HS-1600

Transmeta Crusoe Mini Board

・ Crusoe CPU・ CRT/Panel・ SODIMM・ DiskOnChip・

・ LAN・ 4COM・ Mini PCI・ IrDA ・ USB・ Sound・ Single +5V ・

・ Transmeta Embedded Industrial Single Board Computer・

Copyrights

Unauthorized copying, photocopying, translation, or reproduction of this manual to any electronic or machine readable form in whole or in part without prior written consent from the manufacturer is prohibited.

In general, the manufacturer will not be liable for any direct, indirect, special, incidental or consequential damages arising from the use of inability to use the product or documentation, even if advised of the possibility of such damages.

The manufacturer reserves the rights to change the contents of this manual without prior notice in order to improve the function design, performance, quality and reliability of the product. The author assumes no responsibility for any errors or omissions, which may appear in this manual, nor does it make a commitment to update the information contained herein.

Trademarks

BOSER is a registered trademark of BOSER Technology Co., Ltd.
ISB is a registered trademark of BOSER Technology Co., Ltd.
Intel is a registered trademark of Intel Corporation.
Award is a registered trademark of Award International Inc.

All other trademarks, products and or product's name mentioned herein are mentioned for identification purposes only, and may be trademarks and/or registered trademarks of their respective companies or owners.

User' s Manual edition 1.1, Aug.24 2001

Contents

Chapter-1

General Information

The HS-1600 is a 66MHz Bus, Via VT86C686 chipset based Mini Embedded SBC with combined features to make it an ideal all-in-one industrial single board computer with enhanced I/O effects, LAN and VGA interface.

With on board DMA33 IDE drive interface architecture, the HS-1600 supports a maximum of 33MB/sec data transfer rate with one IDE drive connection. The 69000 CRT/Panel display controller provides a resolution of up to 1280x1024, 256 colors. The SBC also provides one internal 40-pin connector for use with various types of the LCD Panel connection.

The HS-1600 provides one SODIMM socket that supports up to 256MB of main system memory. A single Flash chip holds the system BIOS, and you can easily update the Flash BIOS by the Utility Update software. Advanced USB and IrDA ports are also provided for faster and convenient data transmission.

The HS-1600 also features one Realtek RTL8139 100 Based Ethernet controller and the ESS Solo1 3D Sound chip on board.

1.1 Major Features

- Transmeta Crusoe TM3200 400MHz or TM5400 600MHz CPU
- Via VT82C686A Chipset
- One SODIMM socket supports up to 256MB
- Mini PCI Local Bus support
- Three RS-232 and one RS-232/422/485 serial ports include 16C550 UART with 16byte FIFO
- One enhanced bi-directional parallel port support SPP/ECP/EPP
- On board two USB ports and one IrDA port
- On board SMC 37C669
- On board 69000 CRT/Panel display controller
- On board Realtek RTL8139 100 Based LAN
- On board ESS Solo1 3D Sound
- Single +5V support
- Provides socket for DiskOnChip™
- Watchdog Timer Function support
- On board PS/2 Keyboard/Mouse connector

1.2 Specifications

- **CPU:** Transmeta Crusoe TM3200 400MHz / TM5400 600MHz CPU
- **Bus Interface:** Mini PCI Local Bus
- **Memory:** One SODIMM socket provides up to 256MB
- **Chipset:** Via VT82C686
- **Data Bus:** 64bit
- **VGA:** 69000 with 2MB memory support CRT/Panel display up to 1280x1024x256 colors
- **IDE:** Two IDE disk drives support DMA33 transfer rate up to 33MB/sec
- **Floppy:** Support up to one floppy disk drives
- **Parallel Port:** Support SPP/ECP/EPP
- **LAN:** Realtek RTL8139C 100 Based LAN
- **Sound:** ESS Solo1 3D Sound
- **Serial Port:** Three RS-232 and one RS-232/422/485 serial ports include 16C550 UART with 16byte FIFO
- **IR:** One IrDA TX/RX header
- **USB:** Support two USB ports
- **Keyboard/Mouse:** 6-pin SMD type connector
- **DiskOnChip:** Socket for DiskOnChip and memory size up to 144MB
- **BIOS:** Award Y2K PnP Flash BIOS
- **DMA Channels:** 7
- **Interrupt:** 15
- **Main Power:** Single +5V Power In
- **Maximum Power Consumption:** +5V@1.8A (TM3200 400MHz)

✍✍**Operating Temperature:** 0~60℃

✍✍**Board Size:** 11.25x10.2 cm

1.3 Delivery Package

The delivery package of HS-1600 includes the following items:

- ✍✍ One HS-1600 Industrial Single Board
- ✍✍ One Printer Ports Flat Cable
- ✍✍ One COM port Flat Cable
- ✍✍ One IDE port Flat Cable
- ✍✍ One FDD port Flat Cable
- ✍✍ One PS/2 Keyboard/Mouse Transfer Cable
- ✍✍ One Panel connector Flat Cable
- ✍✍ One 2-pin Power Transfer Cable
- ✍✍ One RJ45 Transfer Cable
- ✍✍ One Audio Port Transfer Cable
- ✍✍ One 15-pin VGA Transfer Cable
- ✍✍ Utility Diskette
- ✍✍ User' s Manual

Please contact your dealer if any of the items are missing or damaged. Please store all parts of the delivery package with packing materials in case you want to ship or store the product in the future.

Chapter-2

Hardware Installation

This chapter provides the information on how to install the hardware of HS-1600. First, proceed with sections 1.3, 2.1 and 2.2 to check the delivery package and for unpacking. Afterwards, go to the jumpers setting section.

2.1 Caution of Static Electricity

The HS-1600 has been well packaged with an anti-static bag to protect the sensitive computer components and circuitry from the damage of static electric discharge.

Note: DO NOT TOUCH THE BOARD OR ANY OTHER SENSITIVE COMPONENTS WITHOUT ALL NECESSARY ANTI-STATIC PROTECTION.

You should follow the steps below to protect the board in against static electric discharge whenever you handle the board:

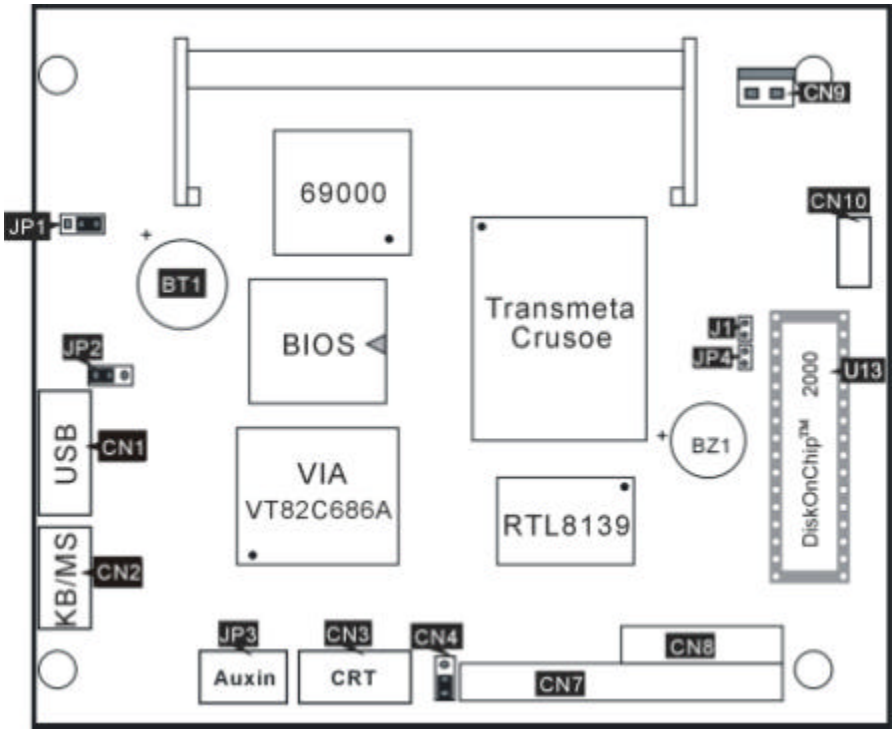
1. Use a grounding wrist strap to handle the HS-1600. Well clip the ALLIGATOR clip of the strap to the end of the shielded wire lead from a grounded object. Put on and connect the strap before handling the HS-1600 to harmlessly discharge any static electricity through the strap.
2. Use an anti-static pad to put any components or parts or tools on the pad whenever you work on them outside the computer. You may also use the anti-static bag instead the pad. Please ask your local supplier to help up get the any anti-static requirement that you may need.

2.2 Caution on Unpacking and Before Installation

First, proceed with the steps in section 2.1 to protect the HS-1600 from electricity discharge. Refer to section 1.3 in checking the delivery package again with the following steps:

1. Unpack the HS-1600, store all packing material, manual and any diskette.
2. Is there any component missing or loosen from the board? DO NOT INSTALL IF THIS HAPPENS.
3. Is there any visual damage on the board? DO NOT INSTALL IF THIS HAPPENS.
4. Carefully check the optional parts (i.e. CPU, SRAM, DRAM, ROM-Disk etc.) and complete setting all necessary jumpers, jumper pin-set and CMOS setup correctly. Please also refer to all information on jumpers setting in this manual.
5. Carefully check all external devices (i.e. Add-On-Card, Driver Type etc.) to complete the add-in or connection and CMOS setup correctly. Please also refer to all information on the connector connections in this manual.
6. Please keep all necessary manual and diskette in a good condition for your necessary re-installation if you change your Operating System or whatever needs.

