HS-1745

Intel® Core™ 2 Duo/Core™ Duo/
Core™ Solo processor mITX Board

• CompactFlash • Mini PCI •
• PCI-E/PCI Slot • DVI/CRT/LVDS • TV-Out •
• Dual GB LAN • Audio • SPDIF • SATA •
• ATA/33/66/100 • RS-232/422/485 •
• 6 COM • IrDA • USB2.0 • WDT • H/W Monitor •

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Declaration of Conformity -- CE Mark

BOSER Technology hereby acknowledges that compliance testing in accordance with applicable standards of the EU's EMC Directive, 89/336/EEC, was successfully completed on a sample of the equipment identified below:

Equipment Class:	*Information Technology Equipment*	
Product Model Series:	***HS-1745***	
This Product Complies With:	*EN55022:*	*Class A for Radiated emissions*
	EN50082-2:	*Heavy Industrial EMC Immunity*

We, the undersigned, hereby declare that the equipment specified above conforms to the above directives and standards.

Manufacturer:
BOSER TECHNOLOGY CO., LTD.

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 handle the product to ensure harmlessly discharge 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 COMPONENTS WITHOUT ALL NECESSARY ANTI-STATIC PROTECTIONS.*

Chapter 1

General Description

The HS-1745 is an Intel® 945GME GMCH chipset-based board designed. The HS-1745 is an ideal all-in-one mITX board. Additional features include an enhanced I/O with CF, DVI/CRT/LVDS, TV-Out, dual Giga LAN, audio, SPDIF, SATA, 6 COM, IrDA, and USB2.0 interfaces.

Designed with the Intel® 945GME GMCH, the board supports Intel® Core™ 2 Duo/Core™ Duo/Core™ Solo processor 1.66~2.33GHz.

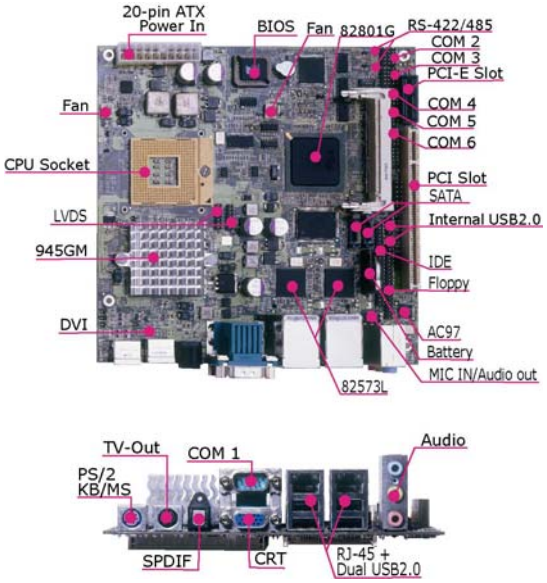
Its onboard ATA/33/66/100 to IDE drive interface architecture allows the HS-1745 to support data transfers of 33, 66 or 100MB/sec. to one IDE drive connection. The Intel® ICH7-M serial ATA controller with two ports supporting transfer rates up to 150MB/sec.

Onboard Intel® 945GME GMCH for CRT display with DVMT or CHRONTEL 7307 for DVI display supporting up to 2048 x 1536. It also supports 18-bit single channel/36-bit dual channel LVDS interface.

System memory is also sufficient with the one SO-DDRII socket that can support up to 1GB. Additional onboard connectors include an advanced USB2.0 port providing faster data transmission. And two external RJ-45 connectors for 10/100 Based Ethernet use.

To ensure the reliability in an unmanned or standalone system, the watchdog timer (WDT) onboard HS-1745 is designed with software that does not need the arithmetical functions of a real-time clock chip. If any program causes unexpected halts to the system, the onboard WDT will automatically reset the CPU or generate an interrupt to resolve such condition.

1.1 Major Features



The HS-1745 comes with the following features:

- Intel® Core™ 2 Duo/Core™ Duo/Core™ Solo processor 1.66~2.33GHz
- One SO-DIMM up to 1GB DDR2 SDRAM
- Intel® 945GME/ICH7-M chipset, W83627EHG super I/O chipset
- Intel® 945GME or CHRONTEL 7307 DVI graphics, dual Intel® 82573L GB Ethernet, ALC202A audio Codec controller
- 18-bit single channel/36-bit dual channel LVDS panel display interface
- CF, SPDIF, SATA x 2, COM x 6, USB2.0 x 8, PCIex1 slot, mini PCI slot, 3.3V PCI slot
- TV-Out, 8-bit I/O, H/W Monitor function

1.2 Specifications

System

- **CPU:**
  Intel® Core™ 2 Duo/Core™ Duo/Core™ Solo processor 1.66~2.33GHz
  Celeron® M: 410, 420, 430, 440, 450
  Core™ Duo: T2300, T2400, T2500, T2600, T2700
  Core™ 2 Duo: T5500, T5600, T7200, T7400, T7600
- **FSB:**
  667/533MHz FSB
- **BIOS:**
  AMI PnP Flash BIOS

- **System Chipset:**
  Intel® 945GME GMCH/ICH7-M
- **I/O Chipset:**
  Winbond W83627EHG
- **System Memory:**
  1 x 200-pin SO-DIMM socket up to 1GB DDR2 SDRAM
- **Storage:**
  1 x Type II CF socket
- **Watchdog Timer**
  Software programmable time-out intervals from 1~255 sec.
- **H/W Status Monitor:**
  Monitoring temperatures, voltages, and cooling fan status
- **Expansion:**
  1 x PCIex1 slot
  1 x Type III mini PCI slot
  1 x 3.3V PCI slot

I/O Interface

- **MIO:**
  4 x RS-232
  2 x RS-232/422/485
  8 x USB2.0 (4 x internal, 4 x external)
  1 x IDE
  1 x FDD
  1 x Parallel
  2 x SATA
  1 x PS/2 for KB/MS
  1 x IrDA (only PCB v0.5 or above)
- **DI/O:**
  8-bit input/output by parallel port

Display

- **Chipset:**
  Intel® 945GME integrated Intel® GMA950
- **LVDS:**
  18-bit single channel/36-bit dual channel
- **TV-Out:**
  Provides PAL or NTSC TV systems
- **DVI:**
  Chrontel 7307 (optional)

Audio

- **Chipset:**
  RealTek ALC202A
- **Audio Interface:**
  MIC In, Line Out, Line In, SPDIF

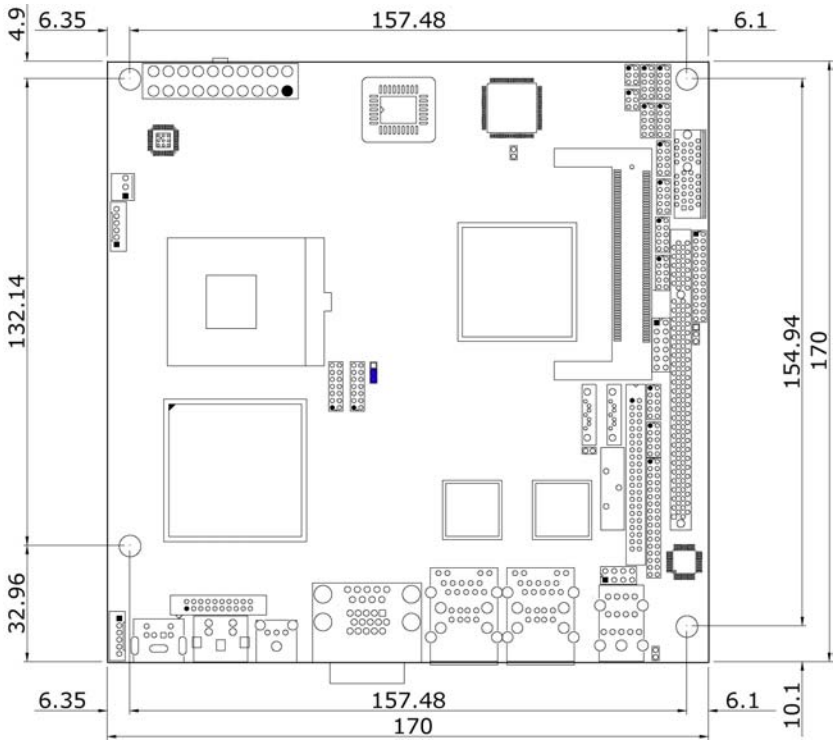
Ethernet

- **Chipset:**
  Dual Intel® 82573L GB 10/100/1000 Mbps LAN
- **Ethernet Interface"**
  RJ-45 x 2

Mechanical & Environmental

- **Operating Temperature:**
  0~60 degrees C
- **Operating Humidity:**
  0~95%, non-condensing
- **Size (L x W):**
  170 x 170 mm

1.3 Board Dimensions



Chapter 2

Unpacking

2.1 Opening the Delivery Package

The HS-1745 is packed in an anti-static bag. The board has components that are easily damaged by static electricity. Do not remove the anti-static wrapping until proper precautions have been taken. Safety Instructions in front of this manual describe anti-static precautions and procedures.

