HS-4706
HS-4706M

Intel® Pentium® M/ Celeron® M processor
ULV Intel® Celeron® M processor
Embedded Engine Board

• CompactFlash • DDR • PCI Slot •
• CRT/LVDS Panel • LAN • Audio •
• ATA/33/66/100 • RS-232/422/485 • 6 COM •
• USB2.0 • WDT • H/W Monitor •
• Industrial Embedded Engine Board •

Copyright Disclaimers

The accuracy of contents in this manual has passed thorough checking and review before publishing. BOSER Technology Co., Ltd., the manufacturer and publisher, is not liable for any infringements of patents or other rights resulting from its use. The manufacturer will not be responsible for any direct, indirect, special, incidental or consequential damages arising from the use of this product or documentation, even if advised of the possibility of such damage(s).

This manual is copyrighted and BOSER Technology Co., Ltd. reserves all documentation rights. Unauthorized reproduction, transmission, translation, and storage of any form and means (i.e., electronic, mechanical, photocopying, recording) of this document, in whole or partly, is prohibited, unless granted permission by BOSER Technology Co., Ltd.

BOSER Technology Co., Ltd. reserves the right to change or improve the contents of this document without due notice. BOSER Technology Co., Ltd. assumes no responsibility for any errors or omissions that may appear in this manual, nor does it make any commitment to update the information contained herein.

Trademarks

BOSER is a registered trademark of BOSER Technology Co., Ltd.

ISB is a registered trademark of BOSER Technology Co., Ltd.

Intel is a registered trademark of Intel Corporation.

Award is a registered trademark of Award Software, Inc.

AMI is a registered trademark of AMI Software, Inc.

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

Table of Contents

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-7250 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
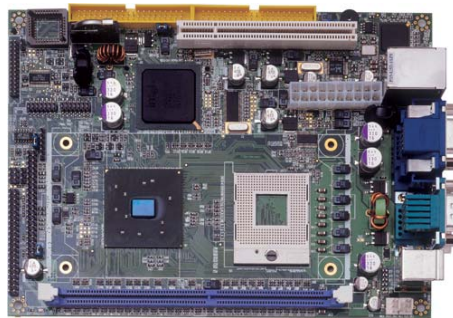
The HS-4706/HS-4706M is an Intel® 852GME GMCH/ICH4 chipset-based and HS-4706/HS-4706M is and Intel® 852GM GMCH/ICH4 chipset-based board designed embedded engine board. HS-4706/HS-4706M provides Intel® Pentium® M/Celeron® M processor 1.3~2.8GHz, and HS-4706/HS-4706M provides ULV Intel® Celeron® M processor 600MHz. The combination of these features makes the HS-4706/HS-4706M an ideal all-in-one industrial embedded engine board. Additional features include an enhanced I/O with CF reader, CRT/LVDS Panel, LAN, audio, 6 COM and USB2.0 port interface.

Its onboard ATA/33/66/100 connected to IDE drive interface architecture allows the HS-4706/HS-4706M to support data transfers of 33, 66 or 100MB/sec. for each IDE drive connection. The display controller is Intel® 82852GME (HS-4706)/852GM (HS-4706M) for CRT display supporting up to 1600 x 1200. It also provides 18-bit single channel/36-bit dual channel LVDS Panel display interface.

System memory is also sufficient with the one DDR socket that can support up to 1GB. It also provides one IDE interface Type II CompactFlash card adapter connector.

Additional onboard connectors include two internal and two external USB2.0 ports providing faster data transmission, and one external RJ-45 connector for use of one 10/100 Base-TX Ethernet interfaces.

1.1 Major Features
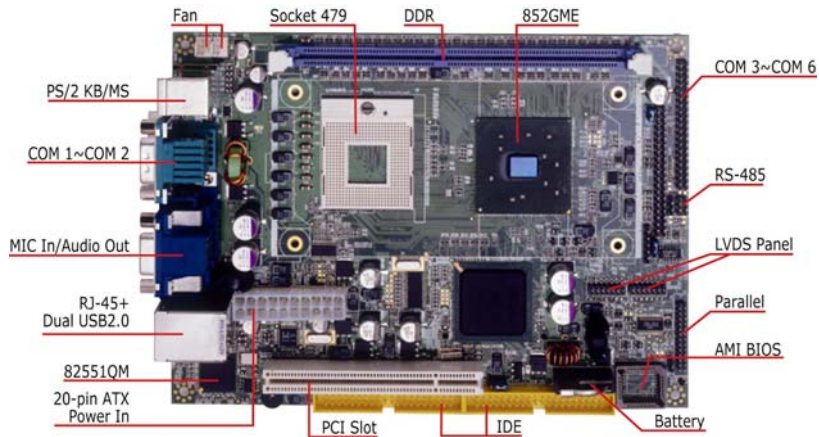
Front Side
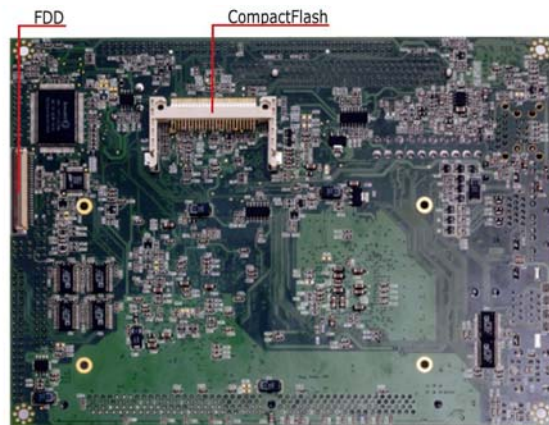
Solder Side

The HS-4706/HS-4706M comes with the following features:

- HS-4706 provides Intel® Pentium® M/Celeron® M processor 1.3~2.0GHz
  HS-4706M provides ULV Intel Celeron M processor 600MHz/512K L2 cache
- HS-4706 provides 400/533MHz FSB
- One DDR socket with a max. capacity of 1GB
- HS-4706 use Intel® 852GME GMCH/ICH4 system chipset
  HS-4706M use Intel® 852GM GMCH/ICH4 system chipset

2

- ➤ Winbond W83627HF super I/O chipset
- ➤ HS-4706 use Intel® 852GME GMCH/ICH4 system chipset
  HS-4706M use Intel® 852GM GMCH/ICH4 system chipset
- ➤ LVDS Panel display interface
- ➤ Intel® 82551QM fast Ethernet controller
- ➤ AC97 3D audio controller
- ➤ Fast PCI ATA/33/66/100 IDE controller
- ➤ CompactFlash card adapter, six COM, four USB2.0 ports
- ➤ Hardware Monitor function

1.2 Specifications

- **CPU:**
  HS-4706 provides:
  Intel® Pentium® M processor 760 2.0GHz
  Intel® Pentium® M processor 745 1.8GHz
  Intel® Celeron® M processor 370 1.5GHz
  Intel® Celeron® M processor 320 1.3GHz
  HS-4706M provides ULV Intel® Celeron® M processor 600MHz/512K L2 cache

- **Front Side Bus:** Supports 400/533MHz FSB (only HS-4706)

- **Memory:** One DDR socket supporting up to 1GB

- **Chipset:** Intel® 852GME GMCH/ICH4 (HS-4706), Intel® 852GM GMCH/ICH4 (HS-4706M)

- **I/O Chipset:** Winbond W83627HF

- **CompactFlash:** One, Type II IDE interface adapter

- **PCI Slot:** One standard PCI slot

- **VGA:** Intel® 82852GME (HS-4706) / Intel® 82852GM (HS-4706M) supporting CRT display up to 1600 x 1200

- **LVDS Panel:** Supports 18-bit single channel/36-bit dual channel LVDS interface

- **Ethernet:** Intel® 82551QM 10/100 Based LAN

- **Audio:** AC97 3D audio controller

- **IDE:** Four IDE disk drives supporting ATA/33/66/100 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-232/485 x 1 and RS-232 x 5 serial ports with 16-byte FIFO

- **USB:** Four USB2.0 ports, two internal and two external

- **Keyboard:** PS/2 6-pin Mini DIN
- **Mouse:** PS/2 6-pin Mini DIN
- **BIOS:** AMI PnP Flash BIOS
- **Watchdog Timer:** Software programmable time-out intervals from 1~256 sec.
- **CMOS:** Battery backup
- **Temperature:** 0~+60°C (operating)
- **Hardware Monitor:** Winbond W83627HF
- **Board Size:** 20.3(L) x 14.6(W) x 3.3(H) cm

1.3   Board Dimensions
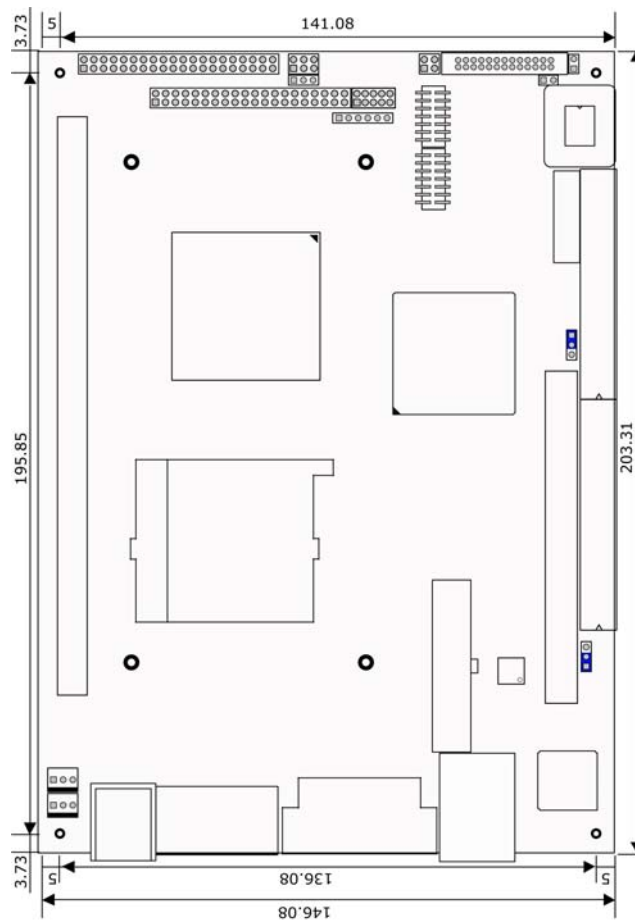
Chapter 2

Unpacking

2.1 Opening the Delivery Package

The HS-4706/HS-4706M 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-4706/HS-4706M delivery package contains the following items:

- HS-4706/HS-4706M Board x 1
- Utility CD Disk x 1
- Cables Package x 1
- Cooling Fan & Heat Sink x 1
- Jumper Bag x 1
- User's Manual

Cables Package	
NO.	**Description**
1	Four COM flat cable x 1
2	ATA/100 IDE flat cable x 2
3	Two USB flat cable with bracket x 1
4	MIC/Audio flat cable with bracket x 1
5	Floppy cable x 1
6	Printer flat cable with bracket x 1

