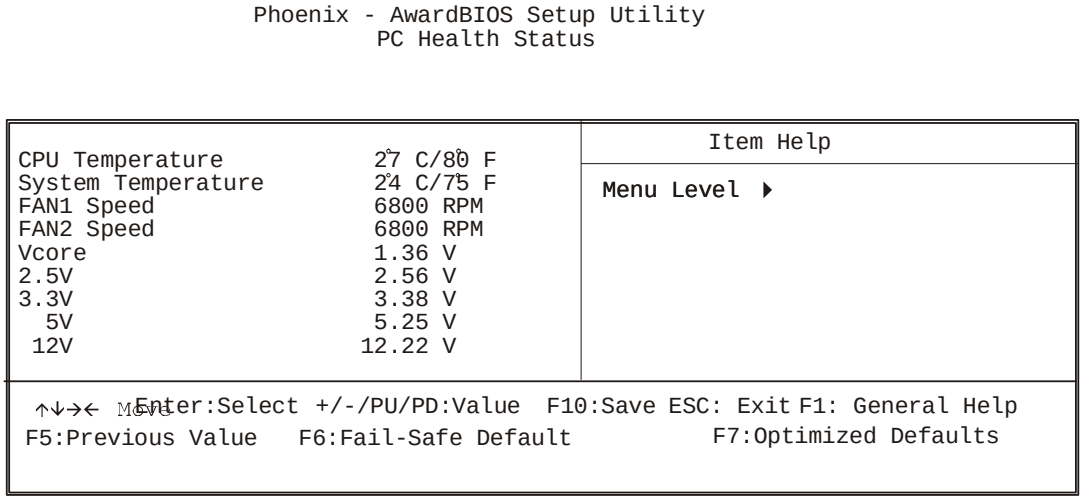
PCI/VGA Palette Snoop:
Enabling this item informs the PCI/VGA card to keep silent when palette register is updated

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.

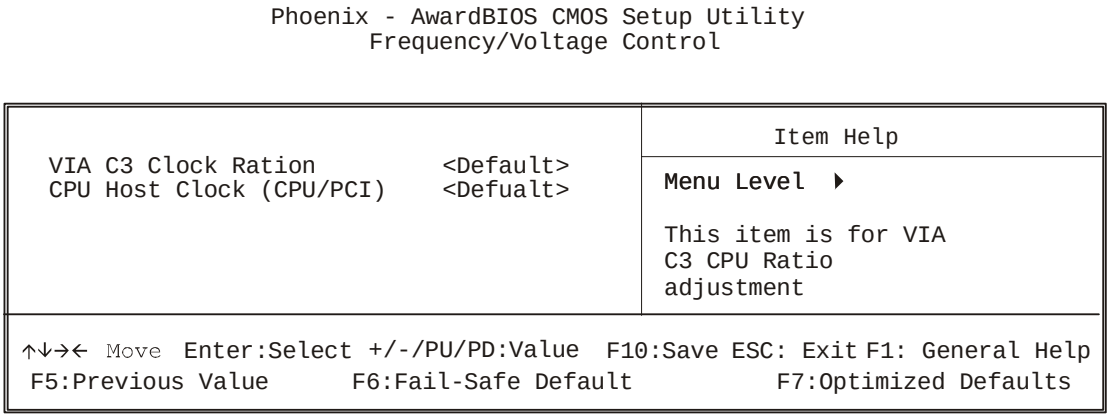
3.10 PC Health Status Configuration Setup

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



3.11 Frequency/Voltage Control Option

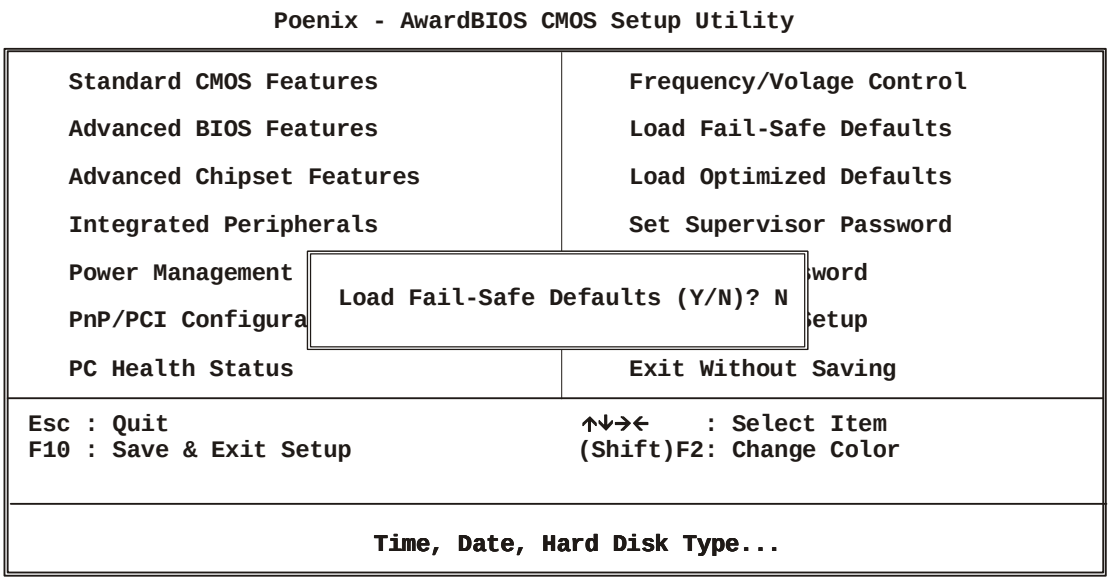
Choose the "Frequency/Voltage Control" from main menu, the following screen appears:



3.12 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.

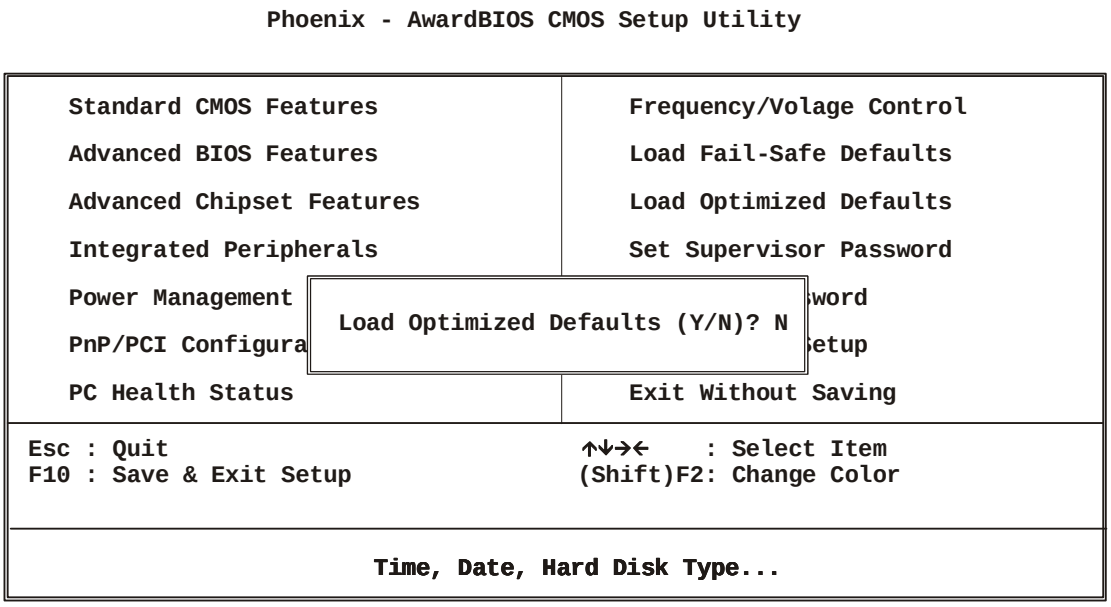
To use this feature, highlight it on the main screen and press <Enter>. A line will appear on the screen asking if you want to load the BIOS default values. Pres the <Y> key and then press <Enter> if you want to load the BIOS default.



3.13 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.

