HS-4705

400MHz FSB Pentium® M
Embedded Engine Board

• 400MHz FSB • DDR • PCI Slot •
• CRT/LVDS Panel • Giga LAN •
• Audio • ATA/33/66/100 • IrDA •
• USB2.0 • WDT • H/W Monitor •
• Industrial Embedded Engine Board •

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Safety Instructions

Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:

- Do not remove boards or integrated circuits from their anti-static packaging until you are ready to install them.
- Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This helps to discharge any static electricity on your body.
- Wear a wrist-grounding strap, available from most electronic component stores, when handling boards and components. Fasten the ALLIGATOR clip of the strap to the end of the shielded wire lead from a grounded object. Please wear and connect the strap before handling the HS-4705 to protect yourself from the discharge of any static electricity through the strap.
- Please use an anti-static pad when putting down any components or parts or tools outside the computer. You may also use an anti-static bag instead of the pad. Please inquire from your local supplier for additional assistance in finding the necessary anti-static gadgets.

NOTE: *DO NOT TOUCH THE BOARD OR ANY OTHER SENSITIVE COMPONENT WITHOUT ALL NECESSARY ANTI-STATIC PROTECTION.*

Chapter 1

General Description

The HS-4705 is an Intel® 82855GME/ICH4 chipset-based board designed for PCI Bus PGA 479 Intel® Pentium® M 1.2~1.7GHz CPU compatibility. These features combine and make the HS-4705 an ideal all-in-one industrial single board computer. Additional features include and enhanced I/O with CRT/LVDS Panel, Giga LAN, audio and USB2.0 ports interface.

Its onboard ATA/33/66/100 to IDE drive interface architecture allows the HS-4705 to support data transfers of 33, 66 or 100MB/sec. to each IDE drive connection. Designed with the Intel® 82855GME/ICH4 core logic chipset, the board supports all PGA 479 Pentium® M CPU series operating 1.2~1.7GHz. The display controller is Intel® 82855GME supporting CRT display up to 1600 x 1200, and also provides 24-bit single channel LVDS panel interface.

System memory is also sufficient with one DDR socket that can support up to 1GB.

Additional onboard connectors include an advanced USB2.0 port providing faster data transmission, and one RJ-45 connector for 10/100 Base-TX Ethernet use.

1.1 Major Features

The HS-4705 comes with the following features:

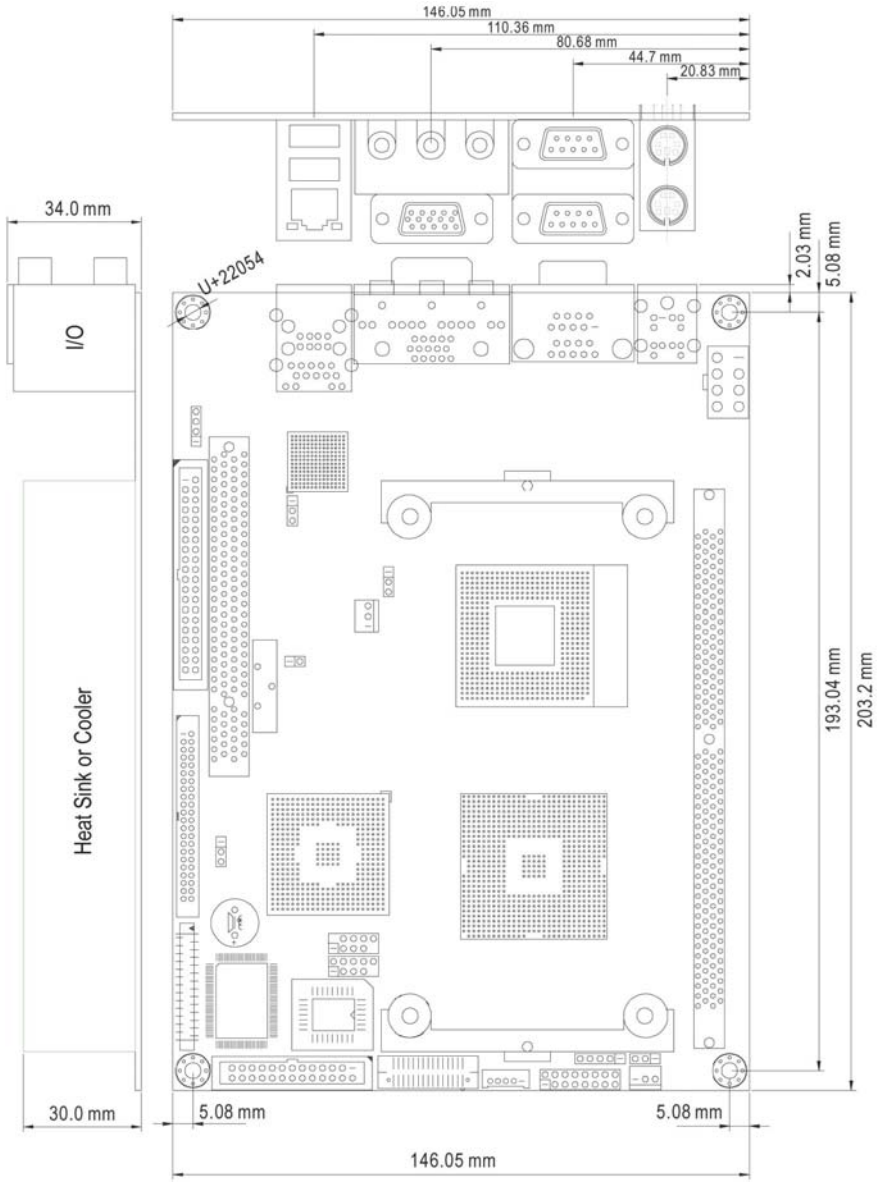
- PGA 479 for Intel® Pentium® M 1.2~1.7GHz
- Supports 400MHz FSB
- One DDR socket with a max. capacity of 1GB
- Intel® 82855GME/ICH4 system chipset
- Winbond W83627HF super I/O chipset
- Intel 82855GME CRT display controller
- Intel 82540 100/1000 Based LAN
- AC97 3D audio controller
- Fast PCI ATA/33/66/100 IDE controller
- Two COM, six USB2.0 connectors
- Supports LVDS Panel interface
- Supports Hardware Monitor function

1.2 Specifications

- **CPU:** PGA 479 for Intel® Pentium® M 1.2~1.7GHz
- **Bus Interface:** PCI Bus
- **Front Side Bus:** Supports 400MHz FSB
- **Memory:** One DDR socket supporting up to 1GB (DDR-200/DDR-266)
- **Chipset:** Intel® 82855GME/ICH4
- **I/O Chipset:** Winbond W83627HF
- **PCI Slot:** One standard PCI slot
- **VGA:** Intel 82855GME supporting CRT display up to 1600 x 1200
- **Panel Display:** Supports 24-bit single channel LVDS Panel interface
- **LAN:** Intel® 82540 100/1000 Based LAN
- **Audio:** AC97 3D audio controller
- **IDE:** Four IDE disk drives supporting ATA/33/66/100 and with transfer rates of up to 33/66/100MB/sec.
- **FDD:** Supports one slim floppy disk drive

- **Parallel:** One enhanced bi-directional parallel port supporting SPP/ECP/EPP
- **Serial Port:** 16C550 UART-compatible RS-232 x 2 serial ports with 16-byte FIFO
- **IrDA:** One TX/RX IrDA header
- **USB:** Supports six USB2.0 connectors
- **Keyboard/Mouse:** PS/2 6-pin Mini DIN
- **BIOS:** Award PnP Flash BIOS
- **Watchdog Timer:** Software program time-out intervals from 1~256 sec.
- **CMOS:** Battery backup
- **Power Connector:** One 8-pin +5V/+12V ATX power connector
- **Temperature:** 0~60°C (operating); -20~+80°C (storage)
- **Humidity:** 10~90%; non-condensing (operating)
- **Hardware Monitor:** Winbond W83627HF
- **Board Size:** 20.3 x 14.6 cm

1.3 Board Dimensions



Chapter 2

Unpacking

2.1 Opening the Delivery Package

The HS-4705 is packed in an anti-static bag. The board has components that are easily damaged by static electricity. Do not remove the anti-static wrapping until proper precautions have been taken. Safety Instructions in front of this manual describe anti-static precautions and procedures.

2.2 Inspection

After unpacking the board, place it on a raised surface and carefully inspect the board for any damage that might have occurred during shipment. Ground the board and exercise extreme care to prevent damage to the board from static electricity.

Integrated circuits will sometimes come out of their sockets during shipment. Examine all integrated circuits, particularly the BIOS, processor, memory modules, and keyboard controller chip to ensure that they are firmly seated. The HS-4705 delivery package contains the following items:

- **HS-4705 Board x 1**
- **Utility CD Disk x 1**
- **ATA/66/100 IDE flat cable**
- **Parallel flat cable x 1**
- **USB2.0 cable**
- **ATX power cable**
- **Low Profile Heatsink with Fan**
- **User's Manual**

It is recommended that you keep all the parts of the delivery package intact and store them in a safe/dry place for any unforeseen event requiring the returned shipment of the product. In case you discover anything missing and/or damaged items from the list of items, please contact your dealer immediately.

