HS-4703

800MHz FSB Pentium® 4
Embedded Engine Board

• 800MHz FSB • DDR • PCI Slot •
• CRT/LVDS Panel • TV-Out •
• Giga LAN • Audio • Serial ATA •
ATA/33/66/100 • RS-232/422/485 •
• 4 COM • USB2.0 • WDT • H/W Monitor •
• 5.25” Industrial Embedded Engine Board •

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Safety Instructions

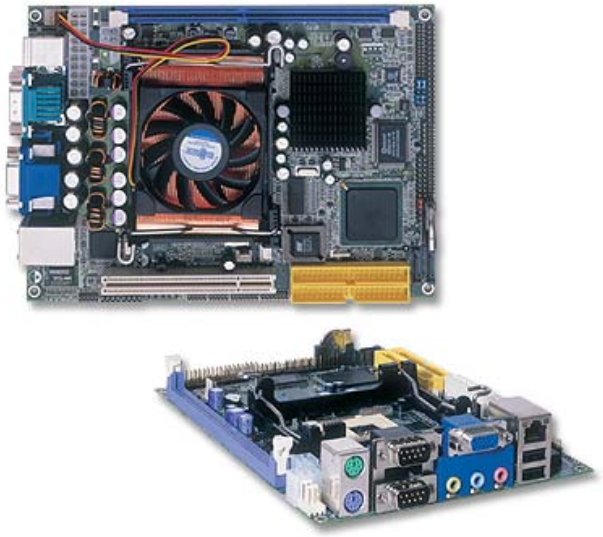
Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:

- 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-4703 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-4703 is an Intel® 82865GV/82801ER chipset-based board designed for PCI Bus PGA 478 Intel® Pentium® 4 CPU up to 3.06GHz compatibility. The combination of these features makes the HS-4703 an ideal all-in-one industrial single board computer. Additional features include an enhanced I/O with CRT/LVDS Panel, TV-Out, Giga LAN, audio, 4 COM and USB2.0 port interface.

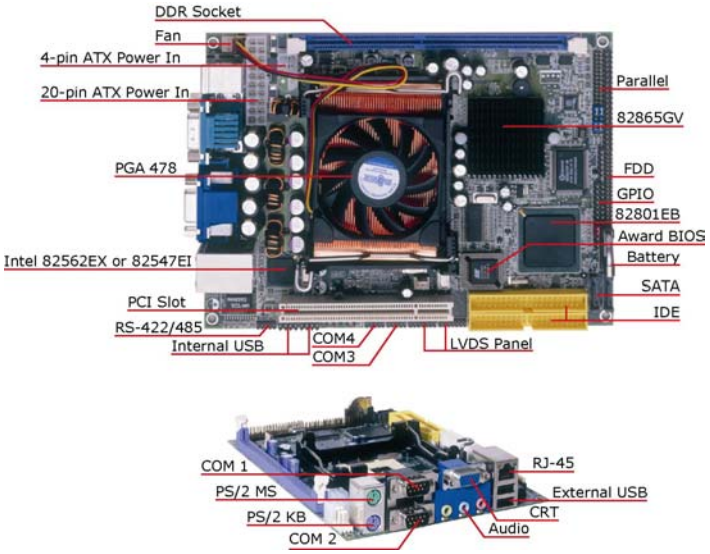
Its onboard ATA/33/66/100 connected to IDE drive interface architecture allows the HS-4703 to support data transfers of 33, 66 or 100MB/sec. for each IDE drive connection. Designed with the Intel® 82865GV/82801ER core logic chipset, the board supports all PGA 478 Pentium® 4 CPU up to 3.06GHz. The display controller is Intel® 82865GV supporting CRT displays up to 1600 x 1200. It also provides 24-bit/48-bit LVDS Panel display interface.

Serial ATA is the revolutionary ATA interface that provides scalable performance for IDE device. With up to 150MB/sec. data transfer rate, serial ATA is faster than the current parallel ATA and delivers superior input/output performance. In addition, the serial ATA interface is furnished with RAID 0/1 function for extra performance enhancement and data protection.

System memory is also sufficient with the one DDR socket that can supports DDR-266/333/400 up to 1GB. 800MHz FSB CPU can support DDR-400, 533MHz FSB CPU, can supports DDR-333, and 400MHz FSB CPU can supports DDR-266.

Additional onboard connectors include an advanced USB2.0 port providing faster data transmission, and one external RJ-45 connector for use of 100/1000 or 10/100 Based Ethernet interface.

1.1 Major Features



The HS-4703 comes with the following features:

- PGA 478 for Intel® Pentium® 4 (Northwood/0.13 micron/512KB L2 cache) up to 3.06GHz CPU
- Supports 400/533/800MHz FSB
- One DDR socket with a max. capacity of 1GB

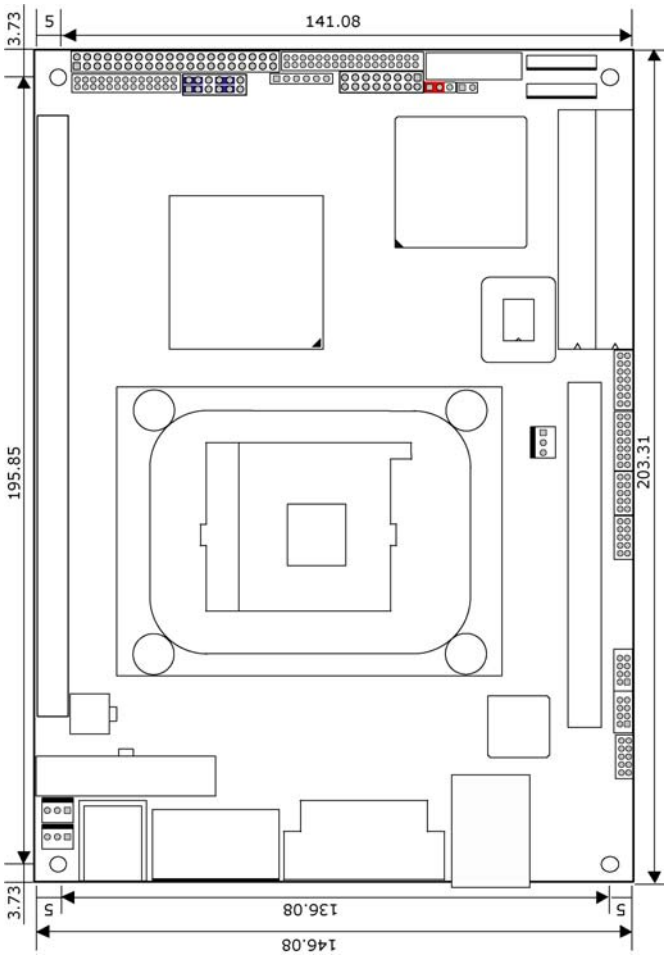
- Intel® 82865GV/82801ER system chipset
- Winbond W83627HF and Fintek F81216D super I/O chipset
- Intel® 82865GV CRT display controller
- Intel® 82562EX 10/100 Based or 82547EI 100/1000 Based LAN
- AC97 3D audio controller
- Supports Serial ATA controller
- Fast PCI ATA/33/66/100 IDE controller
- Four COM, eight USB2.0 connectors
- Supports Hardware Monitor
- Supports LVDS Panel interface (optional)
- Supports TV-Out function (optional)

1.2 Specifications

- **CPU:** PGA 478 for Intel® Pentium® 4 (Northwood/0.13 micron/512KB L2 cache) up to 3.06GHz CPU
- **Bus Interface:** PCI Bus
- **Front Side Bus:** Supports 400/533/800MHz FSB
- **Memory:** One DDR socket supporting DDR-333/400 up to 1GB
- **Chipset:** Intel® 82865GV/82801ER
- **I/O Chipset:** Winbond W83627HF, Fintek 81216D
- **PCI Slot:** One standard PCI slot
- **VGA:** Intel® 82865GV supporting CRT display up to 1600 x 1200
- **LVDS Panel:** Supports 24-bit dual channel LVDS Panel interface (optional)
- **TV-Out:** Supports PAL or NTSC TV systems (optional)
- **LAN:** Intel® 82562EX 10/100 Based or 82547EI 100/1000 Based LAN
- **Audio:** AC97 3D audio controller
- **Serial ATA:** Intel® ICH5 controller and with two ports supporting transfer rate up to 150MB/sec.
- **IDE:** Four IDE disk drives supporting ATA/33/66/100 with transfer rates of up to 33/66/100MB/sec.
- **FDD:** Supports up to two floppy disk drives
- **Parallel:** One enhanced bi-directional parallel port supporting SPP/ECP/ EPP
- **Serial Port:** 16C550 UART-compatible RS-232/422/485 x 1 and RS-232 x 3 serial ports with 16-byte FIFO
- **USB:** Eight USB2.0 connectors, six internal and two external
- **Keyboard:** PS/2 6-pin Mini DIN
- **Mouse:** PS/2 6-pin Mini DIN

- **BIOS:** Award PnP Flash BIOS
- **Watchdog Timer:** Software programmable time-out intervals from 1~256sec.
- **CMOS:** Battery backup
- **Power Connector:** One 4-pin and one 20-pin ATX power connectors
- **Temperature:** 0~+60°C (operating); -20~+80°C (storage)
- **Hardware Monitor:** Winbond W83627HF
- **Board Size:** 20.3(L) x 14.6(W) x 3.3(H) cm

1.3 Board Dimensions



Chapter 2

Unpacking

2.1 Opening the Delivery Package

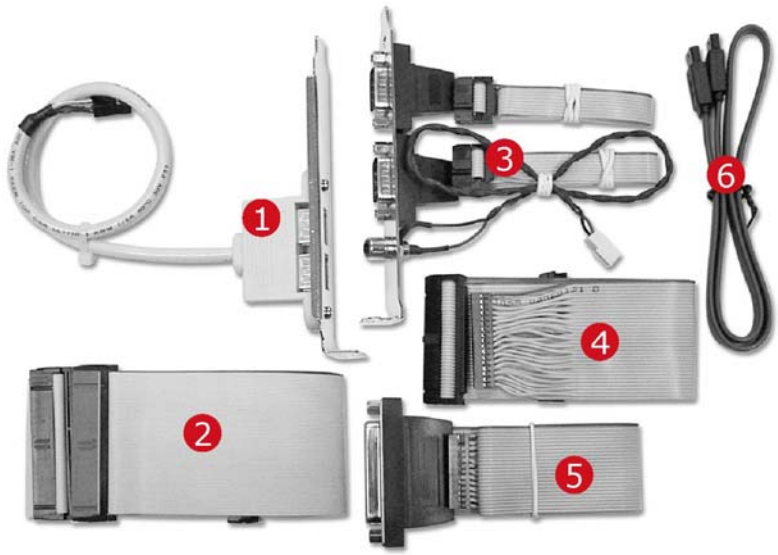
The HS-4703 is packed in an anti-static bag. The board has components that are easily damaged by static electricity. Do not remove the anti-static wrapping until proper precautions have been taken. Safety Instructions in front of this manual describe anti-static precautions and procedures.

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. Make sure all integrated circuits, particularly the BIOS, processor, memory modules, ROM-Disk, and keyboard controller chip are firmly seated. The HS-4703 delivery package contains the following items:

- **HS-4703 Board x 1**
- **Utility CD Disk x 1**
- **Cables Package x 1**
- **Cooling Fan x 1**
- **Jumper Bag x 1**
- **User's Manual**



Cables Package	
NO.	**Description**
1	Two USB flat cable with bracket x 1
2	ATA/100 IDE flat cable x 2
3	Two COM and RCA Jack flat cable with bracket x 1
4	Floppy flat cable x 1
5	Parallel port flat cable x 1
6	Serial ATA cable x 1

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 return shipment of the product. In case you discover any missing and/or damaged items from the list of items, please contact your dealer immediately.