Chapter 3

Hardware Installation

This chapter provides the information on how to install the hardware using the HS-4706/HS-4706M. 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 JP1 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

8
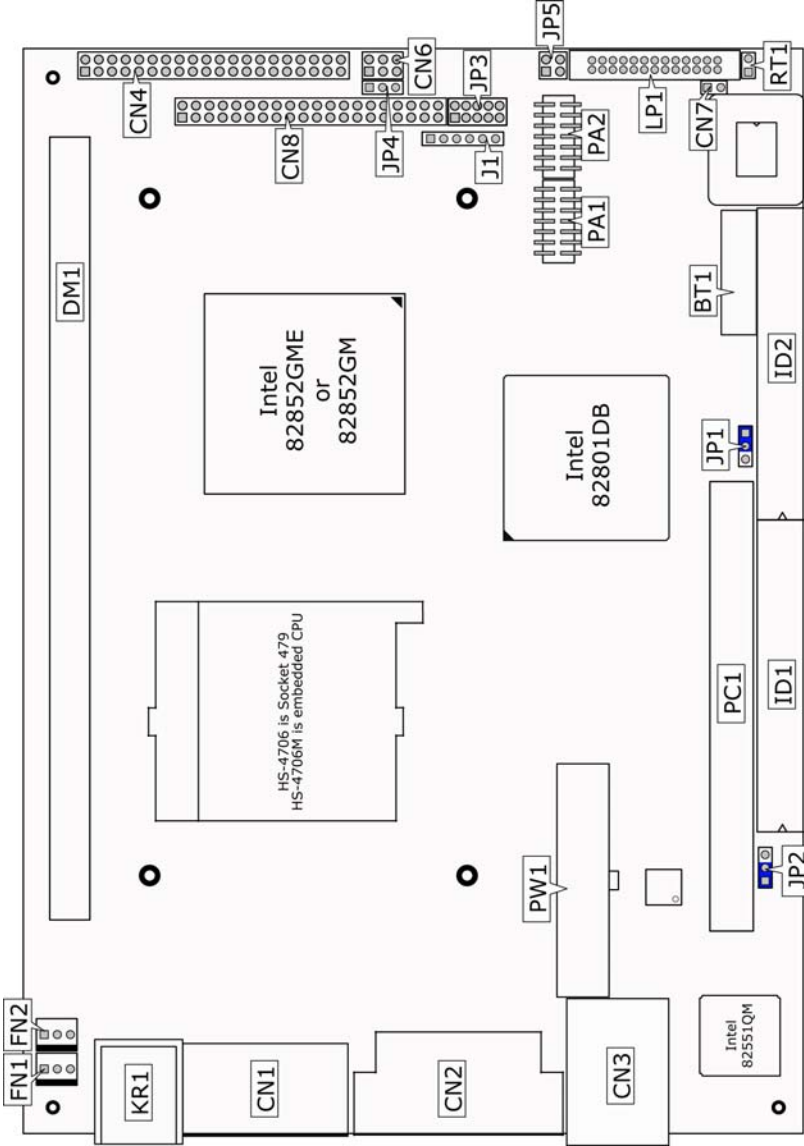
3.3 Jumper List

Jumper	Default Setting	Setting	Page
JP1	Clear CMOS: *Normal Operation*	Short 1-2	19
JP2	Onboard LAN Function Enabled/Disabled Select: *Enabled*	Short 1-2	18
JP3	COM 4 Use RS-232 or RS-422/485 Select: *RS-232*	Open	17
JP4	Panel Voltage Select: *+3.3V*	Short 2-3	11
JP5	CPU FSB Frequency Select: *400MHz FSB*	Short 3-4	10

3.4 Connector List

Connector	Definition	Page
CN1	COM 1/COM 2 Connector (DB9)	17
CN2 (1-15)	15-pin CRT Connector	11
CN2 (17-32)	External Audio Connector	23
CN3 (1-14)	RJ-45 Connector	18
CN3 (23-30)	Dual USB2.0 Ports	19
CN4	COM 3~COM 6 Connector (5x2 header)	17
CN6	RS-422/485 Connector (3x2 header)	17
CN7	2-pin ATX Power Switch	20
CN8 (1-16)	Control Panel Connector	21
CN8 (17-22)	LAN LED Connector	18
CN8 (25-32)	MIC In/Audio Out Connector	23
CN8 (33-40)	Internal USB2.0 Ports	19
CN9	CompactFlash Connector	23
DM1	DDR Socket	10
FD1	Floppy Connector	15
FAN1 / FAN2	Fan Power In Connector	20
ID1 / ID2	Primary/Secondary IDE Connector	13
J1	Inverter Power In Connector	11
KR1	PS/2 6-pin Mini DIN KB and MS Connector	21
LP1	Parallel Port	16
PA1 / PA2	LVDS Panel Connector	11
PC1	Standard PCI Slot	----
PW1	20-pin ATX Power In Connector	20

3.5 Configuring the CPU

The HS-4706 provides Intel$^®$ Pentium$^®$ M/Celeron$^®$ M processor 1.3~2.0GHz, and HS-4706M provides ULV Intel$^®$ Celeron$^®$ M processor 600MHz/512K L2 cache. It offers the convenience in CPU installation with its auto-detect feature. HS-4706 provides 400/533MHz FSB, if you want use 533MHz FSB, please setting *JP5* as follow table.

● **JP5: CPU FSB Frequency Select (for HS-4706 only)**

Options	JP5(1-2)	JP5(3-4)
400MHz (default)	Open	Short
533MHz	Open	Open

Heat Sink Installation
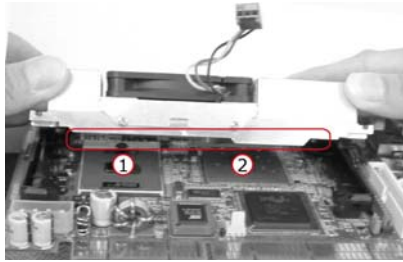
Please smear the heat sink paste over CPU and 852GM GMCH chipset uniformly. Then secure the heat sink as the picture above

3.6 System Memory

The HS-4706/HS-4706M provides one DDR socket at location *DM1*. The maximum capacity of the onboard memory is 1GB.

3.7 VGA Controller

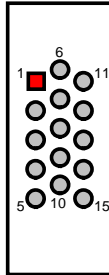The display controller is Intel® 82852GME (HS-4706)/82852GM (HS-4706M) for CRT display supporting up to 1600 x 1200. HS-4706/HS-4706M also provides 18-bit single channel/36-bit dual channel LVDS display interface. The HS-4706/HS-4706M provides two methods of connecting VGA device. *CN2(1-15)* offers a single standard CRT connector (DB15), or *PA1/PA2* offer 18-bit/36-bit LVDS panel connectors.
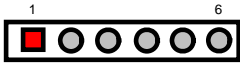
● **CN2 (1-15): 15-pin CRT Connector (DB15)**

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		
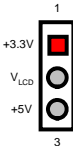
● **J1: Inverter Power In Connector**

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

● **JP4: Panel Voltage Select**

Options	Settings
+5V	Short 1-2
+3.3V (default)	Short 2-3

● **PA1: 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	N/C	14	N/C
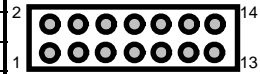
● **PA2: LVDS Panel Connector**

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	N/C	14	N/C
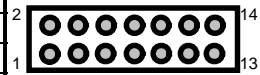
NOTE: *If using PA1 only, it just supports 18-bit single channel LVDS Panel; If you want to use 36-bit dual channel LVDS Panel, please using PA1 and PA2 combined.*

12

3.8 PCI E-IDE Drive Connector

ID1 and *ID2* are standard 40-pin daisy-chain driver connector that serves the PCI E-IDE drive provisions onboard the HS-4706/HS-4706M. A maximum of four ATA/33/66/100 IDE drives can be connected to the HS-4706/HS-4706M via *IDE1* and *IDE2*.

● **ID1: Primary IDE Connector**

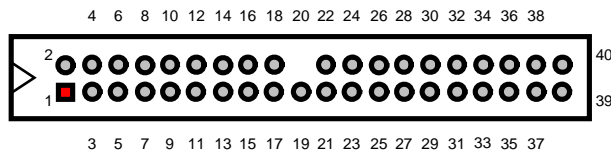| PIN	Description	PIN	Description
1	RESET	2	GND
3	PDATA 7	4	PDATA 8
5	PDATA 6	6	PDATA 9
7	PDATA 5	8	PDATA 10
9	PDATA 4	10	PDATA 11
11	PDATA 3	12	PDATA 12
13	PDATA 2	14	PDATA 13
15	PDATA 1	16	PDATA 14
17	PDATA 0	18	PDATA 15
19	GND	20	N/C
21	PDREQ	22	GND
23	PIOW#	24	GND
25	PIOR#	26	GND
27	PIORDY	28	PD1-
29	PDACK-	30	GND
31	Interrupt	32	N/C
33	PDA1-	34	PATA66
35	PDA0-	36	PDA2-
37	PCS1-	38	PCS3-
39	HDD Active	40	GND

- **ID2: Secondary IDE Connector**

PIN	Description	PIN	Description
1	RESET	2	GND
3	SDATA 7	4	SDATA 8
5	SDATA 6	6	SDATA 9
7	SDATA 5	8	SDATA 10
9	SDATA 4	10	SDATA 11
11	SDATA 3	12	SDATA 12
13	SDATA 2	14	SDATA 13
15	SDATA 1	16	SDATA 14
17	SDATA 0	18	SDATA 15
19	GND	20	N/C
21	SDREQ	22	GND
23	SIOW#	24	GND
25	SIOR#	26	GND
27	SIORDY	28	SD1-
29	SDACK-	30	GND
31	Interrupt	32	N/C
33	SDA1-	34	SATA66
35	SDA0-	36	SDA2
37	SCS1-	38	SCS3-
39	HDD Active	40	GND
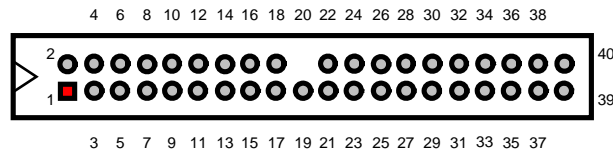
3.9 Floppy Disk Drive Connector

The HS-4706/HS-4706M uses a 26-pin connector, *FD1*, for one slim floppy disk drive connection.