Chapter 3

Hardware Installation

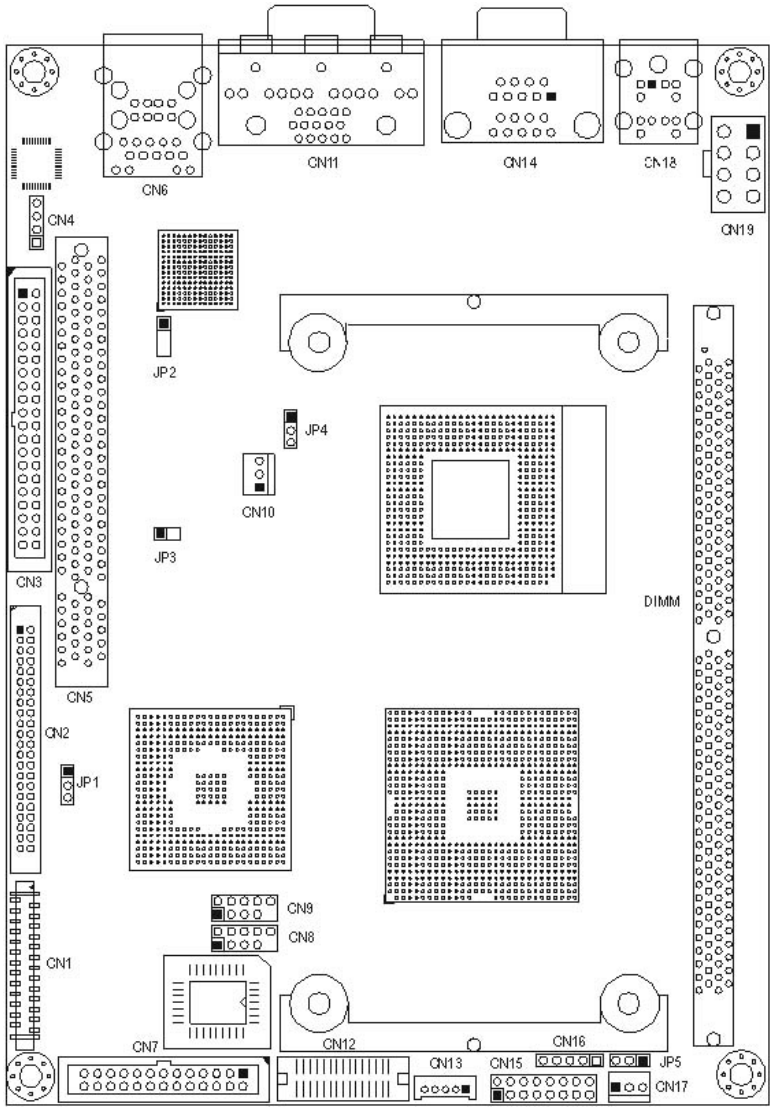
This chapter provides the information on how to install the hardware using the HS-4705. This chapter also contains information related to jumper settings of switch, watchdog timer selection, etc.

3.1 Before Installation

After confirming your package contents, you are now ready to install your hardware. The following are important reminders and steps to take before you begin with your installation process.

1. Make sure that all jumper settings match their default settings and CMOS setup correctly. Refer to the sections on this chapter for the default settings of each jumper.
2. Go through the connections of all external devices and make sure that they are installed properly and configured correctly within the CMOS setup. Refer to the sections in this chapter for the detailed information on the connectors.
3. Keep the manual and diskette in good condition for future reference and use.

3.2 Board Layout



3.3 Jumper List

Jumper	Default Setting	Setting	Page
JP1	Clear CMOS Select: *Normal Operation*	Short 1-2	17
JP2	Watchdog Timer Select: *Reset*	Short 2-3	19
JP3	Bus Clock Rate Select: *400MHz FSB*	Short 1-2	10
JP4	Fan1 Voltage Select: *+12V*	Short 1-2	17
JP5	Fan1 Voltage Select: *+12V*	Short 1-2	17

3.4 Connector List

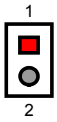
Connector	Definition	Page
CN1	Slim FDD Connector	14
CN2	Secondary IDE Connector	11
CN3	Primary IDE Connector	11
CN4	CD-In Connector	19
CN6	RJ-45 & USB 0/USB 1 Connectors	16/16
CN7	Parallel Connector	15
CN8	USB 4/USB 5 Connector	16
CN9	USB 2/USB 3 Connector	16
CN10	Fan1 Power Connector	17
CN11	CRT & Audio Connectors	10/19
CN12	24-bit LVDS Panel Connector	10
CN13	LVDS Power Connector	10
CN14	COM 1 & COM 2 Connectors	15
CN15	System Front Panel Connector	18
CN16	IrDA Connector	19
CN17	Fan2 Power Connector	17
CN18	PS/2 6-pin Mini DIN KB/MS Connector	18
CN19	8-pin ATX Power Connector	17
DIMM1	184-pin DDR Socket	10

3.5 Configuring the CPU

The HS-4705 offers the convenience in CPU installation with its auto-detect feature. After installing a new microprocessor onboard, the HS-4705 automatically identifies the frequency and clock speed of the installed microprocessor chip, thereby eliminating the need for user to do additional CPU configuration or hardware settings related to it.

- **JP3: Bus Clock Rate Select**

Options	Settings
400MHz FSB (default)	Short 1-2
533MHz FSB	Open 1-2



3.6 System Memory

The HS-4705 provides one DDR socket at location *DIMM1*. The maximum capacity of the onboard memory is 1GB.

3.7 VGA Controller

NOTE 1: *HS-4705 does not support DSTN/STN Panel.*

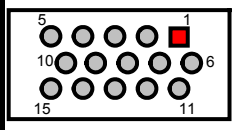
NOTE 2: *HS-4705 does not support 640 x 480 TFT Panel.*

NOTE 3: *There are specific panel cable and inverter for each different LCD. If customers need other LCDs (different from TOSHIBA LTM10C348F), please contact your sale representatives.*

The onboard Intel 82845GME supports CRT display up to 1600 x 1200. The HS-4705 provides two connection methods of CRT and LVDS Panel device. *CN11* offers a CRT connector, and *CN12* offers 24-bit single channel LVDS Panel connectors.

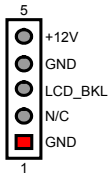
- **CN11: CRT Connector**

PIN	Description	PIN	Description
1	Red	2	Green
3	Blue	4	N/C
5	GND	6	GND
7	GND	8	GND
9	VCC	10	GND
11	N/C	12	DDDATA
13	HSYNC	14	VSYNC
15	DDCLK		



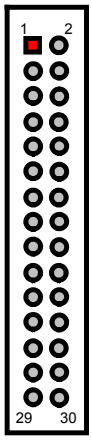
- **CN13: LVDS Power Connector**

PIN.	Description
1	GND
2	N/C
3	LCD_BKL
4	GND
5	+12V



- **CN12: 24-bit LVDS Connector**

PIN	Description	PIN	Description
1	LVDS_YAM0	2	LVDS_YAM1
3	LVDS_YAP0	4	LVDS_YAP1
5	GND	6	GND
7	GND	8	GND
9	LVDS_YAM2	10	LVDS_CLKAM
11	LVDS_YAP2	12	LVDS_CLKAP
13	GND	14	GND
15	GND	16	GND
17	LVDS_YAM3	18	GND
19	LVDS_YAP3	20	GND
21	GND	22	GND
23	GND	24	GND
25	VCC	26	VCC
27	VCC	28	VCC
29	VCC	30	VCC

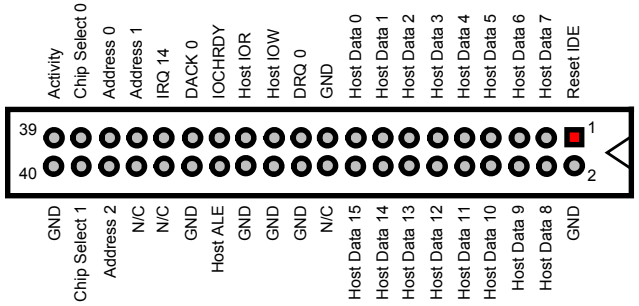


3.8 PCI E-IDE Drive Connector

CN3 and *CN2* are standard 40-pin and 44-pin daisy-chain driver connectors that serve the PCI E-IDE drive provisions onboard the HS-4705. A maximum of four ATA/33/66/100 IDE drives can be connected to the HS-4705 via *CN3* and *CN2*.

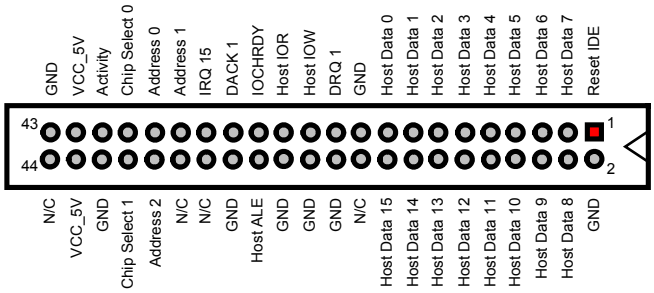
- **CN3: Primary IDE Connector**

PIN	Description	PIN	Description
1	Reset IDE	2	GND
3	Host Data 7	4	Host Data 8
5	Host Data 6	6	Host Data 9
7	Host Data 5	8	Host Data 10
9	Host Data 4	10	Host Data 11
11	Host Data 3	12	Host Data 12
13	Host Data 2	14	Host Data 13
15	Host Data 1	16	Host Data 14
17	Host Data 0	18	Host Data 15
19	GND	20	N/C
21	DRQ 0	22	GND
23	Host IOW	24	GND
25	Host IOR	26	GND
27	IOCHRDY	28	Host ALE
29	DACK 0	30	GND
31	IRQ14	32	N/C
33	Address 1	34	N/C
35	Address 0	36	Address 2
37	Chip Select 0	38	Chip Select 1
39	Activity	40	GND



CN2: Secondary IDE Connector

PIN	Description	PIN	Description
1	Reset IDE	2	GND
3	Host Data 7	4	Host Data 8
5	Host Data 6	6	Host Data 9
7	Host Data 5	8	Host Data 10
9	Host Data 4	10	Host Data 11
11	Host Data 3	12	Host Data 12
13	Host Data 2	14	Host Data 13
15	Host Data 1	16	Host Data 14
17	Host Data 0	18	Host Data 15
19	GND	20	N/C
21	DRQ 1	22	GND
23	Host IOW	24	GND
25	Host IOR	26	GND
27	IOCHRDY	28	Host ALE
29	DACK 1	30	GND
31	IRQ15	32	N/C
33	Address 1	34	N/C
35	Address 0	36	Address 2
37	Chip Select 0	38	Chip Select 1
39	Activity	40	GND
41	VCC_5V	42	VCC_5V
43	GND	44	N/C



3.9 Floppy Disk Drive Connector

The HS-4705 uses a slim 26-pin header connector, *CN1*, for floppy disk drive connection. A total of one FDD drive may be connected to *CN1* at any given time.

- **CN1: Slim FDD Connector**

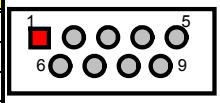
PIN	Description	PIN	Description
1	+5V	14	Step
2	Index	15	GND
3	+5V	16	Write_Data
4	Drive_Select	17	GND
5	+5V	18	Write_Gate
6	Disk_Change	19	GND
7	N/C	20	Track
8	Ready	21	GND
9	HD_Out	22	Write_Protect
10	Motor_On	23	GND
11	Reserve	24	Read_Date
12	Direction	25	GND
13	N/C	26	Side_One

3.10 Serial Port Connectors

The HS-4705 offers one NS16C550 compatible UART with Read/Receive 16-byte FIFO serial ports and two DB9 connectors.