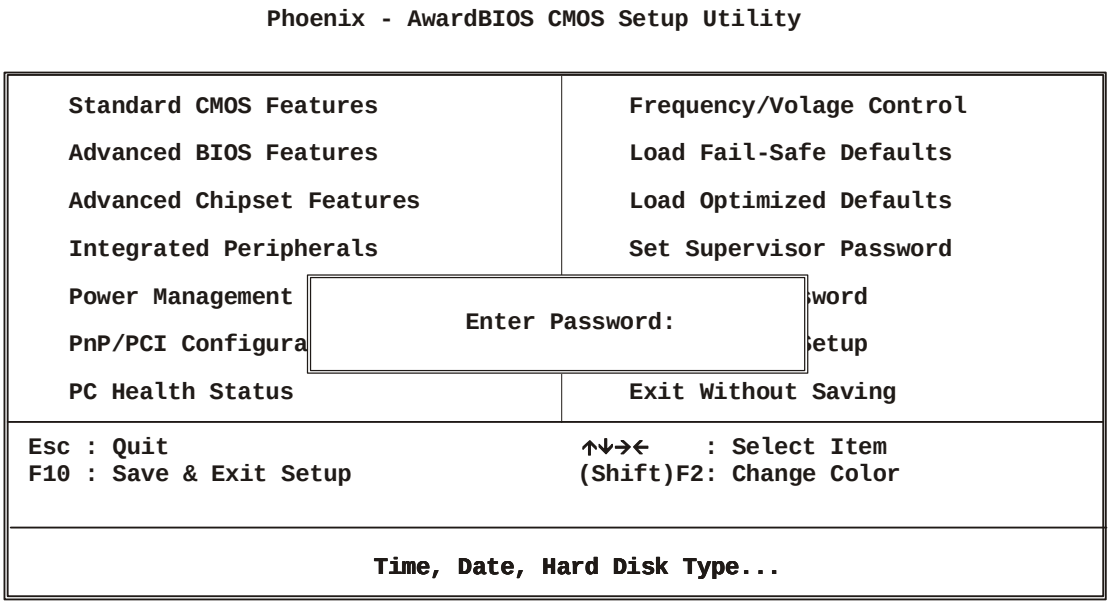


3.14 Supervisor/User Password

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.

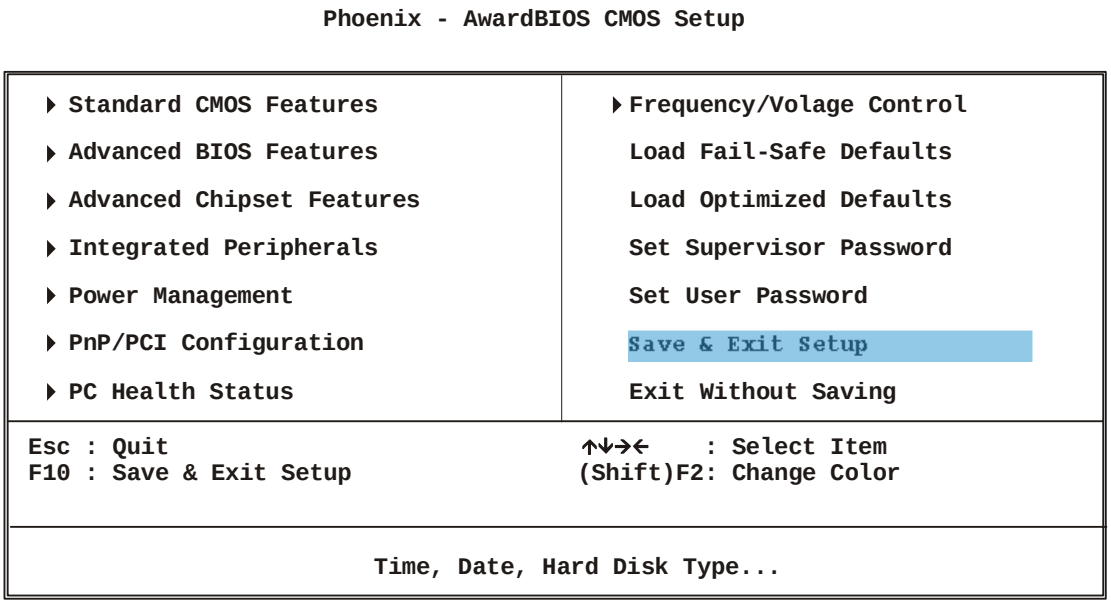
To change a password, first choose a password option from the main menu and enter the current password. Then type your new password at the prompt. The password is case sensitive and you can use up to 8 alphanumeric characters. Press <Enter> after entering the password. At the Next Prompt, confirm the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



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.

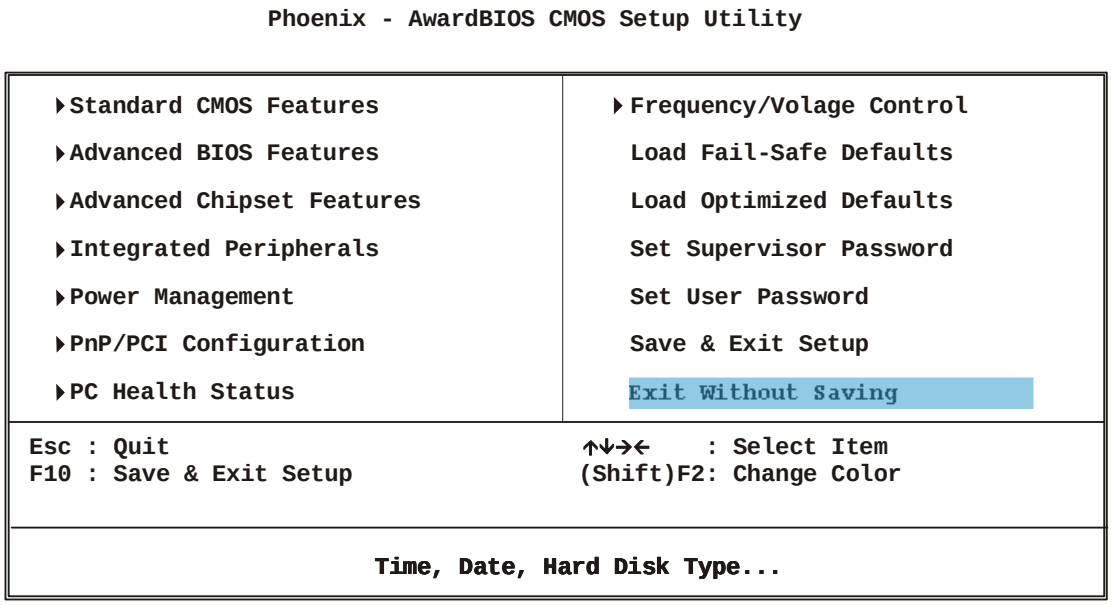
3.15 Save and Exit Setup

This function automatically saves all CMOS values before exiting Setup.



3.16 Exit Without Saving

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

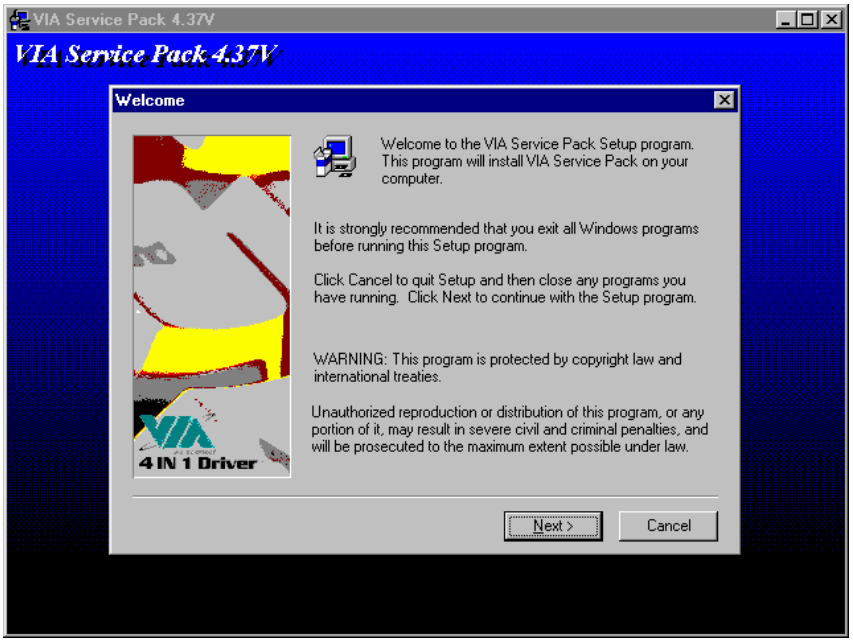


Chapter 4 Driver Utility Installation

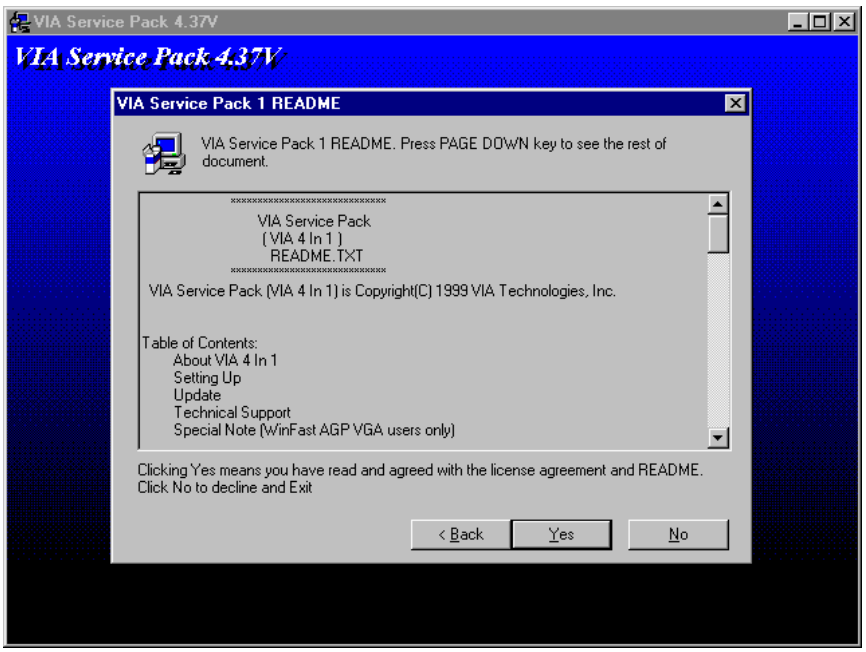
The system driver installation procedure must be performed first.