● **FD1: FDD Connector**

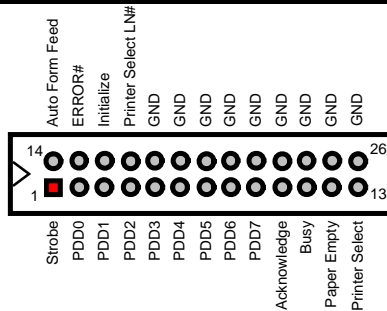| PIN	Description	PIN	Description
1	Disk Select 1	14	N/C
2	GND	15	Direction #
3	Read Data #	16	N/C
4	GND	17	Motor Enable 0
5	Write Protect #	18	N/C
6	N/C	19	N/C
7	Track0 #	20	N/C
8	N/C	21	Disk Change #
9	Wgate #	22	VCC
10	GND	23	Driver 0
11	Write Data #	24	VCC
12	GND	25	Index #
13	Step #	26	VCC

15

3.10 Parallel Connector

LP1 is a standard 26-pin flat cable connector designed to accommodate parallel port connection onboard the HS-4706/HS-4706M.

● **LP1: Parallel Connector**

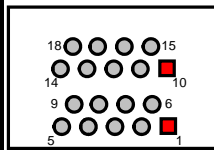| PIN	Description	PIN	Description
1	Strobe	14	Auto Form Feed
2	DATA 0	15	ERROR#
3	DATA 1	16	Initialize
4	DATA 2	17	Printer Select LN#
5	DATA 3	18	GND
6	DATA 4	19	GND
7	DATA 5	20	GND
8	DATA 6	21	GND
9	DATA 7	22	GND
10	Acknowledge	23	GND
11	Busy	24	GND
12	Paper Empty	25	GND
13	Printer Select	26	GND

3.11 Serial Port Connectors

The HS-4706/HS-4706M offers NS16C550 compatible UARTs with Read/Receive 16-byte FIFO serial ports.

● **CN1: COM 1/COM 2 Connector (DB9)**

PIN	Description	PIN	Description
1	DCD1	10	DCD2
2	DSR1	11	DSR2
3	RXD1	12	RXD2
4	RTS1	13	RTS2
5	TXD1	14	TXD2
6	CTS1	15	CTS2
7	DTR1	16	DTR2
8	RI1	17	RI2
9	GND	18	GND

● **CN4: COM 3~COM 6 Connector (5x2 header)**

PIN	Description	PIN	Description
1	DCD3	2	DSR3
3	RXD3	4	RTS3
5	TXD3	6	CTS3
7	DTR3	8	RI3
9	GND	10	N/C
11	DCD4	12	DSR4
13	RXD4	14	RTS4
15	TXD4	16	CTS4
17	DTR4	18	RI4
19	GND	20	N/C
21	DCD5	22	DSR5
23	RXD5	24	RTS5
25	TXD5	26	CTS5
27	DTR5	28	RI5
29	GND	30	N/C
31	DCD6	32	DSR6
33	RXD6	34	RTS6
35	TXD6	36	CTS6
37	DTR6	38	RI6
39	GND	40	N/C

- **CN6: RS-422/485 Connector (3x2 header)**

PIN	Description	PIN	Description
1	TX-	2	TX+
3	RX+	4	RX-
5	GND	6	VCC
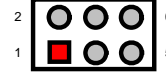
- **JP3: COM 4 use RS-232 or RS-422/485 Select**

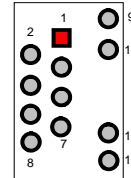| Options	Settings
RS-232 (default)	All Open
RS-485 by AUTO	Short 5-7, 8-10
RS-485 by –RTS	Short 7-9, 8-10
RS-422 Full Deplex	Short 6-8
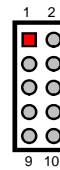
3.12 Ethernet Connector

The HS-4706/HS-4706M provides one 10/100 Base-TX LAN interface connector. Please refer to the following for its pin information.

- **CN3(1-14): RJ-45 Connector**

PIN	Description	PIN	Description
1	RCT	2	TX+
3	TX-	4	RX+
5	RX-	6	N/C
7	N/C	8	N/C
9	N/C	10	RCT
11	Link LED	12	330Ω pull 3VSB
13	330Ω pull 3VSB	14	ACT LED

- **JP2: Onboard LAN Function Enabled/Disabled Select**

Options	Settings
Enabled (default)	Short 1-2
Disabled	Short 2-3

18

- **CN8(17-22): LAN LED Connector**

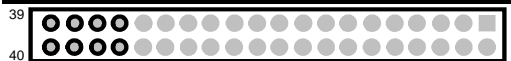| PIN	Description	PIN	Description
17	Link LED	18	330Ω pull 3VSB
19	ACT LED	20	330Ω pull 3VSB
21	Speed LED	22	330Ω pull 3VSB
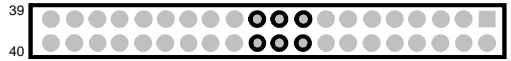
3.13 USB Connector

The HS-4706/HS-4706M provides one 8-pin internal connector at location *CN8(33-40)* and two 4-pin external connector, at locations *CN3(23-30)*, for four USB2.0 connections to the HS-4706/HS-4706M.

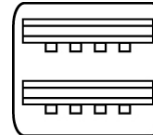- **CN8(33-40): Internal USB2.0 Connector**

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

- **CN3(23-30): External USB2.0 Connector**

PIN	Description	PIN	Description
23	VCC	24	VCC
25	BD1-	26	BD2-
27	BD1+	28	BD2+
29	GND	30	GND

3.14 CMOS Data Clear

The HS-4706/HS-4706M 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-4706/HS-4706M provides one 20-pin ATX power in connector at *PW1*, 2-pin ATX power switch at *CN7*.

● **PW1: 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	-5V
9	+5Vsb	19	+5V
10	+12V	20	+5V
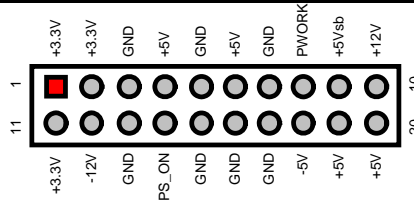
● **CN7: 2-pin ATX Power Switch**

PIN	Description
1	Pull 220Ω to VCCSTBY
2	PS_ON

FAN1/FAN2 onboard HS-4706/HS-4706M is 3-pin fan power connector.

● **FAN1/FAN2: Fan Power Connector**
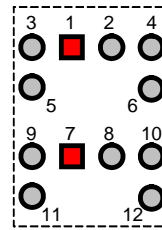
PIN	Description
1	GND
2	VCC12V
3	FAN Speed In

3.16 Keyboard/Mouse Connector

The HS-4706/HS-4706M offers one method for keyboard/mouse connections. The connections are done via *KR1* for an external PS/2 type keyboard/mouse connection.

● **KR1: PS/2 6-pin Mini DIN Keyboard and 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

3.17 System Front Panel Connectors

The HS-4706/HS-4706M has one system front panel at location *CN8(1-16)* that indicates the system front panel status.

● **CN8(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	N/C
9	GND	10	100Ω Pull +5Vsb
11	Reset Button	12	N/C
13	330Ω Pull VCC	14	330Ω Pull +5Vsb
15	HDD LED	16	N/C
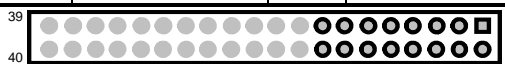
Connector CN8(1-16) Orientation

SPEAKER

PWR LED

RST_SW

HDD_LED

21
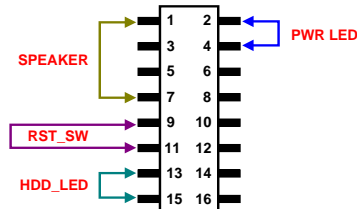
3.18 Watchdog Timer

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.

3.19 Audio Connectors

The HS-4706/HS-4706M has an onboard AC97 3D audio interface. The following tables list the pin assignments of the MIC In/Line Out connectors.

● **CN2(17-32): Primary MIC In/Audio Out Connector**

PIN	Description	PIN	Description
17	GND	25	GND
18	LINE_IN R	26	GND
19	GND	27	LINE_OUT L
20	GND	28	GND
21	GND	29	GND
22	LINE_IN L	30	GND
23	LINE_OUT R	31	GND
24	GND	32	MIC_IN 1

Line Out (G)   Line In (B)   Mic In (R)

● **CN8(25-32): Secondary MIC In/Audio Out Connector**

PIN	Description	PIN	Description
25	Font LINE_OUT L	26	Font LINE_OUT R
27	GND	28	GND
29	MIC_IN 2	30	N/C
31	GND	32	GND
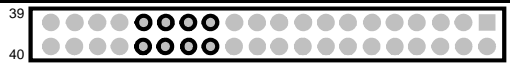
3.20 CompactFlash™ Connector

The HS-4706/HS-4706M also offers an optional CompactFlash™ connector which is IDE interface located at the solder side of the board. The designated *CN9* connector, once soldered with an adapter, can hold CompactFlash™ cards of various sizes. Please turn off the power before inserting the CF card. Inserting a CompactFlash™ card into the adapter is not a difficult task. The socket and card are both keyed and there is only one direction for the card to be completely inserted. Refer to the diagram below for the traditional way of inserting the card.
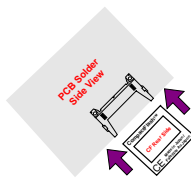
This page is intentionally left blank.

Chapter 4

AMI BIOS Setup

The HS-4706/HS-4706M uses AMI BIOS for the system configuration. The AMI 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 AMI 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 Main Menu

BIOS SETUP UTILTIY

| Main | Advanced | PCIPnP | Boot | Security | Chipset | Power | Exit |

System Overview

AMIBIOS
Version   :08.00.11
Build Date :03/09/06
ID   :HS470600

Processor
Tyep   :Intel(R) Celeron(R) M processor
Speed   :1499MHz
Count   :1

System Memory
Size   :248MB

System Time   [00:09:44]
System Date   [Tue 01/01/2002]

Use [ENTER], [TAB]
or [SHIFT-TAB] to
select a field.

Use [+] or [-] to
configure system
Time.

←→   Select Screen
↑ ↓   Select Item
+ -   Change Field
Tab   Select Field
F1   General Help
F10   Save and Exit
ESC   Exit

v02.57 (C)Copyright 1985-2004, American Megatrends, Inc.

26

4.3 Advanced Settings

BIOS SETUP UTILTIY

Main	**Advanced**	PCIPnP	Boot	Security	Chipset	Power	Exit

Advanced Settings   Configure CPU.

WARNING: Setting wrong values in below
sections may cause system to malfunction.

► CPU Configuration
► IDE Configuration
► Floppy Configuration
► SuperIO Configuration
► Hardware Health Configuration
► ACPI Configuration
► MPS Configuration
► Smbios Configuration
► USB Configuration

                              ← →   Select Screen
                              ↑ ↓   Select Item
                              + -   Change Field
                              Tab   Select Field
                              F1   General Help
                              F10   Save and Exit
                              ESC   Exit

v02.57 (C)Copyright 1985-2004, American Megatrends, Inc.