Chapter 3

Hardware Installation

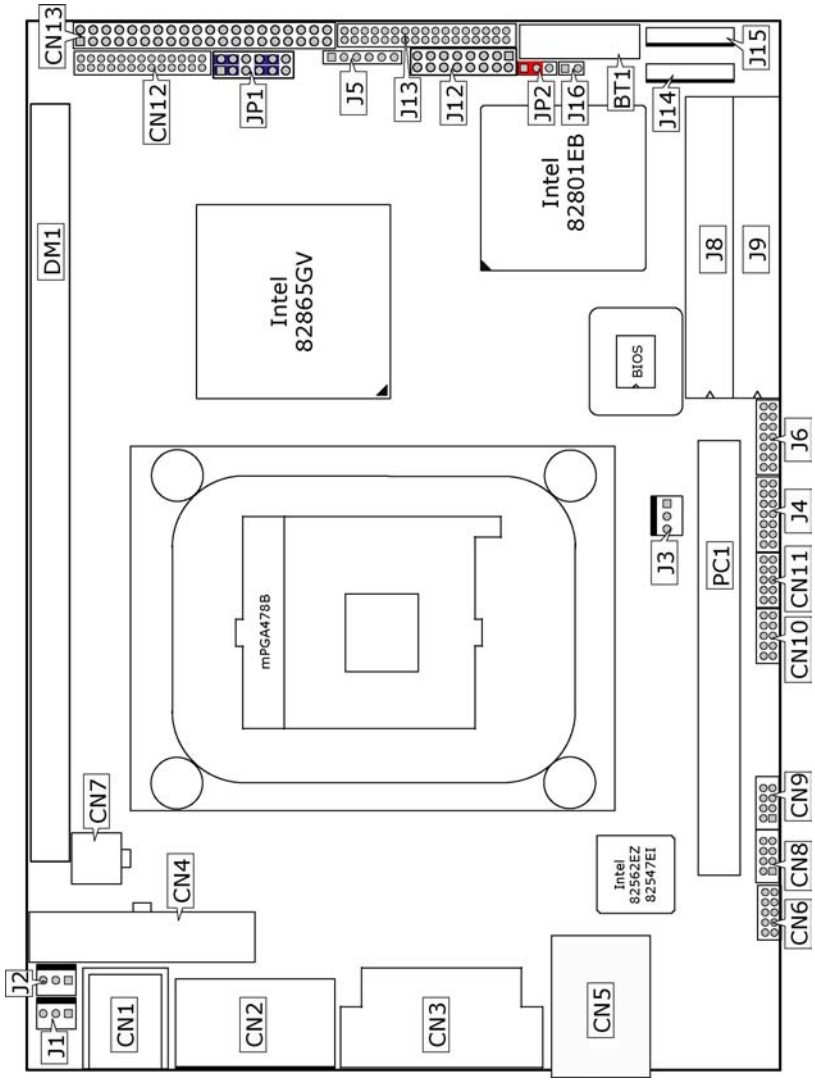
This chapter provides the information on how to install the hardware using the HS-4703. This chapter also contains information related to jumper settings of switch, watchdog timer etc.

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. (Set JP2 1-2)
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 on 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	COM2 Use RS-232 or RS-422/485 Select: *RS-232*	Short 1-3, 2-4, 7-9, 8-10	14
JP2	Clear CMOS: *Normal Operation*	1-2 Short	17

3.4 Connector List

Connector	Definition	Page
CN1(1-6)	PS/2 6-pin Mini DIN Keyboard Connector	19
CN1(7-12)	PS/2 6-pin Mini DIN Mouse Connector	19
CN2(1-9)	COM1 Connector (DB9)	14
CN2(10-18)	COM2 Connector (DB9)	14
CN3(1-15)	15-pin CRT Connector (DB15)	10
CN3(17-32)	External Audio Connector	22
CN4	20-pin ATX Power In Connector	18
CN5(1-12)	RJ-45 Connector	16
CN5(17-26)	External USB2.0 Connector	16
CN6	RS-422/485 Connector (5x2 header)	14
CN7	4-pin ATX Power In Connector	18
CN8 / CN9 / CN13(33-40)	Internal USB2.0 Connector	16
CN11 / CN10	COM3/COM4 Connector (5x2 header)	14
CN12	Parallel Connector	15
CN13(1-16)	System Front Panel Connector	20
CN13(17-22)	Internal LAN Link/Active LED Connector	16
CN13(25-32)	Internal Mic In/Audio Out Connector	22
DM1	188-pin DDR Socket	10
J1 / J2 / J3	Fan Power Connector	18
J4 / J6	24-bit LVDS Panel Connector	10
J5	Inverter Power In Connector	10
J8 /J9	IDE Connector	12
J12	GPIO Connector	19
J13	FDD Connector	13
J14 / J15	Serial ATA Connector	11
J16	TV-Out Connector	19

3.5 Configuring the CPU

The HS-4703 provides 800MHz FSB Intel® Pentium® 4 (0.13 micron/512KB L2 cache) up to 3.06GHz CPU. It offers the convenience in CPU installation with its auto-detect feature. After installing a new microprocessor onboard, the HS-4703 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.

3.6 System Memory

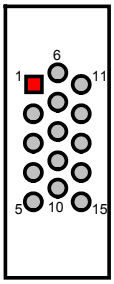
The HS-4703 provides one DDR socket at location *DM1*. The maximum capacity of the onboard memory is 1GB.

3.7 VGA Controller

The onboard Intel® 82865GV supports CRT display up to 1600 x 1200. The HS-4703 provides two methods of connecting VGA device. *CN3(1-16)* offers a single standard CRT connector (DB15), or *J4/J6* offer 24-bit/48-bit LVDS panel connectors.

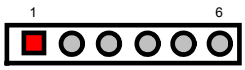
- **CN3(1-15): 15-pin CRT Connector (DB15)**

PIN	Description	PIN	Description
1	RED	2	GREEN
3	BLUE	4	N/C
5	GND	6	GND
7	GND	8	GND
9	N/C	10	GND
11	N/C	12	SDA
13	HSYNC	14	VSYNC
15	SCL		



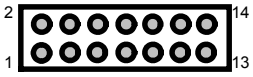
- **J5: Inverter Power In Connector**

PIN	Description
1	+12V
2	+12V
3	VCC
4	BackLight Enabled
5	LCD Enabled
6	GND



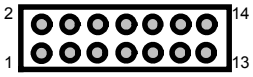
- **J4: 24-bit LVDS Panel Connector**

PIN	Description	PIN	Description
1	VCC3	2	VCC3
3	GND	4	GND
5	A0-	6	A0+
7	A1-	8	A1+
9	A2-	10	A2+
11	CLK1-	12	CLK1+
13	A3-	14	A3+



- **J6: 24-bit LVDS Panel Connector**

PIN	Description	PIN	Description
1	VCC3	2	VCC3
3	GND	4	GND
5	A4-	6	A4+
7	A5-	8	A5+
9	A6-	10	A6+
11	CLK2-	12	CLK2+
13	A7-	14	A7+



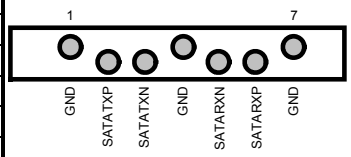
NOTE: *If using J6 only, it just supports 24-bit LVDS Panel; If you want to use 48-bit LVDS Panel, please using J6 and J4 combined.*

3.8 Serial ATA Function

You can connect the Serial ATA device to this connector provides you high speeds transfer rates (150MB/sec.). If you wish to use RAID function, please note that these two Serial ATA connectors just support RAID0 and only compatible with WIN XP.

- **J14/J15: Serial ATA Connector**

PIN	Description
1	GND
2	SATATXP
3	SATATXN
4	GND
5	SATARXN
6	SATARXP
7	GND



IDE and Serial ATA Device Configurations

Following are the IDE and Serial ATA device configurations supported by Intel ICH5 specifications.

Native operating systems (OS) are Windows 2000/XP. ICH5 supports a maximum of six devices using these OS.

Legacy OS are MS-DOS, Windows 95/98/Me/NT4.0. ICH5 supports a maximum of four devices using these OS.

Operating System	IDE	Serial ATA
WIN 2000/XP	Primary/Secondary	Port0/Port1
WIN 95/98/Me/NT4.0	Primary	Port0/Port1
	Secondary	Port0/Port1
	Primary/Secondary	----

3.9 PCI E-IDE Drive Connector

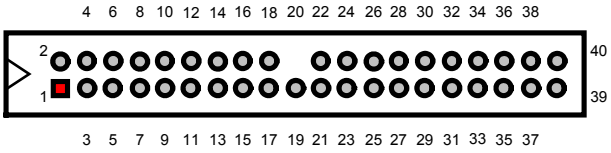
J8 and *J9* are standard 40-pin daisy-chain driver connector that serves the PCI E-IDE drive provisions onboard the HS-4703. A maximum of four ATA/33/66/100 IDE drives can be connected to the HS-4703 via *J8* and *J9*.

- **J8/J9: IDE Connector**

PIN	Description	PIN	Description
1	RESET	2	GND
3	DATA 7	4	DATA 8
5	DATA 6	6	DATA 9
7	DATA 5	8	DATA 10
9	DATA 4	10	DATA 11
11	DATA 3	12	DATA 12
13	DATA 2	14	DATA 13
15	DATA 1	16	DATA 14
17	DATA 0	18	DATA 15
19	GND	20	N/C
21	PDREQ	22	GND
23	IOW#	24	GND
25	IOR#	26	GND
27	PIORDY	28	PR1PD1-
29	RPDACK-	30	GND
31	Interrupt	32	N/C
33	RPDA1-	34	PATA66
35	RPDA0-	36	RPDA2-

...More On Next Page...

PIN	Description	PIN	Description
37	RPCS1-	38	RPCS3-
39	HDD Active	40	GND

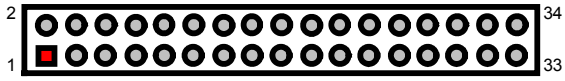


3.10 Floppy Disk Drive Connector

The HS-4703 uses a standard 34-pin header connector, *J13*, for floppy disk drive connection. A total of two FDD drives may be connected to *J13* at any given time.

- **J13: FDD Connector**

PIN	Description	PIN	Description
1	GND	2	DRVDEN0
3	GND	4	N/C
5	GND	6	DRVDEN1
7	GND	8	INDEX#
9	GND	10	MTR0#
11	GND	12	DS1#
13	GND	14	DS0#
15	GND	16	MTR1#
17	GND	18	DIR#
19	GND	20	STEP#
21	GND	22	WDATA#
23	GND	24	WGATE#
25	GND	26	TRAK00#
27	GND	28	WRTPRT#
29	GND	30	RDATA#
31	GND	32	HDSEL#
33	GND	34	DSKCHG#

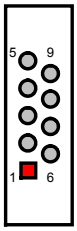


3.11 Serial Port Connectors

The HS-4703 offers two NS16C550 compatible UARTs with Read/Receive 16-byte FIFO serial ports and four internal 10-pin headers.

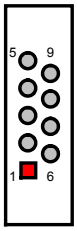
- **CN2(1-9): COM1 Connector (DB9)**

PIN	Description	PIN	Description
1	DCD1	6	DSR1
2	RXD1	7	RTS1
3	TXD1	8	CTS1
4	DTR1	9	RI1
5	GND		



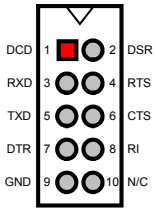
- **CN2(10-18): COM1 Connector (DB9)**

PIN	Description	PIN	Description
10	DCD2	15	DSR2
11	RXD2	16	RTS2
12	TXD2	17	CTS2
13	DTR2	18	RI2
14	GND		



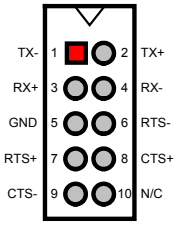
- **CN11/CN10: COM3/COM4 Connector (5x2 header)**

PIN	Description	PIN	Description
1	DCD	2	DSR
3	RXD	4	RTS
5	TXD	6	CTS
7	DTR	8	RI
9	GND	10	N/C



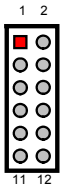
- **CN6: RS-422/485 Connector (5x2 header)**

PIN	Description	PIN	Description
1	TX-	2	TX+
3	RX+	4	RX-
5	GND	6	RTS-
7	RTS+	8	CTS+
9	CTS-	10	N/C



- **JP1: COM2 Use RS-232 or RS-422/485 Select**

Options	Setting
RS-232 (default)	Short 1-3, 2-4, 7-9, 8-10
RS-422/485	Short 3-5, 4-6, 9-11, 10-12

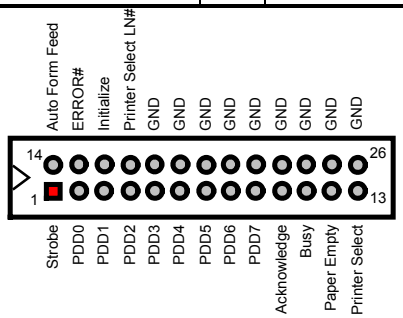


3.12 Parallel Connector

CN12 is a standard 26-pin flat cable connector designed to accommodate parallel port connection onboard the HS-4703.