- **CN14: COM1/COM2 Connectors (DB9)**

PIN	Description	PIN	Description
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	GND		

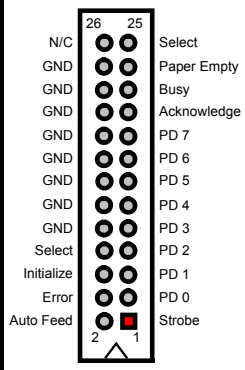


3.11 Parallel Connector

CN7 is a standard 26-pin flat cable connector designed to accommodate parallel port connection onboard the HS-4705.

- **CN7: Parallel Connector**

PIN	Description	PIN	Description
1	Line Printer Strobe	2	Auto Feed
3	PD 0	4	Error
5	PD 1	6	Initialize
7	PD 2	8	Select
9	PD 3	10	GND
11	PD 4	12	GND
13	PD 5	14	GND
15	PD 6	16	GND
17	PD 7	18	GND
19	Acknowledge	20	GND
21	Busy	22	GND
23	Paper Empty	24	GND
25	Select	26	N/C

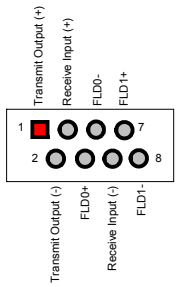


3.12 Ethernet Connector

The HS-4705 has Intel® 82540 100/1000 Based LAN controller and provides one RJ-45 connector. Please refer to the following for its pin information.

- **CN6: Gigabit Ethernet RJ-45 Connector**

PIN	Description	PIN	Description
1	Transmit Output (+)	5	FLD0-
2	Transmit Output (-)	6	Receive Input (-)
3	Receive Input (+)	7	FLD1+
4	FLD0+	8	FLD1-

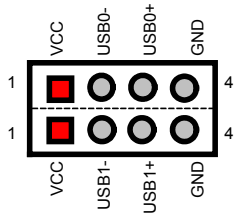


3.13 USB Connector

The HS-4705 provides six USB ports at locations *CN6, CN9* and *CN8* for six USB connections to the HS-4705.

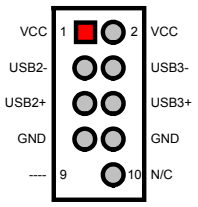
- **CN6: USB 0/1 Connector**

PIN	Description	PIN	Description
1a	VCC	1b	VCC
2a	USB0-	2b	USB1-
3a	USB0+	3b	USB2+
4a	Signal GND	4b	Signal GND



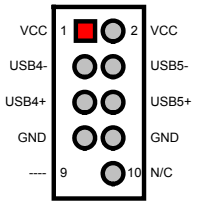
- **CN9: USB 2/3 Connector**

PIN	Description	PIN	Description
1	VCC	2	VCC
3	USB2-	4	USB3-
5	USB2+	6	USB3+
7	GND	8	GND
9	----	10	N/C



- **CN8: USB 4/5 Connector**

PIN	Description	PIN	Description
1	VCC	2	VCC
3	USB4-	4	USB5-
5	USB4+	6	USB5+
7	GND	8	GND
9	----	10	N/C



3.14 CMOS Data Clear

The HS-4705 has a Clear CMOS jumper on *JP1.*

- **JP1: Clear CMOS**

Options	Settings
Normal Operation (default)	Short 1-2
Clear CMOS	Short 2-3

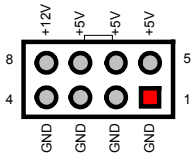
IMPORTANT: *Before you turn on the power of your system, please set JP1 to short 1-2 for normal operation.*

3.15 Power and Fan Connectors

HS-4705 provides one 8-pin ATX power connector at *CN19.*

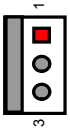
- **CN19: 8-pin ATX Power Connector**

PIN	Description	PIN	Description
1	GND	5	+5V
2	GND	6	+5V
3	GND	7	+5V
4	GND	8	+12V



- **CN10/CN17: Fan Power Connector**

PIN	Description
1	GND
2	VCC
3	Fan Status Signal



- **JP4/JP5: Fan Voltage Select**

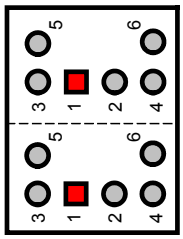
Options	Settings
+12V (default)	Short 1-2
+5V	Short 2-3

3.16 Keyboard/Mouse Connectors

The HS-4705 offers one possibility for keyboard/mouse connection via *CN18*.

- **CN18: PS/2 6-pin Mini DIN Keyboard/Mouse Connector**

PIN	Description
1	KB_Data
2	N/C
3	GND
4	+5V
5	KB_CLK
6	N/C
7	MS_Data
8	N/C
9	GND
10	+5V
11	MS_CLK
12	N/C

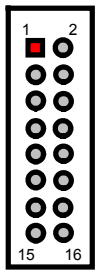


3.17 System Front Panel Connectors

The HS-4705 has one LED at location *CN15(9-11)* that indicates the HDD status. *CN15(13-15)* is the Reset Button connector onboard. *CN15(1-3-5-7)* is speaker, *CN15(2-4-6)* is power LED, *CN15(8-10-12)* is keylock, and *CN15(14-16)* is power switch.

- **CN15: System Front Panel Connector**

PIN	Description	PIN	Description
1	+5V	2	PWLED+
3	N/C	4	N/C
5	BZ	6	PWLED-
7	SPKR	8	KBLOCK
9	HDLED+	10	GND
11	HDLED-	12	N/C
13	RESET+	14	PWRBT+
15	RESET-	16	PWRBT-

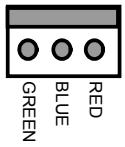


3.18 Audio Connectors

The HS-4705 has an onboard AC97 3D audio interface. The following table list the pin assignments of the CD In and Audio connector.

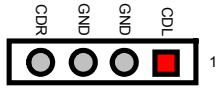
- **CN11: Audio Connector**

PIN	Description
Red	MIC In
Blue	Line In
Green	Line Out



- **CN4: CD In Connector**

PIN	Description	PIN	Description
1	CDL	2	GND
3	GND	4	CDR

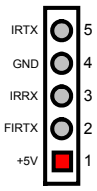


3.19 IrDA Connector

CN16 is a 5-pin internal FIR communication connector for connection to an IrDA device.

- **CN16: IrDA Connector**

PIN	Description
1	+5V
2	FIRTX
3	IRRX
4	GND
5	IRTX



3.20 Watchdog Timer

Once the Enabled cycle is active, a Refresh cycle is requested before the time-out period. This restarts counting of the WDT period. When the time counting goes over the period preset of WDT, it will be assumed that the program operation is abnormal.

- **JP2: Clear CMOS**

Options	Settings
NMI	Short 1-2
Reset (default)	Short 2-3

The following sample programs show how to Enable, Disable and Refresh the Watchdog Timer:

```
;--------------------------------------------------------------------------------
; Enter the WDT function mode, interruptible double-write
;--------------------------------------------------------------------------------
      MOV     DX, 2EH
      MOV     AL, 87H
      OUT     DX, AL
      OUT     DX, AL
      MOV     DX, 2EH
      MOV     AL, 07H
      OUT     DX, AL
      MOV     DX, 2FH
      MOV     AL, 08H
      OUT     DX, AL
      MOV     DX, 2EH
      MOV     AL, F5H
      OUT     DX, AL              ; select CRF0
      MOV     DX, 2FH
      MOV     AL, 80H
      OUT     DX, AL
      MOV     DX, 2EH
      MOV     AL, F7H
      OUT     DX, AL
      MOV     DX, 2FH

      MOV     AL, 00H
      OUT     DX, AL
      MOV     DX, 2EH
      MOV     AL, F6H
      OUT     DX, AL
      MOV     DX, 2FH
      MOV     AL, 00H             ; * 00H=Disabled
      OUT     DX, AL
;--------------------------------------------------------------------------------
; Exit extended function mode
;------------- ------------------------------------------------------------------
      MOV     DX, 2EH
      MOV     AL, AAH
      OUT     DX, AL
```

* User can also use AL, 00H's defined time for reset purposes, e.g.00H for Disable, 01H = 1sec, 02H = 2sec…..FFH = 255sec.

Chapter 4

Award BIOS Setup

The HS-4705 uses Award 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 that could be selected for end-user requirements. This chapter is written to assist you in the proper usage of these features.

4.1 Starting Setup

The Award BIOS is immediately activated when you first power on the computer. The BIOS reads the system information contained in the CMOS and begins the process of checking out the system and configuring it. When it finishes, the BIOS will seek an operating system on one of the disks and then launch and turn control over to the operating system.

While the BIOS is in control, the Setup program can be activated in one of two ways:

1. By pressing <Del> immediately after switching the system on, or
2. By pressing the <Del> key when the following message appears briefly at the bottom of the screen during the POST (Power On Self Test).

Press DEL to enter SETUP.

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to...

PRESS F1 TO CONTINUE, DEL TO ENTER SETUP

4.2 Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the <PageUp> and <PageDown> keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more details about how to navigate in the Setup program using the keyboard.

Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item in the left hand
Right arrow	Move to the item in the right hand
Esc key	Main Menu -- Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
(Shift)F2 key	Change color from total 16 colors. F2 to select color forward, (Shift) F2 to select color backward
F3 key	Calendar, only for Status Page Setup Menu
F4 key	Reserved
F5 key	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
F6 key	Load the default CMOS value from BIOS default table, only for Option Page Setup Menu
F7 key	Load the default
F8 key	Reserved
F9 key	Reserved
F10 key	Save all the CMOS changes, only for Main Menu

4.2.1 Getting Help

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc> or the F1 key again.

4.3 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.

Phoenix – AwardBIOS CMOS Setup Utility

▸ Standard CMOS Features	▸ Frequency/Voltage Control
▸ Advanced BIOS Features	Load Fail-Safe Defaults
▸ Advanced Chipset Features	Load Optimized Defaults
▸ Integrated Peripherals	Set Supervisor Password
▸ Power Management Setup	Set User Password
▸ PnP/PCI Configurations	Save & Exit Setup
▸ PC Health Status	Exit Without Saving
Esc：Quit F10：Save & Exit Setup	↑↓→←：Select Item
Time, Date, Hard Disk Type…	

NOTE: *A brief description of the highlighted choice appears at the bottom of the screen.*

4.4 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, you must set the HDD mode to **LBA** mode. Please use the IDE Setup Utility in BIOS SETUP to install the HDD correctly.