BIOS SETUP UTILTIY

Main	**Advanced**	PCIPnP	Boot	Security	Chipset	Power	Exit

Configure advanced CPU settings

Module Version −12.00

Manufacturer	: Intel
Brand String	: Intel(R) Celeron(R) M processor
Frequency	: 1.49GHz
FSB Speed	: 400MHz
Cache L1	: 32 KB
Cache L2	: 1024 KB

Execute Disable Bit   [Enabled]
CPU TM function: [Enabled]

Hyper Threading Technology   [Enabled]

When disabled, force
the XD feature flag to
always return 0.

← →   Select Screen
↑ ↓   Select Item
+ -   Change Field
Tab   Select Field
F1   General Help
F10   Save and Exit
ESC   Exit

v02.57 (C)Copyright 1985-2004, American Megatrends, Inc.

BIOS SETUP UTILTIY

Main	**Advanced**	PCIPnP	Boot	Security	Chipset	Power	Exit

IDE Configuration

OnBoard PCI IDE Controller   [Both]
OnBoard PCI IDE Operate Mode   [Legacy Mode]

▶ Primary IDE Master   : [Not Detected]
▶ Primary IDE Slave   : [ATAPI CDROM]
▶ Secondary IDE Master   : [Not Detected]
▶ Secondary IDE Slave   : [Not Detected]

Hard Disk Write Protect   [Disabled]
IDE Detect Time Out (Sec)   [35]
ATA(PI) 80Pin Cable Detection [Host & Device]

Disabled: disables
the integrated IDE
Controller.
PRIMARY: enables
only the Primary IDE
Controller.
SECONDARY: enables
only the Secondary
IDE Controller.
Both: enables both
IDE Controllers.

← →   Select Screen
↑ ↓   Select Item
+ -   Change Field
Tab   Select Field
F1   General Help
F10   Save and Exit
ESC   Exit

v02.57 (C)Copyright 1985-2004, American Megatrends, Inc.

28

BIOS SETUP UTILTIY

Main	**Advanced**	PCIPnP	Boot	Security	Chipset	Power	Exit

Floppy Configuration

		Select the type of floppy drive connected to the system.
Floppy A	[1.44 MB 3.5"]	
Floppy B	[Disabled]	

← →	Select Screen
↑ ↓	Select Item
+ -	Change Field
Tab	Select Field
F1	General Help
F10	Save and Exit
ESC	Exit

v02.57 (C)Copyright 1985-2004, American Megatrends, Inc.

BIOS SETUP UTILTIY

Main	**Advanced**	PCIPnP	Boot	Security	Chipset	Power	Exit

Configure Win627 Super IO Chipset

Allows BIOS to Enable of Disable Floppy Controller.

OnBoard Floppy Controller	[Enabled]
Floppy Drive Swap	[Disabled]
Serial Port1 Address	[3F8/IRQ4]
Serial Port2 Address	[2F8/IRQ3]
Serial Port2 Mode	[Normal]
OnBoard CIR Port	[Disabled]
Parallel Port Address	[378]
Parallel Port Mode	[ECP]
ECP Mode DMA Channel	[DMA3]
Parallel Port IRQ	[IRQ7]
OnBoard Game Port	[Disabled]
OnBoard MIDI Port	[Disabled]
Serial Port3 Address	[3E8]
Serial Port3 IRQ	[10]
Serial Port4 Address	[2E8]
Serial Port4 IRQ	[11]
Serial Port5 Address	[2F0]
Serial Port5 IRQ	[11]
Serial Port6 Address	[2E0]
Serial Port6 IRQ	[11]

← →	Select Screen
↑ ↓	Select Item
+ -	Change Field
Tab	Select Field
F1	General Help
F10	Save and Exit
ESC	Exit

v02.57 (C)Copyright 1985-2004, American Megatrends, Inc.

BIOS SETUP UTILTIY

Main	**Advanced**	PCIPnP	Boot	Security	Chipset	Power	Exit

Hardware Health Configuration

Enables Hardware
Health Monitoring
Device.

H/W Health Function   [Enabled]
Chassis Intrusion   [Disabled]

Hardware Health Event Monitoring
CPU Temperature   :21˚C/69˚F
System Temperature   :18˚C/64˚F   ← →   Select Screen
                                                 ↑ ↓   Select Item
System Fan   :5273RPM   + -   Change Field
                                                 Tab   Select Field
VcoreA   :1.258 V   F1   General Help
+3.3Vin   :3.419 V   F10   Save and Exit
+5Vin   :5.107 V   ESC   Exit
+12Vin   :12.160 V

v02.57 (C)Copyright 1985-2004, American Megatrends, Inc.

BIOS SETUP UTILTIY

Main	**Advanced**	PCIPnP	Boot	Security	Chipset	Power	Exit

ACPI Settings

Enable / Disable ACPI
support for Operating
System.

ACPI Aware O/S   [Yes]   ENABLE: If OS
                                                 supports ACPI.
▶   General ACPI Configuration   DISABLE: If OS does
▶   Advanced ACPI Configuration   not support ACPI.
▶   Chipset ACPI Configuration

                                                 ← →   Select Screen
                                                 ↑ ↓   Select Item
                                                 + -   Change Field
                                                 Tab   Select Field
                                                 F1   General Help
                                                 F10   Save and Exit
                                                 ESC   Exit

v02.57 (C)Copyright 1985-2004, American Megatrends, Inc.

30

BIOS SETUP UTILTIY

Main	**Advanced**	PCIPnP	Boot	Security	Chipset		Power	Exit

General ACPI Configuration

Select the ACPI state used for System Suspend.

Suspend mode   [Auto]
Repost Video on S3 Resume   [No]

←→   Select Screen
↑ ↓   Select Item
+ -   Change Field
Tab   Select Field
F1   General Help
F10   Save and Exit
ESC   Exit

v02.57 (C)Copyright 1985-2004, American Megatrends, Inc.

BIOS SETUP UTILTIY

Main	**Advanced**	PCIPnP	Boot	Security	Chipset		Power	Exit

Advanced ACPI Configuration

Enable RSDP pointers to 64-bit Fixed System Description Tables.

ACPI 2.0 Features   [No]
ACPI APIC support   [Enabled]
AMI OEMB table   [Enabled]
Headless mode   [Disabled]

←→   Select Screen
↑ ↓   Select Item
+ -   Change Field
Tab   Select Field
F1   General Help
F10   Save and Exit
ESC   Exit

v02.57 (C)Copyright 1985-2004, American Megatrends, Inc.

BIOS SETUP UTILTIY

Main	**Advanced**	PCIPnP	Boot	Security	Chipset		Power	Exit

APIC ACPI SCI IRQ   [Disabled]
USB Device Wakeup From S3   [Disabled]

←→   Select Screen
↑ ↓   Select Item
+ -   Change Field
Tab   Select Field
F1   General Help
F10   Save and Exit
ESC   Exit

v02.57 (C)Copyright 1985-2004, American Megatrends, Inc.

BIOS SETUP UTILTIY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit

MPS Configuration

Select MPS Revision.

MPS Revision   [1.4]

← →	Select Screen
↑ ↓	Select Item
+ -	Change Field
Tab	Select Field
F1	General Help
F10	Save and Exit
ESC	Exit

v02.57 (C)Copyright 1985-2004, American Megatrends, Inc.

BIOS SETUP UTILTIY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit

Smbios Configuration

SMBIOS SMI Wrapper support for PnP Func 50h-54h

Smbios Smi Support   [Enabled]

← →	Select Screen
↑ ↓	Select Item
+ -	Change Field
Tab	Select Field
F1	General Help
F10	Save and Exit
ESC	Exit

v02.57 (C)Copyright 1985-2004, American Megatrends, Inc.

BIOS SETUP UTILTIY

Main	**Advanced**	PCIPnP	Boot	Security	Chipset		Power	Exit

USB Configuration

Module Version —2.24.0-10.4

USB Devices Enable   :
             None

USB Function   [4 USB Ports]
Legacy USB Support   [Enabled]
USB 2.0 Controller   [Enabled]
USB 2.0 Controller Mode   [HiSpeed]
BIOS EHCI Hand-Off   [Enabled]

Enables USB host controllers.

←→   Select Screen
↑ ↓   Select Item
+ -   Change Field
Tab   Select Field
F1   General Help
F10   Save and Exit
ESC   Exit

33

4.4   Advanced PCI/PnP Settings

BIOS SETUP UTILTIY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit

Advanced PCI/PnP Settings		Clear NVRAM during System Boot.

WARNING: Setting wrong values in below
sections may cause system to malfunction.

Clear NVRAM	[No]	
Plug & Play O/S	[No]	
PCI Latency Timer	[64]	
Allocate IRQ to PCI VGA	[Yes]	
Palette Snooping	[Disabled]	
PCI IDE BusMaster	[Enabled]	
OffBoard PCI/ISA IDE Card	[Auto]	
IRQ3	[Available]	← → Select Screen
IRQ4	[Available]	↑ ↓ Select Item
IRQ5	[Available]	+ - Change Field
IRQ7	[Available]	Tab Select Field
IRQ9	[Available]	F1 General Help
IRQ10	[Available]	F10 Save and Exit
IRQ11	[Available]	ESC Exit
IRQ14	[Available]	
IRQ15	[Available]	
DMA Channel 0	[Available]	
DMA Channel 1	[Available]	
DMA Channel 3	[Available]	
DMA Channel 5	[Available]	
DMA Channel 6	[Available]	
DMA Channel 7	[Available]	
Reserved Memory Size	[Disabled]	

v02.57 (C)Copyright 1985-2004, American Megatrends, Inc.

34

4.5   Boot Settings

BIOS SETUP UTILTIY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit

Boot Settings

▶ Boot Settings Configuration

▶ Boot Device Priority
▶ Removable Drives
▶ CD/DVD Drives

Configure Settings during System Boot.

← →   Select Screen
↑   ↓   Select Item
+ -   Change Field
Tab   Select Field
F1   General Help
F10   Save and Exit
ESC   Exit

v02.57 (C)Copyright 1985-2004, American Megatrends, Inc.

BIOS SETUP UTILTIY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit

Boot Settings Configuration

Quick Boot	[Enabled]
Quiet Boot	[Disabled]
AddOn ROM Display Mode	[Force BIOS]
Bootup Num-Lock	[On]
PS/2 Mouse Support	[Auto]
Wait For 'F1' If Error	[Enabled]
Hit 'DEL' Message Display	[Enabled]
Interrupt 19 Capture	[Disabled]

Allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system.

← →   Select Screen
↑   ↓   Select Item
+ -   Change Field
Tab   Select Field
F1   General Help
F10   Save and Exit
ESC   Exit

v02.57 (C)Copyright 1985-2004, American Megatrends, Inc.

**BIOS SETUP UTILTIY**

Main	Advanced	PCIPnP	**Boot**	Security	Chipset	Power	Exit

Boot Device Priority

1st Boot Device	[1st FLOPPY DRIVE]
2nd Boot Device	[CD/DVD:PS-ASUS CRW]

Specifies the boot sequence from the available devices.
A device enclosed in parenthesis has been disabled in the corresponding type menu.