- **CN12: Parallel Connector**

PIN	Description	PIN	Description
1	Strobe	14	Auto Form Feed
2	DATA 0	15	ERROR#
3	DATA 1	16	Initialize
4	DATA 2	17	Printer Select LN#
5	DATA 3	18	GND
6	DATA 4	19	GND
7	DATA 5	20	GND
8	DATA 6	21	GND
9	DATA 7	22	GND
10	Acknowledge	23	GND
11	Busy	24	GND
12	Paper Empty	25	GND
13	Printer Select	26	GND

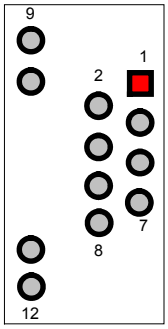


3.13 Ethernet Connector

The HS-4703 provides one RJ-45 connector. Please refer to the following for its pin information.

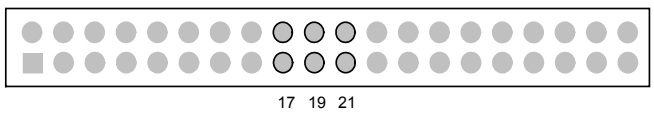
- **CN5(1-12): RJ-45 Connector**

PIN	Description	PIN	Description
1	TX+	2	TX-
3	RX+	4	R/C GND
5	R/C GND	6	RX-
7	R/C GND	8	R/C GND
9	Link LED	10	330Ω Pull 3VSB
11	Active LED	12	330Ω Pull 3VSB



- **CN13(17-22): Internal LAN Link/Active LED Connector**

PIN	Description	PIN	Description
17	Link LED	18	330Ω Pull 3VSB
19	N/C	20	330Ω Pull 3VSB
21	Active LED	22	330Ω Pull 3VSB

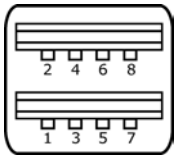


3.14 USB Connector

The HS-4703 provides three 8-pin internal connector, at location *CN8*, *CN9* and *CN13(33-40)*, and two 4-pin external connector, at locations *CN5(17~26)*, for eight USB2.0 connections to the HS-4703.

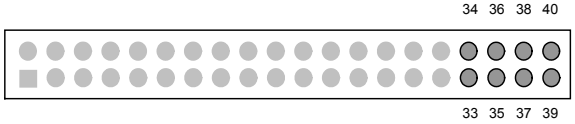
- **CN5(17-26): External USB2.0 Connector**

PIN	Description	PIN	Description
1	VCC	2	VCC
3	BD1-	4	BD2-
5	BD1+	6	BD2+
7	GND	5	GND



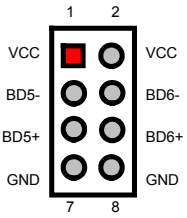
- **CN13(33-40): Internal USB2.0 Connector**

PIN	Description	PIN	Description
33	VCC	34	VCC
35	BD3-	36	BD4-
37	BD3+	38	BD4+
39	GND	40	GND



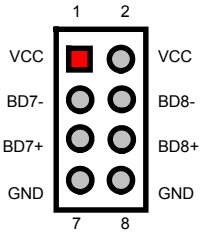
- **CN8: Internal USB2.0 Connector**

PIN	Description	PIN	Description
1	VCC	2	VCC
3	BD5-	4	BD6-
5	BD5+	6	BD6+
7	GND	8	GND



- **CN9: Internal USB2.0 Connector**

PIN	Description	PIN	Description
1	VCC	2	VCC
3	BD7-	4	BD8-
5	BD7+	6	BD8+
7	GND	8	GND

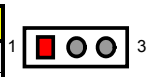


3.15 CMOS Data Clear

The HS-4703 has a Clear CMOS jumper on *JP2.*

- **JP2: Clear CMOS**

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



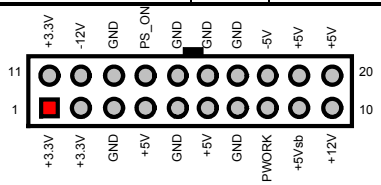
IMPORTANT: *Before you turn on the power of your system, please set JP2 to short 1-2 for normal operation.*

3.16 Power and Fan Connectors

HS-4703 provides one 4-pin ATX power in connector at *CN7*, and one 20-pin ATX power in connector at *CN4*.

- **CN4: 20-pin ATX Power In Connector**

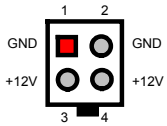
PIN	Description	PIN	Description
1	+3.3V	11	+3.3V
2	+3.3V	12	-12V
3	GND	13	GND
4	+5V	14	PS_ON
5	GND	15	GND
6	+5V	16	GND
7	GND	17	GND
8	PWORK	18	N/C
9	+5Vsb	19	+5V
10	+12V	20	+5V



Button View

- **CN7: 4-pin ATX Power In Connector**

PIN	Description
1	GND
2	GND
3	+12V
4	+12V

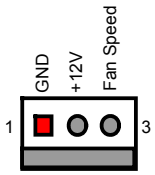


Top View

J1, J2 and *J3* onboard HS-4703 are 3-pin fan power connectors.

- **J1/J2/J3: Fan Power In Connector**

PIN	Description
1	GND
2	+12V
3	Fan Speed

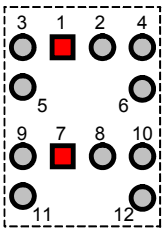


3.17 Keyboard and Mouse Connector

The HS-4703 offers one possibility for keyboard/mouse connection. The connections are done via *CN1* for an external PS/2 type keyboard and mouse connections.

- **CN1: PS/2 6-pin Mini DIN Keyboard/Mouse Connector**

PIN	Description	PIN	Description
1	Keyboard Data	7	Mouse Data
2	N/C	8	N/C
3	GND	9	GND
4	+5V	10	+5V
5	Keyboard Clock	11	Mouse Clock
6	N/C	12	N/C

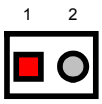


3.18 TV-Out Function

The HS-4703 can support TV-Out function whose input could be up to 800 x 600 graphics resolutions. World Wide Video standards are supported including NTSC-M (North America, Taiwan), NTSC-J (Japan), PAL-B, D, G, H, I (Europe, Asia), PAL-M (Brazil), PAL-N (Uruguay, Paraguay) and PAL-NC (Argentina).

- **J16: TV-Out Connector**

PIN	Description	PIN	Description
1	GND	2	CVB

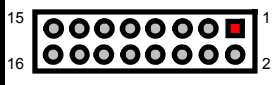


3.19 GPIO Connector

The HS-4703 provides a *J12* connector for GPIO function.

- **J12: GPIO Connector**

PIN	Description	PIN	Description
1	BIT7	2	10KΩ Pull 3VSB
3	BIT6	4	10KΩ Pull 3VSB
5	BIT5	6	10KΩ Pull 3VSB
7	BIT4	8	10KΩ Pull 3VSB
9	BIT3	10	10KΩ Pull 3VSB
11	BIT2	12	10KΩ Pull 3VSB
13	BIT1	14	10KΩ Pull 3VSB
15	BIT0	16	10KΩ Pull 3VSB

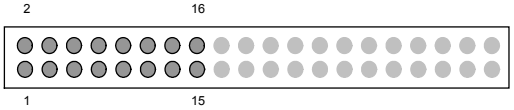


3.20 System Front Panel Connectors

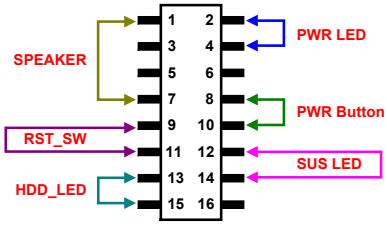
The HS-4703 has one system front panel at location *CN13(1-16)* that indicates the system front panel status.

- **CN13(1-16): System Front Panel Connector**

PIN	Description	PIN	Description
1	VCC	2	330Ω Pull VCC
3	GND	4	GND
5	GND	6	GND
7	Speaker	8	PS_ON
9	GND	10	330Ω Pull +5Vsb
11	Reset Button	12	SUS LED
13	330Ω Pull VCC	14	330Ω Pull +5Vsb
15	HDD LED	16	N/C



Connector CN13(1-16) Orientation



3.21 Watchdog Timer

Once the Enable 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 assume that the program operation is abnormal. A System Reset signal will re-start when such error happens.