Phoenix – AwardBIOS CMOS Setup Utility
Standard CMOS Features

Date (mm:dd:yy)	Wed, Oct 31 2001	Item Help
Time (hh:mm:ss)	10 : 32 :57	Menu Level ▶
▶ IDE Primary Master	13579 MB	
▶ IDE Primary Slave	None	Change the day, month,
▶ IDE Secondary Master	None	year and century
▶ IDE Secondary Slave	None	
Drive A	1.44M, 3.5in.	
Drive B	None	
Video	EGA/VGA	
Halt On	All, But Keyboard	
Base Memory	640K	
Extended Memory	65472K	
Total Memory	1024K	

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

4.5 Advanced CMOS Setup

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.

Phoenix – AwardBIOS CMOS Setup Utility
Advanced BIOS Features

		Item Help
CPU Feature	Press Enter	Menu Level ▶
Virus Warning	Disabled	
CPU L1& L2 Cache	Enabled	
Quick Power On Self Test	Enabled	
First Boot Device	Floppy	
Second Boot Device	HDD-0	
Third Boot Device	LS-120	
Boot Other Device	Enabled	
Swap Floppy Drive	Disabled	
Boot Up Floppy Seek	Enabled	
Boot Up NumLock Status	On	
Gate A20 Option	Fast	
Typematic Rate Setting	Disabled	
X Typematic Rate (Chars/Sec)	6	
X Typematic Delay (Msec)	250	
Security Option	Setup	
APIC Mode	Enabled	
MPS Version Control For OS	1.4	
OS Select For DRAM > 64MB	Non-OS2	
Console Redirection	Disabled	
Baud Rate	19200	
Agent Commect via	NULL	
Agent wait time (min)	1	
Agent after boot	Disabled	
Report No FDD for WIN95	NO	
Thermal Management	Thermal Monitor 1	
X TM2 Bus Ratio	9X	
X TM2 Bus VID	1.004V	

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

4.6 Advanced Chipset Setup

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and the access to the system memory resources, such as DRAM and the external cache. It also coordinates the communications between the conventional ISA and PCI buses. It must be stated that these items should never be altered. The default settings have been chosen because they provide the best operating conditions for your system. You might consider and make any changes only if you discover that the data has been lost while using your system.

Phoenix – AwardBIOS CMOS Setup Utility
Advanced Chipset Features

		Item Help
DRAM Timing Selectable	By SPD	Menu Level ▶
X CAS Latency Time	2.5	
X Active to Precharge Delay	7	
X DRAM RAS# to CAS# Delay	3	
X DRAM RAS# Precharge	3	
DRAM Data Integrity Mode	Non-ECC	
MGM Core Frequency	Auto Max 266MHz	
System BIOS Cacheable	Enabled	
Video BIOS Cacheable	Disabled	
Memory Hole At 15M-16M	Disabled	
Delayed Transaction	Enabled	
Delay Prior to Thermal	16Min.	
AGP Aperture Size (MB)	64	
** ON-Chip VGA Setting **		
On-Chip VGA	Enabled	
On-Chip Frame Buffer size	32MB	
Boot Display	VBIOS Default	
Panel Number	1	
↑↓→←Move Enter: Select + / - /PU/PD: Value F10: Save ESC: Quit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

NOTE: *Panel Number: 1 (Default Panel 1: TOSHIBA LTM10C348F)*

4.7 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.

Phoenix – AwardBIOS CMOS Setup Utility
Power Management Setup

Power Management	Use Define	
Video Off Method	DPMS	Item Help
Video Off In Suspend	Yes	Menu Level ▶
Suspend Type	Stop Grant	
MODEM Use IRQ	3	
Suspend Mode	Disabled	
HDD Power Down	Disabled	
Soft-off by PWR-BTTN	Instant-Off	
CPU THRM-Throttling	50.00%	
** Reload Global Timer Events **		
Primary IDE 0	Disabled	
Primary IDE 1	Disabled	
Secondary IDE 0	Disabled	
Secondary IDE 1	Disabled	
FDD, COM, LPT Port	Disabled	
PCI PIRQ[A-D]#	Disabled	

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

4.8 PCI / Plug and Play Setup

This section describes configuring the PCI bus system. PCI, or **P**eripheral **C**omponents **I**nterconnect, is a system that allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

Phoenix – AwardBIOS CMOS Setup Utility
PnP/PCI Configurations

		Item Help
Reset Configuration Data	Disabled	Menu Level ▶
Resources Controlled By	Auto(ESCD)	Default is Disabled. Select
IRQ Resources	Press Enter	enabled to reset Extended system Configuration Data (ESCD) when you exit Setup
PCI/VGA Palette Snoop	Disabled	if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS cannot boot
↑↓→←Move Enter: Select + / - /PU/PD: Value F10: Save ESC: Quit F1: General Help		
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

4.9 Peripheral Setup

The IDE hard drive controllers can support up to four separate hard drives. These drives have a master/slave relationship that 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.

Phoenix – AwardBIOS CMOS Setup Utility
Integrated Peripherals

▶ OnChip IDE Device	Press Enter	Item Help
▶ Onboard Device	Press Enter	Menu Level ▶
▶ SuperI/O Device	Press Enter	
Watch Dog Timer Select	Disabled	

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

OnChip IDE Device

On-Chip Primary PCI IDE	Enabled	Item Help
IDE Primary Master PIO	Auto	Menu Level ▶
IDE Primary Slave PIO	Auto	
IDE Primary Master UDMA	Auto	
IDE Primary Slave UDMA	Auto	
On-Chip Secondary PCI IDE	Enabled	
IDE Secondary Master PIO	Auto	
IDE Secondary Slave PIO	Auto	
IDE Secondary Master UDMA	Auto	
IDE Secondary Slave UDMA	Auto	
IDE HDD Block Mode	Enabled	

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

Onboard Device

USB Controller	Enabled	Item Help
USB 2.0 Controller	Enabled	Menu Level ▶
USB Keyboard Support	Disabled	
USB Mouse Support	Disabled	
AC97 Audio	Auto	
Init Display First	Onboard/AGP.	
Onboard LAN Chip	Enabled	

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

Super I/O Device

Onboard FDC Controller	Enabled	Item Help
Onboard Serial Port 1	3F8/IRQ4	Menu Level ▶
Onboard Serial Port 2	2F8/IRQ3	
UART Mode Select	Normal	
X RxD, TxD Active	Hi, Lo	
X IR Transmission delay	Enabled	
X UR2 Duplex Mode	Half	
x Use IR Pins	IR-Rx2Tx2	
Onboard Parallel Port	378/IRQ7	
Parallel Port Mode	SPP	
X EPP Mode Select	EPP1.7	
X ECP Mode Use DMA	3	

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

4.10 PC Health Status

Phoenix – AwardBIOS CMOS Setup Utility
PC Health Status

CPU Warning Temperature	Disabled	Item Help
Current System Temp.		Menu Level ▶
Current CPU1 Temperature		
Current CPUFan1 Speed		
Current CPUFan2 Speed		
Vdimm		
Vcore		
3.3V		
+5V		
+12V		
VBAT(V)		

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

4.11 Frequency/Voltage Control

Phoenix – AwardBIOS CMOS Setup Utility
Frequency/Voltage Control

		Item Help
Auto Detect PCI CLK	Enabled	Menu Level ▶
Spread Specturm	Disabled	

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

Chapter 5

Software Utilities

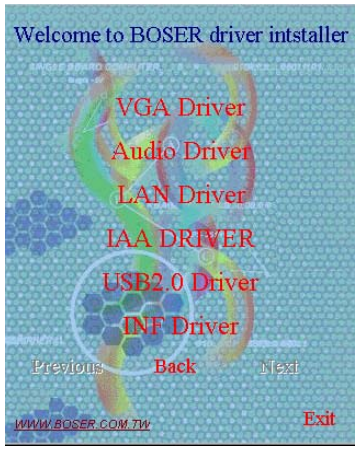
This chapter contains the detailed information of IDE, VGA, LAN and Audio driver installation procedures. The utility disk that came with the delivery package contains an auto-run program that invokes the installation programs for the IDE, VGA, LAN and Audio drivers. The following sections describe the installation procedures of each driver based on Win 95/98, Win 2000 and Win NT operating systems. It is recommended that you install the drivers matching the sections listed in this chapter.

5.1 IDE Driver Installation

5.1.1 Installing Intel Chipset Software Utility

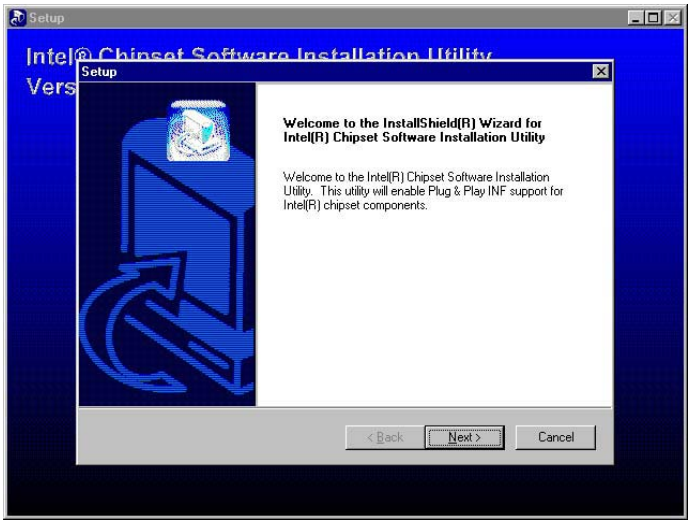
1. Insert Utility CD Disk to your CD ROM drive. The main menu will pop up as shown below. Select on the **HS-4705** button to launch the installation program.