2.3 HS-1600's Layout



2.4 Quick Listing of Jumpers and Connectors

PC1	✍ Mini PCI Slot	✍P.26
J1	✍ Reset	✍P.15
J2	✍ TDM Debug connector	
JP1	✍ Panel Voltage select	✍P.12
JP2	✍ COM2 RS-232/422/485 select	✍P.19
JP3	✍ AUX In connector	✍P.15
JP4	✍ COM2 Enabled/Disable select	✍P.19
JP5	✍ AUX In	✍P.15
JP6	✍ Audio Out	✍P.15
CN1	✍ USB	✍P.25
CN2	✍ Keyboard/Mouse connector	✍P.21
CN3	✍ VGA connector	✍P.24
CN4	✍ Clean CMOS	✍P.12
CN7	✍ IDE connector	✍P.16
CN8	✍ Parallel Port	✍P.17
CN9	✍ 2-pin Single +5V Power In	✍P.14
CN10	✍ RS-422/485 serial port connector	✍P.19
CN11	✍ FPC Connector (FDD)	✍P.18
CN12	✍ LCD Panel connector	✍P.22
CN13	✍ COM1~COM4	✍P.19
CN14	✍ 100 Based LAN connector	✍P.25
CN15	✍ IrDA	✍P.24

2.5 Jumper Setting Description

A jumper pin-set is **ON** as a shorted circuit with a plastic cap inserted over two pins. A jumper pin-set is **OFF** as an open circuit with a plastic cap inserted over one or no pin(s) between pins. Figure 2.2 shows examples of different jumper pin-set settings as **ON** or **OFF** in this manual.

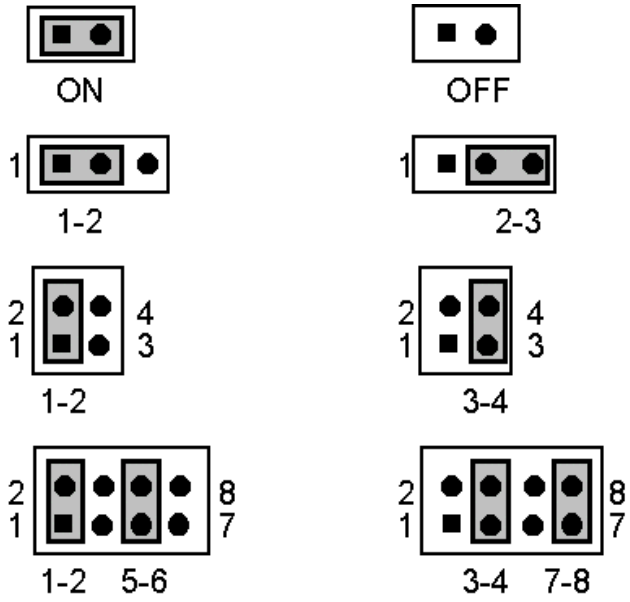


Figure 2.2

All jumper pin-set has its default setting with the plastic cap inserted as ON, or without the plastic cap inserted as OFF. The default settings are referred to in this manual with a " * " symbol in front of the selected item.

2.6 CMOS Clean

The HS-1600 provides CMOS Clean Function

✍ **CN4：Clean CMOS**

Function	CN4
CMOS Backup	**1-2**
CMOS Clear	2-3

2.7 System Memory DRAM

The HS-1600 provides one SODIMM socket that meets PC-100 specifications. The maximum capacity of the on board memory is 256MB.

The memory size of the HS-1600 should be designated in the EPROM. Therefore, please indicate to the supplier of the memory size you plan to use, whether it is 32M, 64M, 128M, or 256M.

2.8 Setting the Flat Panel Voltage

The HS-1600 provides a setting for the selection of the working voltage of individual flat panel by JP1 setting as follows:

✍ **Flat Panel Voltage Selecting of JP1:**

Panel' s Working Voltage	JP1
5.0 V	1-2
3.3 V	***2-3**

Please contact your flat panel supplier to make sure a correct Panel' s Working Voltage. Any mistake could damage your flat panel.

2.9 DiskOnChip?

The HS-1600 provides a U13 socket to install the DiskOnChip? module.

The D.O.C. function allows the system to work without using FDD or HDD. D.O.C. may be formatted as drive C: or drive A:. Users may also use DOS commands s uch as FORMAT, SYS, COPY, XCOPY, DISCOPY and DISKCOMP etc. This means that D.O.C. may be used as drive A if the system works without FDD-A for ambient application. Please contact your supplier for the different sizes of D.O.C. module available.

2.10 Watchdog Timer

HS-1600 provides WDT functions of 10 seconds. Enable WDT in the 443H location. If there is no Read function in 10 seconds, the system will reset. To remove this function, use a software to read the 45H location.

Chapter-3

Connection

This chapter gives all the necessary information for peripheral connections, switches and indicators.

3.1 Power and FAN Connectors

The HS-1600 provides one 2pin DC-Power connector, CN9. The pin information is as follows.

CN9 : 2pin Power In Connector

PIN NO.	Description
1	VCC(+5V)
2	GND

3.2 Reset Button

The HS-1600 has one Reset Button connection with JP1

✍ **JP1 : Reset Button**

PIN NO.	Description
1	Reset Single
2	GND

3.3 Audio Setting

The sound function of HS-1600 is provided by the Solo1 sound chip。JP8 is the connector for the Audio functions mentioned below.

✍ **JP3 : LINE IN Connector**

PIN NO.	DESCRIPTION
1	LINE L
2	GND
3	LINE R
4	GND

✍ **JP5 : AUX Audio Input Connector**

PIN NO.	DESCRIPTION
1	AUXAL
2	GND
3	AUXAR

✍ **JP8 : MIC/Audio Out Connector**

PIN NO.	DESCRIPTION
1	MIC In
2	Audio L
3	Audio R
4	GND

3.4 PCI E-IDE Drive Connector

The standard 44-pin header daisy-chain drive connector, CN7, has the following pin assignments. A total of two IDE drives are supported.

CN7: IDE Interface Connector

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RESET	2	GROUND
3	DATA 7	4	DATA 8
5	DATA 6	6	DATA 9
7	DATA 5	8	DATA 10
9	DATA 4	10	DATA 11
11	DATA 3	12	DATA 12
13	DATA 2	14	DATA 13
15	DATA 1	16	DATA 14
17	DATA 0	18	DATA 15
19	GROUND	20	N/C
21	N/C	22	GROUND
23	IOW#	24	GROUND
25	IOR#	26	GROUND
27	N/C	28	BALE - DEFAULT
29	N/C	30	GROUND# -DEFAULT
31	INTERRUPT	32	IOCS16#-DEFAULT
33	SA1	34	N/C
35	SA0	36	SA2
37	HDC CS0	38	HDC CS1#
39	HDD ACTIVE	40	GROUND
41	VCC	42	VCC
43	GROUND	44	VCC

3.5Parallel Port Connector

The standard 26-pin flat cable drive connector, CN8, has the following pin assignments.

CN8: Parallel Port Connector

PIN NO.	Description	PIN NO.	Description
1	STROBE	2	DATA 0
3	DATA 1	4	DATA 2
5	DATA 3	6	DATA 4
7	DATA 5	8	DATA 6
9	DATA 7	10	ACKNOWLEDGE
11	BUSY	12	PAPER EMPTY
13	PRINTER SELECT	14	AUTO FORM FEED
15	ERROR#	16	INITIALIZE
17	PRINTER SELECT LN#	18	GROUND
19	GROUND	20	GROUND
21	GROUND	22	GROUND
23	GROUND	24	GROUND
25	GROUND	26	GROUND

3.6 The Floppy Disk Drive Connector

The standard 26-pin FDC connector, CN11, has the following pin assignments.

CN11 : FDD CONNECTOR

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DISK SELECT 1	2	GND
3	Read Data#	4	GND
5	Write Protect#	6	N.C.
7	Track0#	8	N.C.
9	Wgate#	10	GND
11	Write Data#	12	GND
13	Step#	14	N.C.
15	Direction#	16	N.C.
17	Motor Enable0	18	N.C.
19	N.C.	20	N.C.
21	Disk Change#	22	VCC
23	Driver0	24	VCC
25	Index#	26	VCC

3.7 Serial Ports Connectors

The HS-1600 offers four high speed NS16C550 compatible UART with Read/Receive 16 byte FIFO serial ports.

COM2 can be selected as RS-232 RS-422/485. Refer to the table below.

JP2 : RS-232/422/485 Select

JP2	Description
1-2	RS-232
2-3	RS-422/485

JP4 : COM2 RS-232 Enable/Disable Select

JP4	COM2
OFF	RS-232 Enable
ON	RS-232 Disable

CN10 : RS-422/485 Single

CN10	Single
1	TX2+
2	TX2-
3	RX2+
4	RX2-

CN13 : RS-232 Single (COM1~COM4)

CN13	Description	CN13	Description
1	DCD1	21	DCD3
2	DSR1	22	DSR3
3	RX1	23	RX3
4	RTS1	24	RTS3
5	TX1	25	TX3
6	CTS1	26	CTS3
7	DTR1	27	DTR3
8	RI1	28	RI3
9	GND	29	GND
10	NC	30	NC
11	DCD2	31	DCD4
12	DSR2	32	DSR4
13	RX2	33	RX4
14	RTS2	34	RTS4
15	TX2	35	TX4
16	CTS2	36	CTS4
17	DTR2	37	DTR4
18	RI2	38	RI4
19	GND	39	GND
20	NC	40	NC

3.8 Keyboard/Mouse Connectors

The HS-1600 offers two possibilities for PS/2 Keyboard/Mouse connections to an internal 6-pin SMD type connector, CN2.

CN2 : 6-pin Keyboard/Mouse Connector

PIN NO.	Description
1	GND
2	VCC
3	Mouse Data
4	Mouse CLK
5	Keyboard Data
6	Keyboard CLK

3.9 VGA CRT and LCD Connectors

The HS-1600 provides two possible connections for the VGA. The 10-pin external VGA connector, CN3 and the internal 40-pin header for the LCD Panel connector, CN12, provide these functions.