2.2 Inspection

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

Integrated circuits will sometimes come out of their sockets during shipment. Examine all integrated circuits, particularly the BIOS, processor, memory modules, ROM-Disk, and keyboard controller chip to ensure that they are firmly seated. The HS-1745 delivery package contains the following items:

- **HS-1745 Board x 1**
- **Utility CD Disk x 1**
- **Cables Package x 1**
- **Jumper Bag x 1**
- **User's Manual**

Cables Package		
NO.	**Description**	**QTY.**
1	COM DB9-10P (2.0-pitch)	1
2	Print DB25-26P(2.0-pitch)	1
3	1-to-2 Mini DIN cable	1
4	SATA device cable	1
5	34P(2.54)*3 FDC cable	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.

Option Accessories	
NO.	**Description**
1	1-to-2 USB cable with bracket
2	COM DB9-10P (2.0-pitch)
3	SATA power cable
4	Pentium® Cooler (251-10310002G)
5	40-pin to 44-pin IDE flat cable

Chapter 3

Hardware Installation

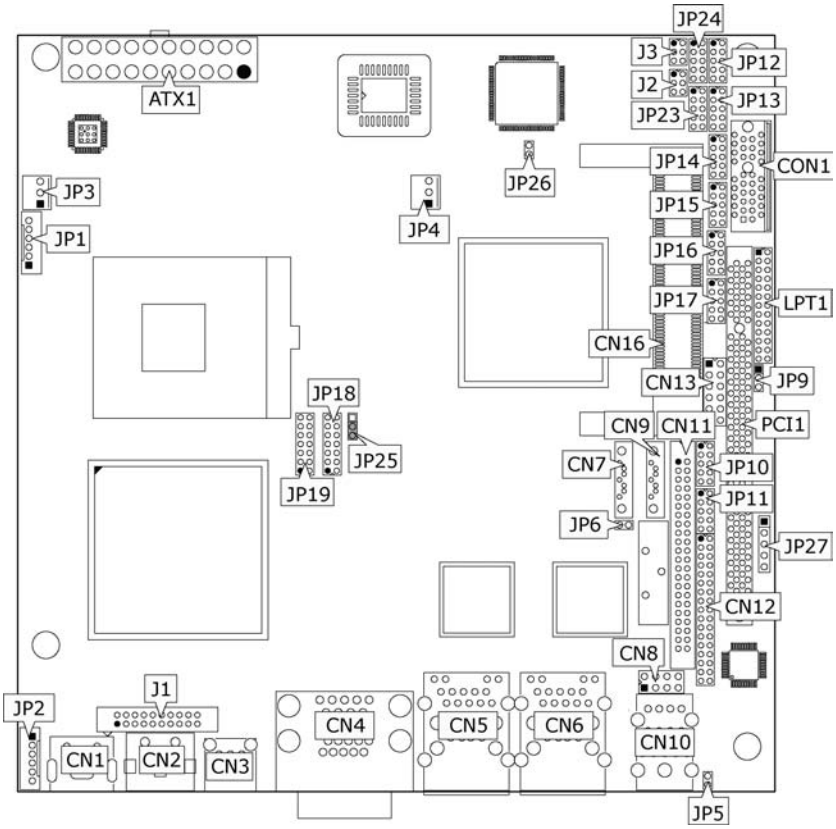
This chapter provides the information on how to install the hardware using the HS-1745. This chapter also contains information related to jumper settings of switch, and watchdog timer selection etc.

3.1 Before Installation

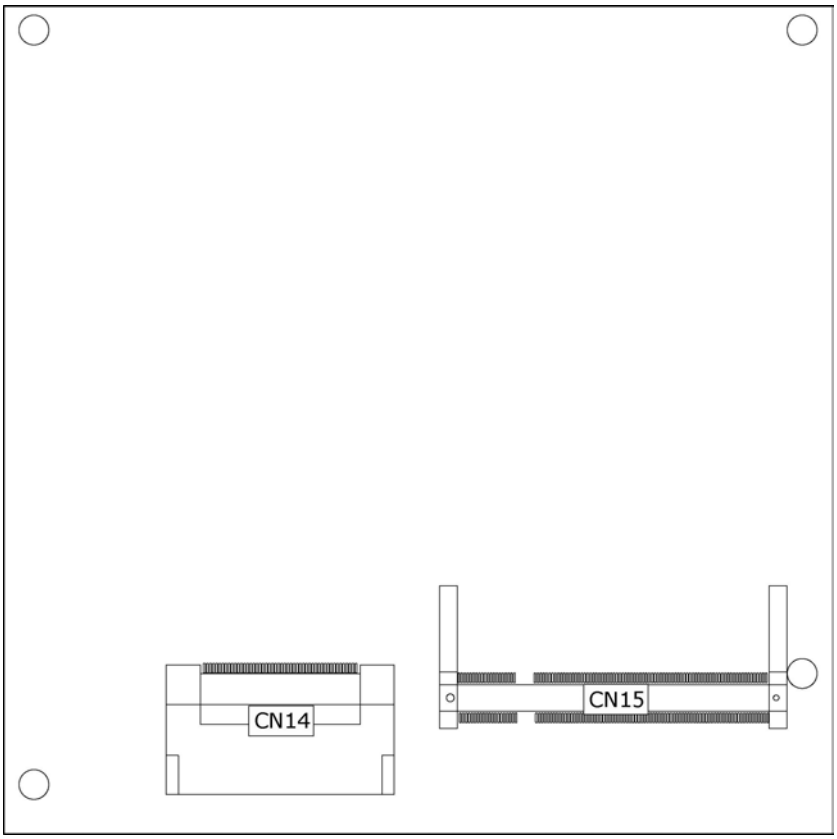
After confirming your package contents, you are now ready to install your hardware. The following are important reminders and steps to take before you begin with your installation process.

1. Make sure that all jumper settings match their default settings and CMOS setup correctly. Refer to the sections on this chapter for the default settings of each jumper. (Set JP6 open)
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



Top Side



Solder Side

3.3 Jumper List

Jumper	Default Setting	Setting	Page
JP5	CF Use Master/Slave Select: *Slave*	Open	23
JP6	Clear CMOS: *Normal Operation*	Open	19
JP23	COM 3/COM 4 Use RS-232 or	Open	16
JP24	RS-422/485 Select: *RS-232*	Open	16
JP25	Panel Voltage Select: *+3.3V*	Short 2-3	11
JP26	FSB Frequency Select: *667MHz*	Open	10

3.4 Connector List

Connector	Definition	Page
ATX1	20-pin ATX Power In Connector	19
CN1	PS/2 6-pin Mini DIN KB/MS Connector	20
CN2	TV-Out Connector	22
CN3	SPDIF Connector	23
CN4	15-pin CRT Connector & COM 1 (DB9)	11/16
CN5/CN6	RJ-45 & Dual USB2.0 Port	18
CN7/CN9	Serial ATA Connector	14
CN8	MIC In/Line Out Connector	23
CN10	External Audio Connector	23
CN11	IDE Connector	13
CN12	Floppy Connector	15
CN13	System Front Panel Control	20
CN14	CompactFlash Connector	23
CN15	SO-DDRII Socket	11
CN16	Mini PCI Slot	25
JP1	Inverter Power In Connector	11
JP2	6-pin KB/MS Connector	20
JP3/JP4	Fan Power In Connector	19
JP9	Wake On LAN Connector	18
JP10/JP11	Internal USB2.0 Port	18
JP12~JP16	COM 2~COM 6 Connector (5x2 header)	16
JP17	8-bit I/O Port	25
JP18/JP19	LVDS Panel Connector	11
JP27	IrDA Connector	21
CON1	x1 PCI-E Slot	25
J1	DVI Connector	11
J2/J3	RS-422/485 Connector	16
LPT1	Parallel Port	16
PCI1	Standard PCI Slot	25

3.5 Configuring the CPU

The HS-1745 provides with Intel® Core™ 2 Duo/Core™ Duo/Core™ Solo processor 1.66~2.33GHz. User don't need to adjust the frequently and check speed of processor.