2. Click on the **INF Driver** button to continue.

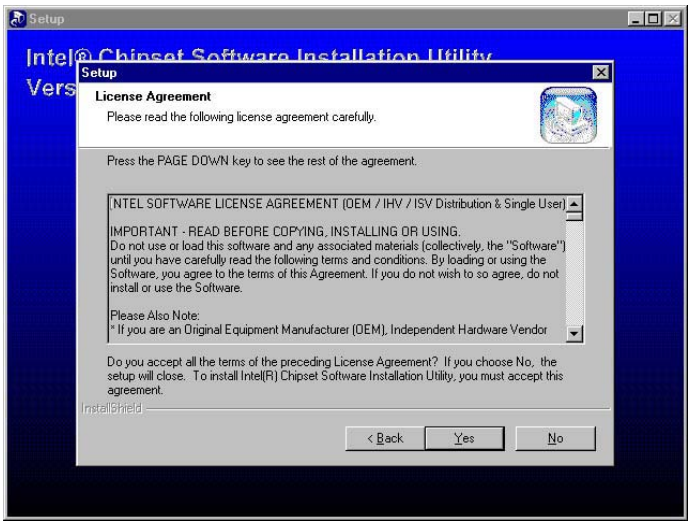


3. Click on the OS button to continue.

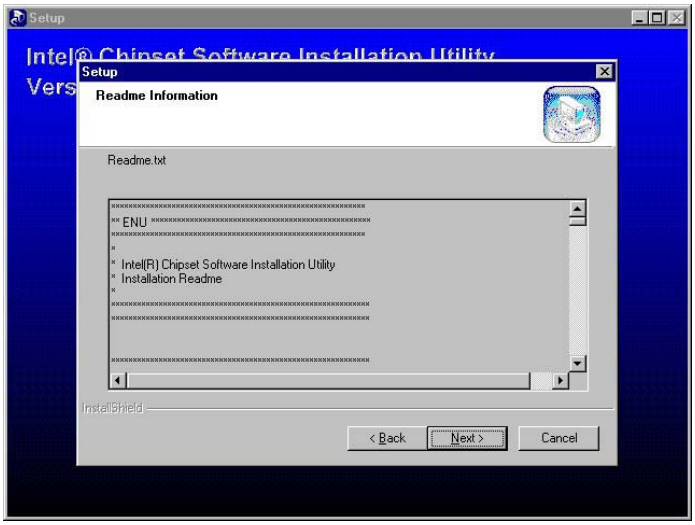
4. Immediately after clicking the IDE button in Step 1, the program launches the InstallShield Wizard that will assist you in the installation process. Click on the **Next >** button to proceed.



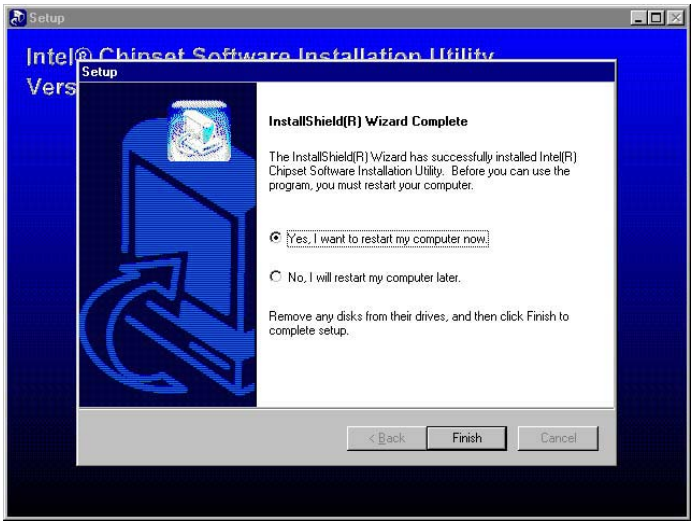
5. The Intel OEM Software License Agreement dialog box then appears on the screen. Choose **Yes** to proceed.



6. When the Readme Information dialog box pops up, just click on the **Next** button to proceed.



7. Once the Install Shield Wizard finishes updating your system, it will prompt you to restart the computer. Tick on the **Yes, I want to restart my computer now** followed by a click on the **Finish** button to reboot. Only after your computer boots will the new settings take effect.

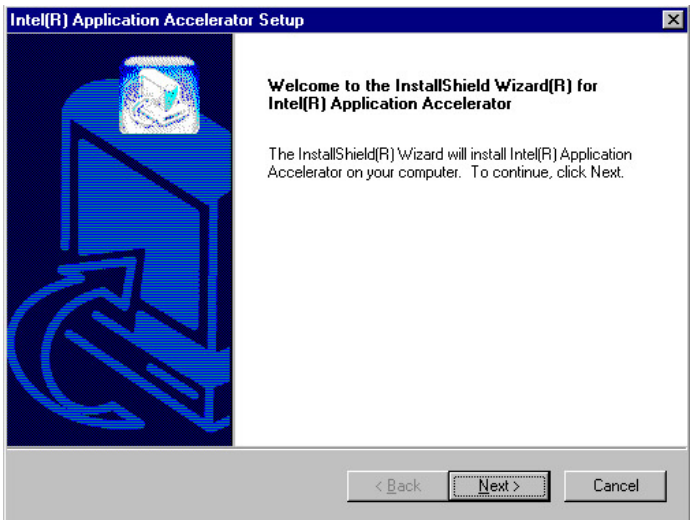


5.1.2 Installing Intel Application Accelerator

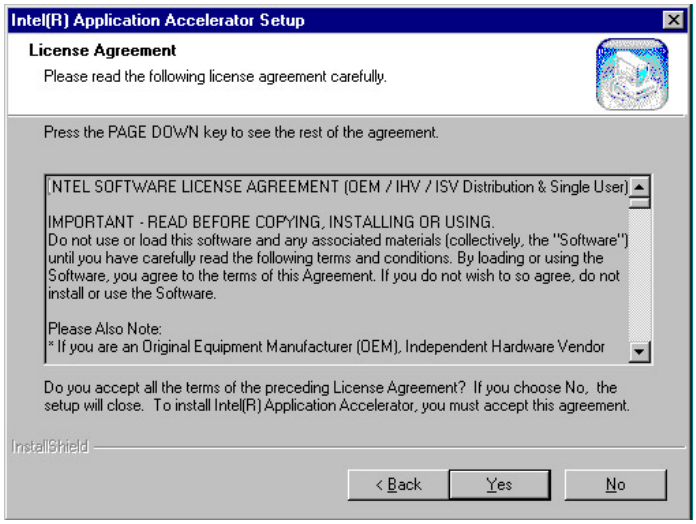
1. Insert Utility CD Disk to your CD ROM drive. The main menu will pop up as shown below. Select on the **HS-4705** button to launch the installation program.

2. Click on the **IAA Driver** button to continue.

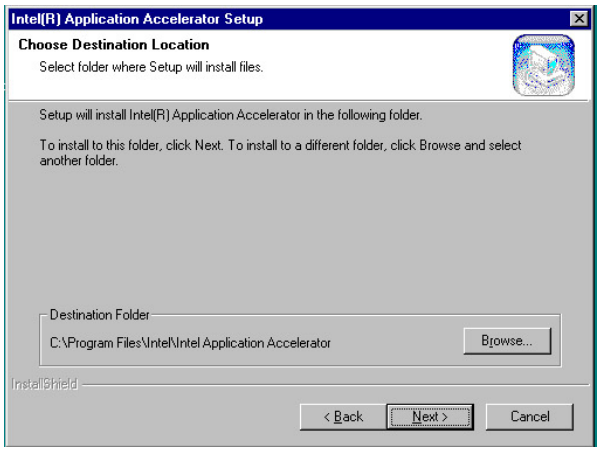
3. When the dialog box below appears, make sure you close all other Windows applications then click on the **Next >** button to proceed.



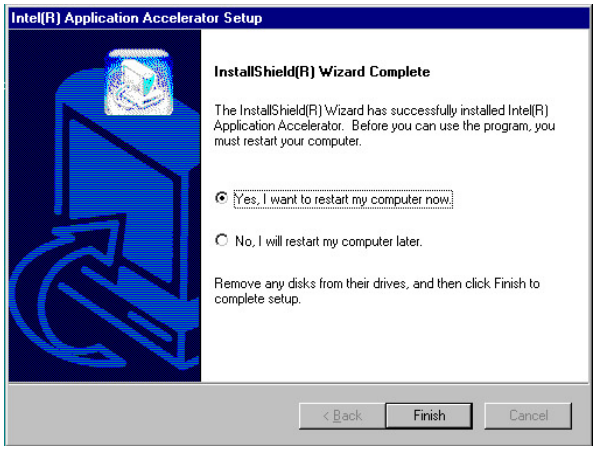
4. The Intel OEM Software License Agreement dialog box then appears on the screen. Choose **Yes** to proceed.



5. Setup will then prompt you to specify the path where you would like the Security driver installed. Select the **Next >** button after you have made your path/installation choice.



6. Once the setup program finishes copying files into your system, it will prompt you to restart the computer. Tick on the **Yes, I want to restart my computer now** followed by a click on the **Finish** button to reboot. Only after your computer boots will the new settings take effect.

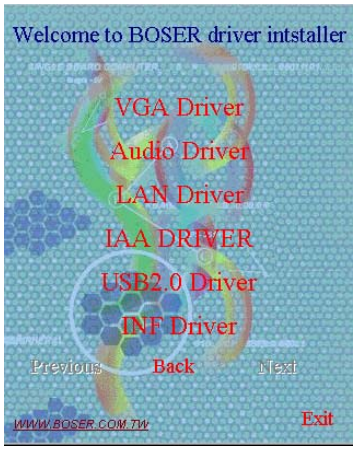


NOTE: *If after restart your computer can't find CD-ROM device, please remove IAA driver*

5.2 VGA Driver Installation

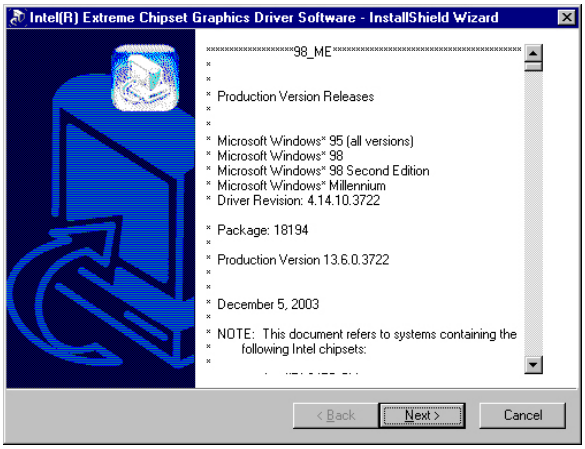
1. Insert Utility CD Disk into your CD ROM drive. The main menu will pop up as shown below. Select on the **HS-4705** button to launch the installation program.