← →	Select Screen
↑ ↓	Select Item
+ -	Change Field
Tab	Select Field
F1	General Help
F10	Save and Exit
ESC	Exit

v02.57 (C)Copyright 1985-2004, American Megatrends, Inc.

BIOS SETUP UTILTIY

Main	Advanced	PCIPnP	**Boot**	Security	Chipset	Power	Exit

Removable Drives

1st Drive	[1st FLOPPY DRIVE]

Specifies the boot sequence from the available devices.

← →	Select Screen
↑ ↓	Select Item
+ -	Change Field
Tab	Select Field
F1	General Help
F10	Save and Exit
ESC	Exit

v02.57 (C)Copyright 1985-2004, American Megatrends, Inc.

BIOS SETUP UTILTIY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit

CD/DVD Drives

1st Device   [CD/DVD:PS-ASUS CRW]

Specifies the boot sequence from the available devices.

← →   Select Screen
↑ ↓   Select Item
+ -   Change Field
Tab   Select Field
F1   General Help
F10   Save and Exit
ESC   Exit

37

4.6   Security Settings

Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit

Security Settings

Supervisor Password   :Not Installed
User Password   :Not Installed

Change Supervisor Password
Change User Password

Boot Sector Virus Protection   [Disabled]

Install or Change the password.

← →   Select Screen
↑ ↓   Select Item
+ -   Change Field
Tab   Select Field
F1   General Help
F10   Save and Exit
ESC   Exit

4.7   Advanced Chipset Settings

BIOS SETUP UTILTIY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit

Advanced Chipset Settings   Options for NB

WARNING: Setting wrong values in below
sections may cause system to malfunction.

▶ NorthBridge Configuration
▶ SouthBridge Configuration

```
                                        ← →      Select Screen
                                        ↑  ↓     Select Item
                                        + -      Change Field
                                        Tab      Select Field
                                        F1       General Help
                                        F10      Save and Exit
                                        ESC      Exit
```

v02.57 (C)Copyright 1985-2004, American Megatrends, Inc.

BIOS SETUP UTILTIY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit

                                                          Options

DRAM Frequency   [Auto]
Configure DRAM Timing by SPD   [Enabled]   200Mhz
                                                  266Mhz
Memory Hole   [Disabled]   333Mhz
Init. Graphic Adapter Priority   [Internal VGA] Auto
Internal Graphics Mode Select   [Enabled, 8MB]
Graphics Aperture Size   [64MB]   ← →   Select Screen
                                                  ↑ ↓   Select Item
Boot Display Device   [CRT+LFP]   + -   Change Field
Flat Panel Type   [800x600LVDS]   Tab   Select Field
TV Standard   [Auto]   F1   General Help
                                                  F10   Save and Exit
                                                  ESC   Exit

v02.57 (C)Copyright 1985-2004, American Megatrends, Inc.

BIOS SETUP UTILTIY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit

OnBoard AC'97 Audio	[Auto]
Restore on AC Power Loss	[Last State]

Enable/Disable OnBoard AC'97 Audio.

← →	Select Screen
↑ ↓	Select Item
+ -	Change Field
Tab	Select Field
F1	General Help
F10	Save and Exit
ESC	Exit

v02.57 (C)Copyright 1985-2004, American Megatrends, Inc.

40

4.8   APM Configuration

BIOS SETUP UTILTIY

Main	Advanced	PCIPnP	Boot	Security	Chipset	**Power**	Exit

APM Configuration		Disable/Enable RTC to generate a wake event.
Power Management/APM	[Enabled]	
Video Power Down Mode	[Suspend]	
Hard Disk Power Down Mode	[Suspend]	
Standby Time Out	[Disabled]	
Suspend Time Out	[Disabled]	
Throttle Slow Clock Ratio	[50%]	
Keyboard & PS/2 Mouse	[Monitor]	
FDC/LPT/COM Ports	[Monitor]	
Primary master IDE	[Monitor]	←→ Select Screen
Primary slave IDE	[Monitor]	↑ ↓ Select Item
Secondary master IDE	[Monitor]	+ - Change Field
Secondary slave IDE	[Monitor]	Tab Select Field
		F1 General Help
System Thermal	[Disabled]	F10 Save and Exit
		ESC Exit
Power Button Mode	[On/Off]	
Resume On Ring	[Disabled]	
Resume On LAN	[Disabled]	
Resume On PME#	[Disabled]	
Resume On RTC Alarm	[Disabled]	

v02.57 (C)Copyright 1985-2004, American Megatrends, Inc.

4.9   Exit Options

Main	Advanced	PCIPnP	Boot	Security	Chipset		Power	Exit

EXIT Options

Save Changes and Exit
Discard Changes and Exit
Discard Changes

Load Optimal Defaults
Load Failsafe Defaults

Exit system setup after saving the changes.
F10 key can be used for this operation.

← →	Select Screen
↑ ↓	Select Item
+ -	Change Field
Tab	Select Field
F1	General Help
F10	Save and Exit
ESC	Exit

v02.57 (C)Copyright 1985-2004, American Megatrends, Inc.

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:** \INF
- **VGA driver:** \VGA\852GME
- **LAN driver:** \LAN\I82551QM
- **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-4706** button to launch the installation program.
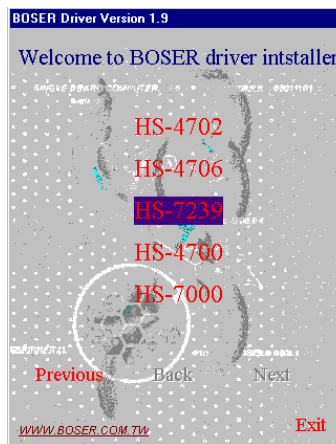

2. Click on the **INF Driver** button to continue.
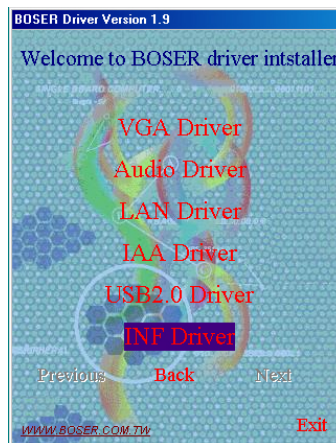
3. Click on the appropriate OS button to continue.

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.
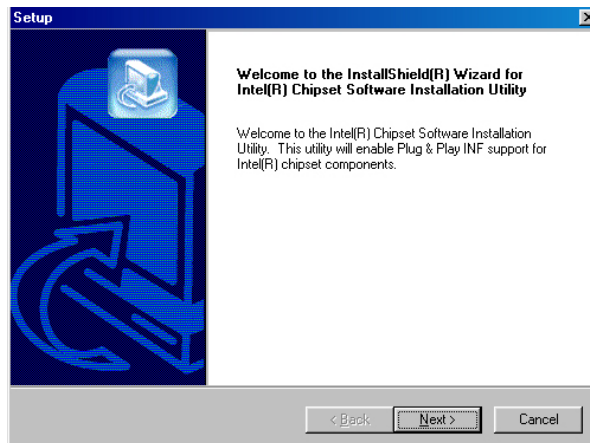
5. The Intel OEM Software License Agreement dialog box then appears on the screen. Choose **<u>Y</u>es** to proceed.
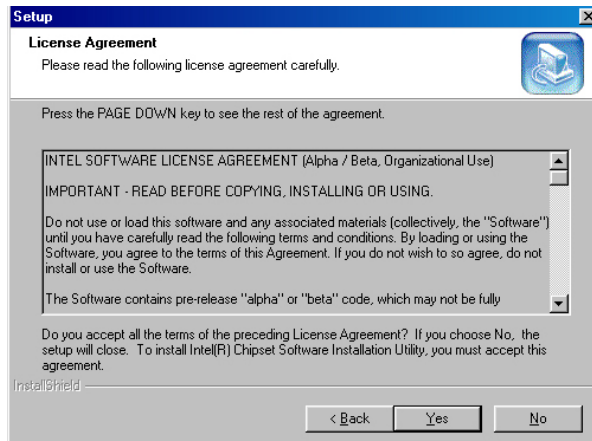
6. When the Readme Information dialog box pops up, just click on the **<u>N</u>ext>** button to proceed.
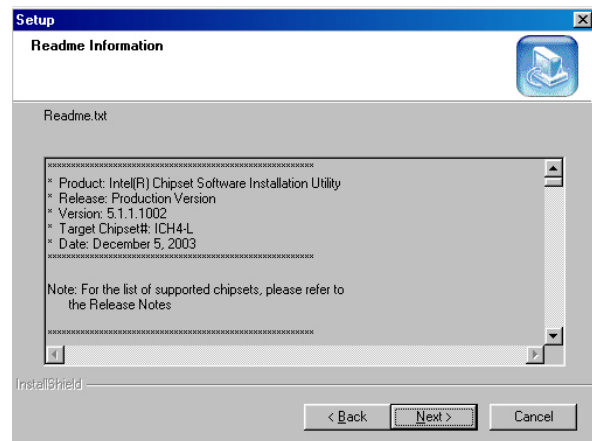
7.   Once the Install Shield Wizard finishes updating your system, it will prompt you to restart the computer. Tick on the **Yes, I want to restart my computer now** followed by a click on the **Finish** button to reboot. Only after your computer boots will the new settings take effect.
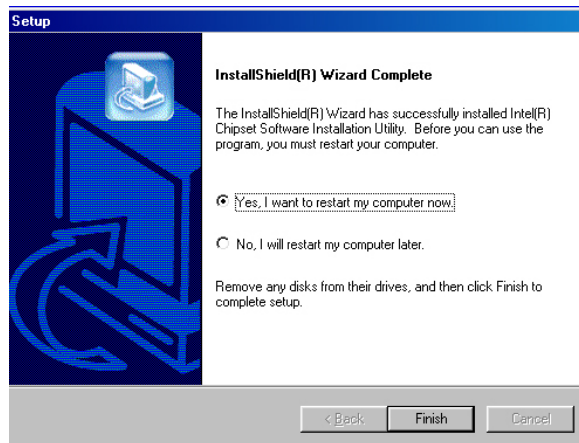
NOTE: *WIN98/2K/XP IDE driver installations are the same.*

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-4706** 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.
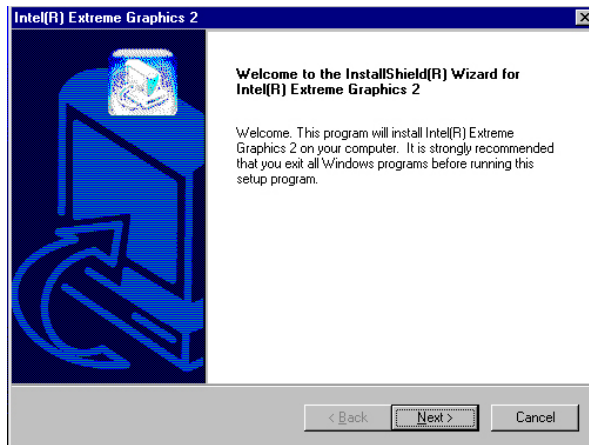
5. The Intel OEM Software License Agreement dialog box then appears on the screen. Choose **Yes** to proceed.