- **JP26: FSB Frequency Select**

Options	Settings
533MHz FSB	Short
667MHz FSB (default)	Open

3.6 System Memory

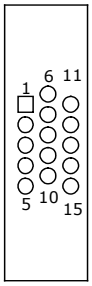
The HS-1745 provides one SO-DDRII socket at locations *CN15*. The maximum capacity of the onboard memory is 1GB.

3.7 VGA Controller

The HS-1745 provides two connection methods of a VGA device. *CN4A* offers a single standard CRT connector and *JP18/JP19* are the LVDS interface connectors onboard reserved for flat panel installation.

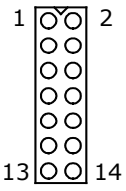
- **CN4A: CRT Connector**

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		



- **JP18/JP19: LVDS Interface Connector**

PIN	Description	PIN	Description
1	V_{LCD}	2	V_{LCD}
3	GND	4	GND
5	Y0-/Z0-	6	Y0+/Z0+
7	Y1-/Z1-	8	Y1+/Z1+
9	Y2-/Z2-	10	Y2+/Z2+
11	CLK-	12	CLK+
13	N/C	14	N/C



NOTE: *LVDS cable should be produced very carefully. Y0- & Y0+ have to be fabricated in twister pair (Y1- & Y1+, Y2- & Y2+ and so on) otherwise the signal won't be stable. Please set the proper voltage of your panel using JP25 before proceeding on installing it.*

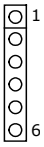
NOTE: *If use JP18 only, it just supports 16-bit single channel LVDS panel; If you want to use 36-bit dual channel LVDS panel, please use JP18 and JP19 combined.*

- **JP25: Panel Voltage Select**

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

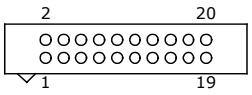
- **JP1: Inverter Power In Connector**

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



- **J1: DVI Connector**

PIN	Description	PIN	Description
1	TDC0#	2	+5V
3	TDC0	4	GND
5	GND	6	DETET
7	TDC1#	8	SC_DDC
9	TDC1	10	SD_DDC
11	GND	12	GND
13	TDC2#	14	TLC#
15	TDC2	16	TLC
17	GND	18	GND
19	N/C	20	N/C

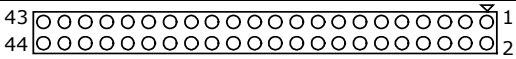


3.8 PCI E-IDE Drive Connector

CN11 is a standard 44-pin 2.0-pitch connector daisy-chain driver connector serves the PCI E-IDE drive provisions onboard the HS-1745. A maximum of two ATA/33/66/100 IDE drives can be connected to the HS-1745 via *CN11*.

- **CN11: IDE Connector**

PIN	Description	PIN	Description
1	IDERST	2	GND
3	PDD7	4	PDD8
5	PDD6	6	PDD9
7	PDD5	8	PDD10
9	PDD4	10	PDD11
11	PDD3	12	PDD12
13	PDD2	14	PDD13
15	PDD1	16	PDD14
17	PDD0	18	PDD15
19	GND	20	N/C
21	PDDREQ	22	GND
23	IOW#	24	GND
25	IOR#	26	GND
27	PIORDY	28	470Ω with GND
29	PDDACK#	30	GND
31	IRQ14	32	N/C
33	PDA1	34	PD33/66
35	PDA0	36	PDA2
37	PDCS1#	38	PDCS3#
39	HDD Active	40	GND
41	VCC	42	VCC
43	GND	44	N/C

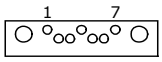


3.9 Serial ATA Connector

You can connect the Serial ATA device that 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.

- **CN7/CN9: Serial ATA Connector**

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

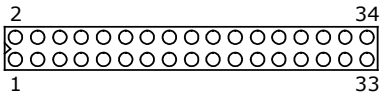


3.10 Floppy Disk Drive Connector

The HS-1745 uses a standard 34-pin header connector, *CN12*, for floppy disk drive connection. A total of two FDD drives may be connected to *CN12* at any given time.

- **CN12: Floppy 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#



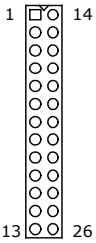
3.11 Parallel Connector

LTP1 is a standard 26-pin flat cable connector deigned to accommodate parallel port connection on the HS-1745.

NOTE: *If you want to use parallel port, 8-bit I/O function will be disabled.*

- **LPT1: 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

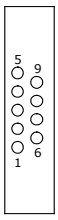


3.12 Serial Port Connectors

The HS-1745 offers NS16C550 compatible UARTs with Read/ Receive 16-byte FIFO serial ports and five internal 10-pin headers and two RS-422/485 connectors.

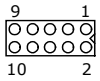
- **CN4A: COM 1 Connector (DB9)**

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



- **JP12~JP16: COM 2~COM 6 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	+12V



- **J2/J3: RS-422/485 Connector (3x2 Header, COM 3/COM 4)**

PIN	Description	PIN	Description
1	TX-	2	TX+
3	RX+	4	RX-
5	GND	6	+5V

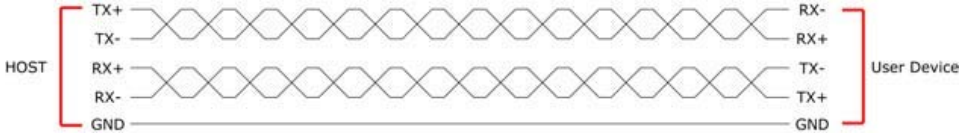
NOTE: *The terminal resistance of RX & TX is set at 180Ω.*

- **JP23/JP24: COM 3/COM 4 use RS-232 or RS-422/485 Select**

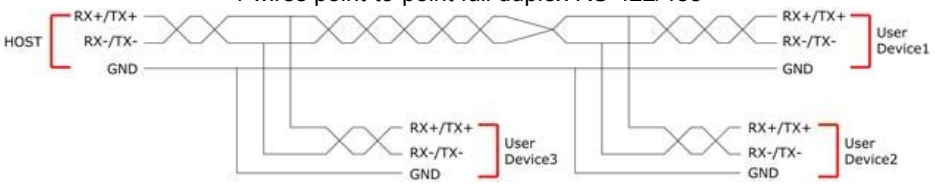
Options	Settings
RS-232 (default)	Open
RS-485 by Auto (*1)	Short 1-2, 3-4, 5-7, 8-10
RS-485 by –RTS (*-1)	Short 1-2, 3-4, 7-9, 8-10
RS-422/485 Full Duplex (*2)	Short 1-2, 3-4, 6-8

NOTE: **1: 2-wires RS-485 function*

**2: 4-wires point-to-point full duplex function*



4-wires point-to-point full duplex RS-422/485



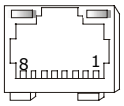
Typical RS-485 2-wires Mutildrop Network

3.13 Ethernet Connector

The HS-1745 provides two external RJ-45 interface connectors. Please refer to the following for its pin information.

- **CN5A/CN6A: RJ-45 Connector**

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



- **JP9: Wake On LAN**

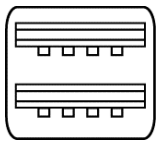
PIN	Description
1	+5V
2	GND
3	Wake On LAN

3.14 USB Connector

The HS-1745 provides two 8-pin connectors, at location *JP10/JP11*, for four USB ports, and four external USB2.0 ports at *CN5B/CN6B*.

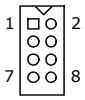
- **CN5B/CN6B: External USB2.0 Connector**

PIN	Description	PIN	Description
1	VCC	2	VCC
3	USBD0-/USB2-	4	USBD1-/USB3-
5	USBD0+/USB2+	6	USBD1+/USB3+
7	GND	8	GND



- **JP10/JP11: Internal USB2.0 Connector**

PIN	Description	PIN	Description
1	VCC	2	VCC
3	USBD4-/USBD6-	4	USBD5-/ USBD7-
5	USBD4+/USBD6+	6	USBD5+/ USBD7+
7	GND	8	GND



3.15 CMOS Data Clear

The HS-1745 has a Clear CMOS jumper on *JP6.*

- **JP6: Clear CMOS**

Options	Settings
Normal Operation (default)	Open
Clear CMOS	Short

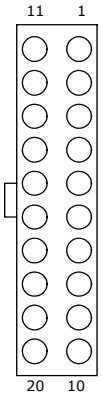
IMPORTANT: *Before you turn on the power of your system, please set JP6 to Open for normal operation.*

3.16 Power and Fan Connectors

HS-1745 provides one 20-pin ATX power in at *ATX1*.