CN12 : 40-pin Internal LCD Panel Connector

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	N.C.	2	N.C.
3	Ground	4	Ground
5	3.3V / 5V Note-1	6	ENAVDD
7	ENAVEE	8	Ground
9	P0	10	P1
11	P2	12	P3
13	P4	14	P5
15	P6	16	P7
17	P8	18	P9
19	P10	20	P11
21	P12	22	P13
23	P14	24	P15
25	P16	26	P17
27	P18	28	P19
29	P20	30	P21
31	P22	32	P23
33	P24	34	P25
35	SHFCLK	36	FP
37	M	38	LP
39	Ground	40	ENABKL

Note-1: Please set the voltage correctly for individual panels with JP1

Flat Panel Display Interface

HS-1600		Mono	Mono	Mono	Color	Color	Color	Color	Color	Color	Color	Color	Color	Color
		SS	DD	DD	TFT	TFT	TFT	TFT	STN-HR	STN-SS	STN-SS	STN-DD	STN-DD	STN-DD
PIN #	Pin Name	8-bit	8-bit	16-bit	9/12/16 bit	18 bit	18/24 bit	36-bit	18/24 bit	8-bit (4bP)	16-bit (4bP)	8-bit (4bP)	16-bit (4bP)	24-bit
9	P0	D0	UD3	UD7	B0		B0	FB0	FB0	R1	R1	UR1	UR0	UR0
10	P1	D1	UD2	UD6	B1		B1	FB1	FB1	B1	G1	UG1	UG0	UG0
11	P2	D2	UD1	UD5	B2	B0	B2	FB2	FB2	G2	B1	UB1	UB0	UB0
12	P3	D3	UD0	UD4	B3	B1	B3	FB3	FB3	R3	R2	UR2	UR1	LR0
13	P4	D4	UD3	UD3	B4	B2	B4	FB4	SB0	B3	G2	LR1	UR0	LG0
14	P5	D5	UD2	UD2	G0	B3	B5	FB5	SB1	G4	B2	LG1	LG0	LB0
15	P6	D6	UD1	UD1	G1	B4	B6	SB0	SB2	R5	R3	LB1	LB0	UR1
16	P7	D7	UD0	UD0	G2	B5	B7	SB1	SB3	B5	G3	LR2	LR1	UG1
17	P8			UD7	G3		G0	SB2	FG0		B3		UG1	UB1
18	P9			UD6	G4		G1	SB3	FG1		R4		UB1	LR1
19	P10			UD5	G5	G0	G2	SB4	FG2		G4		UR2	LG1
20	P11			UD4	R0	G1	G3	SB5	FG3		B4		UG2	LB1
21	P12			UD3	R1	G2	G4	FG0	SG0		R5		LG1	UR2
22	P13			UD2	R2	G3	G5	FG1	SG1		G5		LB1	UG2
23	P14			UD1	R3	G4	G6	FG2	SG2		B5		LR2	UB2
24	P15			UD0	R4	G5	G7	FG3	SG3		R6		LG2	LR2
25	P16						R0	FG4	FR0					LG2
26	P17						R1	FG5	FR1					LB2
27	P18					R0	R2	SG0	FR2					UR3
28	P19					R1	R3	SG1	FR3					UG3
29	P20					R2	R4	SG2	SR0					UB3
30	P21					R3	R5	SG3	SR1					UR3
31	P22					R4	R6	SG4	SR2					LG3
32	P23					R5	R7	SG5	SR3					LB3
33	P24							FR0						
34	P25							FR1						
41	P26							FR2						
42	P27							FR3						
43	P28							FR4						
44	P29							FR5						
45	P30							SR0						
46	P31							SR1						
47	P32							SR2						
48	P33							SR3						
49	P34							SR4						
50	P35							SR5						
35	SHFCLK: Pixel clock .Shift Clock													
36	FLM.VSYNC: First line marker													
37	M: Panel AC driver control													
38	LP,DE,HSYNC: Latch pulse													
40	ENABKL: Power sequencing control for enabling the backlight.(high active)													

✍ **CN3 : 9-pin SMD VGA connector**

PIN NO.	Description	PIN NO.	Description
1	RED	2	DDC DATA
3	GND	4	DDC CLK
5	GREEN	6	HSYNC
7	GND	8	VSYNC
9	BLUE		

3.10 IR Connector

The HS-1600 provides a 5-pin internal IR communication connector, CN15. The table below shows the pin information.

✍ **CN15 : 5-pin IR Connector**

PIN NO.	Description
1	VCC
2	N.C.
3	IRRX
4	GND
5	IRTX

3.11 USB Ports Connector

The HS-1600 provides two internal 8-pin USB ports connectors. Please refer to the following for the pin information.

CN1: 8-pin Header USB Connector

NO.	CN14	PIN NO.	CN14
1	VCC	5	GND
2	BD0-	6	BD1+
3	BD0+	7	BD1-
4	GND	8	VCC

3.12 LAN Interface Connector

The HS-1600 provides one 8-pin 100 based LAN interface connector. Please refer to the following for the pin information.

CN1 : LAN Connector

PIN NO.	CN1
1	TX+
2	TX-
3	RX+
4	L/C GND
5	L/C GND
6	RX-
7	L/C GND
8	L/C GND

The HS-1600 provides two LED Indicators on board

LD1: ACTIVE LED

LD2: LINK LED

3.13 Mini PCI Connector

HS-1600 supports a Mini PCI interface which is very popular in notebook computer' s expansion interface for Modem, Video, LAN, etc. The Mini PCI' s definition is as follows.

PC1 : Mini PCI Connector Pin Information

PIN NO.	U5	PIN NO.	U5
1	INTB#	2	5V
3	3.3V	4	D#
5	RESERVED	6	RESERVED
7	GND	8	N.C.
9	CLK	10	RST#
11	GND	12	3.3V
13	REQ#	14	GNT#
15	3.3V	16	GND
17	AD[31]	18	PME#
19	AD[29]	20	RESERVED
21	GND	22	AD[30]
23	AD[27]	24	3.3V
25	AD[25]	26	AD[28]
27	RESERVED	28	AD[26]
29	C/BE[3]#	30	AD[24]
31	AD[23]	32	IDSEL
33	GND	34	GND
35	AD[21]	36	AD[22]
37	AD[19]	38	AD[20]
39	GND	40	PAR
41	AD[17]	42	AD[18]
43	C/BE[2]#	44	AD[16]
45	IRDY#	46	GND
47	3.3V	48	FRAME#
49	CLKRUN#	50	TRDY#
51	SERR#	52	STOP#
53	GND	54	3.3V
55	PERR#	56	DEVSEL#

57	C/BE[1]#	58	GND
59	AD[14]	60	AD[15]
61	GND	62	AD[13]
63	AD[12]	64	AD[11]

65	AD[10]	66	GND
67	GND	68	AD[9]
69	AD[8]	70	C/BE[0]#
71	AD[7]	72	3.3V
73	3.3V	74	AD[6]
75	AD[5]	76	AD[4]
77	RESERVED	78	AD[2]
79	AD[3]	80	AD[0]
81	5V	82	RESERVED_WIP2
83	AD[1]	84	RESERVED_WIP2
85	GND	86	GND
87	AC_SYNC	88	M66EN
89	AC_SDATA_IN	90	AC_SDATA_OUT
91	AC_BIT_CLK	92	AC_CODEC_IDO#
93	AC_CODEC_ID1#	94	AC_RESET#
95	MOD_AUDIO_MON	96	RESERVED
97	AUDIO_GND	98	GND
99	SYS_AUDIO_OUT	100	SYS_AUDIO_IN

Chapter-4

AWARD BIOS Setup

The HS-1600 uses the Award PCI/ISA BIOS for the system configuration. The Award BIOS setup program is designed to provide the maximum flexibility in configuring the system by offering various options which could be selected for end-user requirements. This chapter is written to assist you in the proper usage of these features.

To access AWARD PCI/ISA BIOS Setup program, press <Del> key. The Main Menu will be displayed at this time.

4.1 Main Menu

Once you enter the Award BIOS CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to enter the sub-menu.

CMOS SETUP UTILITY – Copyright ©1984-2001 AWARD SOFTWARE

Standard CMOS Features	Load Optimized Defaults
Advanced BIOS Features	Set Supervisor Password
Integrated Peripherals	Set User Password
Power Management Setup	Save & Exit Setup
PnP/PCI Configurations	Exit Without Saving
Load Fail-Safe Defaults	
Esc : Quit F9 :Menu in BIOS	↑↓→← : Select Item
F10 : Save & Exit Setup	

Note that a brief description of each highlighted selection appears at the bottom of the screen.

4.2 Standard CMOS Setup

The Standard Setup is used for the basic hardware system configuration. The main function is for Data/Time and Floppy/Hard Disk Drive settings. Please refer to the following screen for the setup. When the IDE hard disk drive you are using is larger than 528MB, please set the HDD mode to **LBA** mode. Please use the IDE Setup Utility in BIOS SETUP to install the HDD correctly.

CMOS SETUP UTILITY – Copyright ©1984-2001 AWARD SOFTWARE

Standard CMOS Features

Date (mm:dd:yy) Time (hh:mm:ss)	Fri, May 4 2001 11:54:20	Item Help
IDE Primary Master	[None]	
IDE Primary Slave	[None]	
Drive A	[1.44M, 3.5in.]	
LCD&CRT	[CRT]	
Halt On	[All, But Keyboard]	
Base Memory	640K	
Extended Memory	65472K	
Total Memory	1024K	

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

4.3 Advanced BIOS Features

This section allows you to configure your system for the basic operation. You have the opportunity to select the system' s default speed, boot-up sequence, keyboard operation, shadowing and security.

CMOS SETUP UTILITY – Copyright ©1984-2001 AWARD SOFTWARE

Advanced BIOS Features

Virus Warning	[Disabled]	Item Help
CPU Internal Cache	[Enabled]	
Quick Power On Self Test	[Enabled]	
First Boot Device	[Floppy]	
Second Boot Device	[HDD-0]	
Third Boot Device	[LS120]	
Boot Other Device	[Enabled]	
Swap Floppy Drive	[Enabled]	
Boot Up Floppy Seek	[Enabled]	
Boot Up NumLock Status	[On]	
Typematic Rate Setting	[Disabled]	
Security Option	[Setup]	
OS Select For DRAM > 64MB	[Non-OS2]	
Report No FDD For WIN 95	[No]	
Video BIOS Shadow	[Enabled]	
C8000-CBFFF Shadow	[Disabled]	
CC000-CFFFF Shadow	[Disabled]	
D0000-D3FFF Shadow	[Disabled]	
D4000-D7FFF Shadow	[Disabled]	
D8000-DBFFF Shadow	[Disabled]	
DC000-DFFFF Shadow	[Disabled]	
Small Logo(EPA) Show	[Enabled]	

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

4.4 Integrated Peripherals

The IDE hard drive controllers can support up to two separate hard drives. These drives have a master/slave relationship which is determined by the cabling configuration used to attach them to the controller. Your system supports two IDE controllers--a primary and a secondary--so you can install up to four separate hard disks.