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-4706** button to launch the installation program.
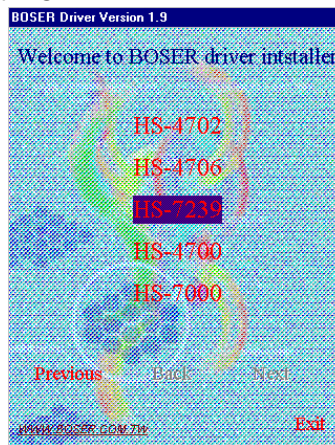
2. Click on the **VGA Driver** button to continue.

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.
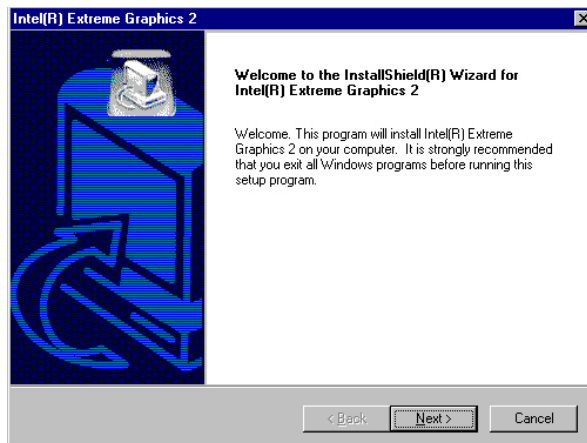
5. The Intel OEM Software License Agreement dialog box then appears on the screen. Choose **Yes** to proceed.
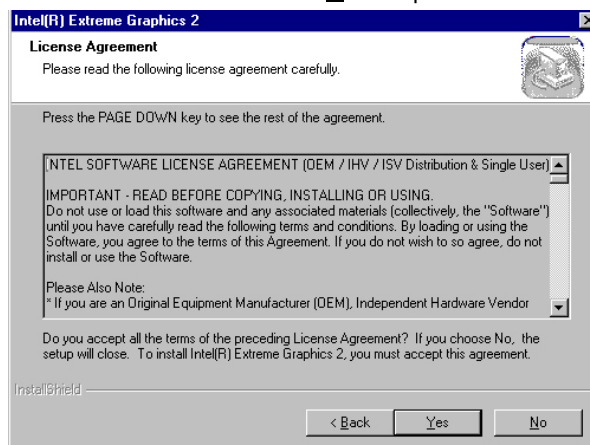
6. Once the setup program finishes copying files into your system, it will prompt you to restart the computer. Tick on the **Yes, I want to restart my computer now** followed by a click on the <u>F</u>inish button to reboot. Only after your computer boots will the new settings take effect.

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-4706** 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.
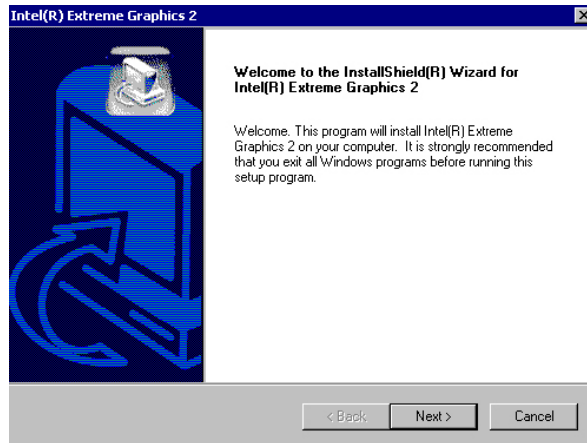
5. The Intel OEM Software License Agreement dialog box then appears on the screen. Choose **Yes** to proceed.

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 <u>**F**</u>**inish** 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

1. Insert Utility CD Disk into your CD ROM drive. The main menu will pop up as shown below. Select on the **HS-4706** button to launch the installation program.
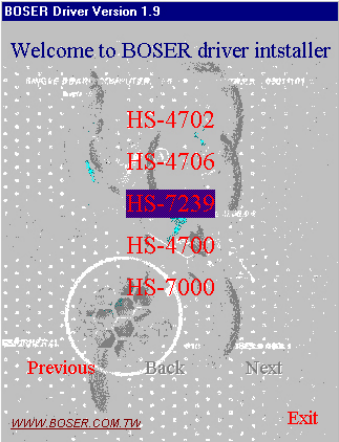
2. Click on the **LAN Driver** button to continue.
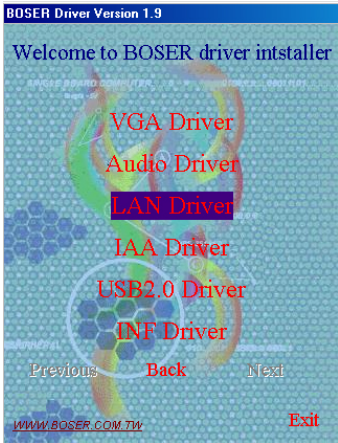
3.   Click on the **WIN9X** button to continue.

4.   When the dialog box below appears, make sure you close all other Windows applications then click on the **Install Base Driver** button to proceed.
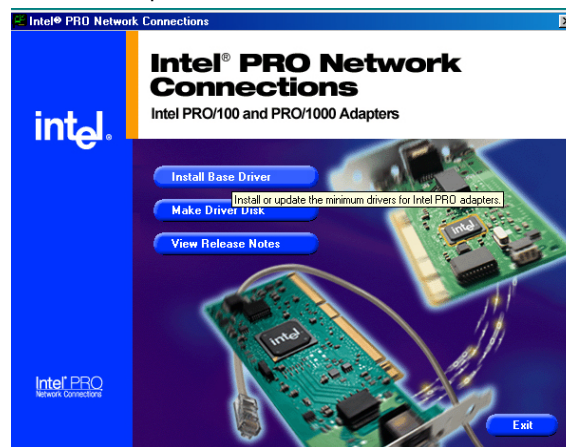
5. The Intel OEM Software License Agreement dialog box then appears on the screen. Choose **Accept** to proceed.
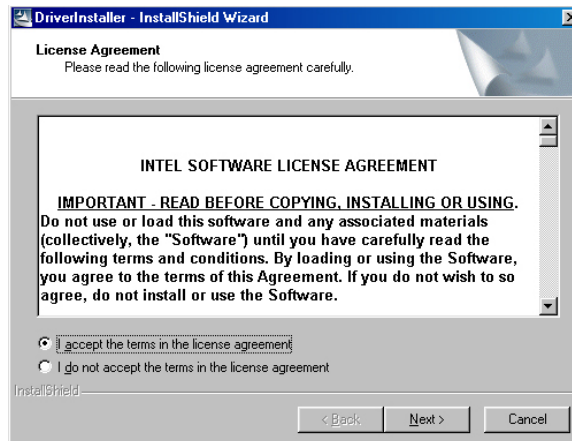
6. Choose the drivers install location. (ex: c:\IntelPRO)
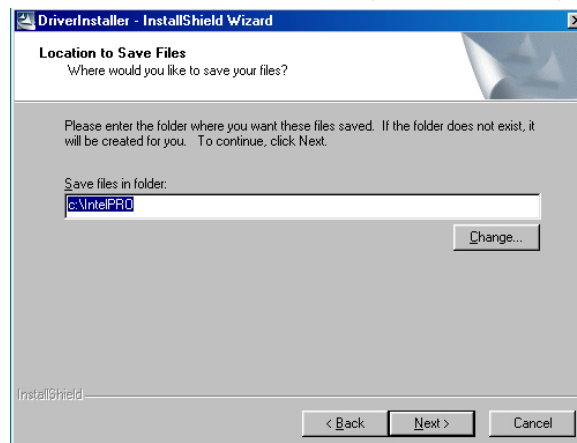
7. Once the setup program finishes copying files into your system, it will prompt you to restart the computer. Tick on the **Restart now** to reboot. Only after your computer boots will the new settings take effect.
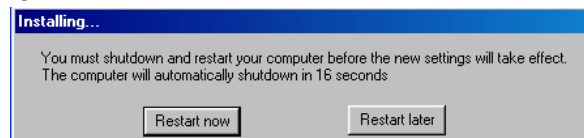
5.3.2 Win NT