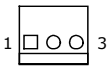
- **ATX1: 20-pin ATX Power In Connector**

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	Power OK	18	-5V
9	5VSB	19	+5V
10	+12V	20	+5V



- **JP3/JP4: Fan Power In Connector**

PIN	Description
1	GND
2	+12V
3	Fan In 1/Fan In 2



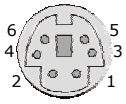
Connector *JP3/JP4* onboard HS-1745 is a 3-pin fan power output connector. And HS-1745 supports +12V Fan only.

3.17 Keyboard/Mouse Connectors

The HS-1745 offers two possibilities for keyboard/mouse connections. The connections are via *CN1* for an external PS/2 type keyboard/mouse or via *JP2* for an internal 6-pin cable converter to a keyboard/mouse.

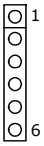
- **CN1: PS/2 6-pin Mini DIN Keyboard/Mouse Connector**

PIN	Description
1	Keyboard Data
2	Mouse Data
3	GND
4	+5V
5	Keyboard Clock
6	Mouse Clock



- **JP2: 6-pin Keyboard/Mouse Connector**

PIN	Description
1	Keyboard Data
2	Mouse Data
3	GND
4	+5V
5	Keyboard Clock
6	Mouse Clock



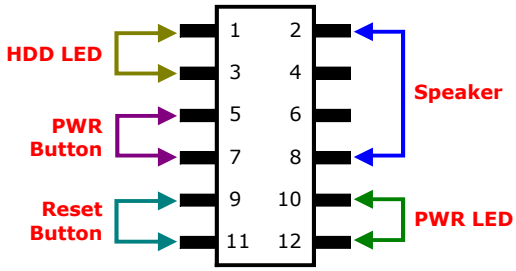
3.18 System Front Panel Control

The HS-1745 has front panel control at location *CN13* that indicates the power-on status.

- **CN13: System Front Panel Control**

PIN	Description	PIN	Description
1	VCC	2	Speaker
3	HDD LED	4	N/C
5	PWR Button	6	GND
7	VCC	8	GND
9	Reset Switch	10	VCC
11	GND	12	PWR LED

Connector CN13 Orientation



3.19 IrDA Function

JP27 is a 5-pin internal IR communication connector for connection of an IrDA device.

- **JP27: IrDA Connector**

PIN	Description
1	VCC
2	N/C
3	IRRX
4	GND
5	IRTX

3.20 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 restart 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
```

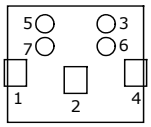
User can also use AL, 00H's defined time for reset purposes, e.g.00H for Disable, 01H = 1sec, 02H=2sec….FFH=255sec.

3.21 TV-Out Function

The HS-1745 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).

- **CN2: TV-Out Connector**

PIN	Description	PIN	Description
1	GND	2	GND
3	DACB OUT	4	GND
5	DACC OUT	6	GND
7	GND		

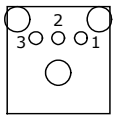


3.22 Audio Connectors

The HS-1745 has an onboard AC97 3D audio controoler. The following tables list the pin assignments of the Line In/Audio Out connector.

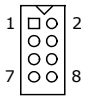
- **CN3: SPDIF Connector**

PIN	Description
1	GND
2	VCC
3	SPDIF

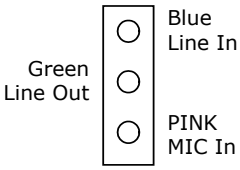


- **CN8: MIC In/Line Out Connector**

PIN	Description	PIN	Description
1	AOUTL	2	AOUTR
3	GND	4	GND
5	MIC IN	6	N/C
7	GND	8	GND



- **CN10: External Audio Connector**



3.23 CompactFlash™ Connector

The HS-1745 also offers a Type I/II CompactFlash™ connector which is IDE interface located at the solder side of the board. The designated *CN14* connector, once soldered with an adapter, can hold CompactFlash™ cards of various sizes. Please turn off the power before inserting the CF card.

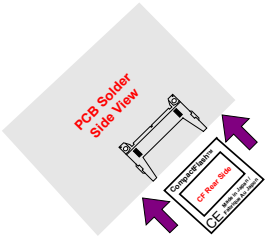
- **CN14: CompactFlash™ Connector**

PIN	Description	PIN	Description
1	GND	2	IDE_PDD3
3	IDE_PDD4	4	IDE_PDD5
5	IDE_PDD6	6	IDE_PDD7
7	IDE_PDCS1#	8	GND

...MORE ON NEXT PAGE...

PIN	Description	PIN	Description
9	GND	10	GND
11	GND	12	GND
13	+3.3V	14	GND
15	GND	16	GND
17	GND	18	IDE_PDA2
19	IDE_PDA1	20	IDE_PDA0
21	IDE_PDD0	22	IDE_PDD1
23	IDE_PDD2	24	GND
25	GND	26	GND
27	IDE_PDD11	28	IDE_PDD12
29	IDE_PDD13	30	IDE_PDD14
31	IDE_PDD15	32	IDE_PDCS3#
33	GND	34	IDE_PDIOR#
35	IDE_PDIOW#	36	+3.3V
37	INT_IRQ15	38	+3.3V
39	+3.3V	40	N/C
41	RESET#	42	IDE_PDIORDY
43	CF_PDERQ	44	CF_REGB
45	IDE_ACTP#	46	DETECT
47	IDE_PDD8	48	IDE_PDD9
49	IDE_PDD10	50	GND

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 on the following page for the traditional way of inserting the card.



- **JP5: CF Use Master/Slave Select**

Options	Setting
Master	Short
Slave(default)	Open

NOTE: *When use CF card, IDE device function will be disabled.*

3.24 Expansion Slot

The HS-1745 offers one Type III mini PCI slot at *CN16*, one x1 PCI-E slot at *CON1*, one standard PCI slot at *PCI1*.

3.25 8-bit I/O Function

The HS-1745 offers one 8-bit input/output port by parallel port.

NOTE: *If you want to use 8-bit I/O, parallel port function will be disabled.*

- **JP17: 8-bit Input/Output**

PIN	Description	PIN	Description
1	VCC	2	GND
3	GD0	4	GD4
5	GD1	6	GD5
7	GD2	8	GD6
9	GD3	10	GD7


```
.286

        .MODEL SMALL
        .DATA                           ;this is data area
port    equ     0378h                   ;print port can be change to 278h

        .CODE

print   macro   buff
        mov     dx, offset buff;
        mov     ah,09h
        int     21h
        endm

delay :
        push    cx
        mov     cx,0155h
@@:
        jmp     $+2
        push    cx
        mov     cx,0ffffh

wait1:  loop    wait1
        pop     cx
        loop    @b
        pop     cx
        ret


begin   proc    near
        mov     ax,@data
        mov     ds,ax
        STI
```

```
        Mov     dx, port
        Mov     al, 80h             out     dx, al
;;-------------------
;;ROR
        mov     cx, 08h
@@:
        ror     al, 1
        call    delay
        out     dx, al
        loop    @b
        pop     cx
;;ROL
        push    cx
        mov     cx, 08h
@@:
        rol     al, 1
        out     dx, al
        call delay
        loop    @b
        pop     cx
;;-------------------
;;-------------------
;;ROR
        mov     cx, 08h
@@:
        ror     al, 1
        call delay
        out     dx, al
        loop    @b
        pop     cx
;;ROL
        push    cx
        mov     cx, 08h
@@:
        rol     al, 1
        out     dx, al
        call delay
        loop    @b
        pop     cx
;;-------------------
;;-------------------
;;ROR
        mov     cx, 08h
@@:
        ror     al, 1
        call delay
        out     dx, al
        loop    @b
        pop     cx
;;ROL
        push    cx
        mov     cx, 08h
@@:
        rol     al, 1
        out     dx, al
        call delay
        loop    @b
```

```
        pop         cx
;;--------------------
;;--------------------
;;ROR
        mov         cx, 08h
@@:
        ror         al, 1
        call delay
        out         dx, al
        loop        @b
        pop         cx
;;ROL
        push        cx
        mov         cx, 08h
@@:
        rol         al, 1
        out         dx, al
        call delay
        loop        @b
        pop         cx
;;--------------------
;;--------------------
;;ROR
        mov         cx, 08h
@@:
        ror         al, 1
        call delay
        out         dx, al
        loop        @b
        pop         cx
;;ROL
        push        cx
        mov         cx, 08h
@@:
        rol         al, 1
        out         dx, al
        call delay
        loop        @b
        pop         cx
;;--------------------
;;--------------------
;;ROR
        mov         cx, 08h
@@:
        ror         al, 1
        call delay
        out         dx, al
        loop    @b
        pop         cx
;;ROL
        push        cx
        mov         cx, 08h
@@:
        rol         al, 1
        out         dx, al
        call delay
        loop        @b
        pop         cx
```