PIO means Programmed Input /Output. Rather than having the BIOS issue a series of commands to affect the transfer to or from the disk drive, PIO allows the BIOS to tell the controller what it wants and then let the controller and the CPU perform the complete task by them. This is much simpler and more efficient (also faster).

CMOS SETUP UTILITY – Copyright ©1984-2001 AWARD SOFTWARE

Integrated Peripherals

OnChip IDE Channel0	[Enabled]	Item Help
IDE Prefetch Mode	[Enabled]	
Primary Master PIO	[Auto]	
Primary Slave PIO	[Auto]	
Primary Master UDMA	[Auto]	
Primary Slave UDMA	[Auto]	
OnChip USB	[Enabled]	
USB Keyboard Support	[Disabled]	
LCD Panel Type	[Panel 0]	
IDE HDD Block Mode	[Enabled]	
Onboard FDD Controller	[Enabled]	
Onboard Serial Port 1	[3F8/IRQ4]	
Onboard Serial Port 2	[2F8/IRQ3]	
UART 2 Mode	[Standard]	
Onboard Parallel Port	[378/IRQ7]	
Onboard Parallel Mode	[Normal]	
ECP Mode Use DMA	[3]	
Parallel Port EPP Type	[EPP1.9]	
Onboard Serial Port 3	[3E8]	
Serial Port 3 Use IRQ	[IRQ10]	
Onboard Serial Port 4	[2E8]	
Serial Port 4 Use IRQ	[IRQ11]	

Panel#	Panel Type
0	1024*768 Dual Scan STN Color Panel
1	128*1024 TFT Color Panel
2	640*480 Dual Scan STN Color Panel
3	800*600 Dual Scan STN Color Panel
4	640*480 Sharp TFT Color Panel
5	640*480 18-bit TFT Color Panel
6	1024*768 TFT Color Panel
7	800*600 TFT Color Panel
8	800*600 TFT Color Panel (Large BIOS ONLY)
9	800*600 TFT Color Panel (Large BIOS ONLY)
10	800*600 Dual Scan STN Color Panel (Large BIOS ONLY)
11	800*600 Dual Scan STN Color Panel (Large BIOS ONLY)
12	1024*768 TFT Color Panel (Large BIOS ONLY)
13	1280*1024 Dual Scan STN Color Panel (Large BIOS ONLY)
14	1024*600 Dual Scan STN Color Panel (Lange BIOS ONLY)
15	1024*600 TFT Color Panel (Lange BIOS ONLY)

4.5 Power Management Setup

The Power Management Setup allows user to configure the system for saving energy in a most effective way while operating in a manner consistent with his own style of computer use.

CMOS SETUP UTILITY – Copyright ©1984-2001 AWARD SOFTWARE

Power Management Setup

Power Management	[User Define]	Item Help
Video Off Method	[DPMS Support]	
Standby Mode	[Disabled]	
HDD Power Down	[Disabled]	
Soft-Off by PBTN	[Instant-Off]	
Wake-Up by PCI card (PME)	[Disabled]	
RI Resume	[Disabled]	
MODEM Use IRQ	[3]	
RTC Resume	[Disabled]	
IRQ Wakeup Events	[Press Enter]	
VGA	[ON]	
LPT & COM	[LPT/COM]	
HDD & FDD	[ON]	
PCI master	[ON]	

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

4.6 PnP/PCI Configuration Setup

In this section, the PnP/PCI configuration setup allows you to configure the ISA and PCI devices installed in your system by manually or auto.

CMOS SETUP UTILITY – Copyright ©1984-2001 AWARD SOFTWARE

PnP/PCI Configurations

PNP OS Installed	[Yes]	Item Help
Reset Configuration Data	[Disabled]	
Resources Controlled By	[Auto(ESCD)]	
PCI/VGA Palette Snoop	[Disabled]	
Assign IRQ For VGA	[Enabled]	
Assign IRQ For USB	[Enabled]	
INT Pin 1 Assignment	[9]	
INT Pin 2 Assignment	[5]	
INT Pin 3 Assignment	[Auto]	
INT Pin 4 Assignment	[Auto]	

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

Chapter-5

Software Utilities

This chapter the detailed information of VGA and LAN function. How to install the configuration is also included.

Section include:

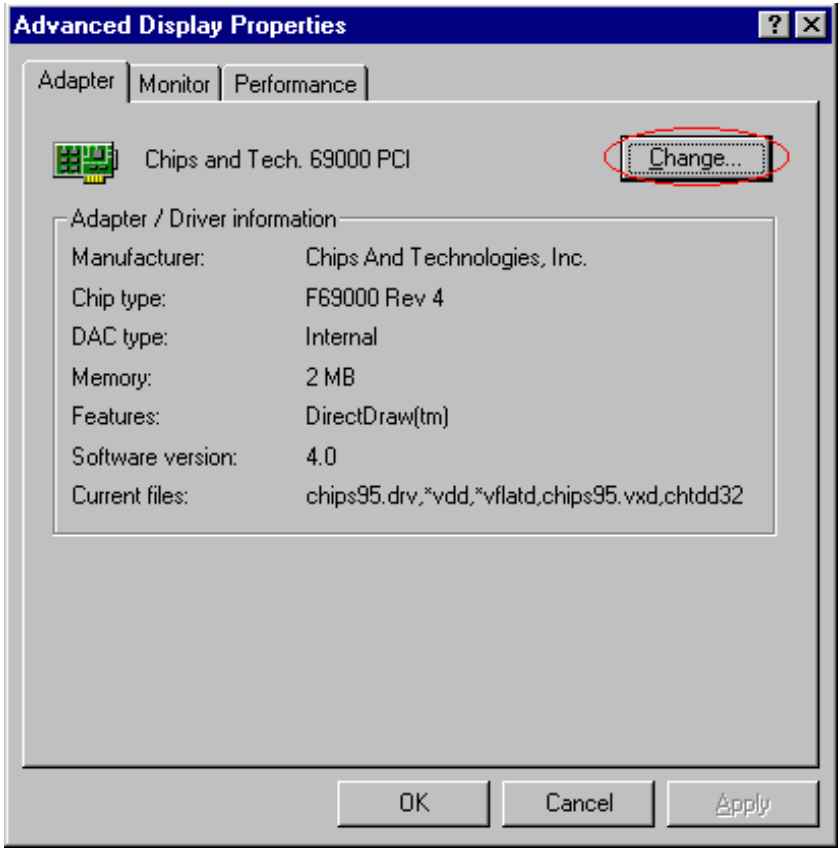
- VGA DRIVER INSTALLATION
- NETWORK DRIVER INSTALLATION
- SOUND DRIVER INSTALLATION

5.1 VGA DRIVER INSTALL FOR WIN98

1. Click Start, then Setting, then Control Panel.
2. Start the Display applet program.
3. Select the setting page, click the Advanced properties button.
4. Click the change button in the adapter area.
5. Continue to click "Next". Select Display a list of all drivers in a specific location, so you can select the drivers you want.
6. Click "Next".
7. Select the Specify a location checkbox and click "Browse".
8. Specify the path to the new driver and press the <ENTER> key.

   (if in driver A:, select a:\win98)
9. The Select device dialog box will appear.

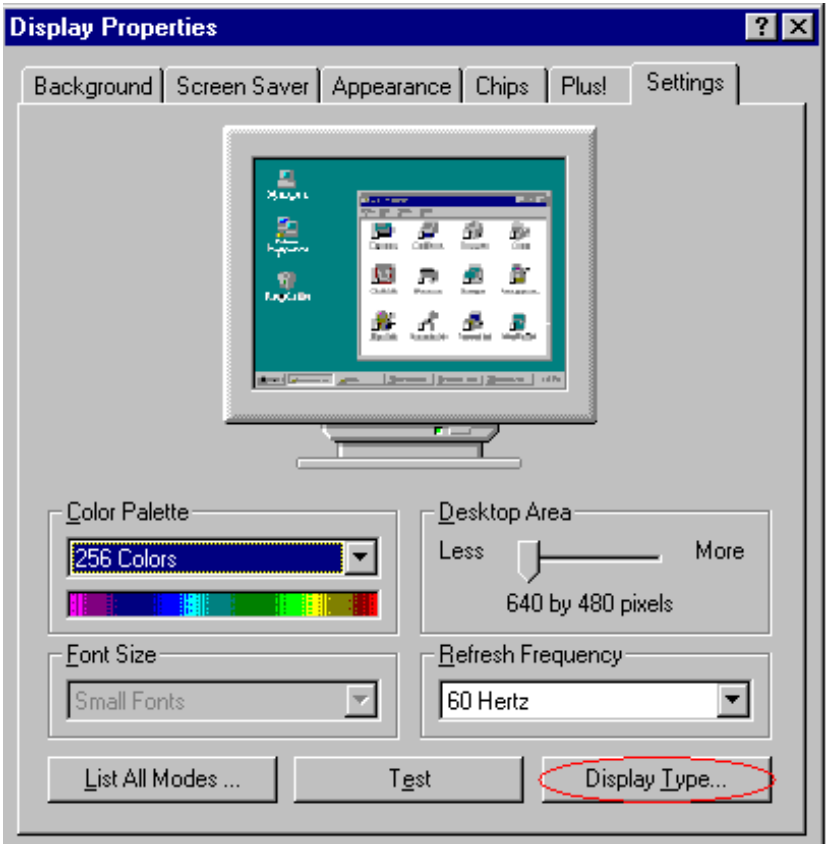
   Select Chips and Tech. 69000 PCI
10. Continue choosing close until asked to restart machine.
11. After the system has restarted, you can go back into the display applet and select alternate screen resolutions and color depths.