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
```

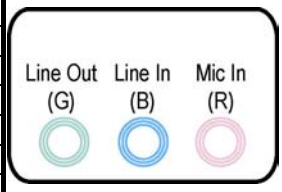
User can also use AL, 00H's defined time for reset purposes, e.g.00H for Disable, 01H = 1sec, 02H = 2sec to FFH = 255sec.

3.22 Audio Connectors

The HS-4703 has an onboard AC97 3D audio interface. The following tables list the pin assignments of the MIC In, Line Out, and Line In connectors.

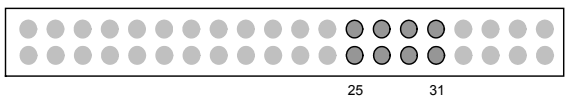
- **CN3(17-32): External Audio Connector**

PIN	Description	PIN	Description
17	GND	25	GND
18	N/C	26	GND
19	GND	27	Line In L
20	GND	28	Audio Out R
21	GND	29	N/C
22	MIC In 1	30	GND
23	Line In R	31	N/C
24	GND	32	Audio Out L



- **CN13(25-32): Internal MIC In/Audio Out Connector**

PIN	Description	PIN	Description
25	Font Audio Out L	26	Font Audio Out R
27	Audio GND	28	Audio GND
29	MIC In 2	30	N/C
31	Audio GND	32	Audio GND



Chapter 4

Award BIOS Setup

The HS-4703 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 detail about how to navigate 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 F9 : Menu in BIOS 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 Features

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, Nov 17 2004	Item Help
Time (hh:mm:ss)	10 : 32 : 57	Menu Level ▶
▶ IDE Channel 0 Master	[Auto]	Change the day, month, year and century
▶ IDE Channel 0 Slave	[Auto]	
▶ IDE Channel 1 Master	[Auto]	
▶ IDE Channel 1 Slave	[Auto]	
Drive A	[1.44M, 3.5in.]	
Drive B	[None]	
Video	[EGA/VGA]	
Halt On	[All Errors]	
Base Memory	640K	
Extended Memory	65535K	
Total Memory	1024K	

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

4.5 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.

Phoenix – AwardBIOS CMOS Setup Utility
Advanced BIOS Features

▶	Hard Disk Boot Priority	[Press Enter]	Item Help
	Virus Warning	[Disabled]	Menu Level ▶
	CPU L1 & L2 Cache	[Enabled]	
	CPU L3 Cache	[Enabled]	
	Hyper-Threading Technology	[Enabled]	
	Quick Power On Self Test	[Enabled]	
	First Boot Device	[Floppy]	
	Second Boot Device	[Hard Disk]	
	Third Boot Device	[CDROM]	
	Boot Other Device	[Enabled]	
	Swap Floppy Drive	[Disabled]	
	Boot Up Floppy Seek	[Enabled]	
	Boot Up NumLock Status	[Off]	
	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]	
	Report No FDD For WIN 95	[No]	
	Full Screen LOGO Show	[Disabled]	
	Small Logo(EPA) Show	[Enabled]	

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

Phoenix – AwardBIOS CMOS Setup Utility
Hard Disk Boot Priority

1. Pri.Master	:	Item Help
2. Pri.Slave	:	Menu Level ▶
3. Sec.Master	:	
4. Sec.Slave	:	
5. USBHDD0	:	
6. USBHDD1	:	
7. USBHDD2	:	
8. Bootable Add-in Cards		

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

4.6 Advanced Chipset Features

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 making 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 ▶
CAS Latency Time	[2]	
Active to Precharge Delay	[8]	
DRAM RAS# to CAS# Delay	[4]	
DRAM RAS# Precharge	[4]	
Memory Frequency For	[Auto]	
System BIOS Cacheable	[Enabled]	
Video BIOS Cacheable	[Enabled]	
Memory Hole At 15M-16M	[Disabled]	
Delay Prior to Thermal	[16 Min]	
AGP Aperture Size (MB)	[128]	
Init Display First	[PCI Slot]	
** ON-Chip VGA Setting **		
On-Chip VGA	[Enabled]	
On-Chip Frame Buffer size	[8MB]	
Boot Display	[CRT]	
Panel Scaling	[Auto]	
Panel Number	[1]	
TV Standard	[Off]	
Video Connector	[Automatic]	
TV Format	[Auto]	
Onboard LAN Control	[Enabled]	

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

4.7 Integrated Peripherals

The IDE hard drive controllers can support up to two 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.

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 themselves. This is much simpler and more efficient (also faster).

Phoenix – AwardBIOS CMOS Setup Utility
Integrated Peripherals

▶ OnChip IDE Device	[Press Enter]	Item Help
▶ Onboard Device	[Press Enter]	Menu Level ▶
▶ SuperIO Device	[Press Enter]	
Onboard Serial Port 3	[3E8]	
Serial Port 3 Use IRQ	[IRQ10]	
Onboard Serial Port 4	[2E8]	
Serial Port 4 Use IRQ	[IRQ11]	

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

Phoenix – AwardBIOS CMOS Setup Utility
OnChip IDE Device

IDE HDD Block Mode	[Enabled]	Item Help
IDE DMA transfer access	[Enabled]	Menu Level ▶
On-Chip Primary PCI IDE	[Enabled]	
IDE Primary Master PIO	[Auto]	
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]	
** On-Chip Serial ATA Setting **		
SATA Mode	[IDE]	
On-Chip Serial ATA	[Auto]	