```
;;--------------------
;;--------------------
;;ROR
        mov     cx, 08h
@@:
        ror     al, 1
        call delay
        out     dx, al
        loop    @b
        pop     cx
;;ROL
        push    cx
        mov     cx, 08h
@@:
        rol     al, 1
        out     dx, al
        call delay
        loop    @b
        pop     cx
;;--------------------
;flash LED 3 time
        mov     cx, 01h
@@:
        mov     al, 0ffh
        out     dx, al
        call delay
        mov     al,0h
        out     dx, al
        call delay
        loop    @b
ee:

        mov     ah, 4ch             ;go back to dos
        int     21h
        .stack
        begin   endp
        end begin
```

Chapter 4

AMI BIOS Setup

The HS-1745 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 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, and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program using the keyboard.

↑	Move to previous item
↓	Move to next item
←	Move to previous item
→	Move to previous item
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	Decrease the numeric value or make changes
PgDn key	Increase the numeric value or make changes
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
F1 key	Reserved
F2 key	Change color from total 8 colors. F2 to select color forward
F3 key	F2 to select color backward
F4 key	Reserved
F5 key	Reserved
F6 key	Reserved
F7 key	Reserved
F8 key	Reserved
F9 key	Reserved
F10 key	Save all the CMOS changes, only for Main Menu

4.3 Main Menu

Once you enter the AMI 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.

BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

System Overview

AMIBIOS
Version : 08.00.13
Build Date : 11/01/06
ID : HS174500

Processor
Type : Intel® Core™ Duo CPU T2700
Speed : 2333MHz
Count : 1

System Memory
Size : 504MB

System Time [00:29:32]
System Date [Tue 01/01/2002]

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

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

4.4 Advanced Settings

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.

BIOS SETUP UTILITY

Main	**Advanced**	PCIPnP	Boot	Security	Chipset	Exit

Advanced Settings

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
- ► APM Configuration
- ► USB Configuration

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

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BIOS SETUP UTILITY

Main	**Advanced**	PCIPnP	Boot	Security	Chipset	Exit

Configure advanced CPU settings
Module Version –13.03

Manufacturer	: Intel	
Brand String	: Intel® Core™ Duo CPU T2700	
Frequency	: 2.33GHz	
FSB Speed	: 667MHz	
Cache L1	: 64 KB	
Cache L2	: 2048 KB	
Max CPUID Value Limit		[Disabled]
Execute Disable Bit		[Enabled]
Core Multi-Processing		[Enabled]
CPU TM function		[Enabled]
Venderpool Technology		[Enabled]
Digital Thremal Sensor		[Disabled]
DTS Calibration		[Enabled]
Intel® SpeedStep™ tech.		[Automatic]

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

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BIOS SETUP UTILITY

Main	**Advanced**	PCIPnP	Boot	Security	Chipset	Exit

IDE Configuration

ATA/IDE Configuration		[Compatible]
Legacy IDE Channels		[SATA Pri, PATA Sec]
► Primary IDE Master	:	[Not Detected]
► Primary IDE Slave	:	[Not Detected]
► 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]

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

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BIOS SETUP UTILITY

Main	**Advanced**	PCIPnP	Boot	Security	Chipset	Exit

Floppy Configuration

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

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BIOS SETUP UTILITY

Main	**Advanced**	PCIPnP	Boot	Security	Chipset	Exit

Configure WIN627EHF Super IO Chipset

OnBoard Floppy Controller	[Enabled]		
Serial PortA Address	[3F8]		
Serial PortA IRQ	[3]		
Serial PortB Address	[2F8]		
Serial PortB IRQ	[4]		
Serial PortC Address	[3E8]		
Serial PortC IRQ	[10]		
Serial PortD Address	[2E8]		
Serial PortD IRQ	[11]	←	Select Screen
Serial PortE Address	[2F0]	↑ ↓	Select Item
Serial PortE IRQ	[10]	+ -	Change Field
Serial PortF Address	[2E0]	Tab	Select Field
Serial PortF IRQ	[11]	F1	General Help
		F10	Save and Exit