4.1 System Driver Installation

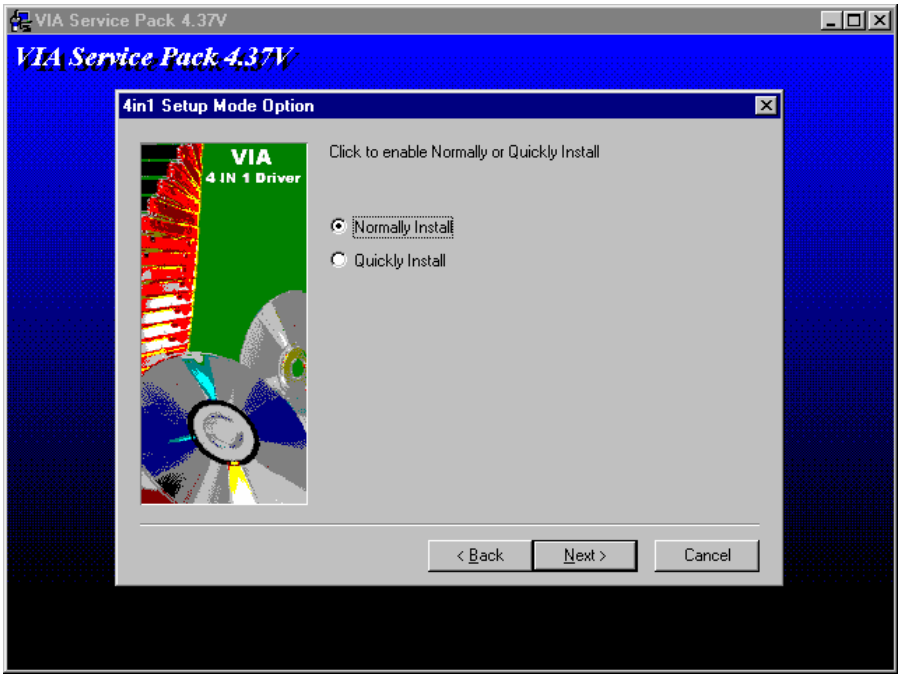
1. Insert the AW-A696 CD-ROM driver into the CD-ROM Drive
2. Select the Drivers/system file to click the Setup icon.
3. Click **Next**



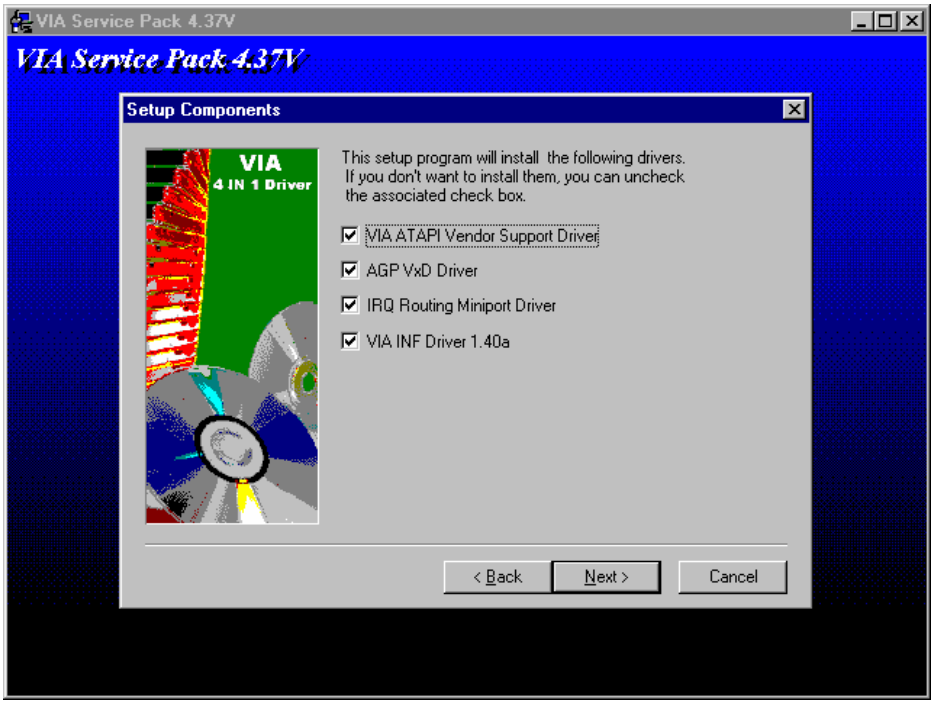
4. Click **Yes**



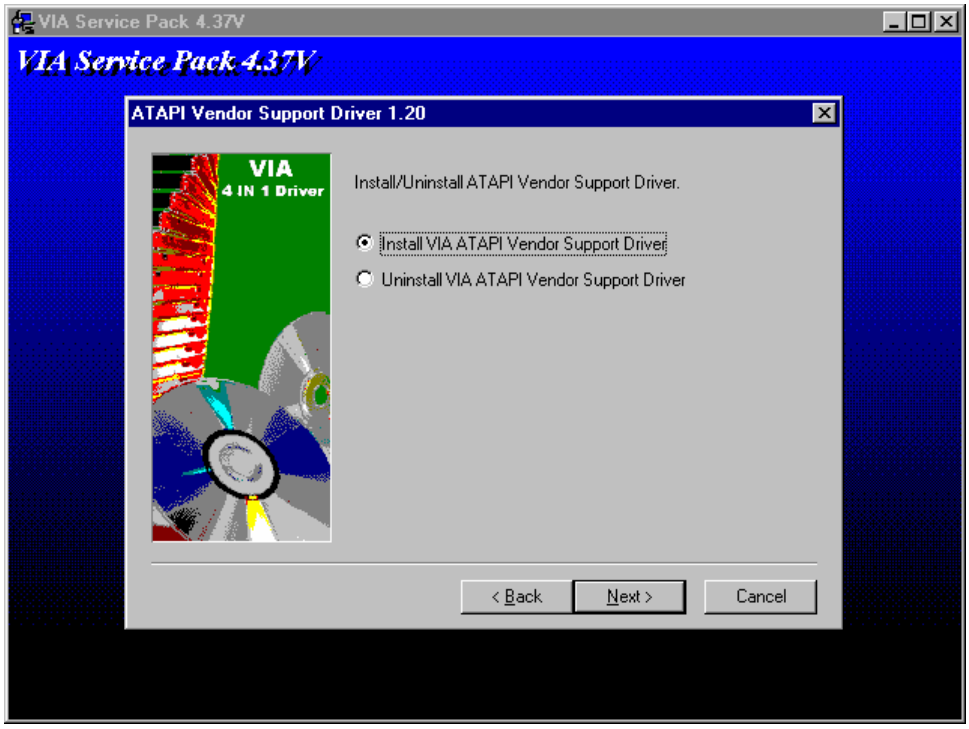
5. Select **Normally Install,** and then click **Next**



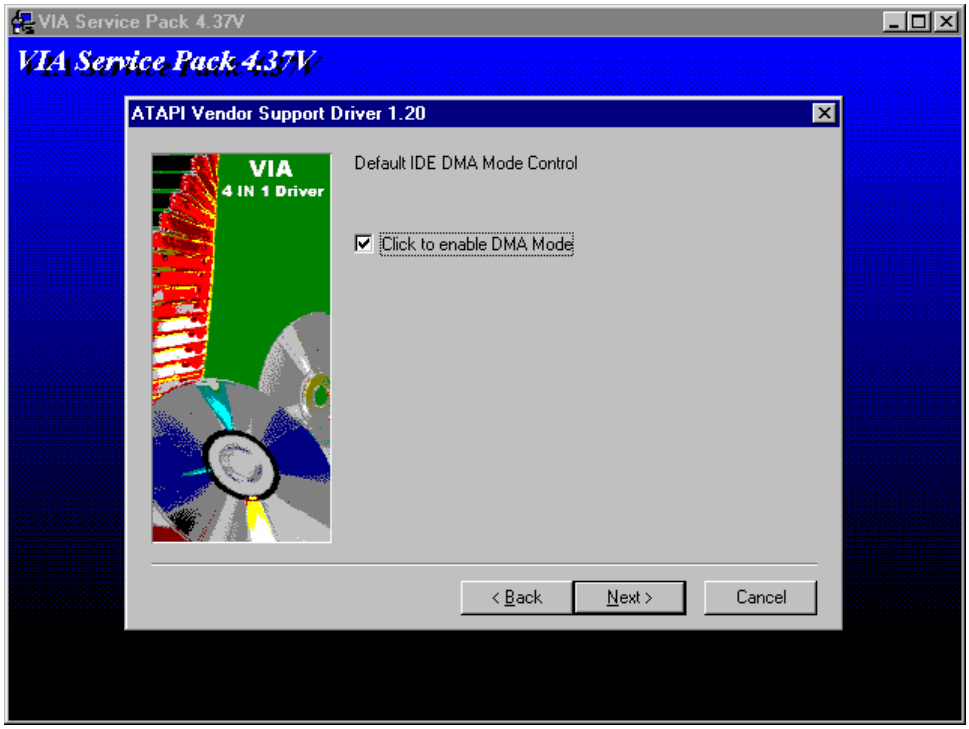
6. Remain the default setting, and then click **Next**