2. Click on the **VGA Driver** button to continue.

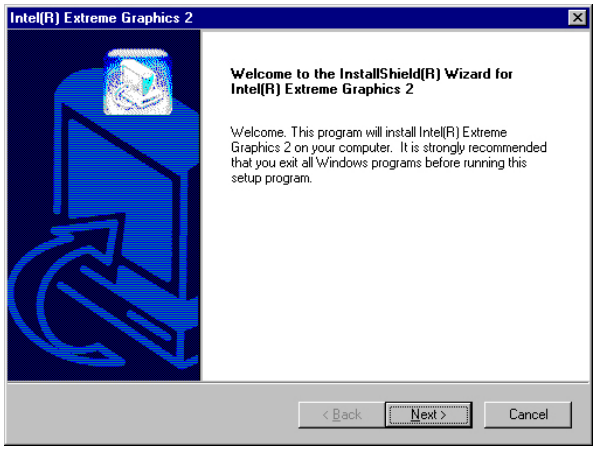


3. Click on the OS button to continue.

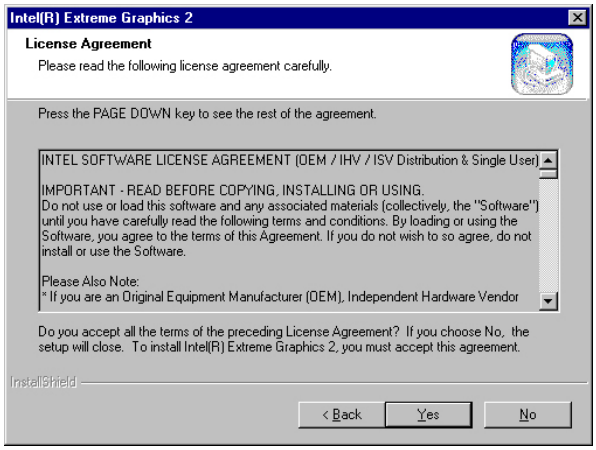
4. When the dialog box below appears, make sure you close all other Windows applications and then click on the **Next >** button to proceed.



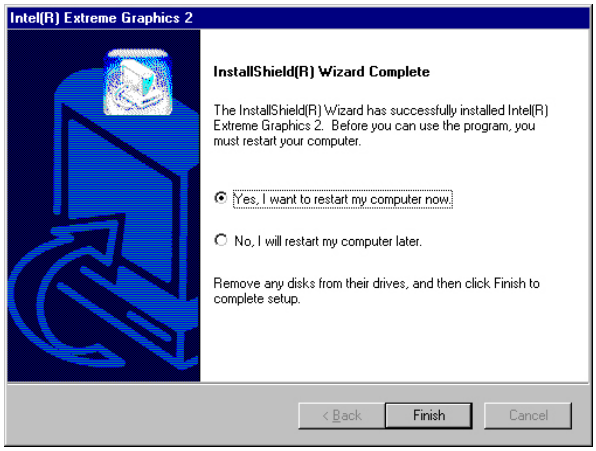
5. Immediately after clicking the IDE button in Step 1, the program launches the InstallShield Wizard that will assist you in the installation process. Click on the **Next >** button to proceed.



6. The Intel OEM Software License Agreement dialog box then appears on the screen. Choose **Yes** to proceed.



7. Once the setup program finishes copying files into your system, it will prompt you to restart the computer. Tick on the **"Yes, I want to restart my computer now"** followed by a click on the **Finish** button to reboot. Only after your computer boots will the new settings take effect.



5.3 LAN Driver Installation

5.3.1 Win 95/98/2K/XP

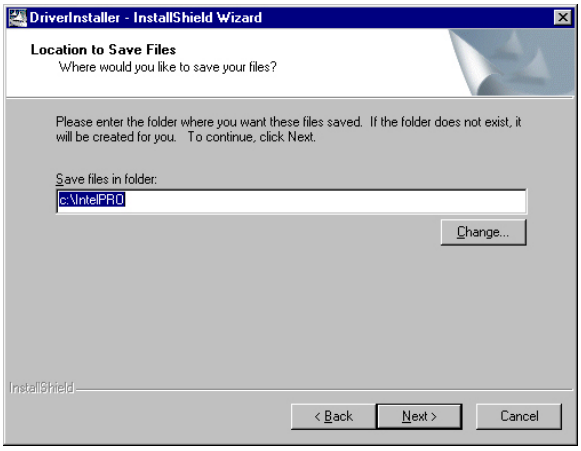
1. Insert Utility CD Disk into your CD ROM drive. The main menu will pop up as shown below. Select on the **HS-4705** button to launch the installation program.

2. Click on the **LAN Driver** button to continue.

3. Click on the **WIN9X/WIN2K/WINXP** button to continue.

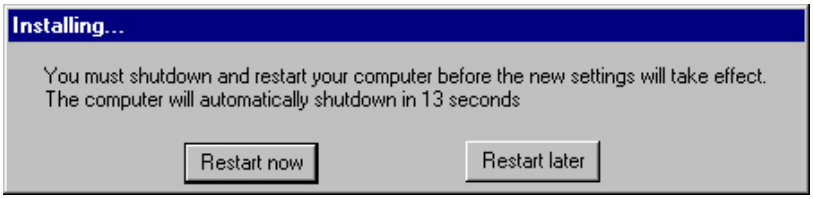
4. The Intel OEM Software License Agreement dialog box then appears on the screen. Choose **Accept** to proceed.

5. When the dialog box below appears, make sure the folder you'll save file in, then Click on the **Next >**



6. When the dialog box below appears, make sure you close all other Windows applications and then click on the **Install Base Driver** button to proceed.

7. Once the setup program finishes copying files into your system, it will prompt you to restart the computer. Tick on the **Restart now** to reboot. Only after your computer boots will the new settings take effect.

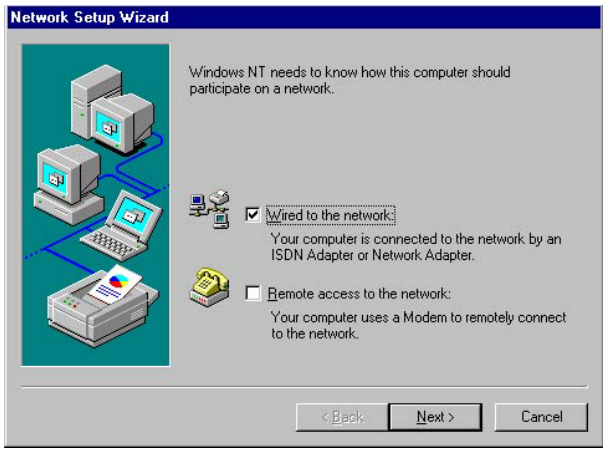


5.3.2 Win NT

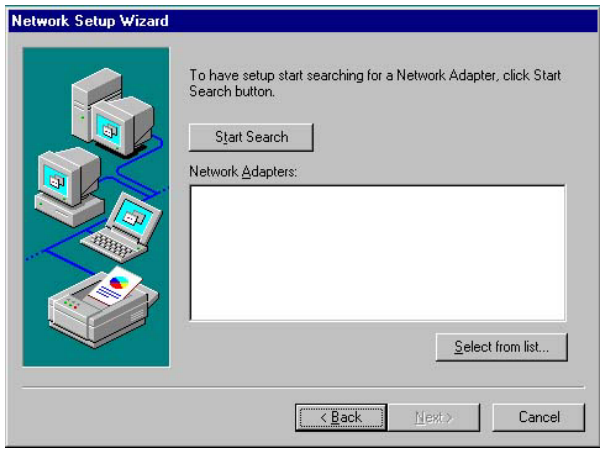
NOTE: *Please make sure you have already installed* ***Service Pack 6.0.***

1. The system automatically detects the absence of Windows NT Networking. Click on the **Yes** button to start installation.

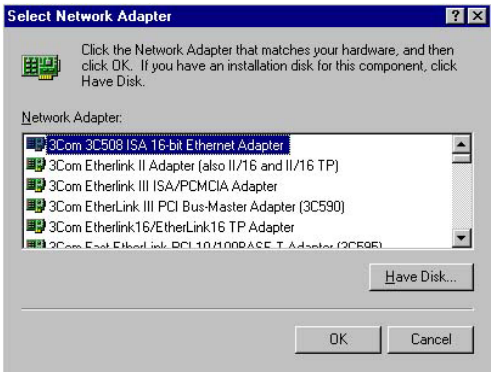
2. Tick on the **Wired to Network** once the following screen appears. Click on **Next >** to proceed.



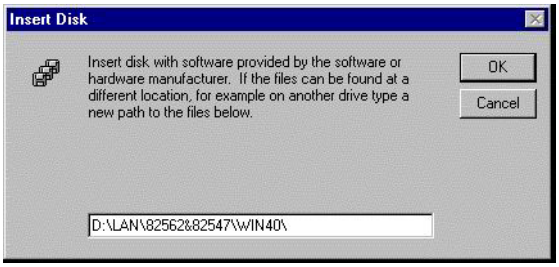
3. Click on the **Start Search** button for the program to locate the Network Adapter.



4. Once setup finishes the search, it will list a number of adapters for you to choose from. Press on the **Have Disk** button to assign the driver path location.

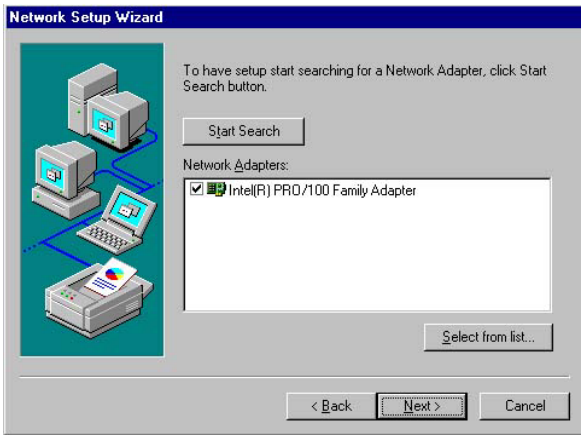


5. Setup now asks you for the location of the driver. When you have entered the new driver path, press on the **OK** button to continue.