		ESC	Exit

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BIOS SETUP UTILITY

Main	**Advanced**	PCIPnP	Boot	Security	Chipset	Exit

Hardware Health Configuration

Hardware Health Configuration

System Temperature	:		
CPU Temperature	:		
Vcore	:		
3VCC	:	←	Select Screen
+12V	:	↑ ↓	Select Item
+1.5V	:	+ -	Change Field
+1.05V	:	Tab	Select Field
+5V	:	F1	General Help
VBAT	:	F10	Save and Exit
		ESC	Exit

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BIOS SETUP UTILITY

Main	**Advanced**	PCIPnP	Boot	Security	Chipset	Exit

ACPI Settings

ACPI Aware O/S	[Yes]		
► General ACPI Configuration		←	Select Screen
► Advanced ACPI Configuration		↑↓	Select Item
► Chipset ACPI Configuration		+ -	Change Field
		Tab	Select Field
		F1	General Help
		F10	Save and Exit
		ESC	Exit

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BIOS SETUP UTILITY

Main	**Advanced**	PCIPnP	Boot	Security	Chipset	Exit

General ACPI Configuration

Suspend mode	[S1 (POS)]		
		←	Select Screen
		↑↓	Select Item
		+ -	Change Field
		Tab	Select Field
		F1	General Help
		F10	Save and Exit
		ESC	Exit

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BIOS SETUP UTILITY

Main	**Advanced**	PCIPnP	Boot	Security	Chipset	Exit

Advanced ACPI Configuration

ACPI Version Features	[ACPI v1.0]		
ACPI APIC support	[Enabled]		
AMI 0EMB table	[Enabled]		
Headless mode	[Disabled]		
		←	Select Screen
		↑↓	Select Item
		+ -	Change Field
		Tab	Select Field
		F1	General Help
		F10	Save and Exit
		ESC	Exit

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BIOS SETUP UTILITY

Main	**Advanced**	PCIPnP	Boot	Security	Chipset	Exit

USB Configuration

Module Version – 2.24.0-11.4

USB Devices Enabled:
None

Legacy USB Support	[Enabled]
Hotplug USB FDD Support	[Auto]
► USB Mass Storage Device Configuration	

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

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BIOS SETUP UTILITY

Main	**Advanced**	PCIPnP	Boot	Security	Chipset	Exit

USB Mass Storage Device Configuration

USB Mass Storage Reset Delay	[20 Sec]
Device #1	USB Hotplug FDD
Emulation Type	[Auto]

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

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BIOS SETUP UTILITY

Main	**Advanced**	PCIPnP	Boot	Security	Chipset	Exit

Power Management/APM	[Enabled]		
Video Power Down Mode	[Disabled]		
Hard Disk Power Down Mode	[Disabled]		
Suspend Time Out	[Disabled]		
Throttle Slow Clock Ratio	[50%]		
Keyboard & PS/2 Mouse	[MONITOR]		
Power Button Mode	[On/Off]		
Advanced Resume Events Controls			
Resume On Ring	[Disabled]		
Resume On LAN	[Disabled]		
Resume On PME#	[Disabled]	←	Select Screen
Resume On RTC Alarm	[Disabled]	↑↓	Select Item
		+ -	Change Field
		Tab	Select Field
		F1	General Help
		F10	Save and Exit
		ESC	Exit

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BIOS SETUP UTILITY

Main	**Advanced**	PCIPnP	Boot	Security	Chipset	Exit

Sorth Bridge ACPI Configuration			
Energy Lake Feature	[Disabled]		
APCI ACPI SCI IRQ	[Disabled]	←	Select Screen
USB Device Wakeup From S3/S4	[Disabled]	↑↓	Select Item
		+ -	Change Field
		Tab	Select Field
		F1	General Help
		F10	Save and Exit
		ESC	Exit

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4.5 Advanced PCI/PnP Settings

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, 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.

BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

Advanced PCI/PnP Settings

WARNING:	**Setting wrong values in below sections may cause system to malfunction.**		
Clean NVRAM	[No]		
Plug & Play O/S	[No]		
PCI Latency Timer	[64]		
Allocate IRQ to PCI VGA	[Yes]		
Palette Snooping	[Disabled]		
PCI IDE BusMaster	[Disabled]		
Offboard PCI/ISA IDE Card	[Auto]		
IRQ3	[Available]		
IRQ4	[Available]		
IRQ5	[Available]		
IRQ7	[Available]		
IRQ9	[Available]		
IRQ10	[Available]		
IRQ11	[Available]		
IRQ14	[Available]		
IRQ15	[Available]		
DMA Channel 0	[Available]		
DMA Channel 1	[Available]	←	Select Screen
DMA Channel 3	[Available]	↑ ↓	Select Item
DMA Channel 5	[Available]	+ -	Change Field
DMA Channel 6	[Available]	Tab	Select Field
DMA Channel 7	[Available]	F1	General Help
		F10	Save and Exit