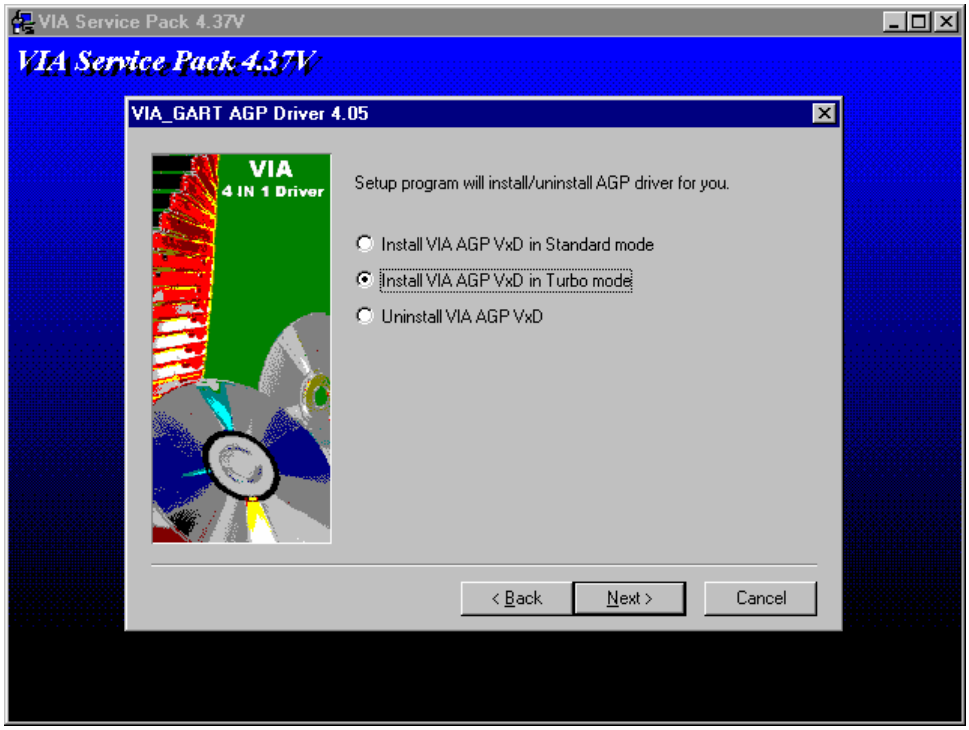
7. Click **Next**



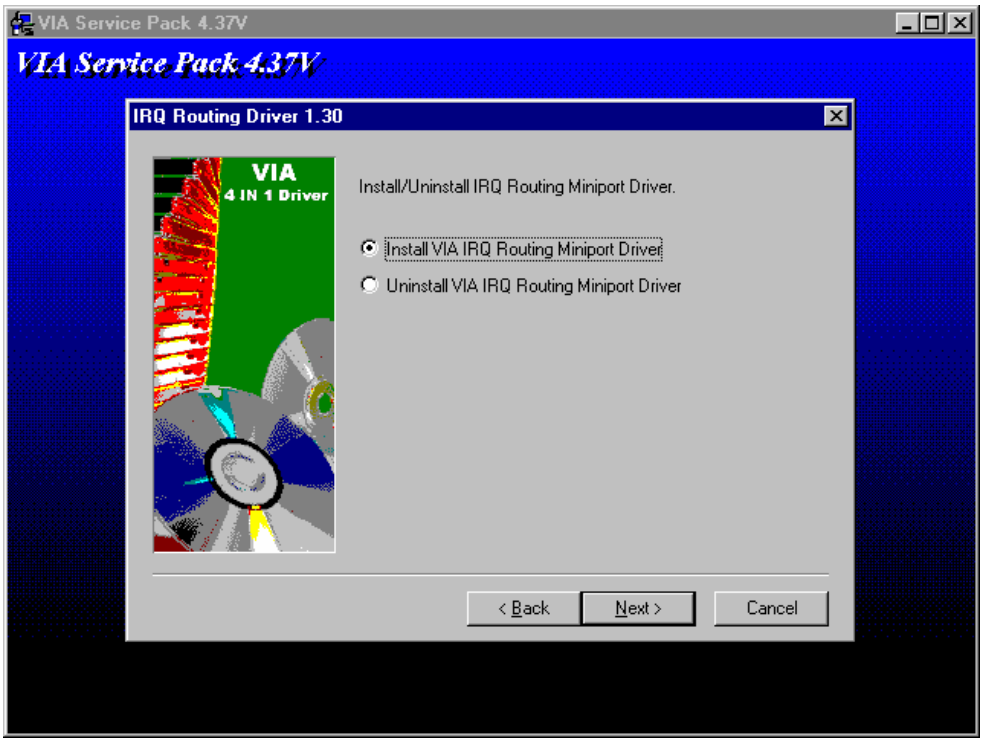
8. As the following picture, click **Next**



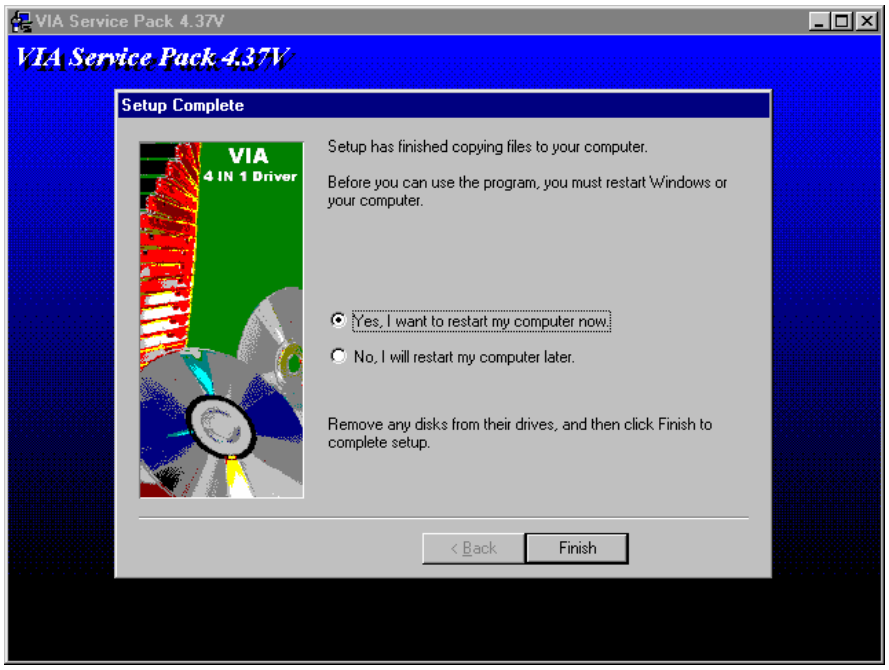
9. Select **Install VIA AGP VxD in Turbo Mode,** and click **Click**



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-A696 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**

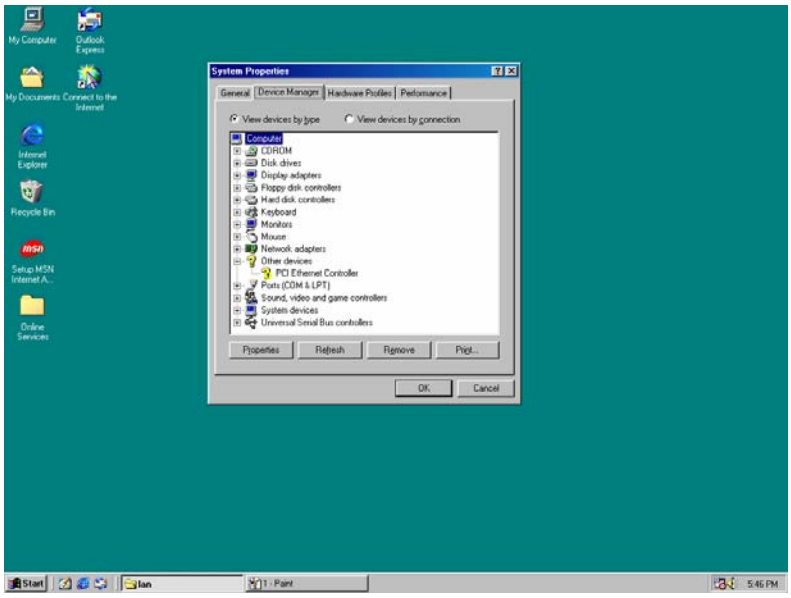
Installation process is completed and allowed the system to reboot