Serial ATA Port0 Mode	[Primary Master]	
Serial ATA Port1 Mode	Primary Master	

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

Phoenix – AwardBIOS CMOS Setup Utility
Onboard Device

USB Controller	[Enabled]	Item Help
USB 2.0 Controller	[Enabled]	Menu Level ▶
USB Keyboard Support	[Disabled]	
AC97 Audio	[Auto]	

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

Phoenix – AwardBIOS CMOS Setup Utility
SuperIO Device

POWER ON Function	[BUTTON ONLY]	Item Help
KB Power ON Password	[Enter]	Menu Level ▶
Hot Key Power ON	[Ctrl-F1]	
Onboard FDC Controller	[Enabled]	
Onboard Serial Port 1	[3F8/IRQ4]	
Onboard Serial Port 2	[2F8/IRQ3]	
UART Mode Select	[Normal]	
RxD, TxD Active	[Hi, Lo]	
IR Transmission Delay	[Enabled]	
UR2 Duplex Mode	[Half]	
Use IR Pins	[IR-Rx2Tx2]	
Onboard Parallel Port	[378/IRQ7]	
Parallel Port Mode	[SPP]	
EPP Mode Select	[EPP1.7]	
ECP Mode Use DMA	[3]	
PWRON After PWR-Fail	[Off]	
Midi Port Address	[330]	
Mini Port IRQ	[5]	

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

4.8 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

			Item Help
	ACPI Function	[Enabled]	Menu Level ▶
	ACPI Suspend Type	[S1(POS)]	
X	Run VGA BIOS if S3 Resume	Auto	
	Power Management	[User Define]	
	Video Off Method	[DPMS]	
	Video Off In Suspend	[Yes]	
	Suspend Type	[Stop Grant]	
	MODEM Use IRQ	[NA]	
	Suspend Mode	[Disabled]	
	HDD Power Down	[Disabled]	
	Soft-Off by PWR-BTTN	[Instant-Off]	
	CPU THRM-Throttling	[50.0%]	
	Wake-Up by PCI card	[Disabled]	
	Power On by Ring	[Disabled]	
	Wake Up On LAN	[Disabled]	
X	USB KB Wake-Up From S3	Disabled	
	Resume by Alarm	[Disabled]	
X	Date(of Month) Alarm	0	
X	Time(hh:mm:ss) Alarm	0 : 0 : 0	
	** 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: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

4.9 PnP/PCI Configurations

This section describes the configuration of 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

Reset Configuration Data	[Disabled]	Item Help
		Menu Level ▶
Resources Controlled By	[Auto(ESCD)]	
X IRQ Resources	Press Enter	Default is Disabled. Select Enabled to reset Extended System Configuration Data ESCD) when you exit Setup if you have Installed a new add-on And the system Reconfiguration has Caused such a serious Conflict that the OS Cannot boot
PCI/VGA Palette Snoop	[Disabled]	

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit 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		
Current CPUFAN3 Speed		
IN0(V)		
IN1(V)		
IN2(V)		
+5V		
+12V		
-12V		
-5V		
VBAT(V)		
5VSB(V)		
Shutdown Temperature	[Disabled]	

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit 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

CPU Clock Ratio	[8 X]	Item Help
		Menu Level ▶

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

4.12 Load Fail-Safe Defaults

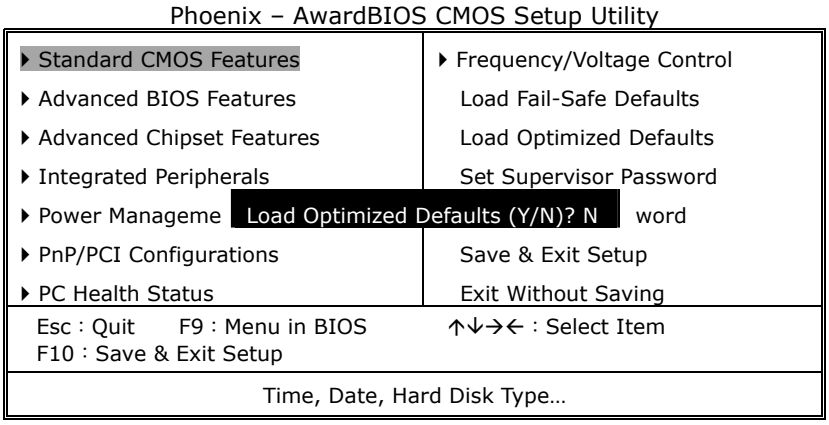
When you press <Enter> on this item you will get a confirmation dialog box with a message shown below. This option allows you to load/restore the BIOS default values permanently stored in the BIOS ROM. Pressing 'Y' loads the BIOS default values for the most stable, minimal-performance system operations.

Phoenix – AwardBIOS CMOS Setup Utility

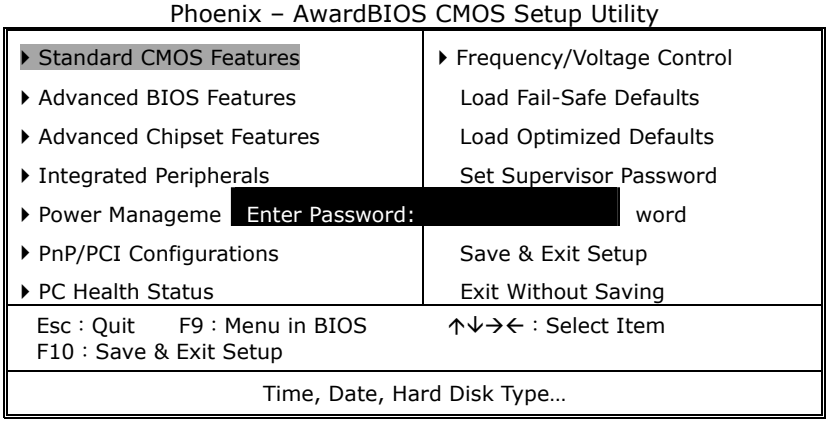
▸ Standard CMOS Features	▸ Frequency/Voltage Control
▸ Advanced BIOS Features	Load Fail-Safe Defaults
▸ Advanced Chipset Features	Load Optimized Defaults
▸ Integrated Peripherals	Set Supervisor Password
▸ Power Management Load Fail-Safe Defaults (Y/N)? N word	
▸ PnP/PCI Configurations	Save & Exit Setup
▸ PC Health Status	Exit Without Saving
Esc : Quit F9 : Menu in BIOS F10 : Save & Exit Setup	↑↓→← : Select Item
Time, Date, Hard Disk Type…	

4.13 Load Optimized Defaults

When you press <Enter> on this item you get a confirmation dialog box with a message similar to the figure below. This option allows you to load/restore the default values to your system configuration, optimizing and enabling all high performance features. Pressing 'Y' loads the default values that are factory settings for optimal performance system operations.



4.14 Set Supervisor/User Password



You can set either supervisor or user password, or both of them. The differences between are:

- **supervisor password:** can enter and change the options of the setup menus.
- **user password:** just can only enter but do not have the right to change the options of the setup menus.

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:

Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable a password, just press <Enter> when you are prompted to enter the password. A message is confirmed and the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

PASSWORD DISABLED.

When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

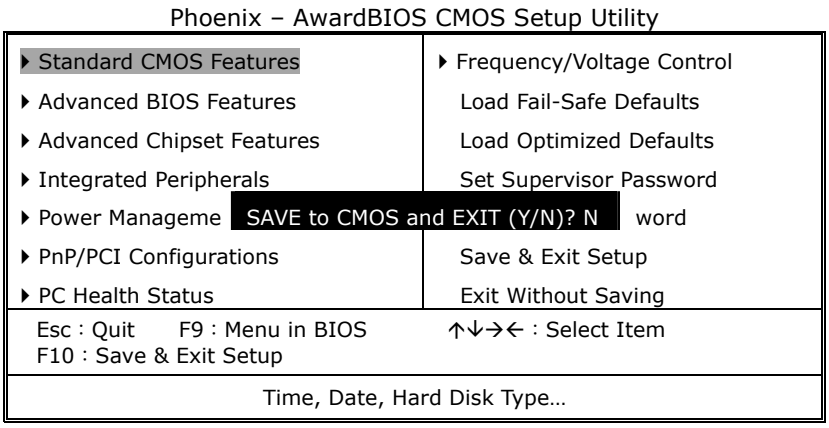
Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option (see Section 3). If the Security option is set to “System”, the password will be required both at boot and at entry to Setup. If set to “Setup”, prompting only occurs when trying to enter Setup.

4.15 Save & Exit Setup

Press <Enter> on this item for confirmation:

Pressing “Y” stores the selections made in the menus in CMOS – a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values the system is restarted again.



4.16 Exit Without Saving

Pressing <Enter> on this item asks for confirmation:

Quit without saving (Y/N)? Y

This allows you to exit Setup without storing any change in CMOS. The previous selections remain in effect. This exits the Setup utility and restarts your computer.

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 Manageme Quit without Saving (Y/N)? N word	
▸ PnP/PCI Configurations	Save & Exit Setup
▸ PC Health Status	Exit Without Saving

Esc : Quit F9 : Menu in BIOS ↑↓→← : Select Item
F10 : Save & Exit Setup

Time, Date, Hard Disk Type…

Chapter 5

Software Utilities

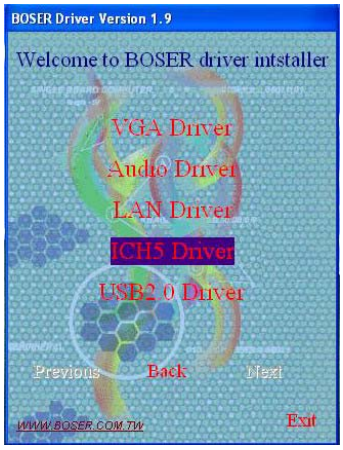
This chapter contains the detailed information of IDE, VGA, LAN, audio and USB2.0 driver installation procedures. The utility disk that comes with the delivery package contains an auto-run program that invokes the installation programs for the IDE, VGA, LAN and Audio drivers. The following sections describe 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.

The drivers are located in the following directories of the utility disk:

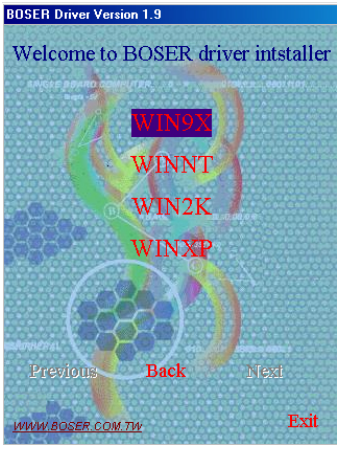
- **Chipset driver:** \ICH5
- **VGA driver:** \VGA\865GV
- **LAN driver:** \LAN\82562&82547
- **Audio driver:** \Audio\AC97_ALC201
- **USB2.0 driver:** \USB20

5.1 IDE Driver Installation

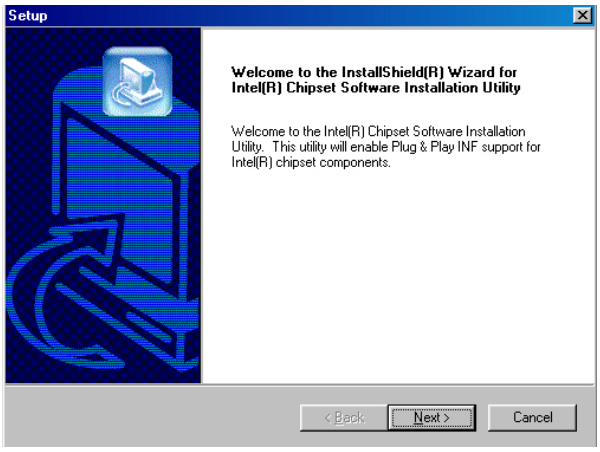
1. Insert Utility CD Disk to your CD ROM drive. The main menu will pop up as shown below. Select on the **HS-4703** button to launch the installation program.
2. Click on the **ICH5 Driver** button to continue.



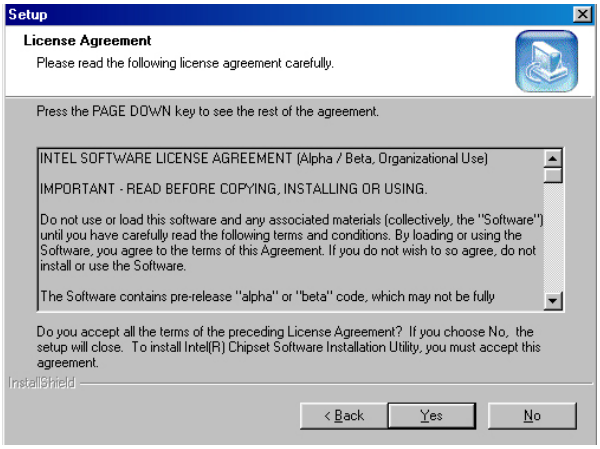
3. Click on the appropriate OS button to continue.



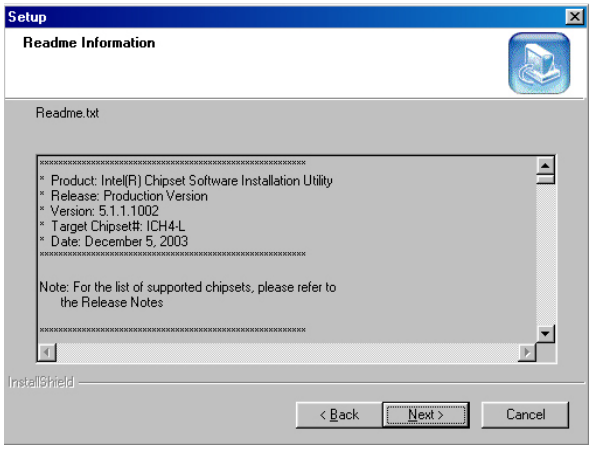
4. Immediately after clicking the IDE button in Step 1, the program launches the InstallShield Wizard that will assist you in the installation process. Click on the **Next >** button to proceed.



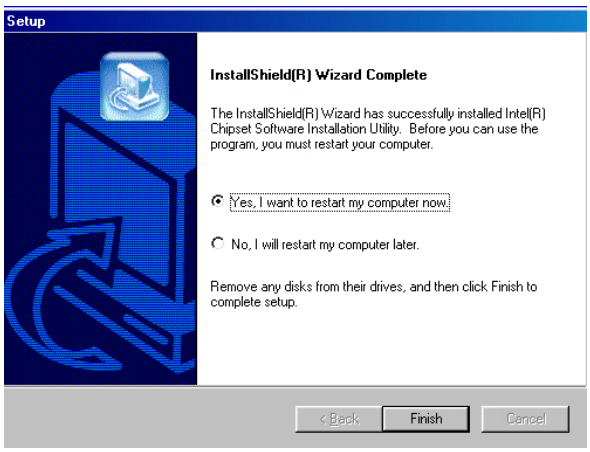
5. The Intel OEM Software License Agreement dialog box then appears on the screen. Choose **Yes** to proceed.



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.

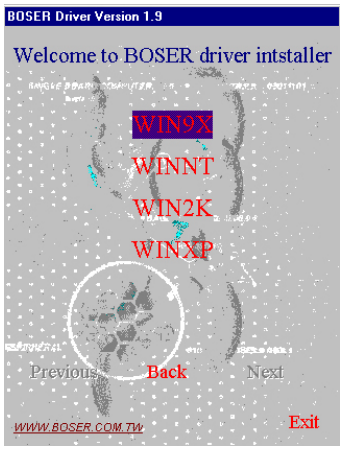


NOTE: *WIN98/2K/XP IDE driver installations are the same.*

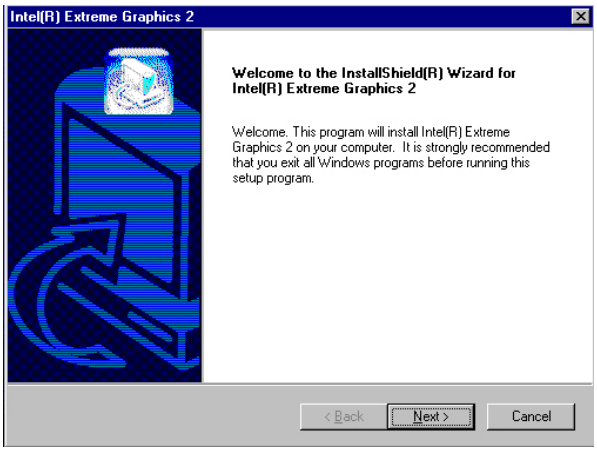
5.2 VGA Driver Installation

5.2.1 Win 98

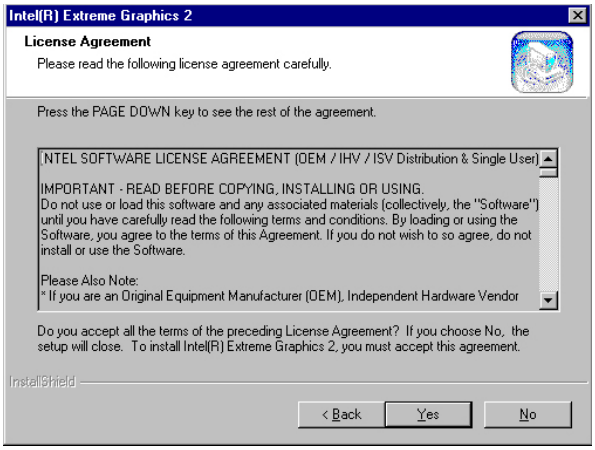
1. Insert Utility CD Disk into your CD ROM drive. The main menu will pop up as shown below. Select on the **HS-4703** button to launch the installation program.
2. Click on the **VGA Driver** button to continue.
3. Click on the **WIN9X** button to continue.



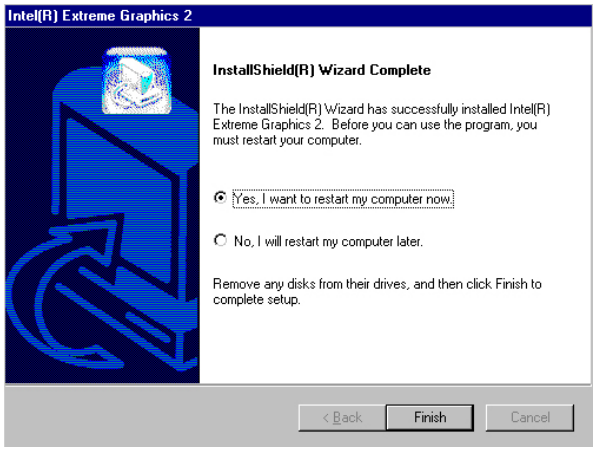
4. When the dialog box below appears, make sure you close all other Windows applications then click on the **Next >** button to proceed.



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



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.

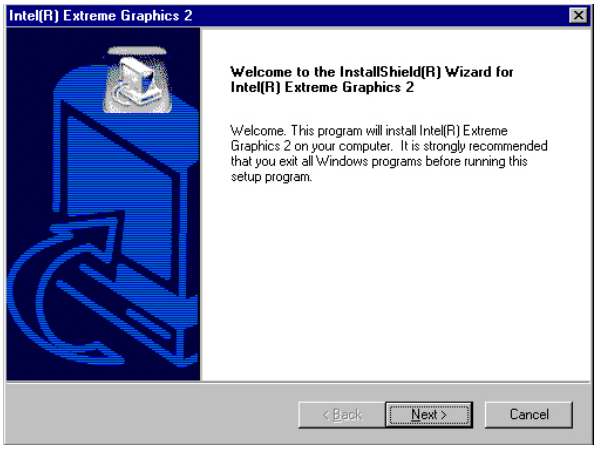


5.2.2 Win NT

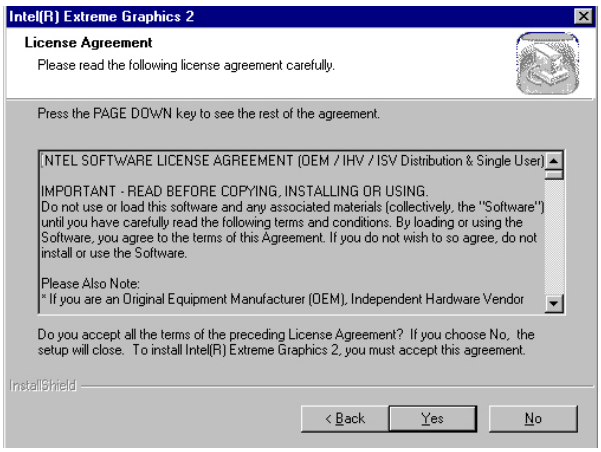
NOTE: *Please make sure you have already installed* ***Service Pack 6.0.***

1. Insert Utility CD Disk into your CD ROM drive. The main menu will pop up as shown below. Select on the **HS-4703** button to launch the installation program.
2. Click on the **VGA Driver** button to continue.
3. Click on the **WINNT** button to continue.

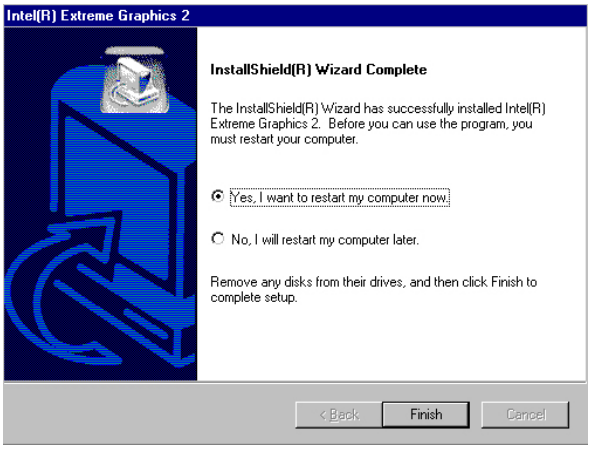
4. When the dialog box below appears, make sure you close all other Windows applications then click on the **Next >** button to proceed.



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