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.
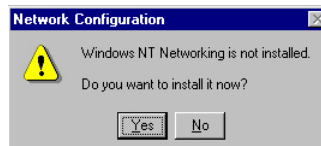
2. Tick on the **Wired to the network** once the following screen appears. Click on the **Next>** to proceed.
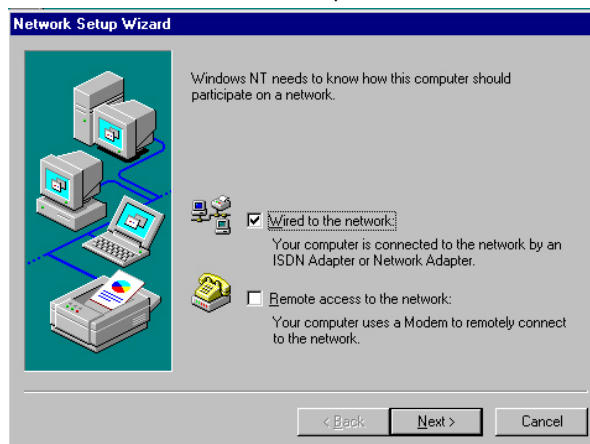
3. Click on the **Start Search** button for the program to locate the Network Adapter.
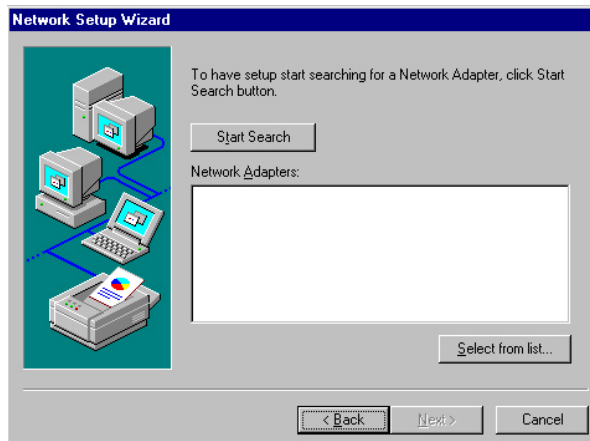
4. Once setup finishes the search, it will list a number of adapters for you to choose from. Press on the **Have Disk** button to assign the driver path location.
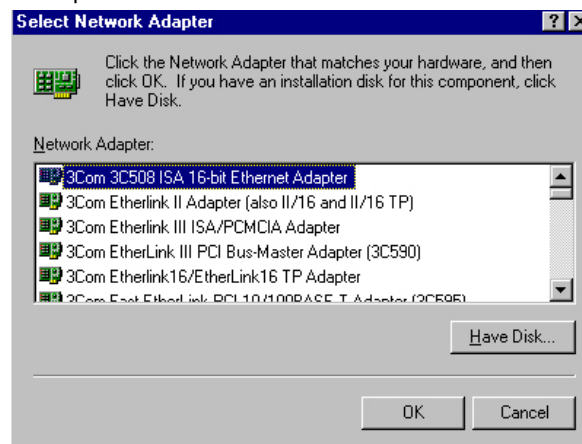
5. Setup now asks you for the location of the driver. When you have entered the new driver path, press on the **OK** button to continue.
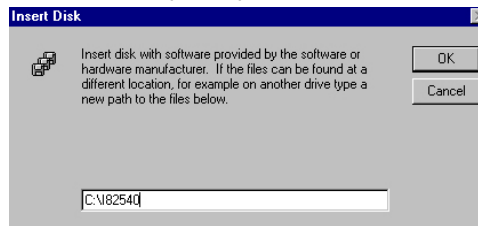
6. When Setup finds the information it needs about the new driver, it will display the device it found on the following screen. Please choose "**Intel(R) PRO/100 Family Adapter**". Press on the **OK** button to accept and proceed.
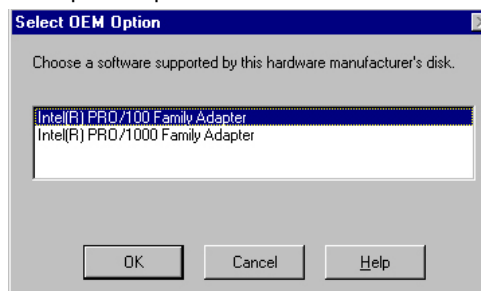
7. Setup then returns to Network Setup Wizard screen and displays your new Network Adapter. Click on <u>Next</u> to continue.
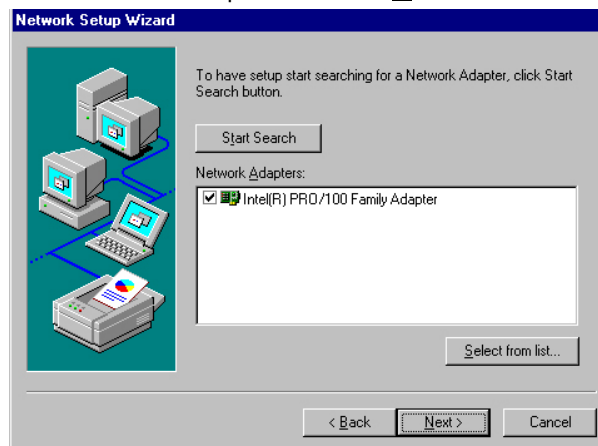
8. The Network Setup Wizard then allows you to set the Network Protocols on your network. Select the appropriate protocol and then click on Next to continue.
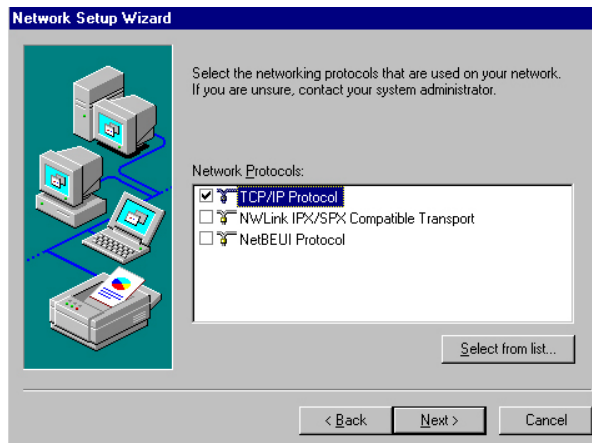
9. Before Setup starts installing the components found and the settings you made, it will give you the option to proceed or go back for changes from the following screen. Click on the **Next** button once you are sure of your devices.

63
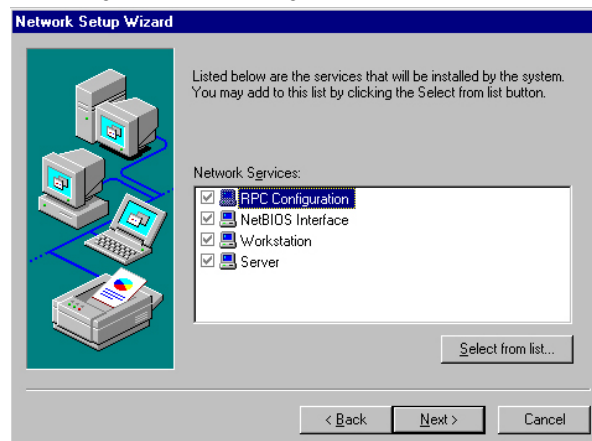
10. Windows NT Setup will then need to copy files necessary to update the system information. Specify the path then press **Continue**.
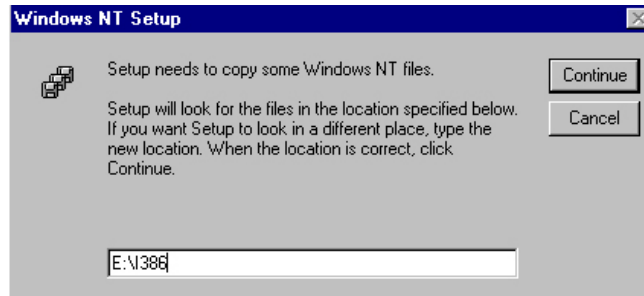
11. When Setup asks if you wish to change the TCP/IP settings of your system, select them appropriately. The default choice is **No**.
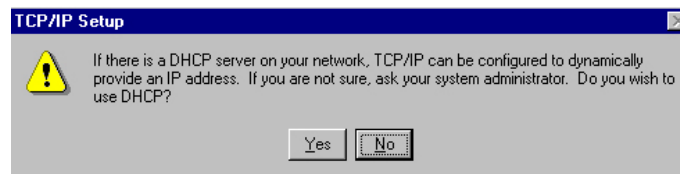
12. Setup then starts the Networking installation and copies the files.

13. When the screen below appears, click on **Next>** to continue.
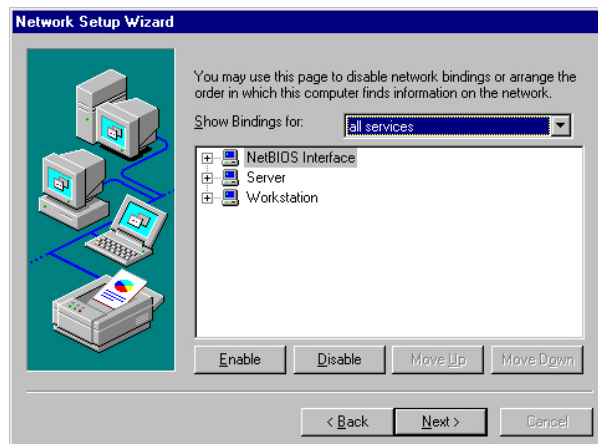
14. Setup then prompts you that it is ready to start the network. You may complete the installation thereafter. Click on **Next>** to continue.
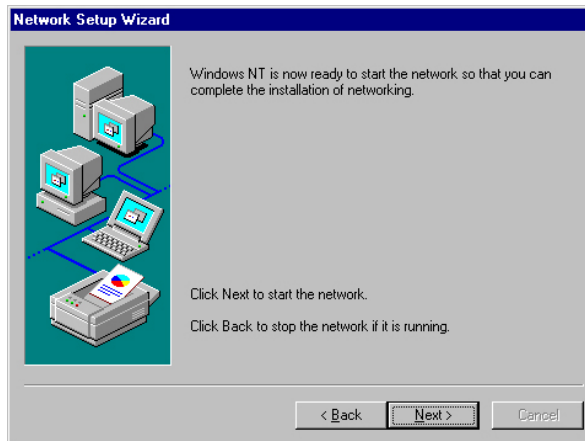
15. Assign the workgroup or domain setting of your computer. Click on Next to continue.
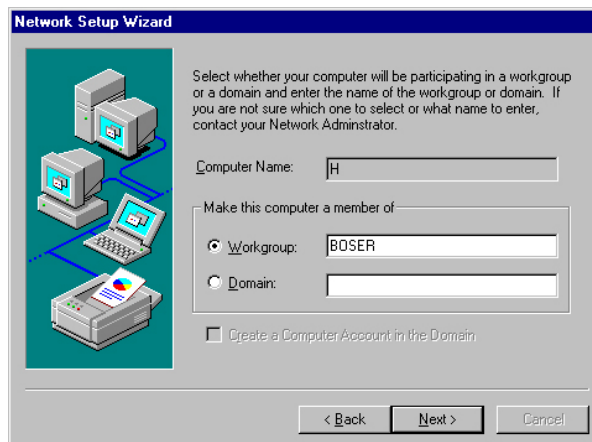
16. When the dialog box below appears, it means your driver is install completed. Click Finish button to proceed.
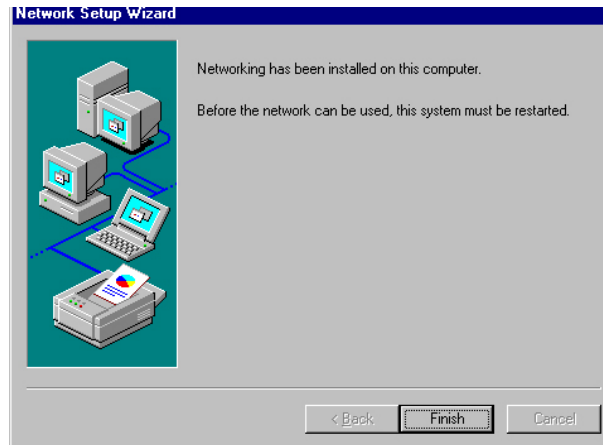
17. Click on the **Yes** button to restart your computer. The LAN driver installation for WIN NT4.0 is now complete.
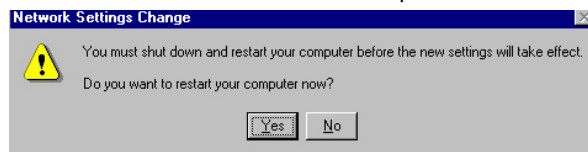
5.3.3 WIN2K

1. Insert utility CD disk into your CD ROM drive. The main menu will pop up as shown below. Select on the **HS-4706** button to launch the installation program.