4.3 Ethernet Driver Installation

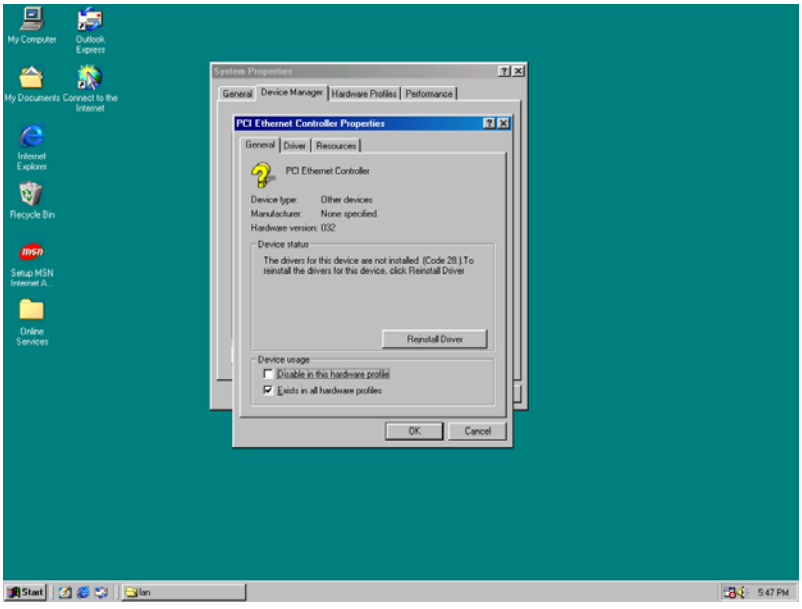
The AW-A696 supports four Ethernet Controller by using Intel® 82551QM or Realtek® 8139C+ Chipset.

4.3.1 Realtek 8139C Ethernet Installation

1. Insert the AW-A696 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



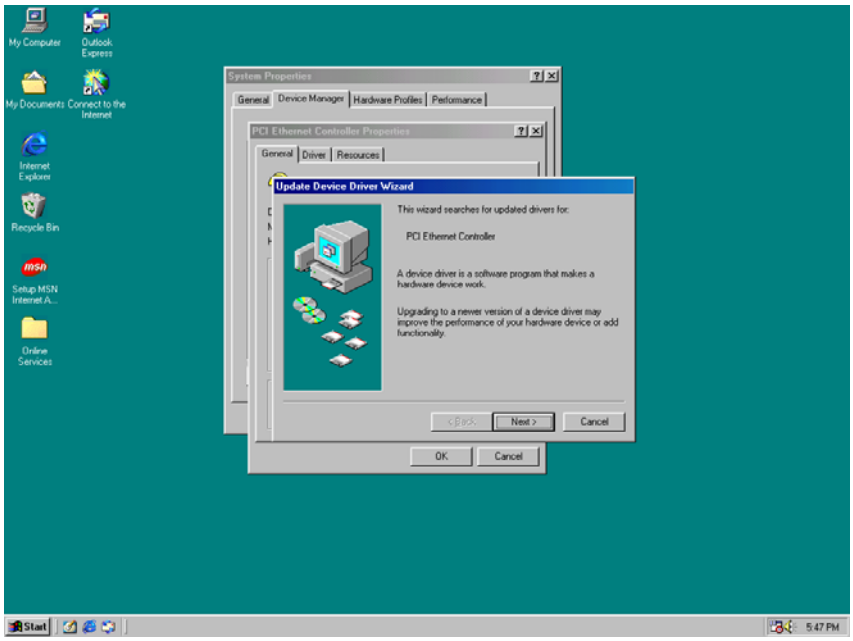
7. Select the **Network Adapters** item



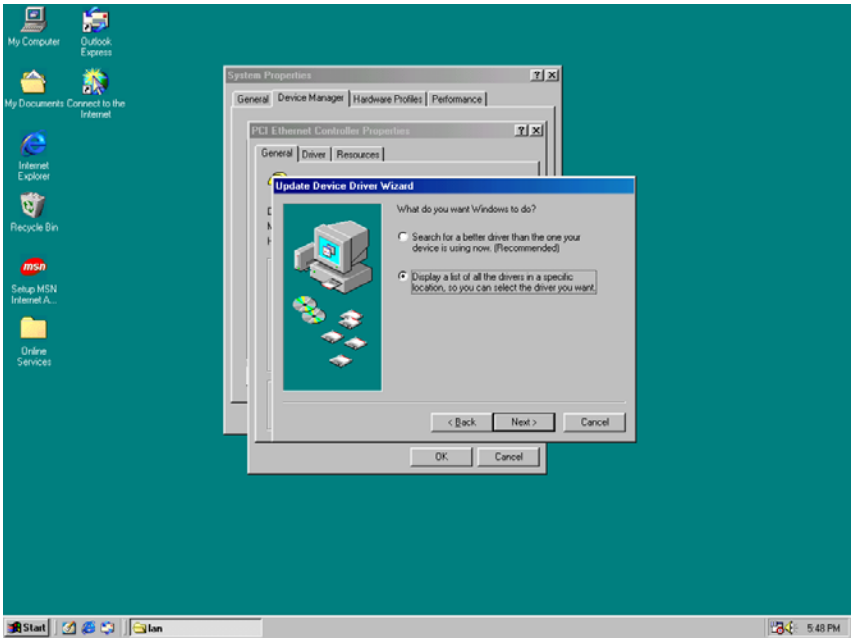
Another file will appear below this file, and then click on the file