Reserved Memory Size	[Disabled]	ESC	Exit

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4.6 Boot Settings

BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

Boot Settings Configuration

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

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

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BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

Boot Device Priority

1st Boot Device	[USB:USB Hotplug FD]

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

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BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

Removable Drives

1st Drive	[USB:USB Hotplug FD]

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

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4.7 Security Settings

BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	**Security**	Chipset	Exit

Security Settings

Supervisor Password	:	Not Installed		
User Password	:	Not Installed		
			←	Select Screen
Change Supervisor Password			↑ ↓	Select Item
Change User Password			+ -	Change Field
Boot Sector Virus Protection		[Disabled]	Tab	Select Field
			F1	General Help
Hard Disk Security			F10	Save and Exit
There are no supported Hard Disks.			ESC	Exit

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4.8 Advanced Chipset Settings

BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	**Chipset**	Exit

Advanced Chipset Settings

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

► North Bridge Chipset Configuration
► South Bridge Chipset Configuration

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

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BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

North Bridge Chipset Configuration

DRAM Frequency	[Auto]		
Configure DRAM Timing by SPD	[Enabled]		
Memory Hole	[Disabled]		
Boots Graphic Adapter Priority	[PEG/PCI]		
Internal Graphics Mode Select	[Enabled, 8MB]		
PEG Port Configuration			
PEG Port	[Auto]		
PEG Force x1	[Disabled]		
		←	Select Screen
Chipset Thermal Throttling	[Disabled]	↑↓	Select Item
DT in SPD	[Disabled]	+ -	Change Field
TS on DIMM	[Disabled]	Tab	Select Field
		F1	General Help
► Video Function Configuration		F10	Save and Exit
		ESC	Exit

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BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

Video Function Configuration

DVMT Mode Select	[DVMT Mode]		
DVMT/FIXED Memory	[128MB]		
Boot Display Device	[CRT]		
Flat Panel Type	[800x600LVDS]		
Local Flat Panel Scaling	[Auto]		
TV Connector	[Auto]		
HDTV Output	[Auto]		
TV Standard	[VBIOS-Default]		
		←	Select Screen
		↑↓	Select Item
		+ -	Change Field
		Tab	Select Field
		F1	General Help
		F10	Save and Exit
		ESC	Exit

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BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

Sorth Bridge Chipset Configuration

USB Function	[8 USB Ports]	
USB 2.0 Controller	[Enabled]	
Audio Controller	[AC'97 Audio Only]	
PRO-NIC Controller	[Disabled]	
SMBUS Controller	[Enabled]	
Reserved Page Route	[LPC]	
SLP_S4# Min. Assertion Width	[1 to 2 seconds]	
Restore on AC Power Loss	[Last State]	
PCIE Ports Configuration		← Select Screen
ONBOARD LAN 1	[Auto]	↑↓ Select Item
ONBOARD LAN 2	[Auto]	+ - Change Field
PCIE SLOT 1	[Auto]	Tab Select Field
ASF Support	[Enabled]	F1 General Help
		F10 Save and Exit
		ESC Exit

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4.9 Exit Options

BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

Exit Options

Save Changes and Exit	
Discard Changes and Exit	
Discard Changes	
Load Optimal Defaults	
Load Failsafe Defaults	
	← Select Screen
	↑↓ Select Item
	+ - Change Field
	Tab Select Field
	F1 General Help
	F10 Save and Exit
	ESC Exit

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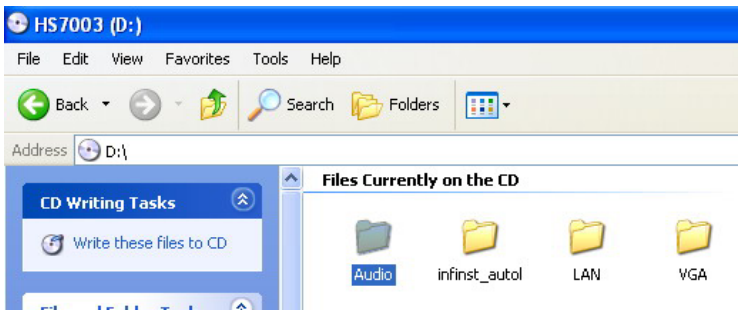
Chapter 5

Software Utilities

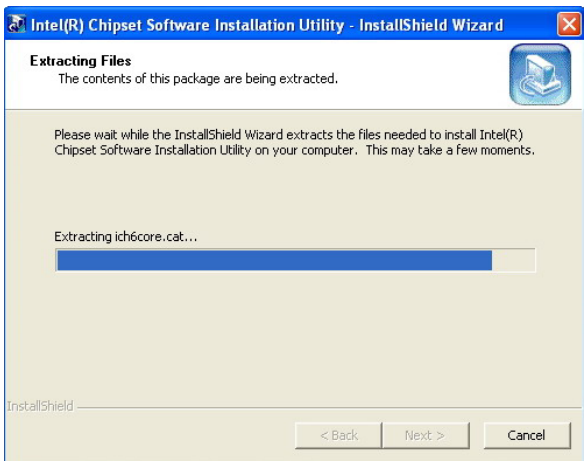
This chapter contains the detailed information of IDE, VGA, LAN and audio driver installation procedures. The utility disk that comes with the delivery package contains an auto-run program that invokes the installation programs for the IDE, VGA, LAN and audio drivers. The following sections describe the installation procedures of each driver based on WIN2K/XP operating systems. It is recommended that you install the drivers matching the sections listed in this chapter.