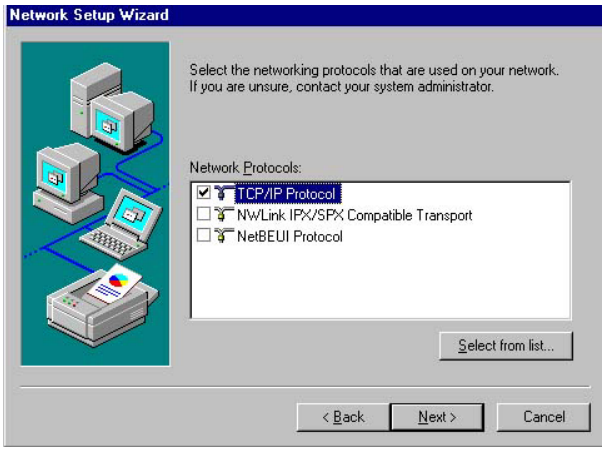


6. When Setup finds the information it needs about the new driver, it will display the device it found on the following screen. Please choose **"Intel(R) PRO/1000 Family Adapter"**. Press on the **OK** button to accept and proceed.

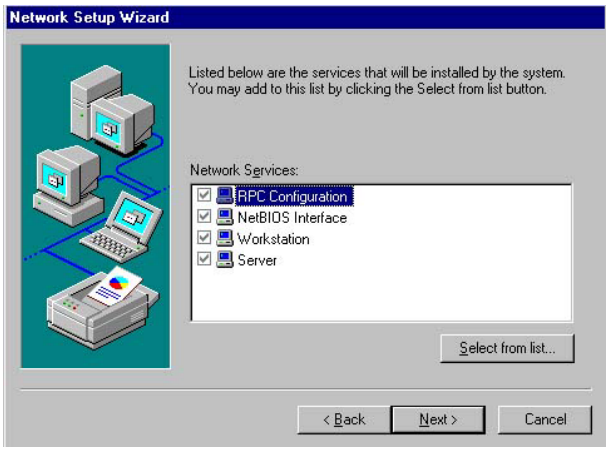
7. Setup then returns to Network Setup Wizard screen and displays your new Network Adapter. Click on **Next** to continue.



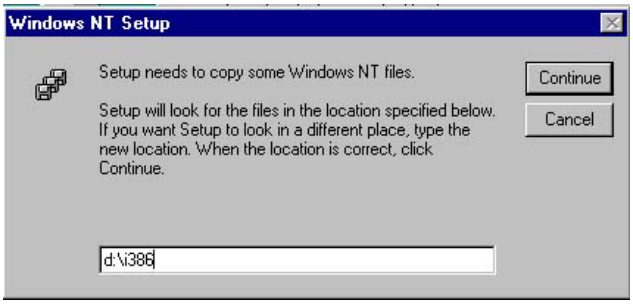
8. The Network Setup Wizard then allows you to set the Network Protocols on your network. Select the appropriate protocol and then click on Next to continue.



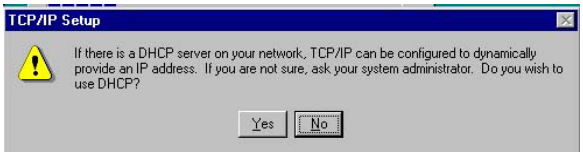
9. Before Setup starts installing the components found and the settings you made, it will give you the option to proceed or go back for changes from the following screen. Click on the **Next** button once you are sure of your devices.



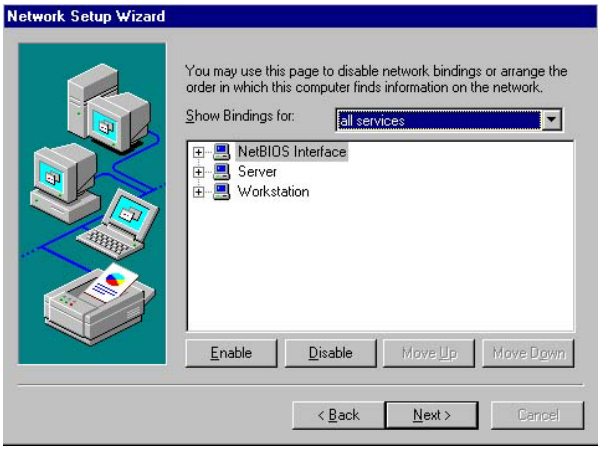
10. Windows NT Setup will then need to copy files necessary to update the system information. Specify the path and then press **Continue**.



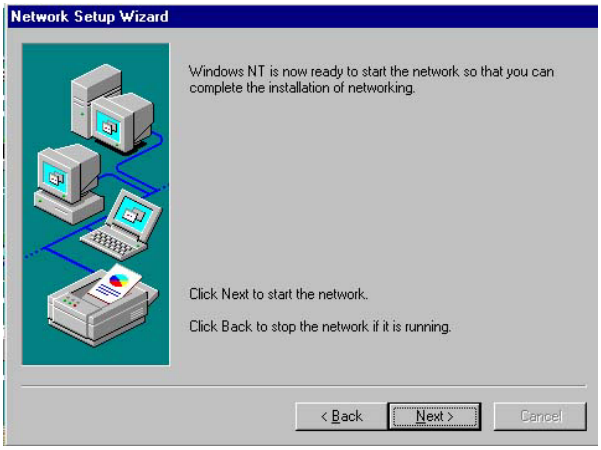
11. When Setup asks if you wish to change the TCP/IP settings of your system, select them appropriately. The default choice is **No**.



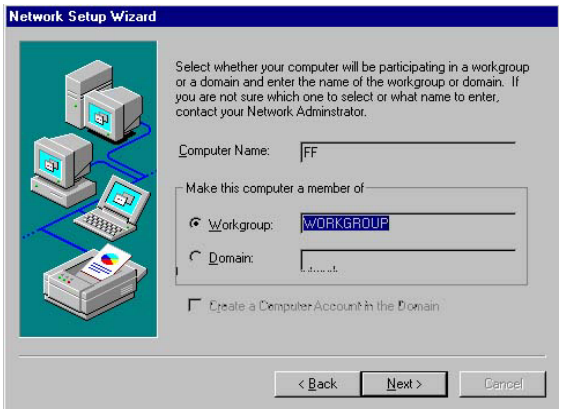
12. Setup then starts the Networking installation and copies the files.
13. When the screen below appears, click on **Next** to continue.



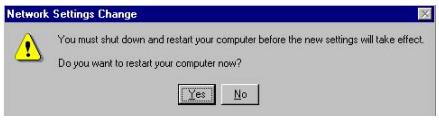
14. Setup then prompts you that it is ready to start the network. You may complete the installation thereafter. Click on **Next** to continue.



15. Assign the workgroup or domain setting of your computer. Click on Next to continue.



16. Click on the **Yes** button to restart your computer. The LAN driver installation for WIN NT4.0 is now complete.



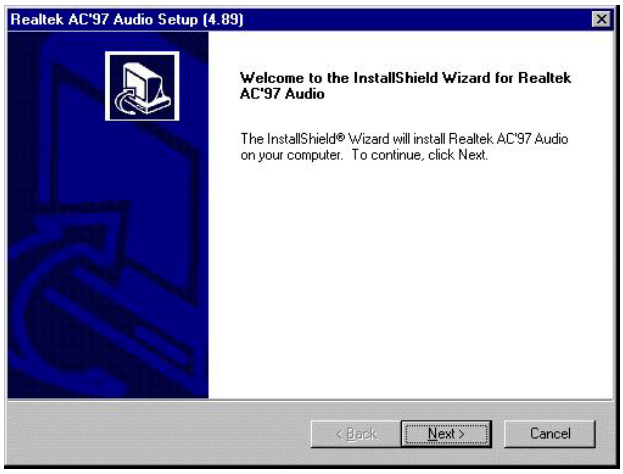
5.4 Audio Driver Installation

1. Insert Utility CD Disk into your CD ROM drive. The main menu will pop up as shown below. Select on the **HS-4705** button to launch the installation program.

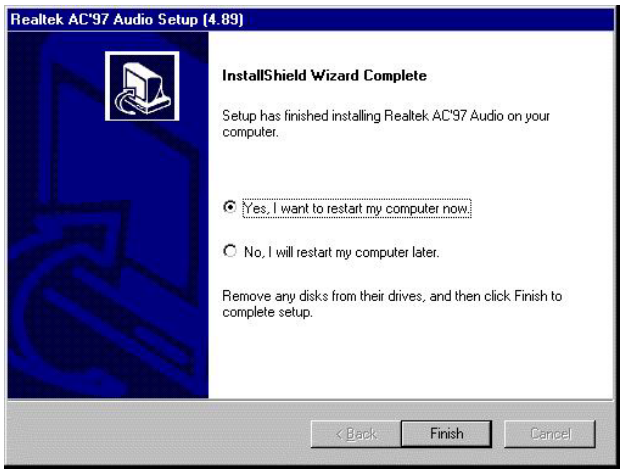
2. Click on the **AUDIO Driver** button to continue.

3. Click on the OS button which you use.

4. When the dialog box below appears, make sure you close all other Windows applications and then click on the **Next >** button to proceed.



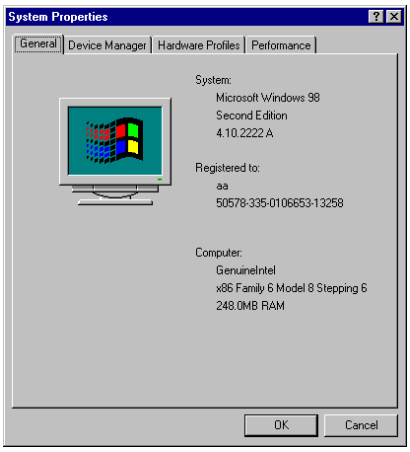
4. Once the InstallShield Wizard completes the operation and update of your AC'97 driver, it will ask you to remove disks from their drives, and prompt you to restart your system. Tick on the **"Yes, I want to restart my computer now"**. Afterwards, click on the **Finish** button to complete the installation process. The system changes you made will take effect after the system restarts.