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

The **Update Device Driver Wizard** will appear

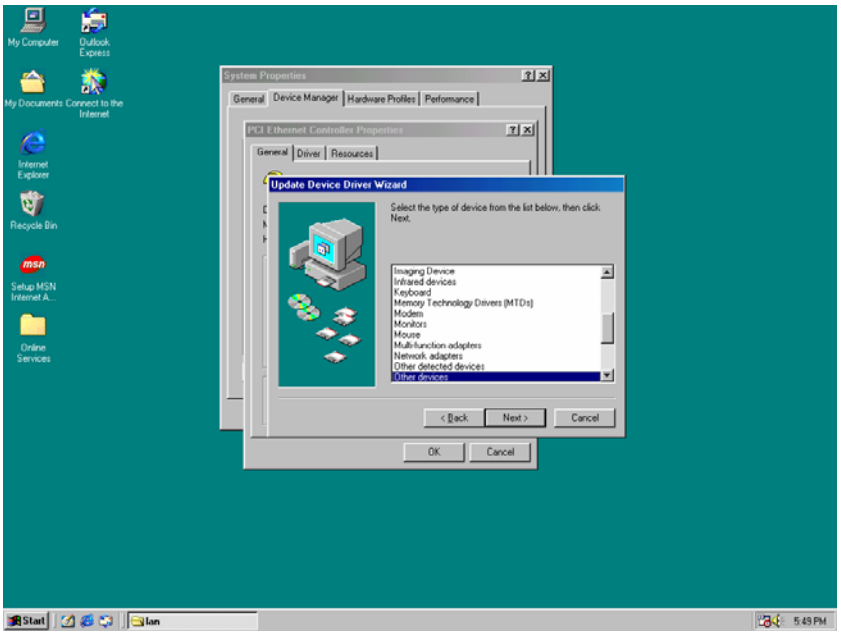


10. Click **Next**

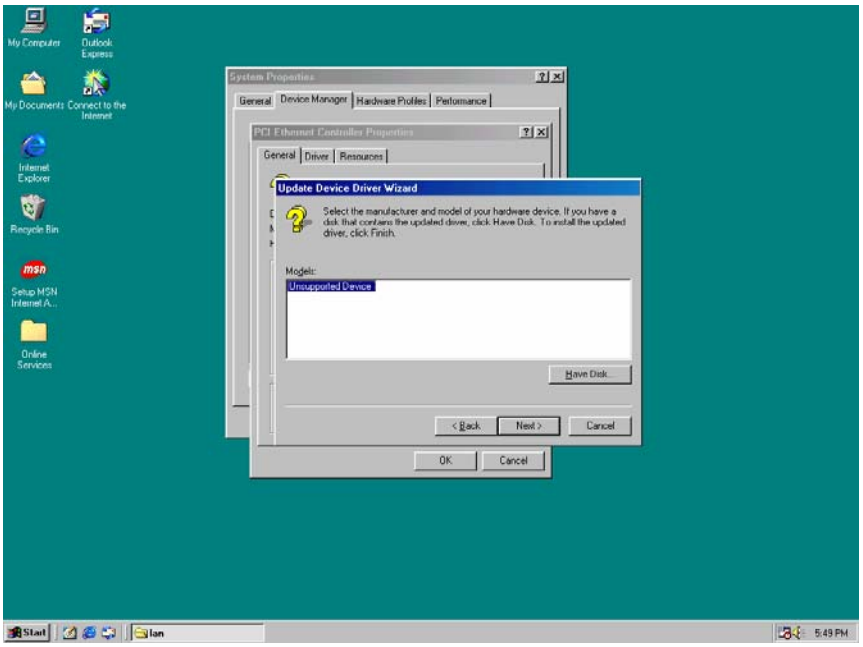


11. Select CD ROM Drive, **D/Drivers/lan/Win98,** and click **Next**

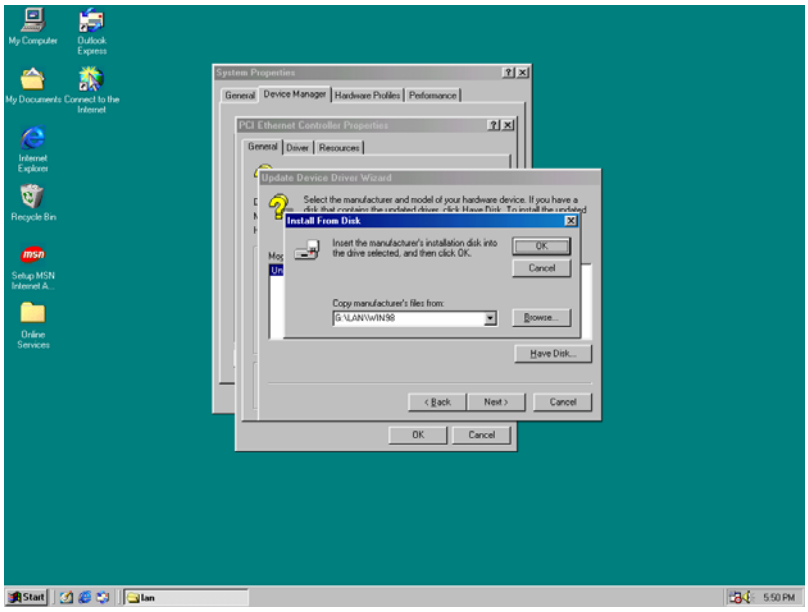
Notice: We take the LAN installation under Win98 for example only; please choose the file depending on your Windows OS.



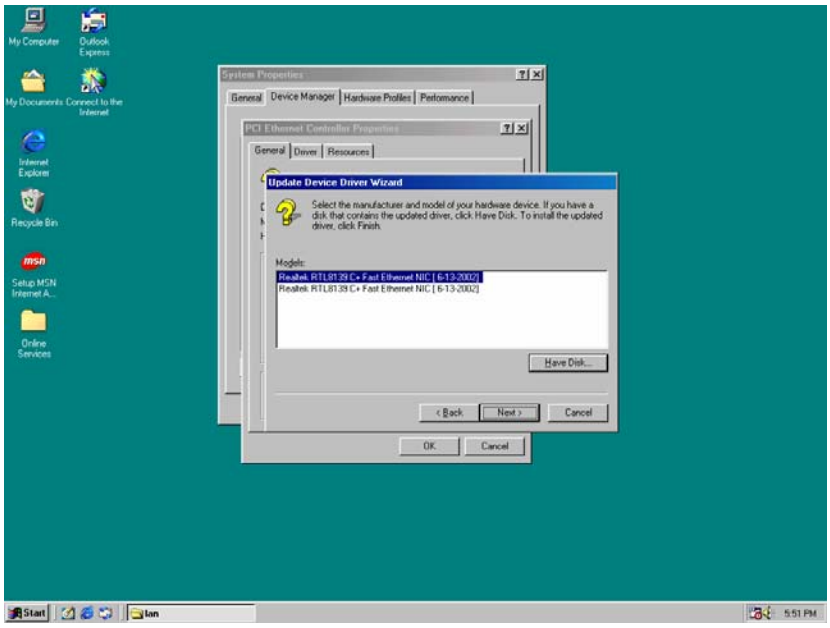
12. Select **"Next"**



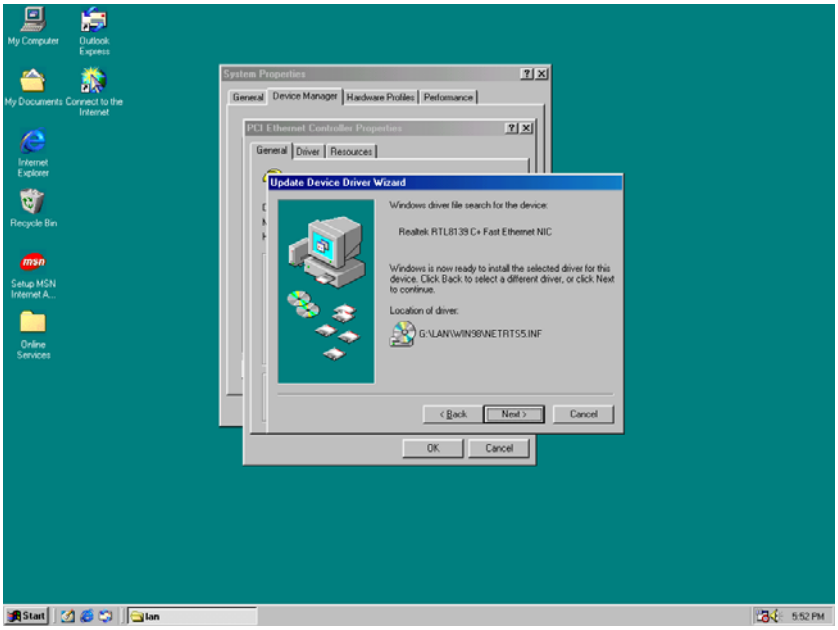
13. Select **"Next"**



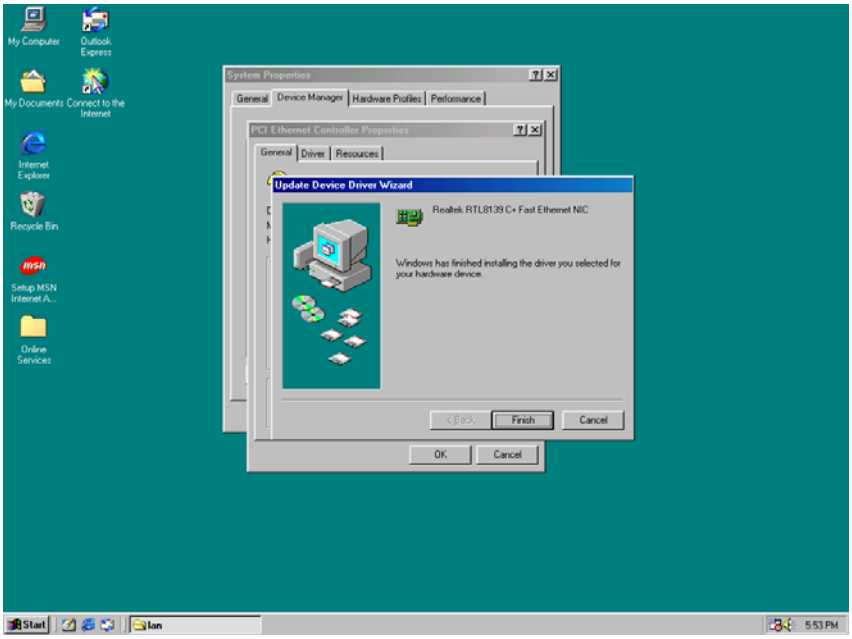
14. Select "**Next**"