2. Click on the **LAN 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 **Install Base Driver** button to proceed.

68
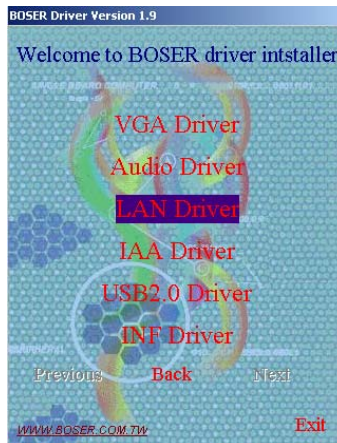
5. The Intel OEM Software License Agreement dialog box then appears on the screen, Choose **Yes** to proceed.
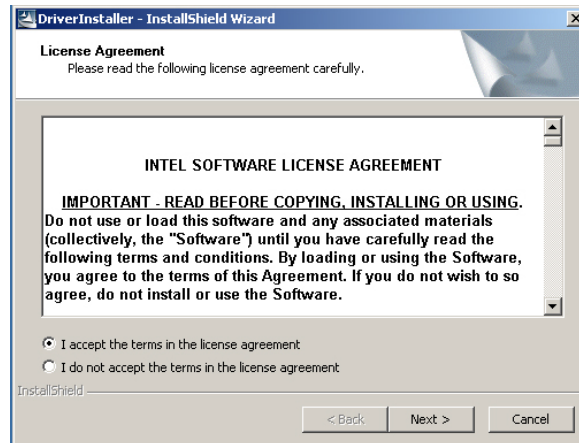
6. Choose driver install location. (ex: c:\IntelPRO)
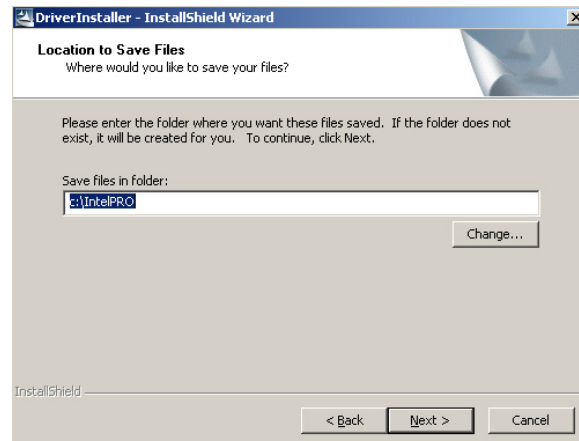
7. When setup is finished, please reboot your computer to complete.

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

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-4706** button to launch
     the installation program.
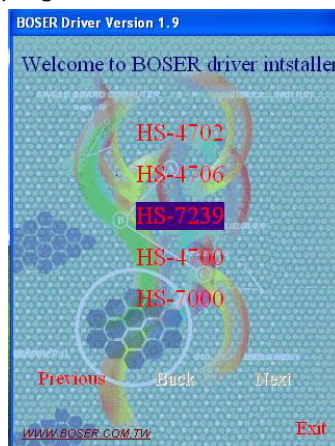
2.   Click on the **Audio Driver** button to continue.
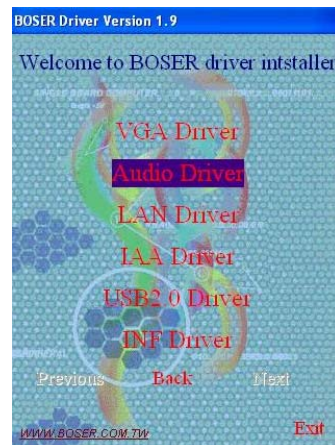
3. Choose on the OS button to continue.
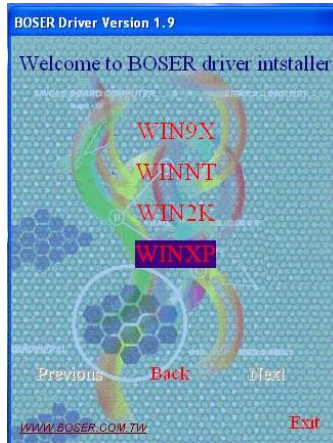
4. When the dialog box below appears, make sure you close all other Windows applications then click on the **Next >** button to proceed.

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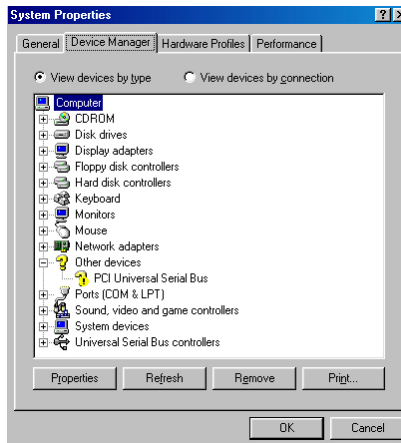
3. The PCI Universal Serial Bus Properties screen then appears, allowing you to re-install the driver. Select Driver from the main menu to proceed.

4.   When the dialog box below appears, make sure you close all other Windows applications then click on the **Next >** button to proceed.
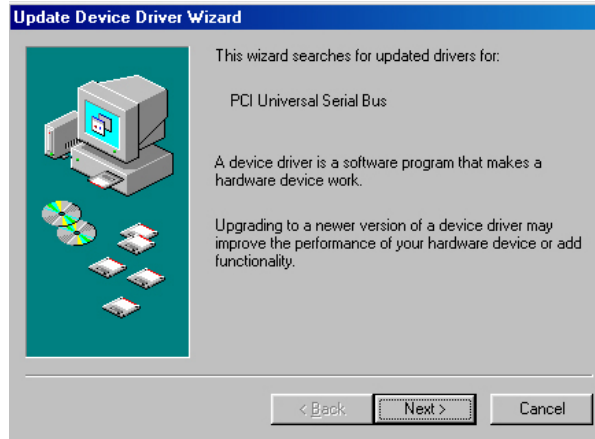
5.   Tick on the "Search for a better driver" once the following screen appears. Click on the **Next** to proceed.

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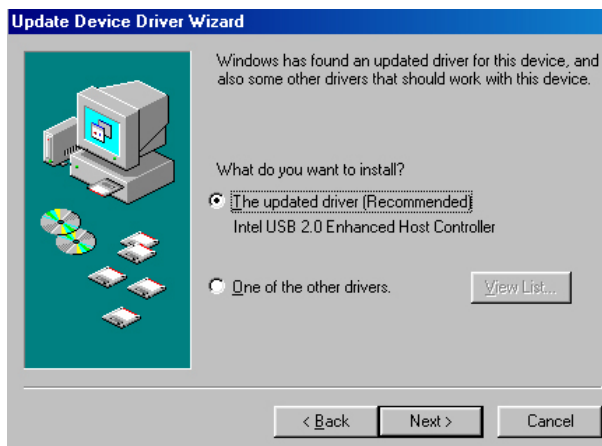
8. Once the InstallShield Wizard completes the operation and update of your USB2.0 driver. Click on the **Finish** button to complete the installation process.
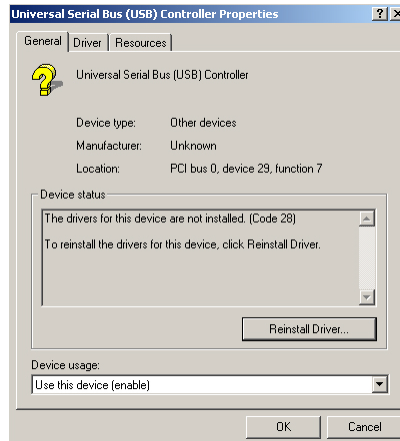

5.5.2 Win 2000

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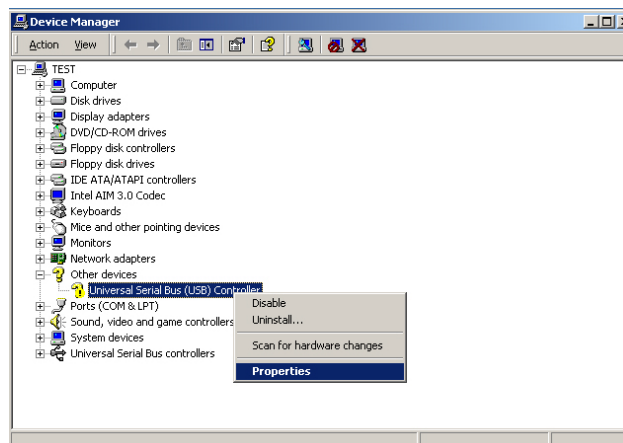
3. The PCI Universal Serial Bus Properties screen then appears, allowing you to re-install the driver. Select Driver from the main menu to proceed.
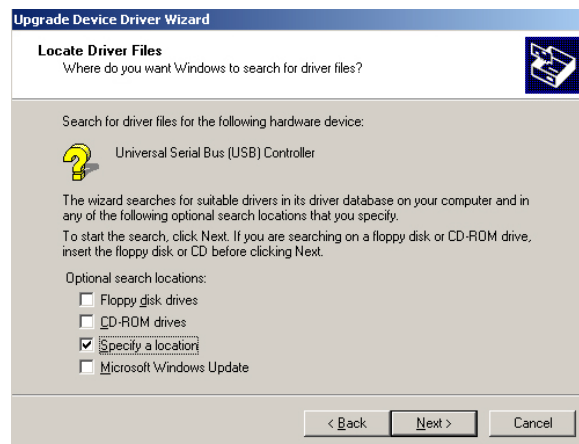

4. When the dialog box below appears, make sure you close all other Windows applications then click on the **Next >** button to proceed.
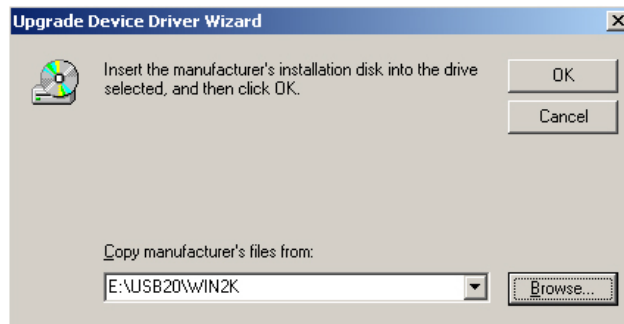
5. Tick on the "Search for a suitable driver" once the following screen appears. Click on the **Next** to proceed.

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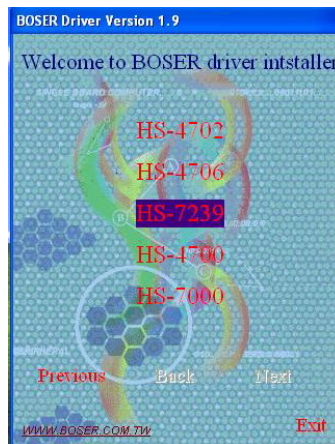
7.   Choose the driver disk location.

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.
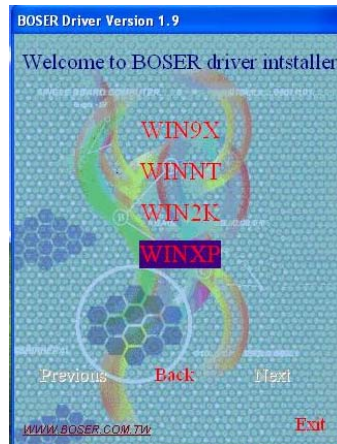
5.5.3 Win XP

1. Insert Utility CD Disk into your CD ROM drive. The main menu will pop up as shown below. Select on the **HS-4706** 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.