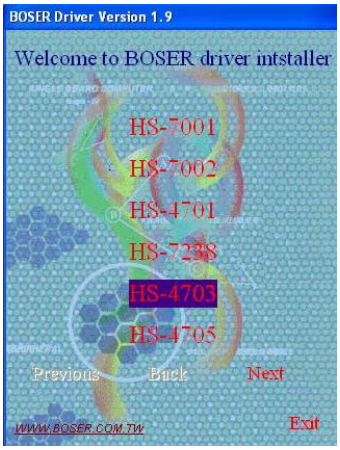


6. Once the setup program finishes copying files into your system, it will prompt you to restart the computer. Tick on the **Yes, I want to restart my computer now** followed by a click on the **Finish** button to reboot. Only after your computer boots will the new settings take effect.

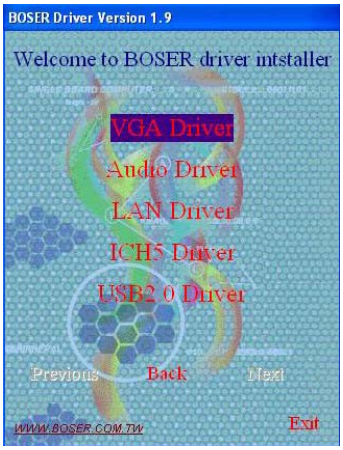


5.2.3 Win 2000

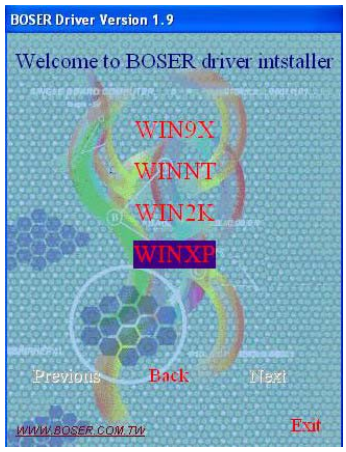
1. Insert Utility CD Disk into your CD ROM drive. The main menu will pop up as shown below. Select on the **HS-4703** button to launch the installation program.



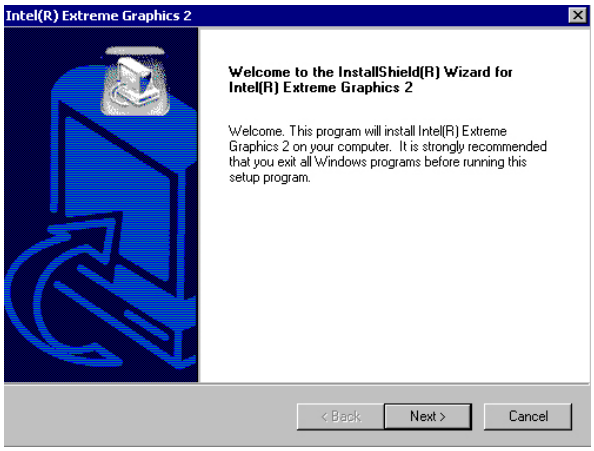
2. Click on the **VGA Driver** button to continue.



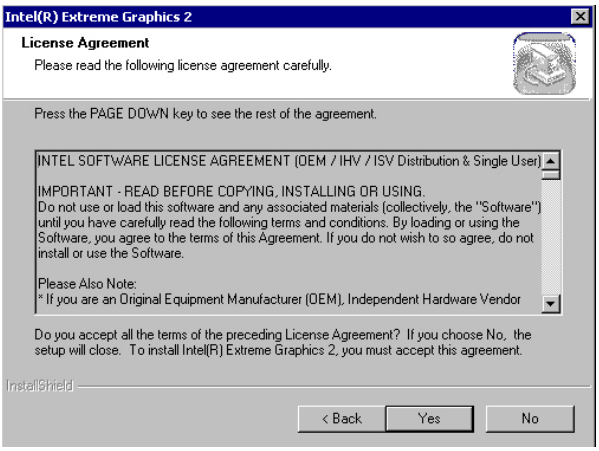
3. Click on the **WIN2K** button to continue.



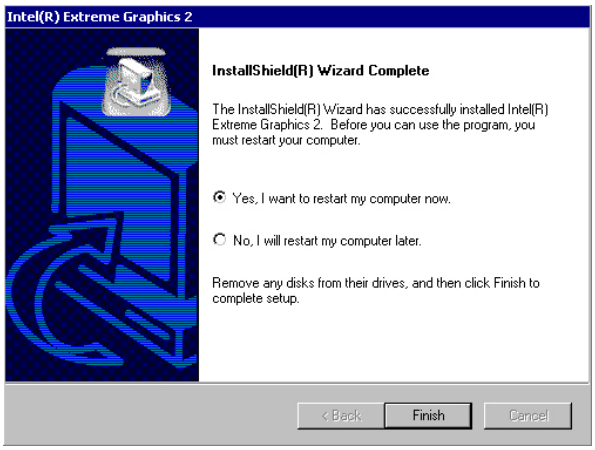
4. When the dialog box below appears, make sure you close all other Windows applications then click on the **Next >** button to proceed.



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



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.

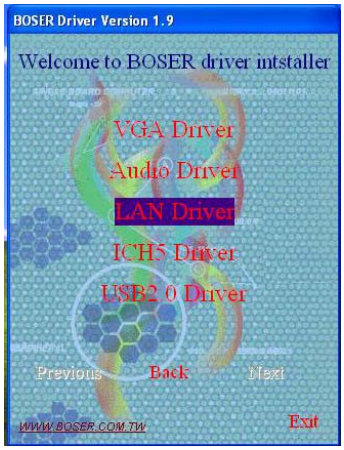


NOTE: *WINXP driver installation is the same as WIN2K.*

5.3 LAN Driver Installation

5.3.1 Win 98/Win2K/WINXP

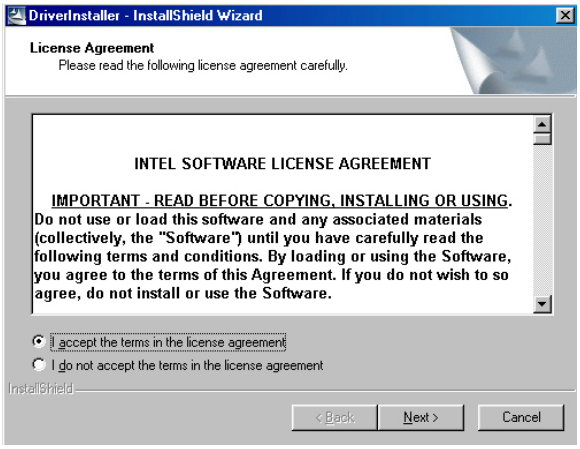
1. Insert Utility CD Disk into your CD ROM drive. The main menu will pop up as shown below. Select on the **HS-4703** button to launch the installation program.
2. Click on the **LAN Driver** button to continue.



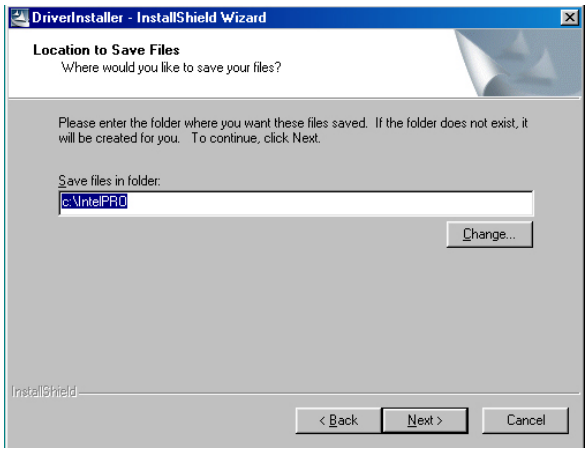
3. Click on the OS button to continue.

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

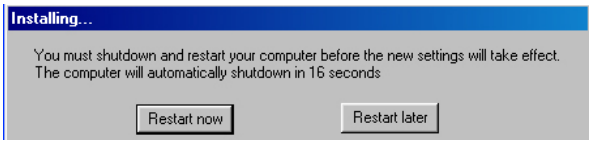
5. The Intel OEM Software License Agreement dialog box then appears on the screen. Choose **Accept** to proceed.



6. Choose the drivers install location. (ex: c:\IntelPRO)



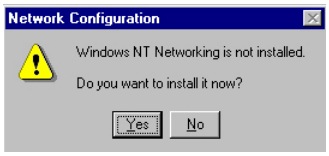
7. Once the setup program finishes copying files into your system, it will prompt you to restart the computer. Tick on the **Restart now** to reboot. Only after your computer boots will the new settings take effect.



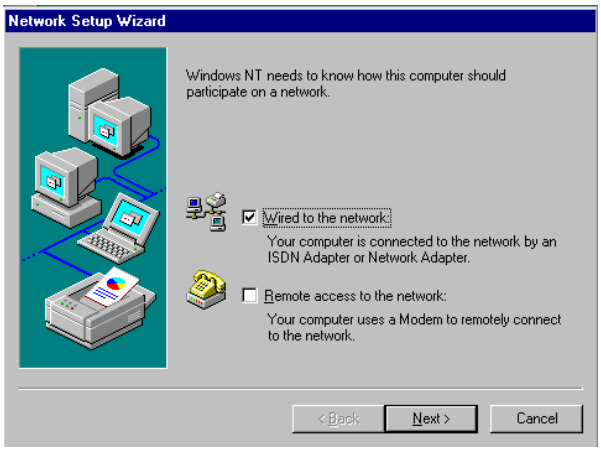
5.3.2 Win NT

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

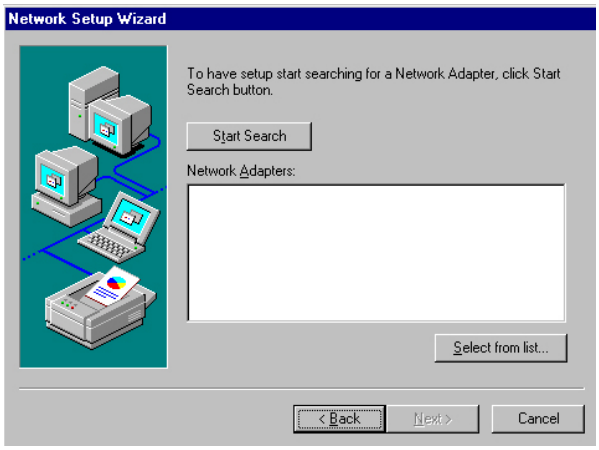
1. The system automatically detects the absence of Windows NT Networking. Click on the **Yes** button to start installation.



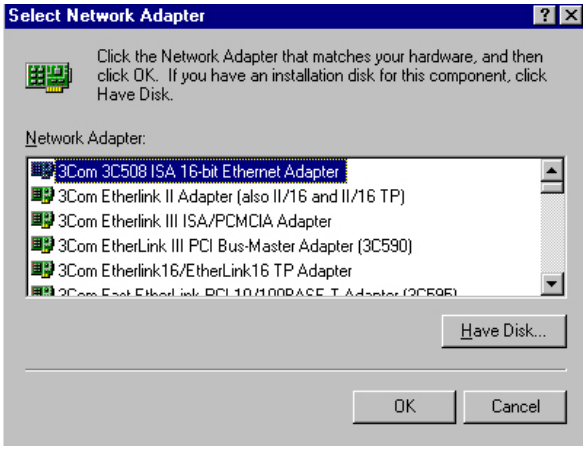
2. Tick on the **Wired to the network** once the following screen appears. Click on the **Next>** to proceed.



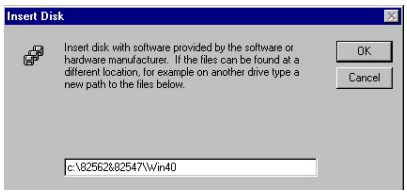
3. Click on the **Start Search** button for the program to locate the Network Adapter.



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.

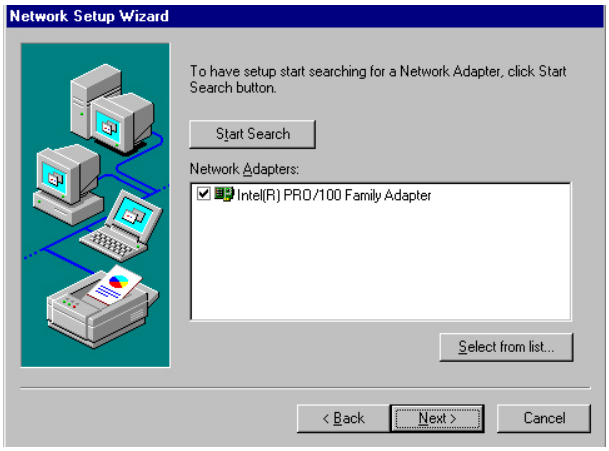


5. Setup now asks you for the location of the driver. When you have entered the new driver path, press on the **OK** button to continue.

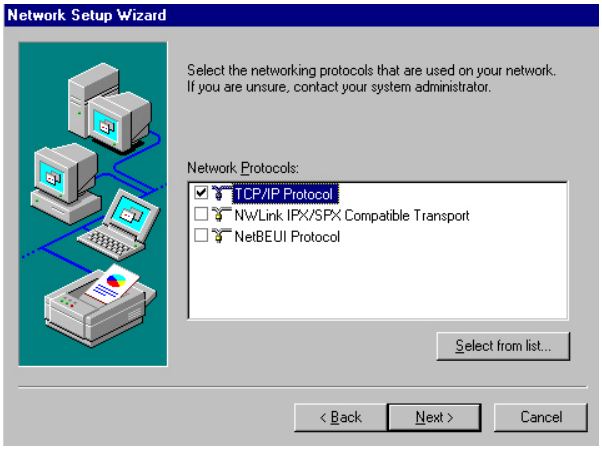


6. When Setup finds the information it needs about the new driver, it will display the device it found on the following screen. If using 82562EZ, please choose **"Intel(R) PRO/100 Family Adapter"**. If using 82547EI, please choose **"Intel(R) PRO/1000 Family Adapter"**. Press on the **OK** button to accept and proceed.

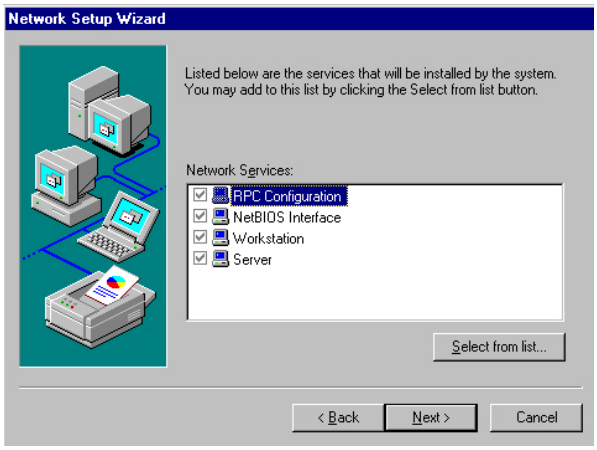
7. Setup then returns to Network Setup Wizard screen and displays your new Network Adapter. Click on **Next** to continue.



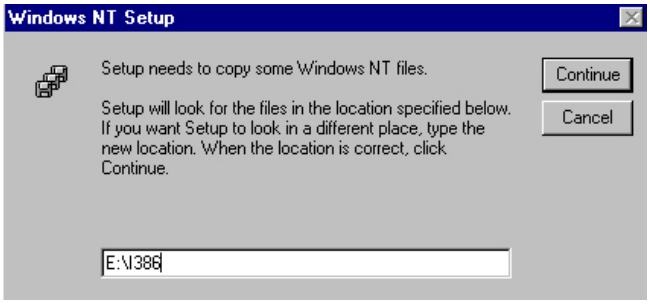
8. The Network Setup Wizard then allows you to set the Network Protocols on your network. Select the appropriate protocol and then click on Next to continue.



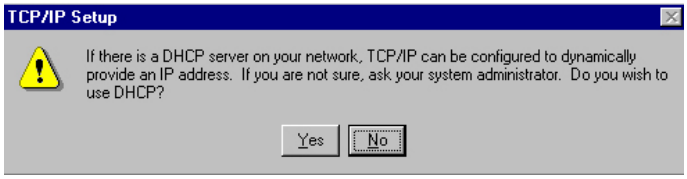
9. Before Setup starts installing the components found and the settings you made, it will give you the option to proceed or go back for changes from the following screen. Click on the **Next** button once you are sure of your devices.



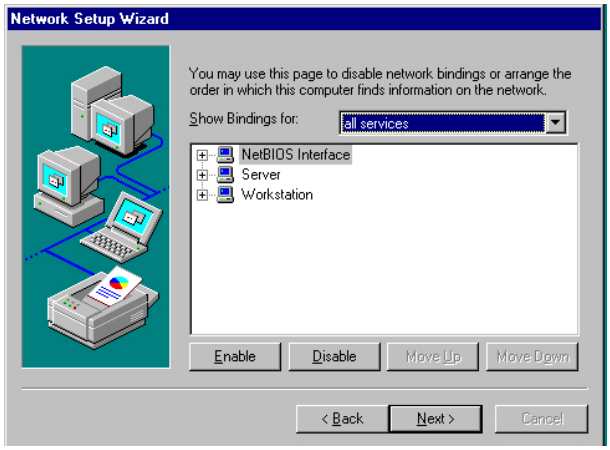
10. Windows NT Setup will then need to copy files necessary to update the system information. Specify the path then press **Continue**.



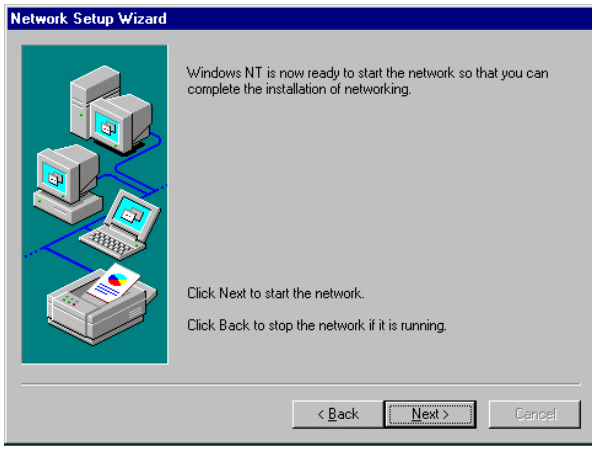
11. When Setup asks if you wish to change the TCP/IP settings of your system, select them appropriately. The default choice is **No**.



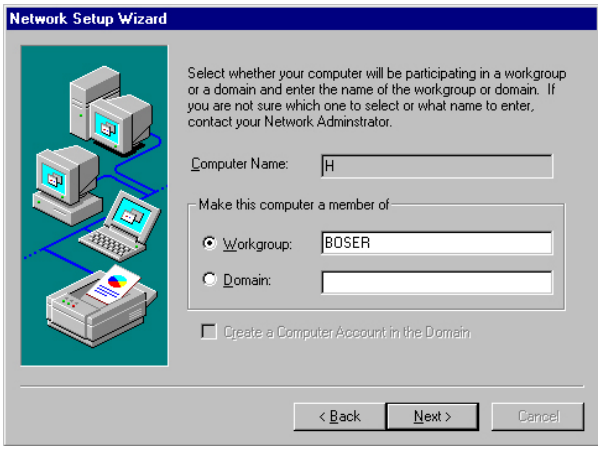
12. Setup then starts the Networking installation and copies the files.