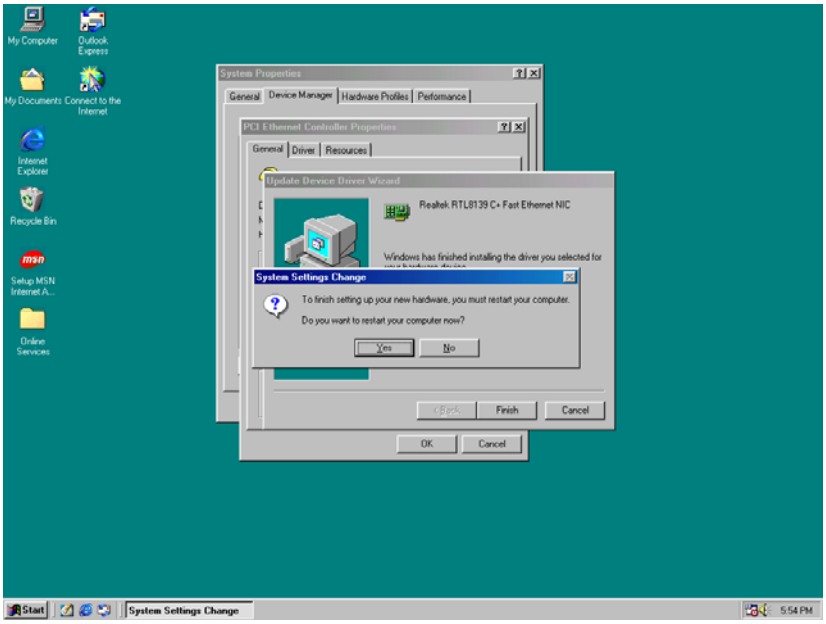
15. Click "**Next"**



16. Click **Finish**



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

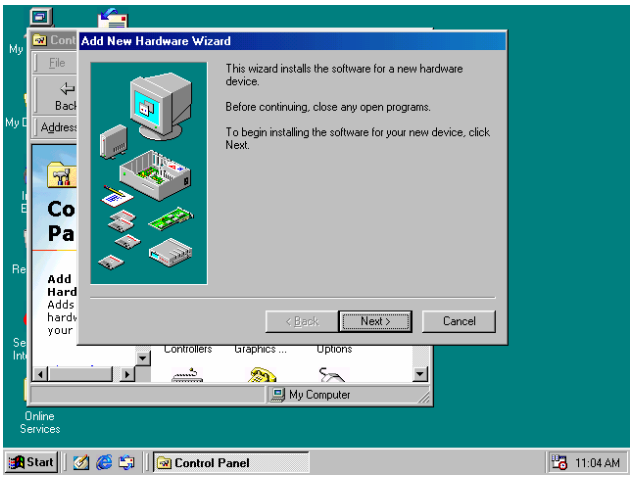


4.3.2 Intel® 82551QM Ethernet Installation

Installation for Windows95/98
Please install Ethernet drivers as follows:

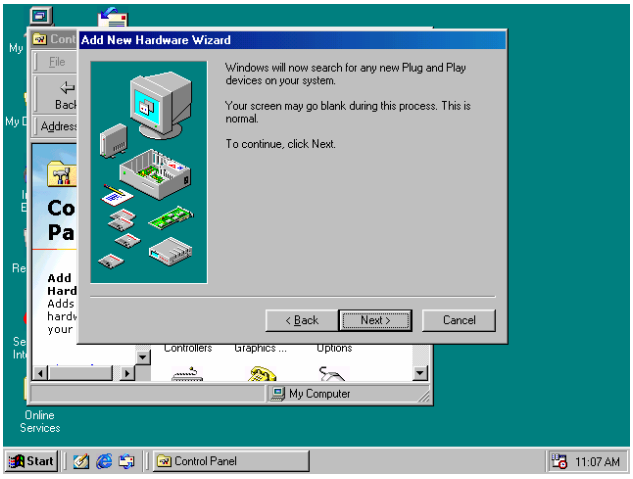
1. Click **"Start"**, go to **"Setting"** and click **"Control Panel"**. Choose the **"Add New Hardware"** icon and double-click the icon, the next configuration screen will appear.

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.

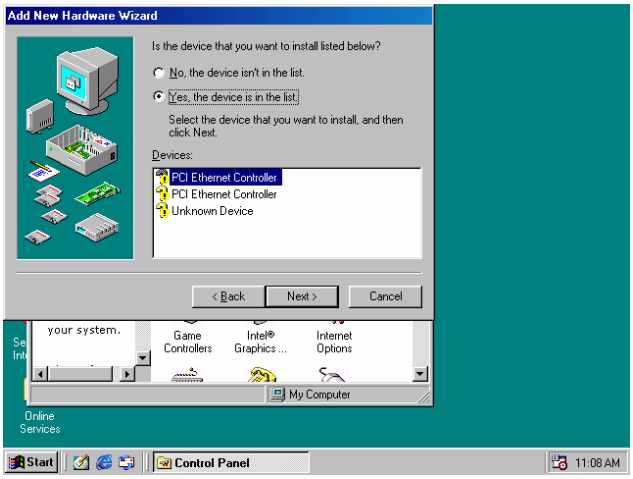


3. **"Add New Hardware Wizard"** shown Windows will no search for any new Plug and Play devices on your system. Your screen may go black during this process. This is normal.

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

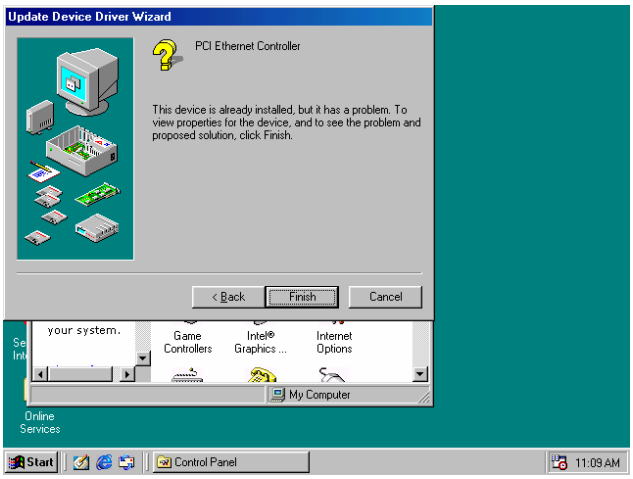


4. Please select the device that you want to install, and then click "Next>" to the next step of installation.



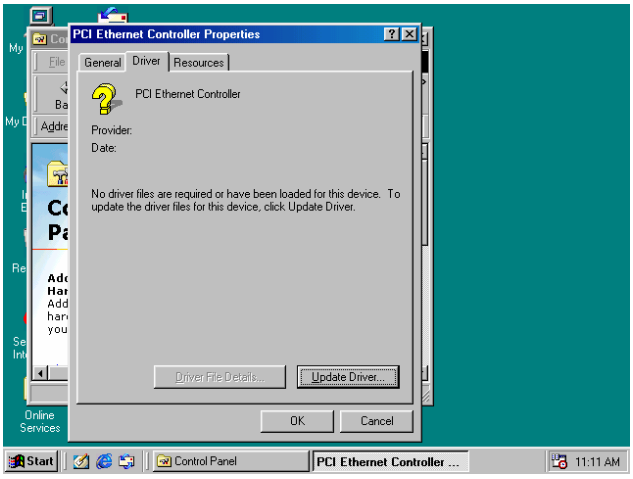
5. This is Update Device Driver Wizard.

   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

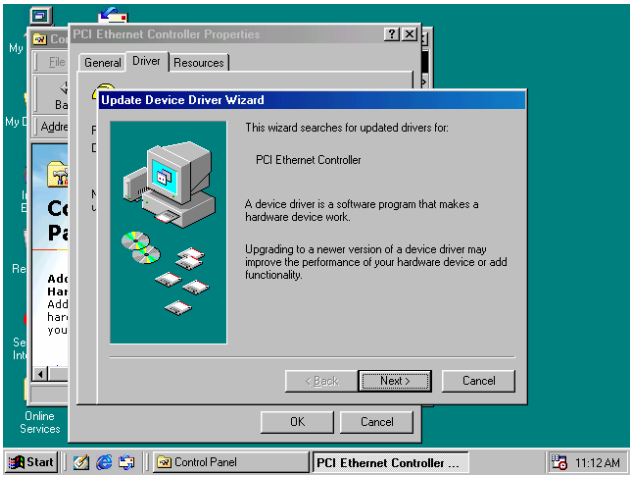


7. This Wizard searches for update drivers for:

   PCI Ethernet Controller

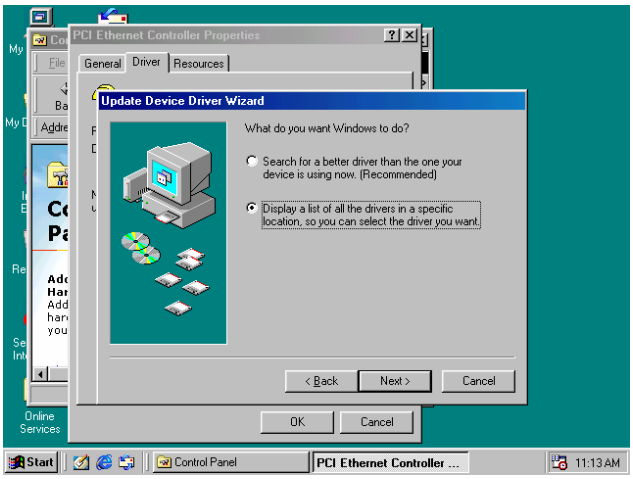
   A device driver is a software program that makes a hardware device work.

   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

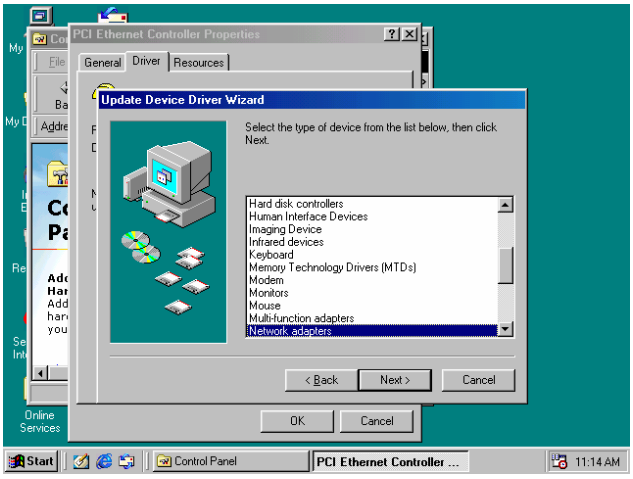


8. This is Update Device Driver Wizard. What do you want Windows to do? Please choose "Display a list of all the drivers in a specific location, so you can select the driver you want.