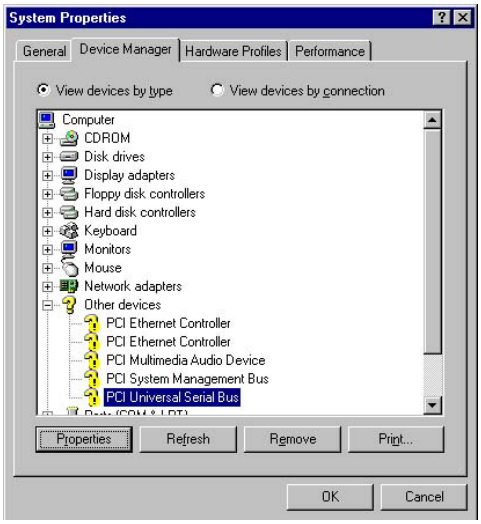
5.5 USB2.0 Driver Installation

5.5.1 Win 95/98

1. With the Utility CD Disk still in your CD ROM drive, right click on "**My Computer**" icon from the Windows menu. Select on System Properties and then proceed to the Device Manager from the main menu.



2. Select on Other Devices from the list of devices then double-click on PCI Universal Serial Bus.

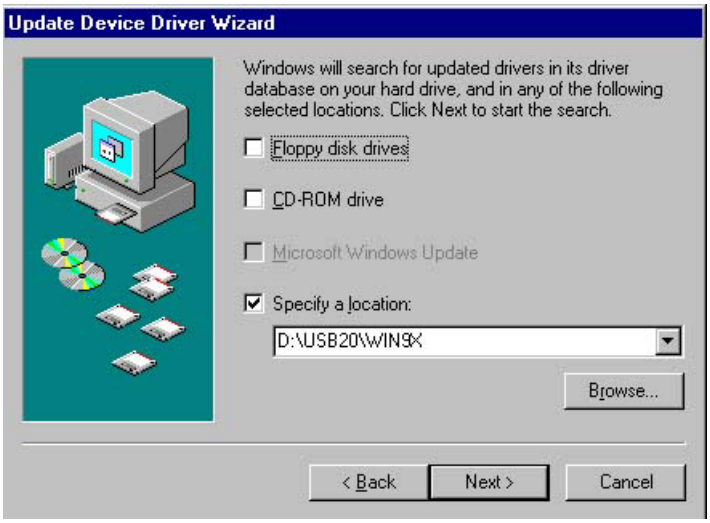


3. The PCI Universal Serial Bus Properties screen then appears, allowing you to re-install the driver. Select Driver from the main menu to proceed.

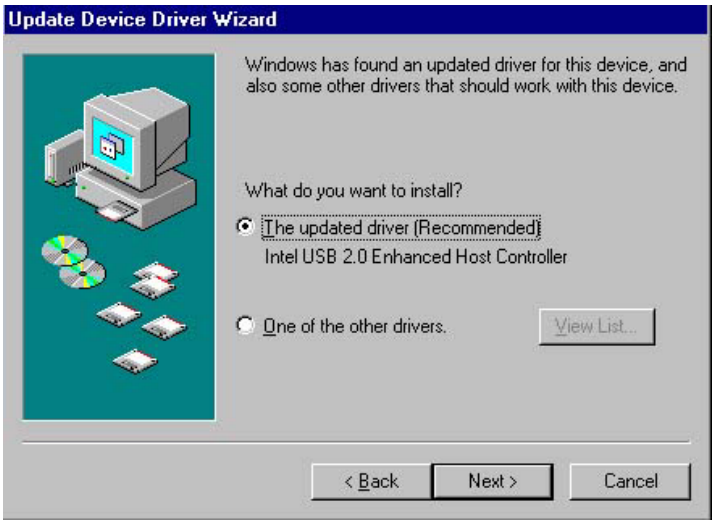
4. When the dialog box below appears, make sure you close all other Windows applications then click on the **Next >** button to proceed.

5. Tick on the "Search for a better driver" once the following screen appears. Click on the **Next** to proceed.

6. Once the program returns to the Add New Hardware Wizard screen, your specified location will appear. Press on the **Next** button to continue



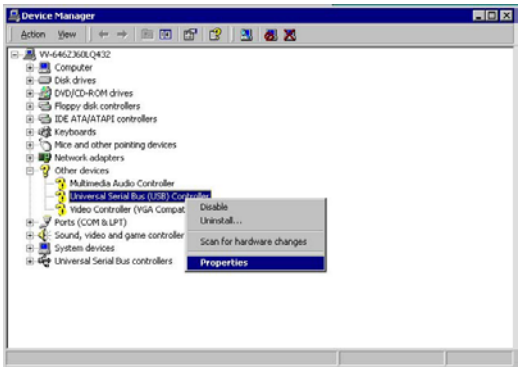
7. When Setup finds the information it needs about the new driver, it will display the device it found on the following screen. Press on the **Next** button to accept and proceed.



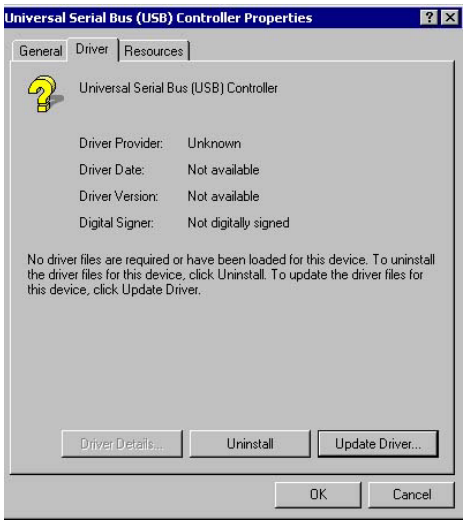
8. Once the InstallShield Wizard completes the operation and update of your USB2.0 driver. Click on the **Finish** button to complete the installation process.

5.4.2 Win 2000

1. With the Utility CD Disk still in your CD ROM drive, right click on "**My Computer**" icon from the Windows menu. Select on System Properties and then proceed to the Device Manager from the main menu.
2. Select on Other Devices from the list of devices then double-click on PCI Universal Serial Bus.

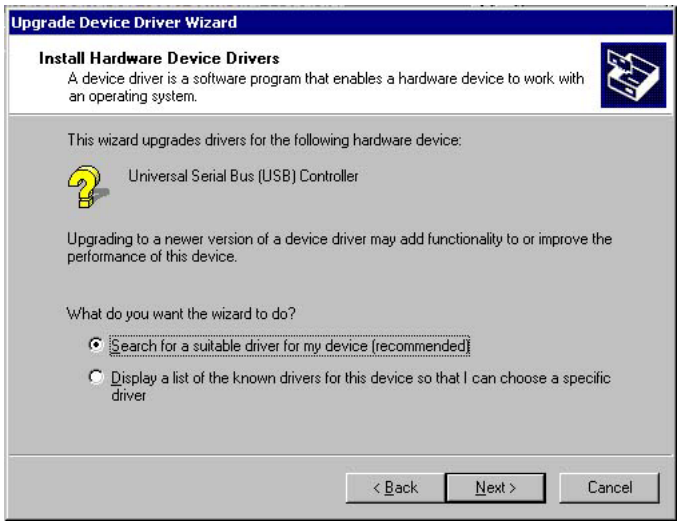


3. The PCI Universal Serial Bus Properties screen then appears, allowing you to re-install the driver. Select Driver from the main menu to proceed.

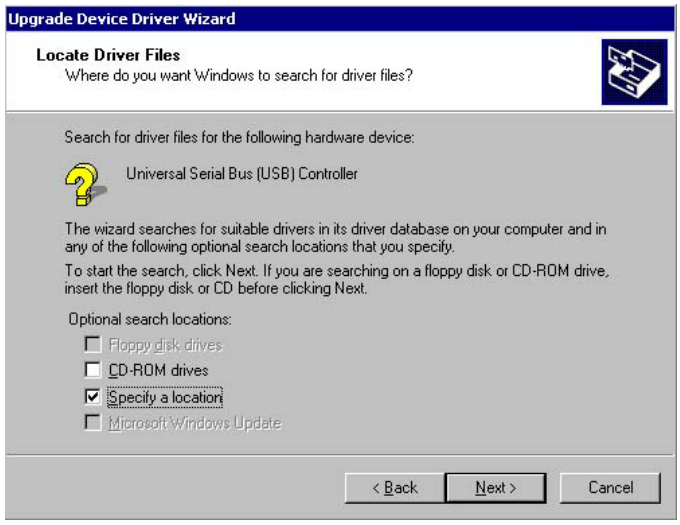


4. When the dialog box below appears, make sure you close all other Windows applications then click on the **Next >** button to proceed.

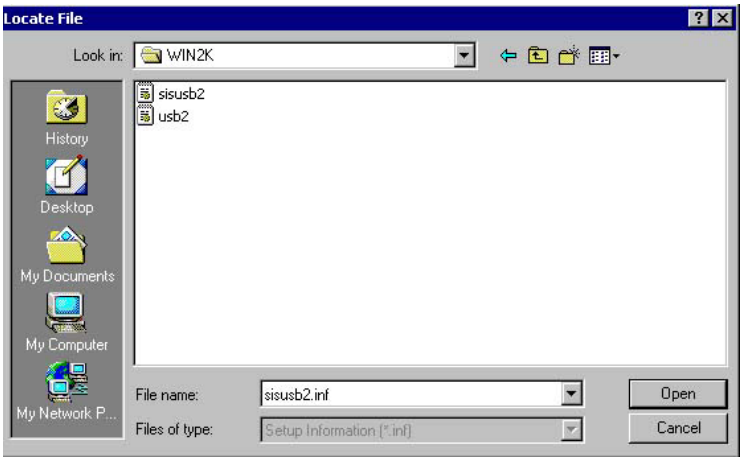
5. Tick on the "Search for a suitable driver" once the following screen appears. Click on the **Next** to proceed.



6. Once the program returns to the Add New Hardware Wizard screen, your specified location will appear. Press on the **Next** button to continue



7. Choose sisusb2.inf and press on the **Open** button to accept and proceed.



8. Once the InstallShield Wizard completes the operation and update of your USB2.0 driver. Click on the **Finish** button to complete the installation process.

5.4.3 Win XP

1. Insert Utility CD Disk to your CD ROM drive. The main menu will pop up as shown below. Select on the **HS-4705** button to launch the installation program.

2. Click on the **USB2.0 Driver** button to continue.

3. Click on the **Windows XP** button to continue.

4. When the dialog box below appears, make sure you close all other Windows applications then click on the **Next >** button to proceed.

5. Once the InstallShield Wizard completes the operation and update of your USB2.0 driver. Click on the **Finish** button to complete the installation process.