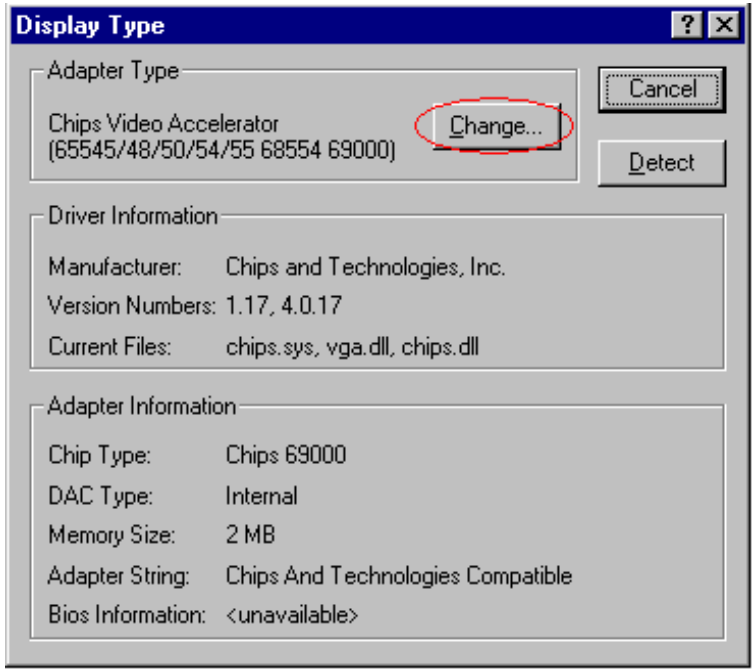

Advanced Display Properties
Adapter
Monitor
Performance
Chips and Tech. 69000 PCI
Change...
Adapter / Driver information
Manufacturer: Chips And Technologies, Inc.
Chip type: F69000 Rev 4
DAC type: Internal
Memory: 2 MB
Features: DirectDraw(tm)
Software version: 4.0
Current files: chips95.drv,*vdd,*vflatd,chips95.vxd,chtdd32
OK
Cancel
Apply

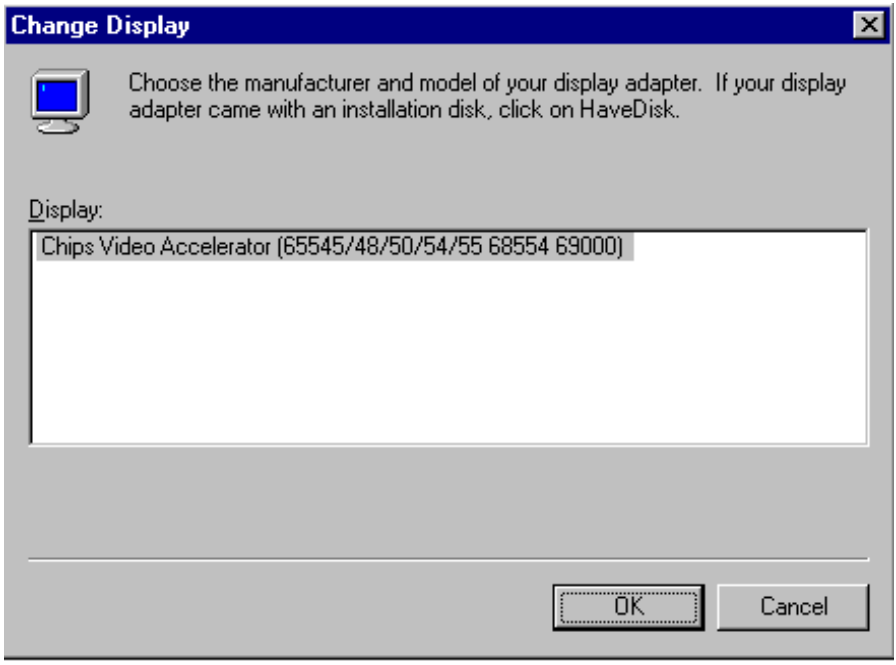
5.2 VGA DRIVER INSTALL FOR WIN NT4.0

1. Click the Start button, then go to Settings and click on Control Panel.
2. Click on Display icon to start the Display Properties window.
3. Click on the Settings tab, and then click on Display Type.
4. In the Change Display Type window, click on "Have Disk".
5. Specify the path to the new driver and press the <ENTER>key.
   (if in driver A:, type a:\nt40)

   select Chips Video Accelerator (655545/48/50/54/55/68554 69000)
6. Click OK or press Enter
7. You will then see warning panel about Third Party Drivers. Click Yes to finish the install.
8. Once the installation is complete, the system must shut down and restart for the new driver to take effect.
9. After restart, checking on the VGA driver, the properties of the driver should look similar to the following figure.


Display Properties
Background
Screen Saver
Appearance
Chips
Plus!
Settings
Color Palette
256 Colors
Desktop Area
Less
More
640 by 480 pixels
Font Size
Small Fonts
Refresh Frequency
60 Hertz
List All Modes ...
Test
Display Type...


Display Type
Adapter Type
Chips Video Accelerator
(65545/48/50/54/55 68554 69000)
Change...
Cancel
Detect
Driver Information
Manufacturer: Chips and Technologies, Inc.
Version Numbers: 1.17, 4.0.17
Current Files: chips.sys, vga.dll, chips.dll
Adapter Information
Chip Type: Chips 69000
DAC Type: Internal
Memory Size: 2 MB
Adapter String: Chips And Technologies Compatible
Bios Information: <unavailable>


Change Display
Choose the manufacturer and model of your display adapter. If your display adapter came with an installation disk, click on HaveDisk.
Display:
Chips Video Accelerator (65545/48/50/54/55 68554 69000)
OK
Cancel

5.3 NETWORK DRIVER INSTALL FOR WIN98

1. Click Start, then Settings, in the "Setting" select Control panel.
2. Start the network applet program.
3. In the Network window, click Add.
4. In the Select Network Component Type, select Adapter then click Add.
5. Specify the path the new driver and press <ENTER> key.

   (If in driver a:, type a:\)

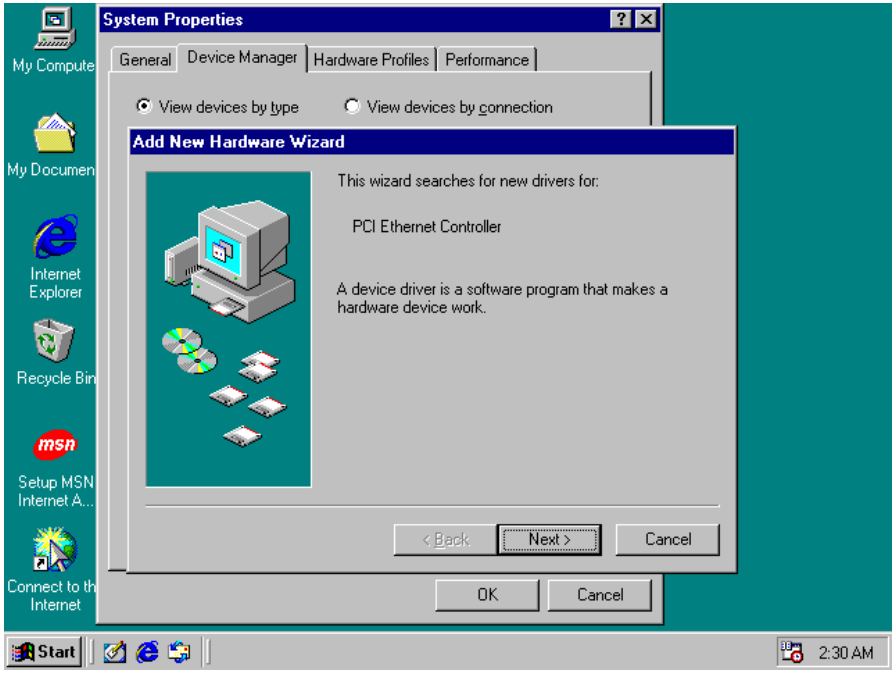
   (If you' re not sure exactly where the drivers are, choose the "Browse" button and find it)