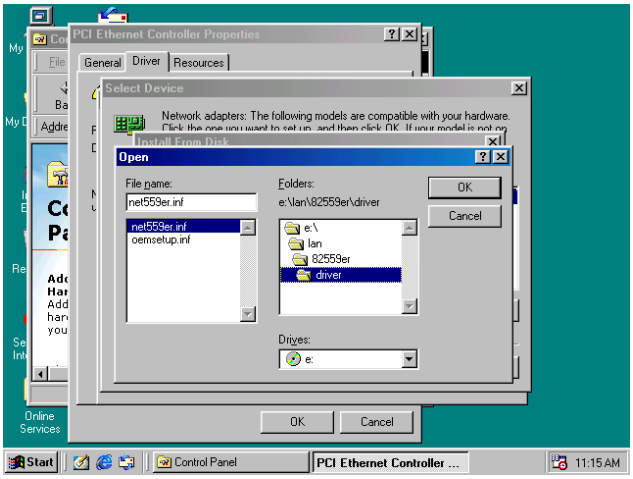
   Please click "Next>" to the next step of installation



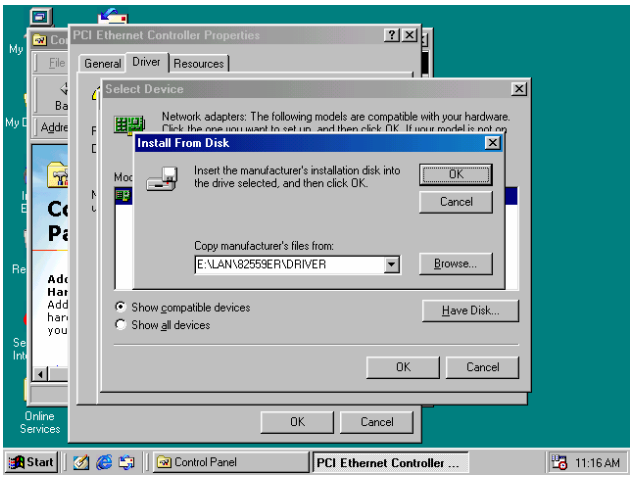
9. This s screen for selecting the type of device from the list, then click "Next>" to next step of installation



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

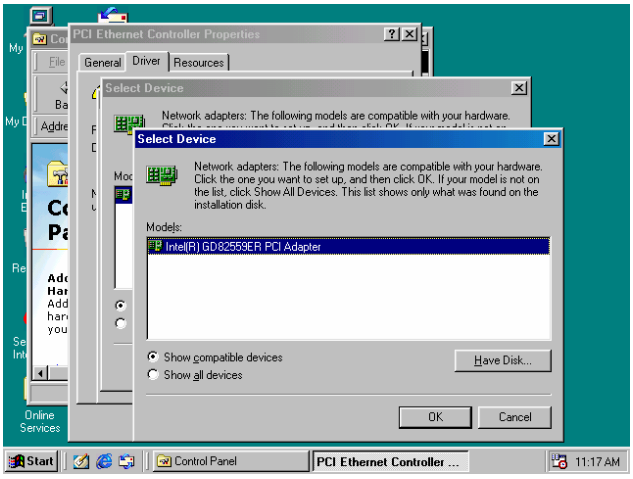


11. This is Install from Disk. Please insert the manufacturer's installation disk into the drive selected, and then please click "OK" to next step of installation.



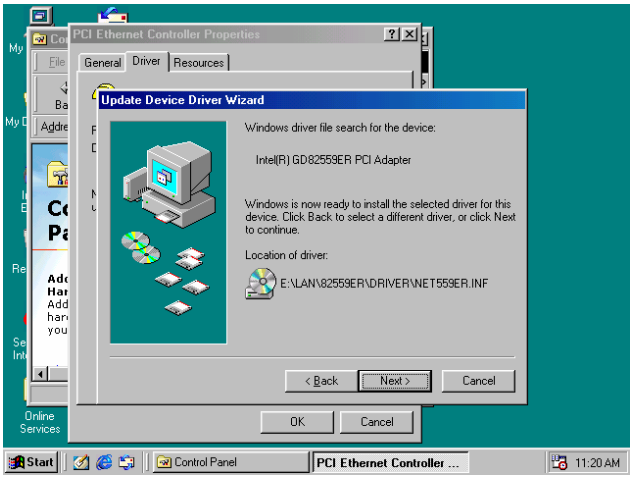
12. This is Select Device screen.

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

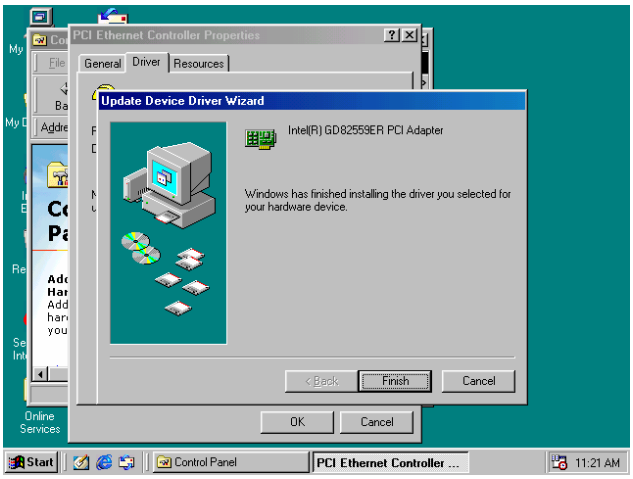


13. This is Update Driver Wizard.

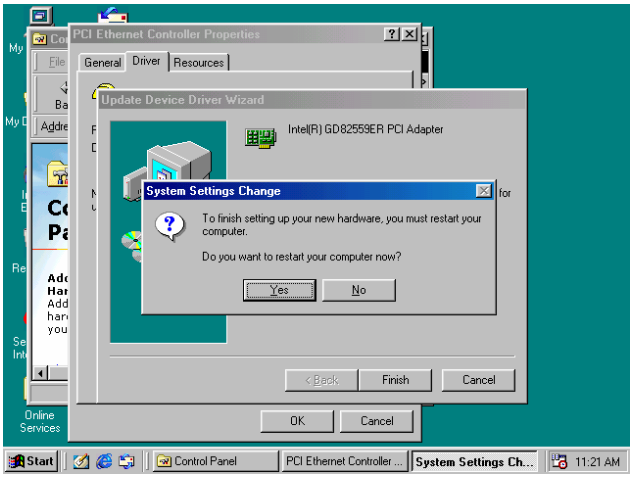
Windows is now ready to install the selected driver for this device. Please click Back to select a different driver, or click Next to continue.



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.



Appendix A: Programming the Watchdog Timer

The AW-A696 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	Disabled
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 178(hex) by using Realtek LAN chipset.

For example (Intel 82551QM LAN)

ASSEMBLY LANGUAGE

START Watchdog Timer	DOS DEBUG

MOV DX, 444H
MOV AL, XXH
OUT DX, AL
	OUT 444, XX

STOP Watchdog Timer	
MOV DX, 441H IN AL, DX	IN 441

For example (Realtek 8139x LAN)

ASSEMBLY LANGUAGE

START Watchdog Timer	DOS DEBUG

MOV DX, 178H
MOV AL, XXH
OUT DX, AL
	OUT 178, XX

STOP Watchdog Timer	
MOV DX, 179H IN AL, DX	IN 179

Note: "XX" timer value

Appendix B: System Resource

Interrupt Controller

The AW-A696 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-A696. 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~E7FFFFFF	PCI	PCI – PCI Bridge
E8000000~EBFFFFF7	PCI	Host Bridge
EC000000~EDFFFFFF	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

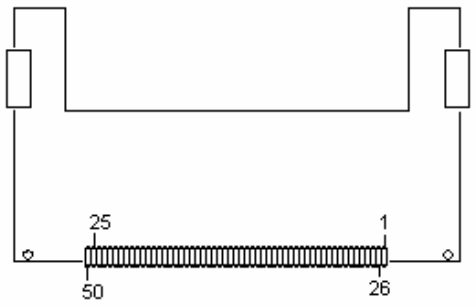
E000~E0FE	Ethernet Controller
E400~E4FE	Ethernet Controller
E800~E8FE	Ethernet Controller

Appendix C: Installing CompactFlash Memory

CompactFlash™ is a very small removable mass storage device; it provides complete PCMCIA-ATA functionality and compatibility pluse 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

Part No.	Cable Description	AW-A696 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

AW-A696 Cable