13. When the screen below appears, click on **Next>** to continue.



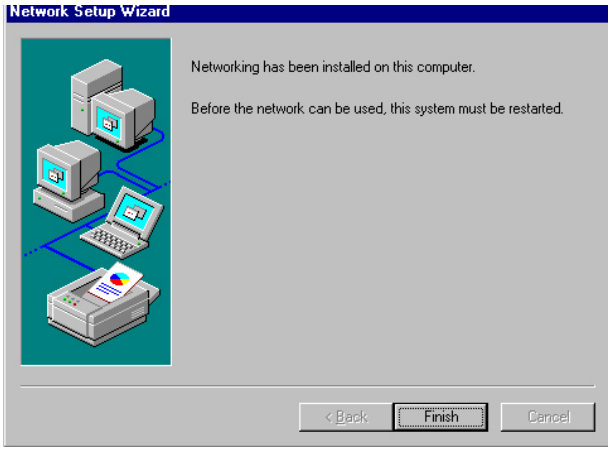
14. Setup then prompts you that it is ready to start the network. You may complete the installation thereafter. Click on **Next>** to continue.



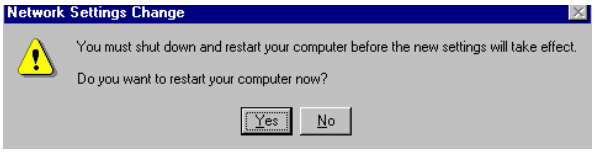
15. Assign the workgroup or domain setting of your computer. Click on Next to continue.



16. When the dialog box below appears, it means your driver is install completed. Click Finish button to proceed.

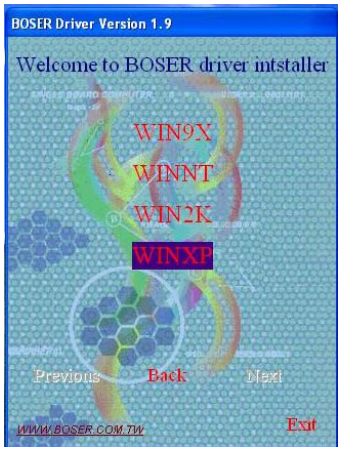


17. Click on the **Yes** button to restart your computer. The LAN driver installation for WIN NT4.0 is now complete.

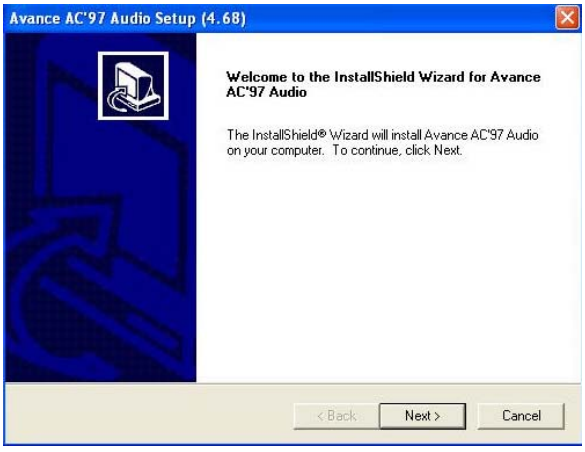


5.4 Audio Driver Installation

1. Insert Utility CD Disk into your CD ROM drive. The main menu will pop up as shown below. Select on the **HS-4703** button to launch the installation program.
2. Click on the **Audio Driver** button to continue.
3. Choose on the OS 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.



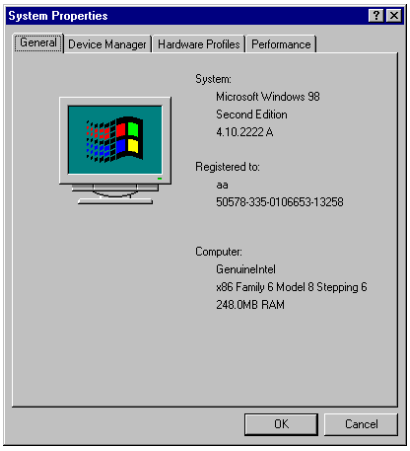
4. Once the InstallShield Wizard completes the operation and update of your AC'97 driver, it will ask you to remove disks from their drives, and prompt you to restart your system. Tick on the Yes, I want to restart my computer now. Afterwards, click on the **Finish** button to complete the installation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

NOTE: *WIN98/2K/NT audio driver installations are the same as WINXP.*

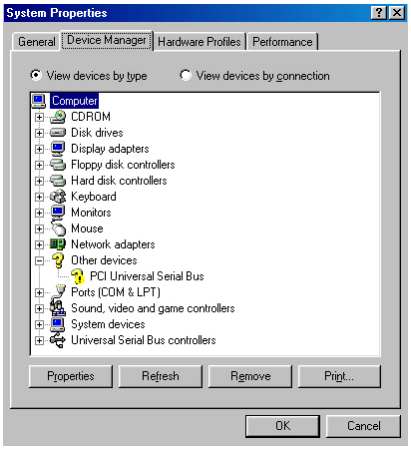
5.5 USB2.0 Driver Installation

5.5.1 Win 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.

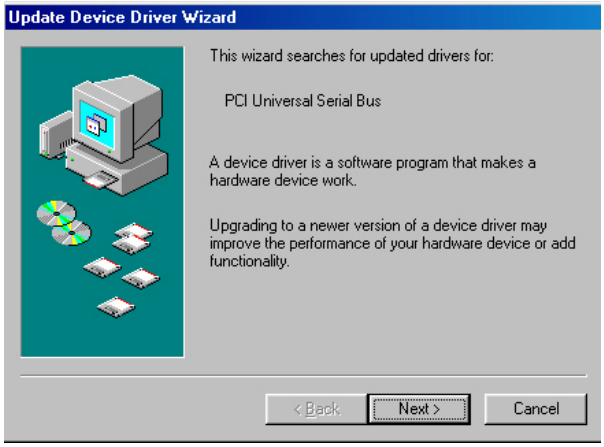


2. Select on Other Devices from the list of devices then double-click on PCI Universal Serial Bus.

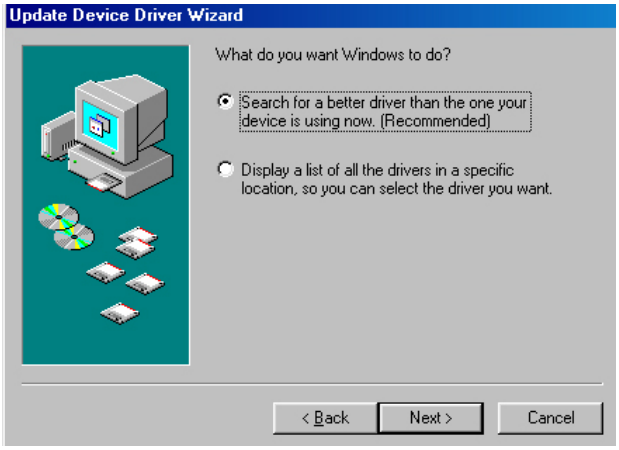


3. The PCI Universal Serial Bus Properties screen then appears, allowing you to re-install the driver. Select Driver from the main menu to proceed.

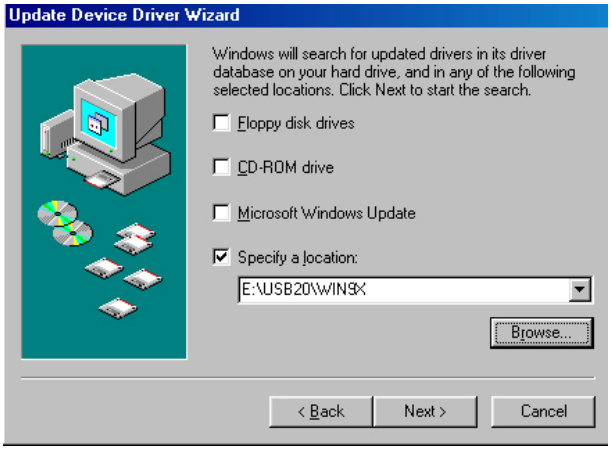
4. When the dialog box below appears, make sure you close all other Windows applications then click on the **Next >** button to proceed.



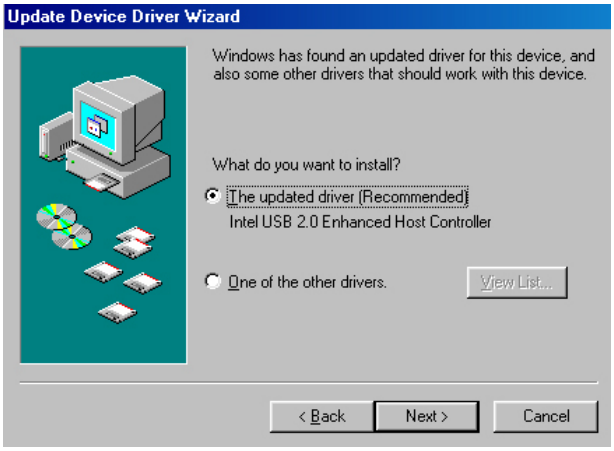
5. Tick on the "Search for a better driver" once the following screen appears. Click on the **Next** to proceed.



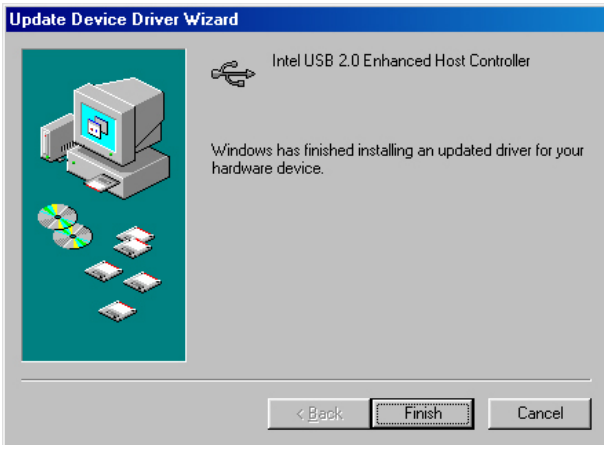
6. Once the program returns to the Add New Hardware Wizard screen, your specified location will appear. Press on the **Next** button to continue



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.

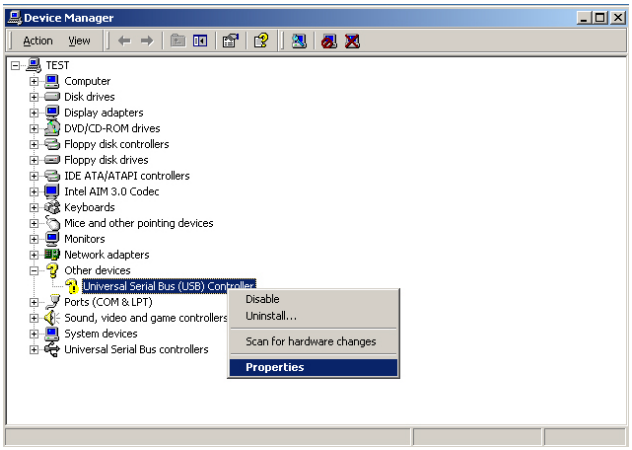


8. Once the InstallShield Wizard completes the operation and update of your USB2.0 driver. Click on the **Finish** button to complete the installation process.

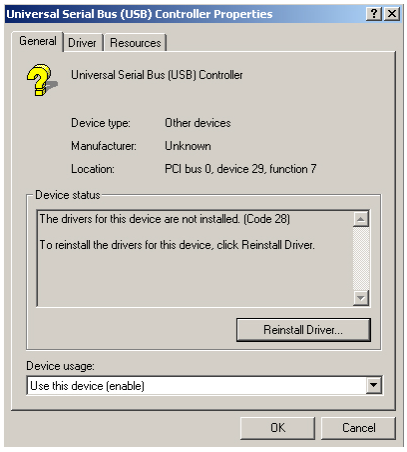


5.5.2 Win 2000

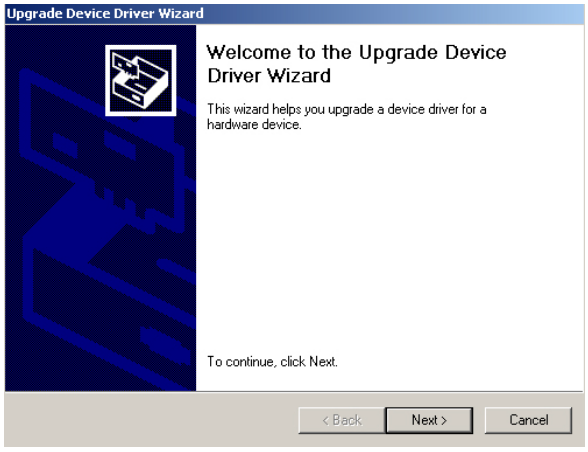
1. With the Utility CD Disk still in your CD ROM drive, right click on "**My Computer**" icon from the Windows menu. Select on System Properties and then proceed to the Device Manager from the main menu.
2. Select on Other Devices from the list of devices then double-click on PCI Universal Serial Bus.



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.

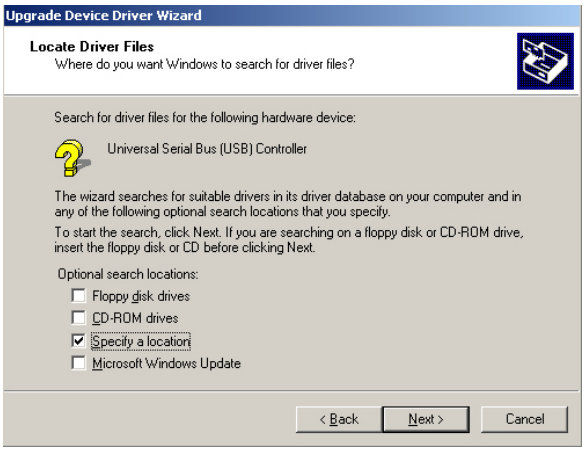


4. When the dialog box below appears, make sure you close all other Windows applications then click on the **Next >** button to proceed.

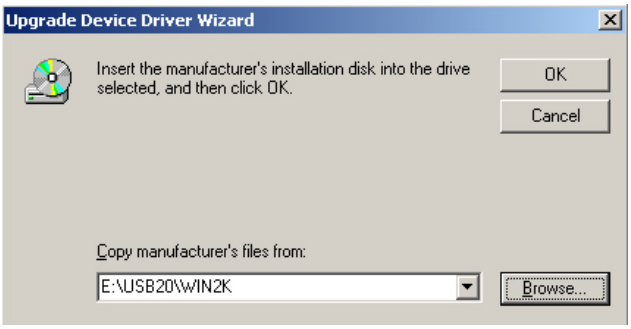


5. Tick on the "Search for a suitable driver" once the following screen appears. Click on the **Next** to proceed.

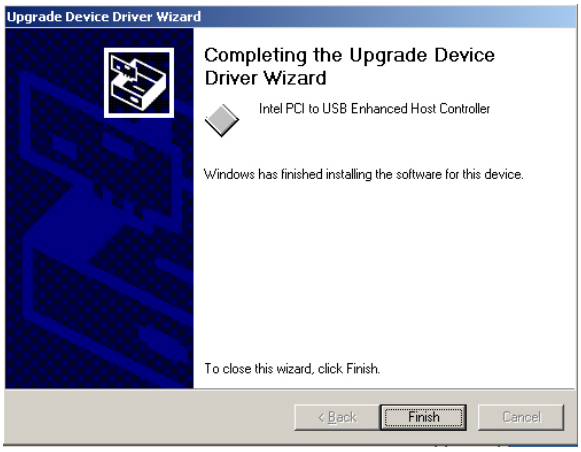
6. Once the program returns to the Add New Hardware Wizard screen, your specified location will appear. Press on the **Next** button to continue



7. Choose the driver disk location.



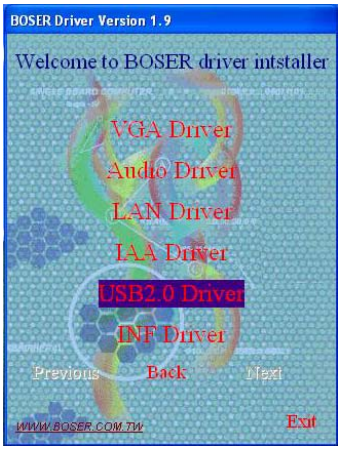
8. Once the InstallShield Wizard completes the operation and update of your USB2.0 driver. Click on the **Finish** button to complete the installation process.



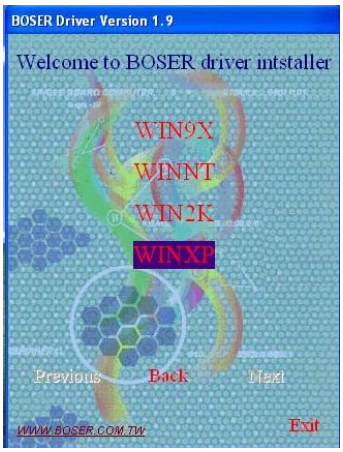
5.5.3 Win XP

1. Insert Utility CD Disk into your CD ROM drive. The main menu will pop up as shown below. Select on the **HS-4703** button to launch the installation program.

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



3. Click on the **WINXP** 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.

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