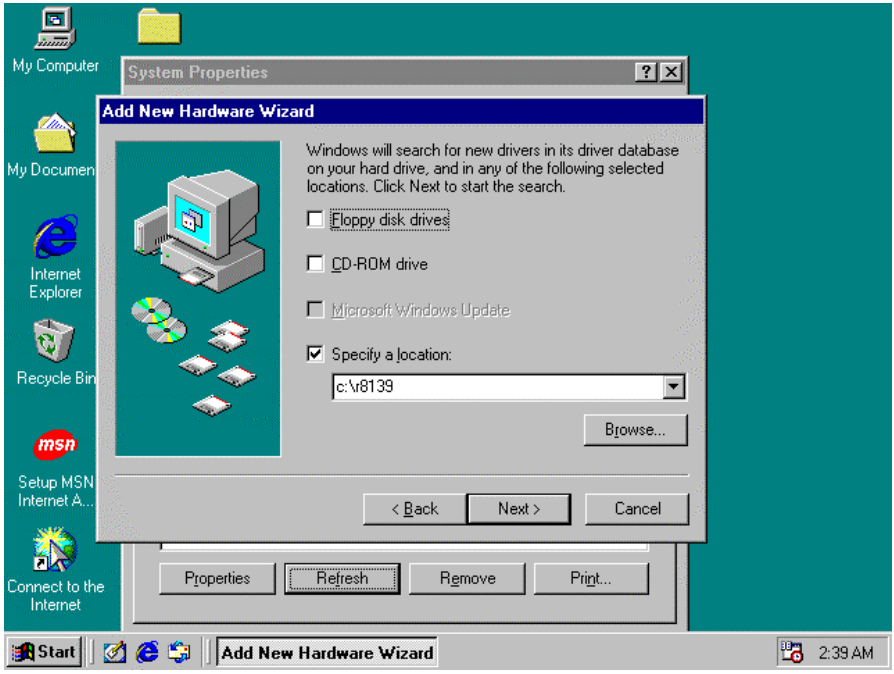
   Select RTL8139 Fast Ethernet Adapter

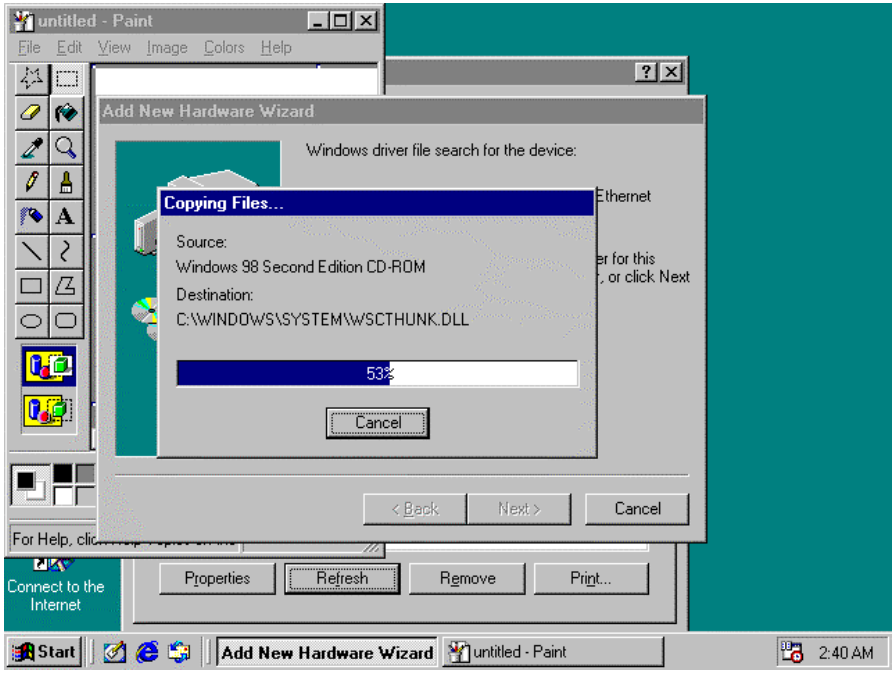
6. Click OK.
7. Windows 95 will copy the network drivers to the proper

   directories on your system.

8. Continue choosing "OK", util asked to restart your system.
9. After restarting, checking on the network driver, the Properties of the driver should look similar to the following figure.


My Compute
My Documen
Internet Explorer
Recycle Bin
Setup MSN Internet A...
Connect to th Internet
System Properties
General
Device Manager
Hardware Profiles
Performance
View devices by type
View devices by connection
Add New Hardware Wizard
This wizard searches for new drivers for:
PCI Ethernet Controller
A device driver is a software program that makes a hardware device work.
< Back
Next >
Cancel
OK
Cancel
Start
2:30 AM


My Computer
My Documen
Internet Explorer
Recycle Bin
Setup MSN Internet A...
Connect to the Internet
System Properties
Add New Hardware Wizard
Windows will search for new drivers in its driver database on your hard drive, and in any of the following selected locations. Click Next to start the search.
Floppy disk drives
CD-ROM drive
Microsoft Windows Update
Specify a location:
c:\r8139
Browse...
< Back
Next >
Cancel
Properties
Refresh
Remove
Print...
Start
Add New Hardware Wizard
2:39 AM

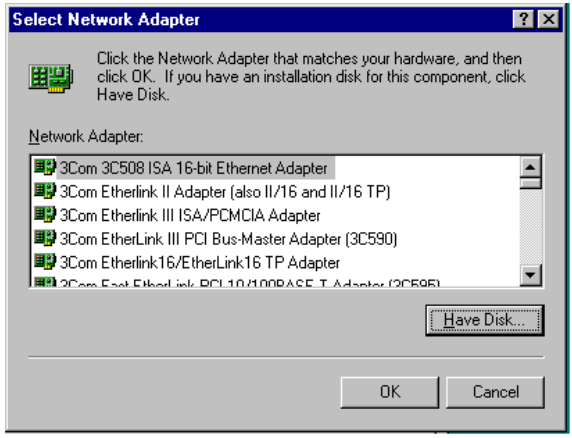

untitled - Paint
File Edit View Image Colors Help
Add New Hardware Wizard
Windows driver file search for the device:
Ethernet
Copying Files...
Source:
Windows 98 Second Edition CD-ROM
Destination:
C:\WINDOWS\SYSTEM\WSCTHUNK.DLL
53%
Cancel
< Back
Next >
Cancel
Properties
Refresh
Remove
Print...
Connect to the Internet
Start
Add New Hardware Wizard
untitled - Paint
2:40 AM

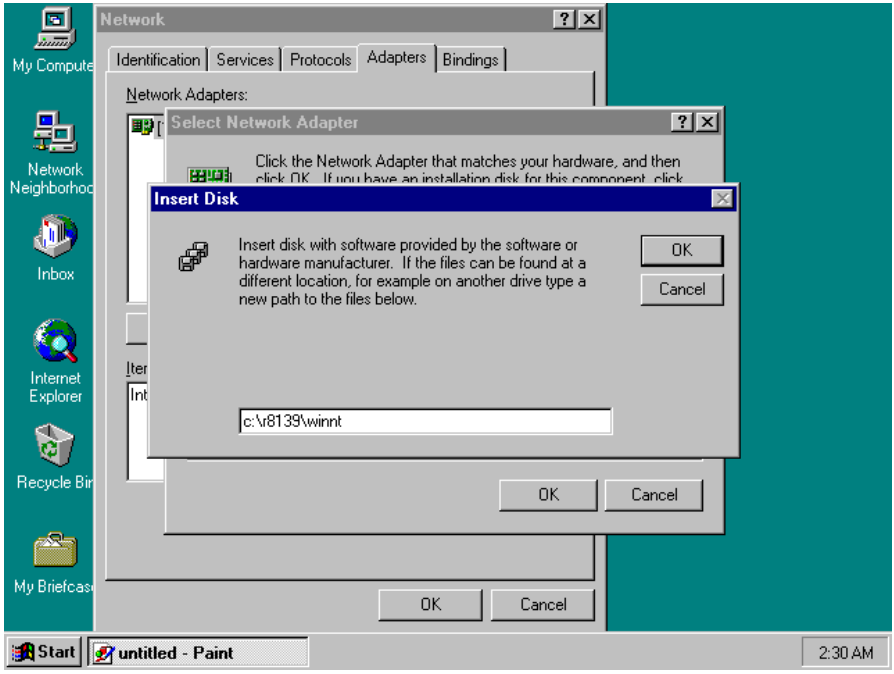
5.4 NETWORK DRIVER INSTALL FOR WIN NT4.0

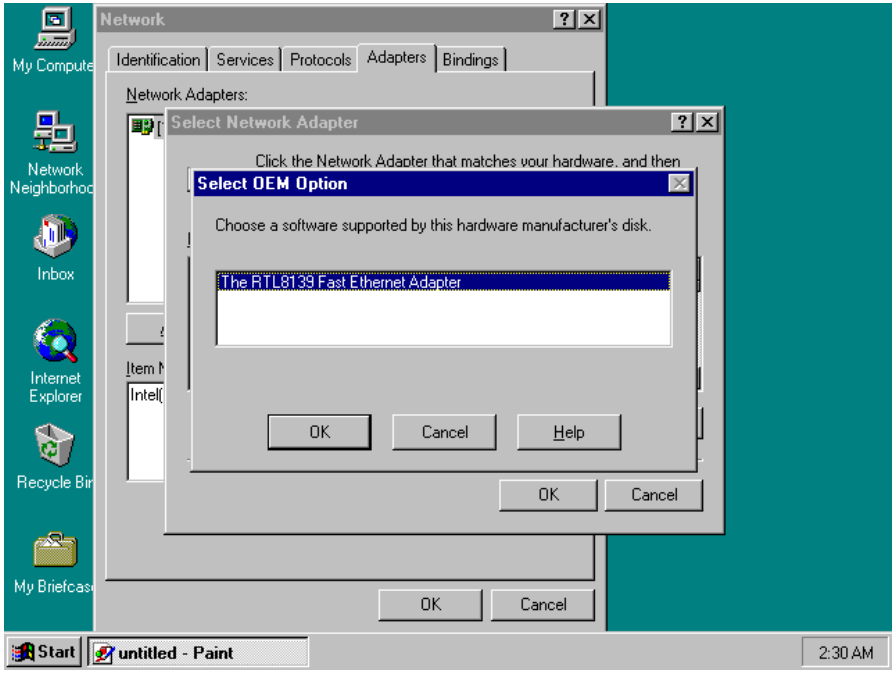
1. Click the Start button, then go to Settings and click on Control Panel.
2. Click on the Network icon to start the Network window. Click on the Adapters tab, and then click on Add.
3. In the Select Network Adapter window, click on Have Disk.
4. This will bring up the Insert Disk window.
5. Supply the directory where the Windows NT driver file are located.

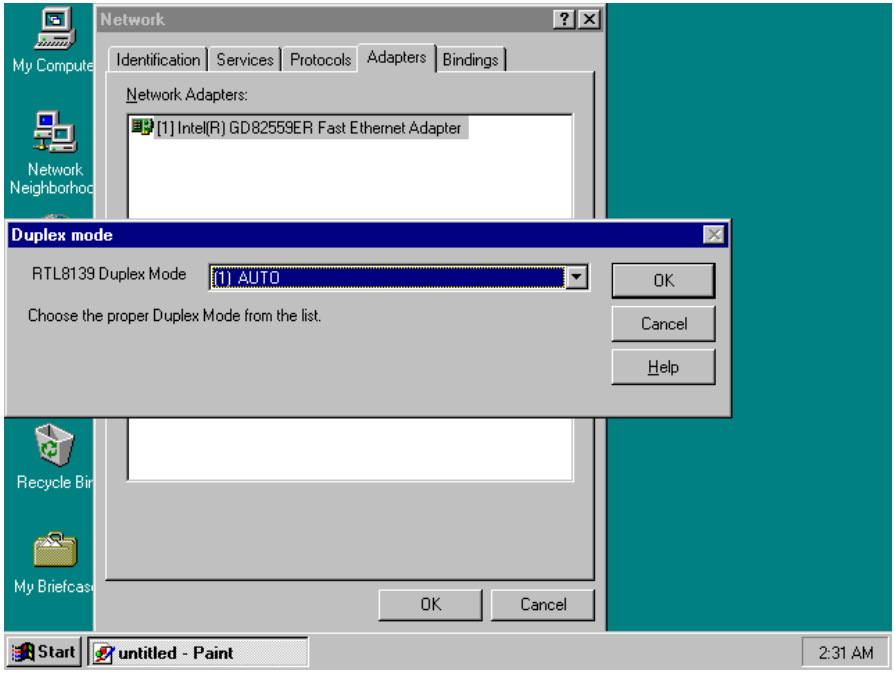
   (If in driver a:, type a:\)
6. The Select OEM Option window will show up.