5.1 IDE Driver Installation

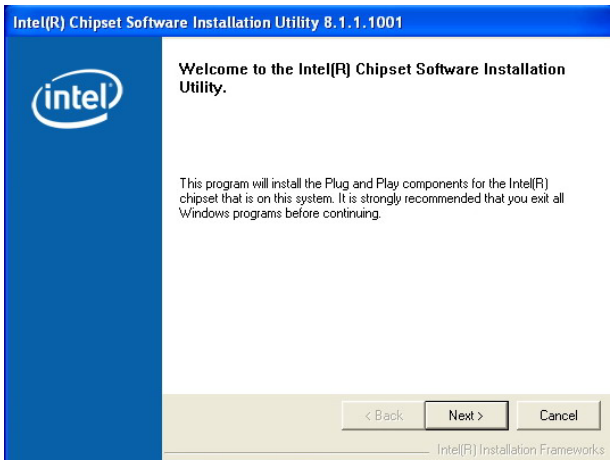
1. With the Utility CD Disk in you CD-ROM drive, open the **File Manager** and then select the CD-ROM drive. Open the **Infinst** folder and click **Setup.exe** to start proceed.



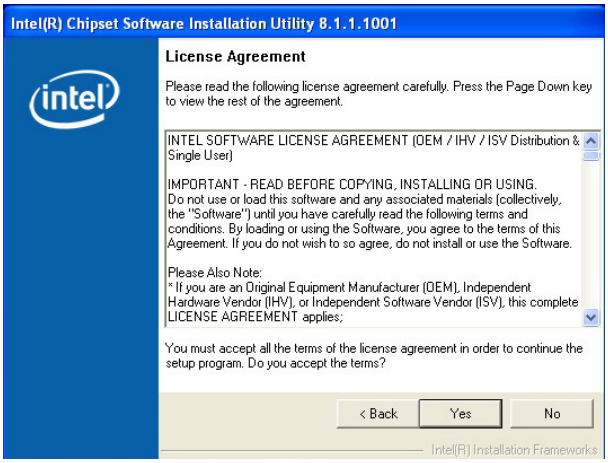
2. Once the **Install Shield Wizard** screen appears on the screen, make sure to close applications that are running and then click on **Next>** button.



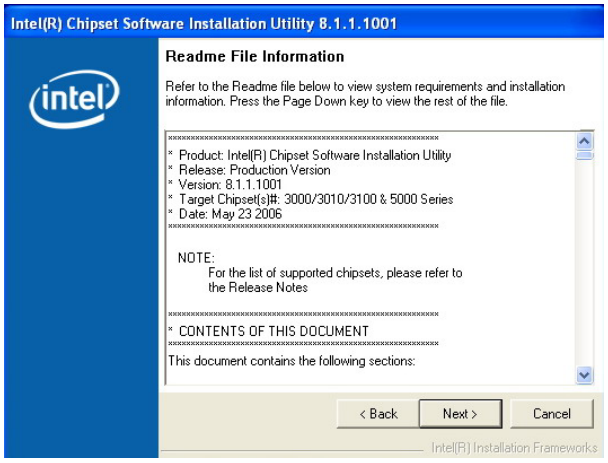
3. The **Welcome** screen is now displayed, and then click on **Next >** button to continue.



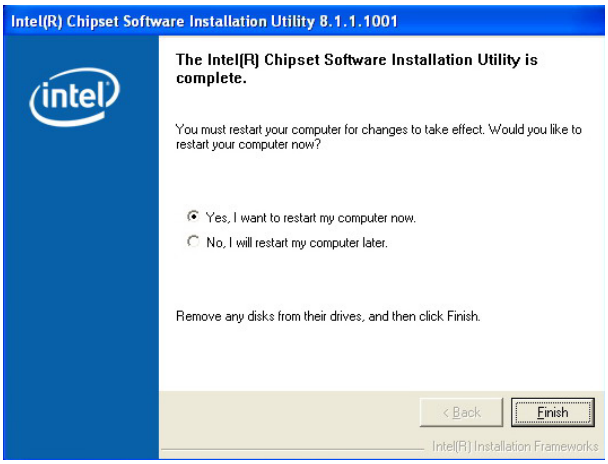
4. The **License Agreement** dialog box then appears on the screen. Choose **Yes** to proceed.



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

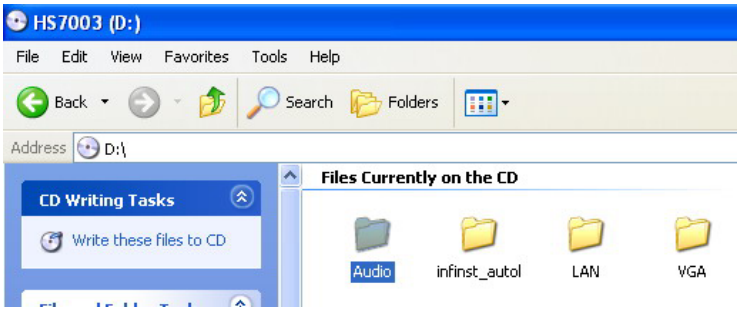


6. Once the **Install Shield Wizard** finishes updating your system, it will prompt you to restart the computer. Tick on the **Yes, I want to restart my computer** now followed by a click on the **Finish** button to reboot. Only after your computer boots will the new settings take effect.

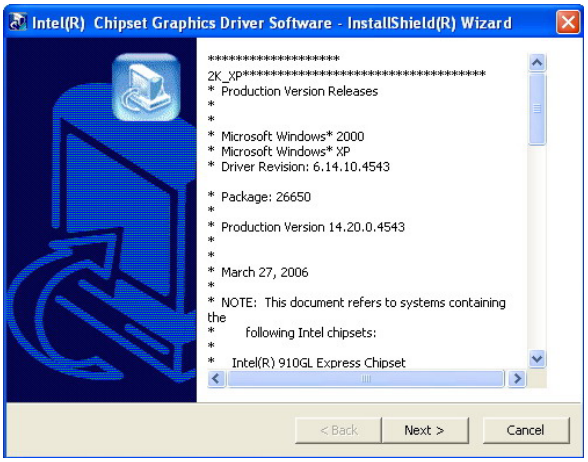


5.2 VGA Driver Installation

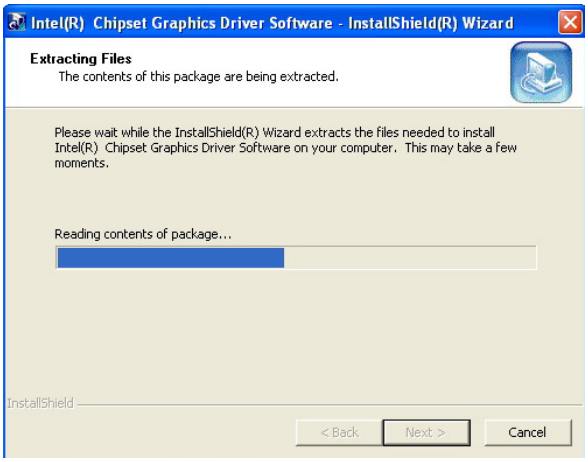
1. With the Utility CD Disk in you CD-ROM drive, open the **File Manager** and then select the CD-ROM drive. Open the **VGA** folder and click **Setup.exe** to start proceed.



2. Once the Setup Wizard appears on the screen and click on the **Next >** button.

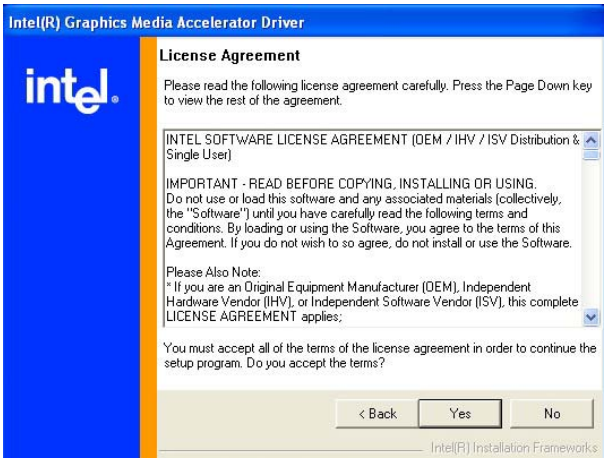


3. Setup Wizard will extracting files to your hard drive, and then click on **Next>** to continue.

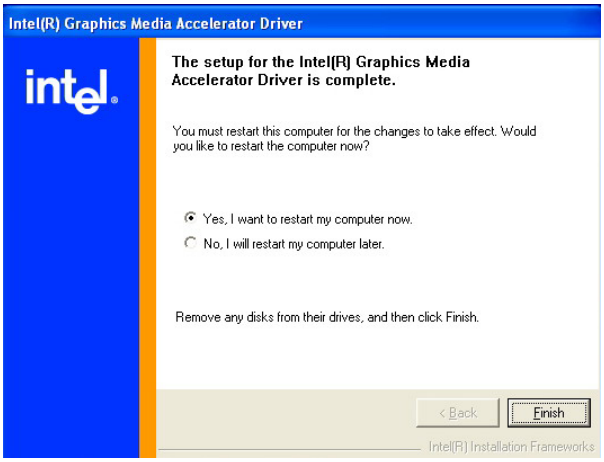


4. When the dialog box below appears, make sure you close all other Windows applications then click on the **Next >** button to proceed.

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

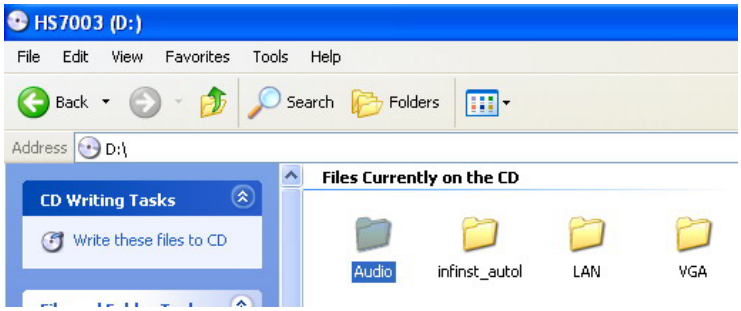


6. After all installation finish, you will be prompted to start your system, click on the **Finish** button to reboot.

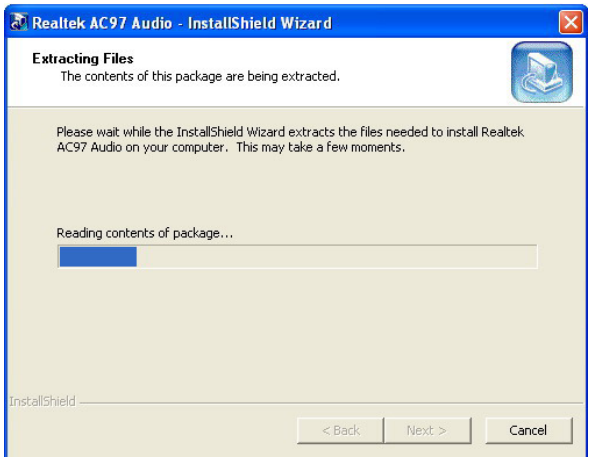


5.3 Audio Driver Installation

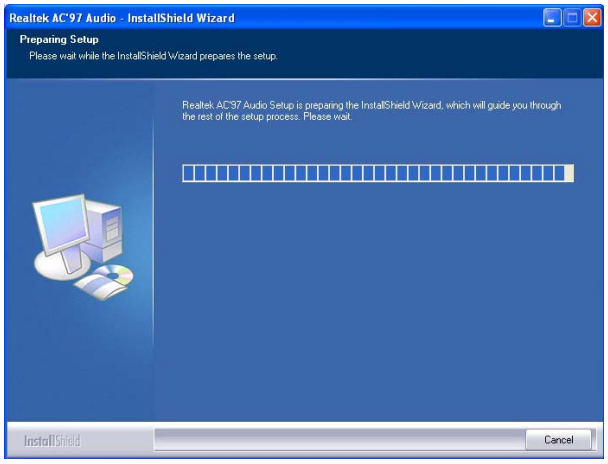
1. With the Utility CD Disk in you CD-ROM drive, open the **File Manager** and then select the CD-ROM drive. Open the **Audio** folder and click **Setup.exe** to start proceed.



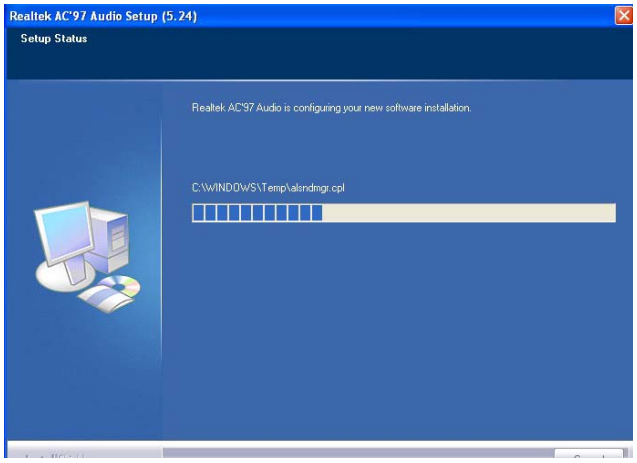
2. Once the **Install Shield Wizard** screen appears on the screen, make sure to close applications that are running and then click on **Next>** button.



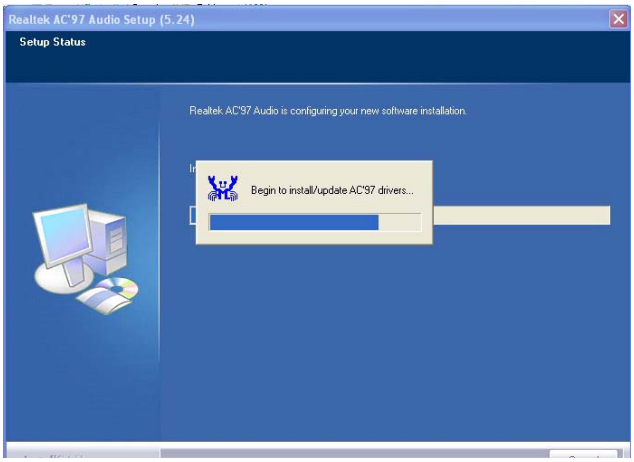
3. Realtek AC97 Audio Setup is preparing the **Install Shield Wizard**, which will guide you through the rest of the setup process.



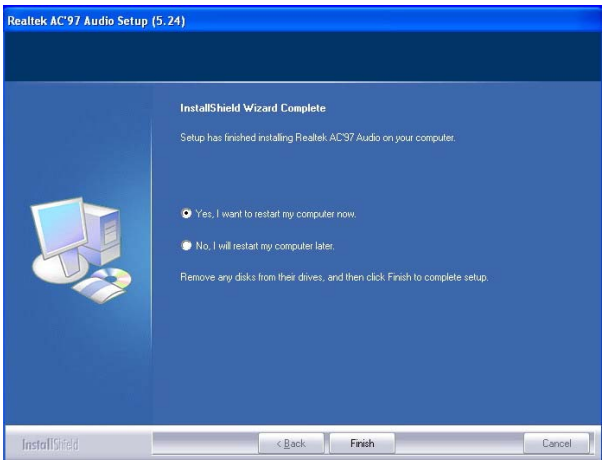
4. Realtek AC97 Audio is configuring your new software installation.



5. Begin to install/update AC97 drivers.

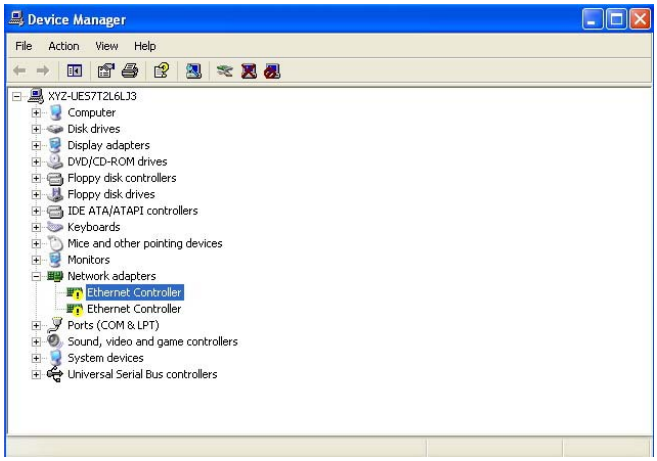


6. After all installation finish, you will be prompted to start your system, click on the **Finish** button to reboot.

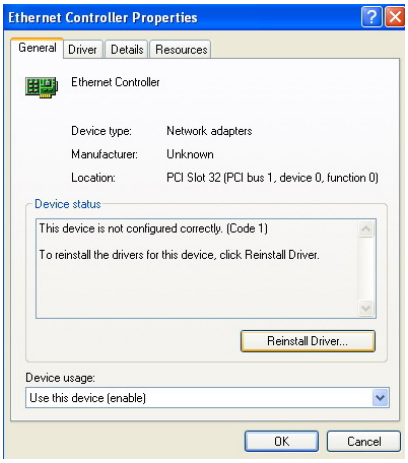


5.4 LAN Driver Installation

1. With the Utility CD Disk 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.

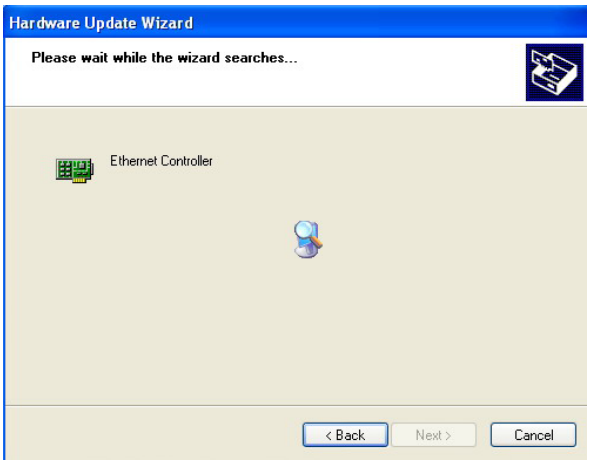


2. Select on **Ethernet Controller** from the list of devices then double-click. The **Ethernet Controller Properties** screen then appears, select **Reinstall Driver** from the main menu to proceed.



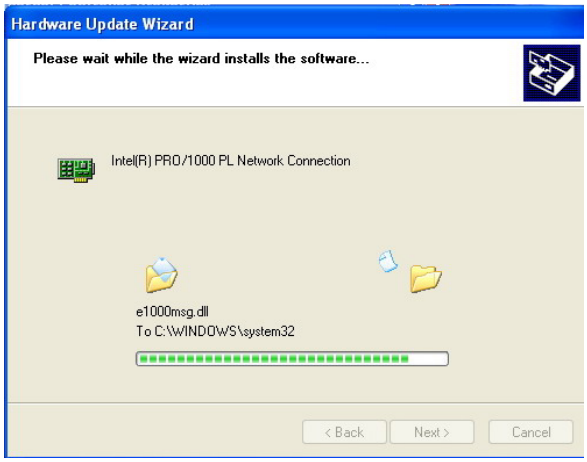
3. Tick on the **Install the software automatically (Recommended)** once the following screen appears, click on the **Next >** to proceed.

4. The **Hardware Update Wizard** is copying files into your hard drive.



5. The Hardware Installation will pop up the screen below, click on **Continue Anyway**.

6. **Hardware Update Wizard** is installs the software, and then click on **Next >** to continue.



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

NOTE: *Please repeat Step.1 ~ Step.7 to install LAN 2.*