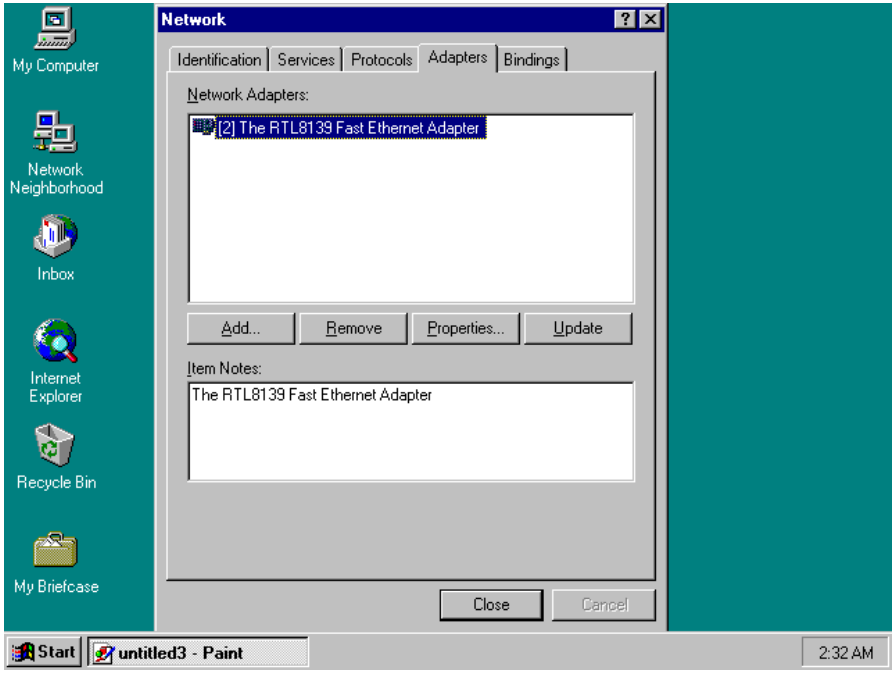
   Select RTL8139 Fast Ethernet Adapter
7. Click OK to finish the install.
8. Once the installation is complete, the system must be shut down and restarted for the new driver to take effect.
9. After restart, checking on the Network driver, the Properties of the driver should look similar figure.

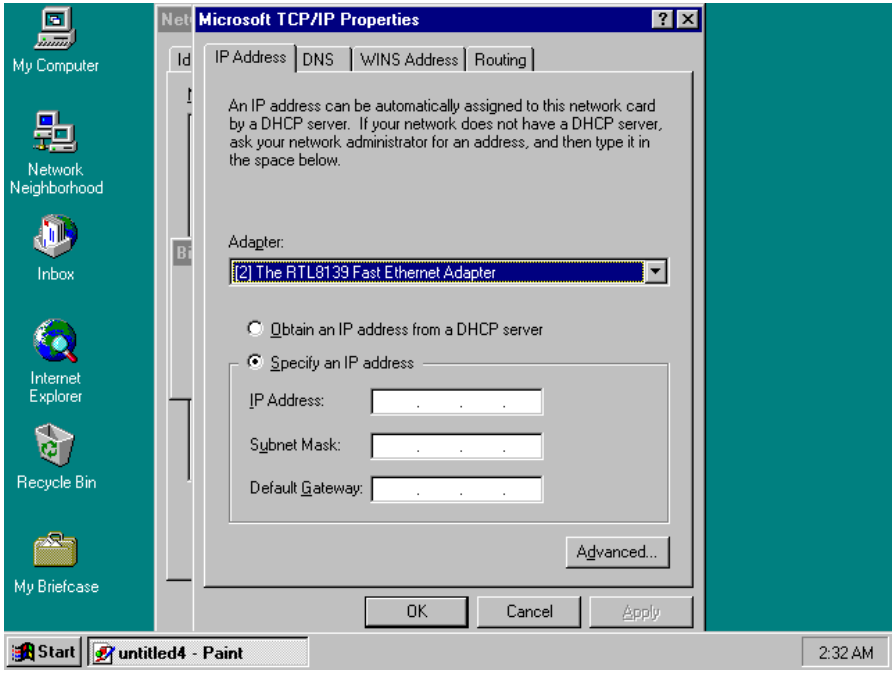

Select Network Adapter
Click the Network Adapter that matches your hardware, and then click OK. If you have an installation disk for this component, click Have Disk.
Network Adapter:
3Com 3C508 ISA 16-bit Ethernet Adapter
3Com Etherlink II Adapter (also II/16 and II/16 TP)
3Com Etherlink III ISA/PCMCIA Adapter
3Com EtherLink III PCI Bus-Master Adapter (3C590)
3Com Etherlink16/EtherLink16 TP Adapter
Have Disk...
OK
Cancel

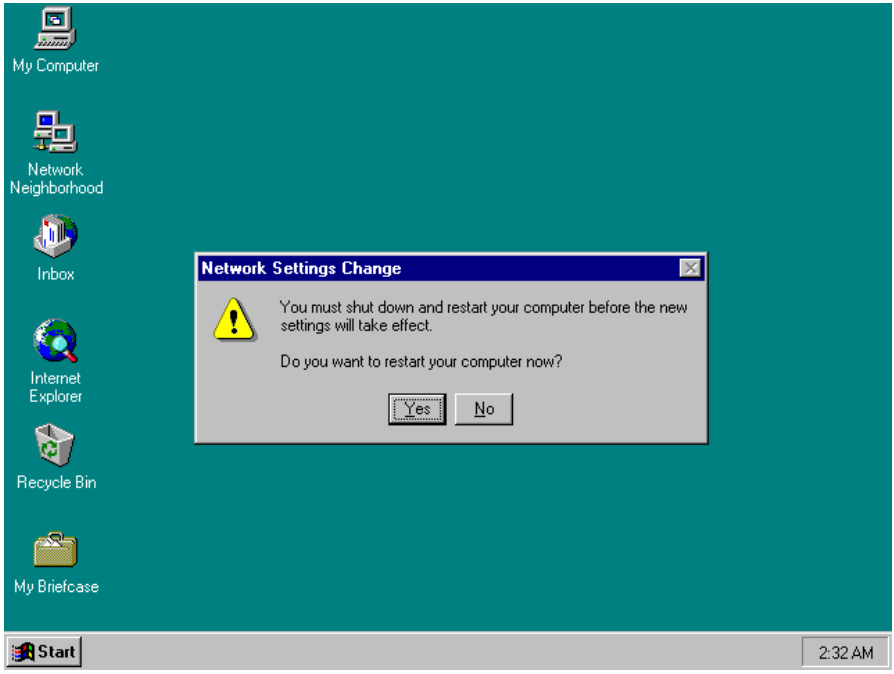

Network
Identification
Services
Protocols
Adapters
Bindings
Network Adapters:
Select Network Adapter
Click the Network Adapter that matches your hardware, and then
Insert Disk
Insert disk with software provided by the software or hardware manufacturer. If the files can be found at a different location, for example on another drive type a new path to the files below.
OK
Cancel
c:\r8139\winnt
OK
Cancel
OK
Cancel
My Compute
Network Neighborhoo
Inbox
Internet Explorer
Recycle Bir
My Briefcas
Start
untitled - Paint
2:30 AM


Network
Identification
Services
Protocols
Adapters
Bindings
Network Adapters:
Select Network Adapter
Click the Network Adapter that matches your hardware, and then
Select OEM Option
Choose a software supported by this hardware manufacturer's disk.
The RTL8139 Fast Ethernet Adapter
OK
Cancel
Help
OK
Cancel
OK
Cancel
My Compute
Network Neighborhoo
Inbox
Internet Explorer
Recycle Bir
My Briefcas
Start
untitled - Paint
2:30 AM


Network
Identification
Services
Protocols
Adapters
Bindings
Network Adapters:
[1] Intel(R) GD82559ER Fast Ethernet Adapter
Duplex mode
RTL8139 Duplex Mode
[1] AUTO
Choose the proper Duplex Mode from the list.
OK
Cancel
Help
OK
Cancel
My Compute
Network Neighborhoc
Recycle Bir
My Briefcas
Start
untitled - Paint
2:31 AM


My Computer
Network Neighborhood
Inbox
Internet Explorer
Recycle Bin
My Briefcase
Network
Identification
Services
Protocols
Adapters
Bindings
Network Adapters:
[2] The RTL8139 Fast Ethernet Adapter
Add...
Remove
Properties...
Update
Item Notes:
The RTL8139 Fast Ethernet Adapter
Close
Cancel
Start
untitled3 - Paint
2:32 AM


My Computer
Network Neighborhood
Inbox
Internet Explorer
Recycle Bin
My Briefcase
Microsoft TCP/IP Properties
IP Address
DNS
WINS Address
Routing
An IP address can be automatically assigned to this network card by a DHCP server. If your network does not have a DHCP server, ask your network administrator for an address, and then type it in the space below.
Adapter:
[2] The RTL8139 Fast Ethernet Adapter
Obtain an IP address from a DHCP server
Specify an IP address
IP Address:
Subnet Mask:
Default Gateway:
Advanced...
OK
Cancel
Apply
Start
untitled4 - Paint
2:32 AM


My Computer
Network Neighborhood
Inbox
Internet Explorer
Recycle Bin
My Briefcase
Network Settings Change
You must shut down and restart your computer before the new settings will take effect.
Do you want to restart your computer now?
Yes
No
Start
2:32 AM

5.5 SOUND DRIVER INSTALL FOR WIN98

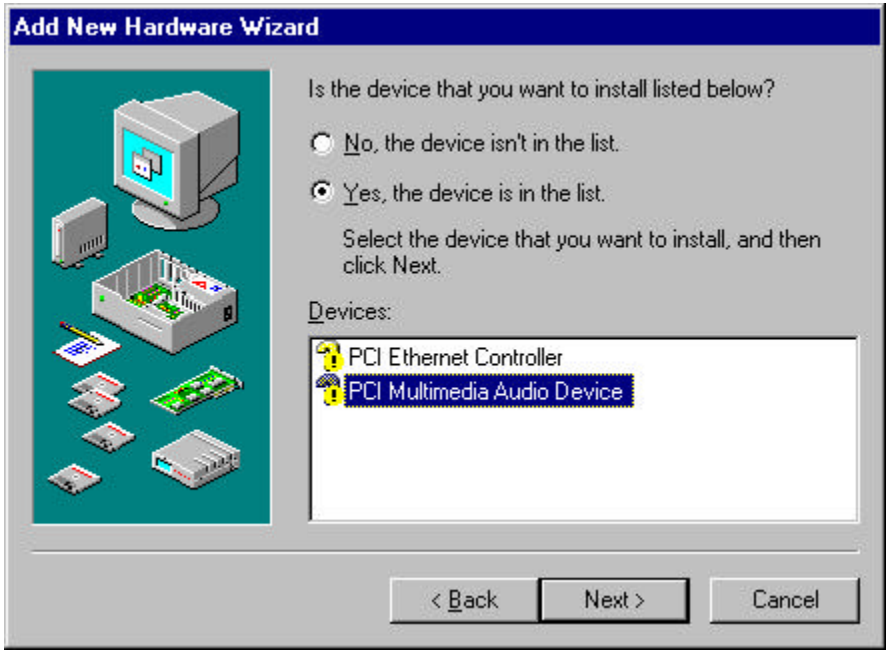
1. Click Start, then go to Setting and select Control panel.
2. Click on the Add New Hardware icon to start the applet program.
3. In the window, click "Next", choose "PCI Multimedia Audio Device", and click "Next".
4. In the Driver window, select "Update Driver" then click "Next".
5. This will bring up the Insert Disk Window.
6. Specify the path the new driver and press <ENTER> key.

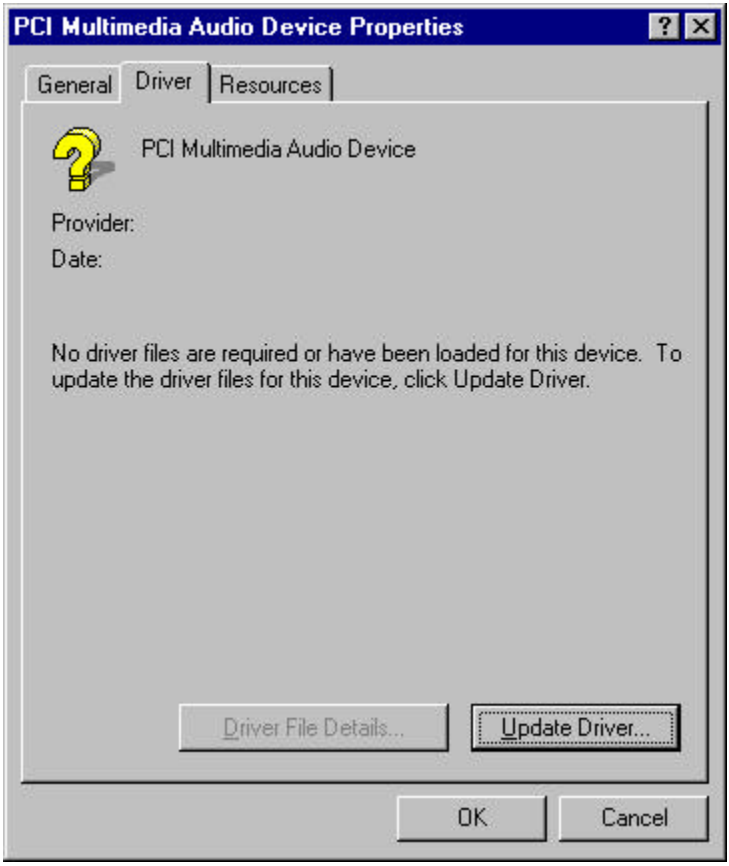
   (If in driver a:, type a:\)

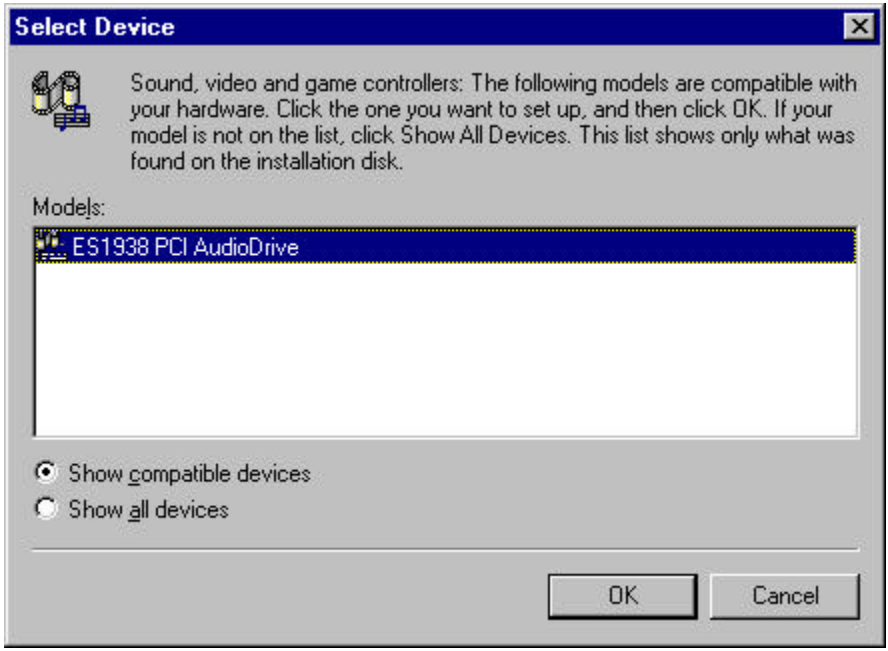
   (If you' re not sure exactly where the drivers are, choose the "Browse" button and find it)

ES1938 PCI AudioDrive

7. Click OK.
8. Windows 95 will copy the sound drivers to the proper directories on your system.
9. Continue choosing "OK", util asked to restart your system.
10. After restarting, checking on the sound driver, the Properties of the driver should look similar to the following figure.


Add New Hardware Wizard
Is the device that you want to install listed below?
No, the device isn't in the list.
Yes, the device is in the list.
Select the device that you want to install, and then click Next.
Devices:
PCI Ethernet Controller
PCI Multimedia Audio Device
< Back
Next >
Cancel


PCI Multimedia Audio Device Properties
General
Driver
Resources
PCI Multimedia Audio Device
Provider:
Date:
No driver files are required or have been loaded for this device. To update the driver files for this device, click Update Driver.
Driver File Details...
Update Driver...
OK
Cancel


Select Device
Sound, video and game controllers: 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, click Show All Devices. This list shows only what was found on the installation disk.
Models:
ES1938 PCI AudioDrive
Show compatible devices
Show all devices
OK
Cancel

5.6 SOUND DRIVER INSTALL FOR WIN NT4.0

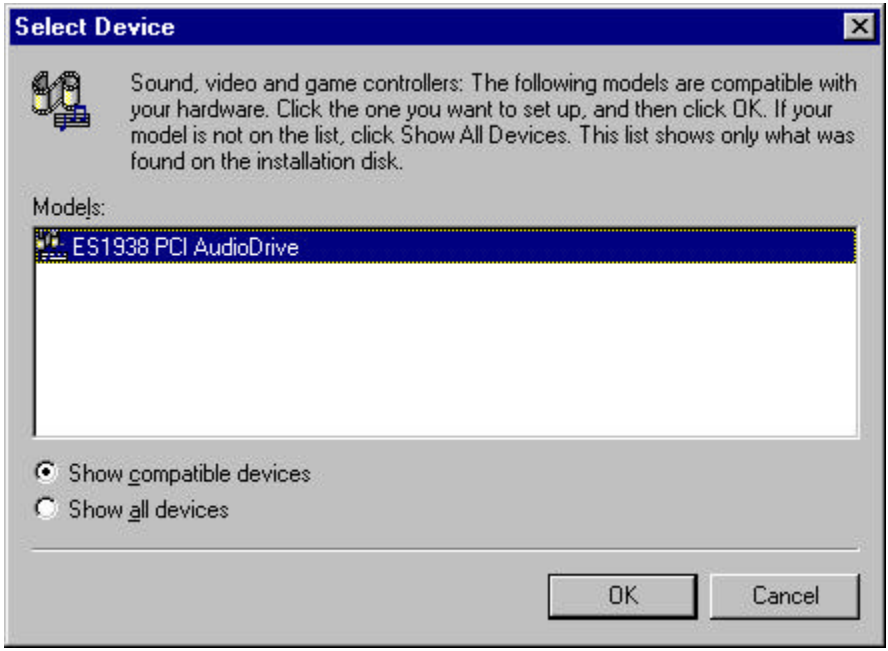
1. Click Start, then go to Setting and select Control panel.
2. Click on the Add New Hardware icon to start the applet program.
3. In the window, click "Next", choose "PCI Multimedia Audio Device", and click "Next".
4. In the Driver window, select "Update Driver" then click "Next".
5. This will bring up the Insert Disk Window.
6. Specify the path the new driver and press <ENTER> key.

   (If in driver a:, type a:\)

   (If you' re not sure exactly where the drivers are, choose the "Browse" button and find it)

   ES1938 PCI AudioDrive

7. Click OK.
8. Windows NT will copy the sound drivers to the proper directories on your system.
9. Continue choosing "OK", util asked to restart your system.
10. After restarting, checking on the sound driver, the Properties of the driver should look similar to the following figure.


Select Device
Sound, video and game controllers: 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, click Show All Devices. This list shows only what was found on the installation disk.
Models:
ES1938 PCI AudioDrive
Show compatible devices
Show all devices
OK
Cancel