

# HS-1743

**Intel® Core™ 2 Duo/Core™ Duo/  
Core™ Solo/Celeron® M processor  
Mini ITX Board**

- CompactFlash • Mini PCI • PCIe x1 • PCI •
- GPIO • DVI-I/CRT/LVDS • Dual GB LAN •
- Audio • SATA • RS-232/422/485 • 8 COM •
- 8 USB2.0 • WDT • H/W Monitor •

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## Table of Contents

<b>Chapter 1</b>	<b>General Description .....</b>	<b>1</b>
1.1	Major Features .....	2
1.2	Specifications .....	2
1.3	Board Dimensions .....	4
<b>Chapter 2</b>	<b>Unpacking .....</b>	<b>5</b>
2.1	Opening the Delivery Package .....	5
2.2	Inspection .....	5
<b>Chapter 3</b>	<b>Hardware Installation .....</b>	<b>7</b>
3.1	Before Installation .....	7
3.2	Board Layout .....	8
3.3	Jumper List .....	9
3.4	Connector List .....	10
3.5	Configuring the CPU .....	10
3.6	System Memory .....	10
3.7	VGA Controller .....	11
3.8	Serial ATA Connector .....	13
3.9	Parallel Connector .....	13
3.10	Serial Port Connectors .....	14
3.11	Ethernet Connector .....	16
3.12	USB Connector .....	17
3.13	CMOS Data Clear .....	17
3.14	Power and Fan Connectors .....	18
3.15	Keyboard/Mouse Connectors .....	19
3.16	System Front Panel Control .....	20
3.17	Watchdog Timer .....	21
3.18	Audio Connectors .....	22
3.19	CompactFlash™ Socket .....	23
3.20	Expansion Interface .....	24
3.21	8-bit GPIO Function .....	25

<b>Chapter 4</b>	<b>AMI BIOS Setup</b>	<b>27</b>
4.1	Starting Setup	27
4.2	Using Setup	28
4.3	Main Menu	29
4.4	Advanced Settings	30
4.5	Advanced PCI/PnP Settings	35
4.6	Boot Settings	36
4.7	Security Settings	36
4.8	Advanced Chipset Settings	37
4.9	Exit Options	38
<b>Chapter 5</b>	<b>Software Utilities</b>	<b>39</b>
5.1	Chipset Driver Installation	39
5.2	VGA Driver Installation	42
5.3	Audio Driver Installation	45
5.4	LAN Driver Installation	48

## **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:

<b>Equipment Class:</b>	<i>Information Technology Equipment</i>	
<b>Product Model Series:</b>	<b><i>HS-1743</i></b>	
<b>This Product Complies With:</b>	<i>EN55022:</i>	<i>Class A for Radiated emissions</i>
	<i>EN50082-2:</i>	<i>Heavy Industrial EMC Immunity</i>

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

***Manufacturer:***  
**BOSER TECHNOLOGY CO., LTD.**

## Safety Instructions

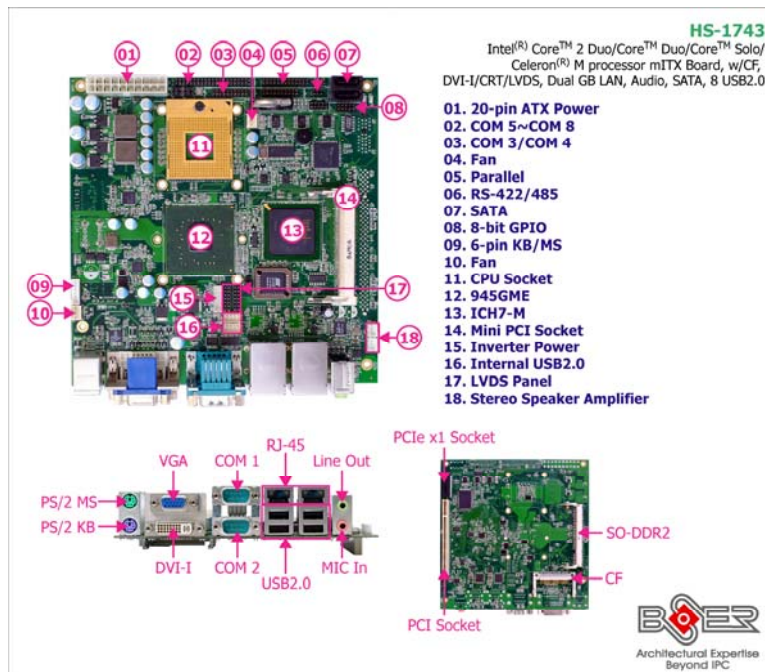
Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:

- 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-1743 is an Intel® 945GME GMCH chipset-based board designed. The HS-1743 is an ideal all-in-one mini ITX board. Additional features include an enhanced I/O with CF, DVI-I/CRT/LVDS, dual GB LAN, audio, SATA, COM, and USB2.0 interfaces.

Designed with the Intel® 945GME GMCH, the board supports Socket M for Intel® Core™ 2 Duo/Core™ Duo/Core™ Solo/Celeron® M 400 series processor.

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 option CHRONTEL 7307 for DVI-I display supporting up to 2048 x 1536. It also supports 18-bit single/dual channel LVDS interface.

System memory is also sufficient with the one SO-DDR2 socket that can support up to 2GB.

Additional onboard connectors include eight USB2.0 ports providing faster data transmission. And two external RJ-45 connectors for 10/100/1000 Based Ethernet uses.

To secure the reliability in the unmanned or standalone system, the function of WDT (Watchdog Timer) in HS-1743 can be combined with the software which does not need arithmetical functions of a real-time clock chip. The WDT function can automatically reboot the system once programs crash in the system.

## 1.1 Major Features

The HS-1743 comes with the following features:

- Socket M for Intel® Core™ 2 Duo/Core™ Duo/Core™ Solo/Celeron® M 400 series processor, supports 667/533MHz FSB
- 1 x SO-DIMM up to 2GB DDR2 SDRAM
- Intel® 945GME/ICH7-M system chipset
- Intel® 945GME integrated VGA for DVI-I, CRT & LVDS
- 2 x Intel® 10/100/1000 Mbps ethernet
- AC'97 audio codec
- Provides 2W stereo power amplifier
- Supports CF, 1 x PCIe x1, 1 x mini PCI, 1 x PCI, 2 x SATA, 8 x COM, 8 x USB2.0
- Supports 18-bit LVDS, 8-bit GPIO, H/W Monitor function

## 1.2 Specifications

### ● System

- **CPU:**  
Intel® Core™ 2 Duo/Core™ Duo/Core™ Solo/Celeron® M 400 series processor
- **Front Side Bus:**  
667/533MHz FSB
- **BIOS:**  
AMI PnP Flash BIOS



- **System Chipset:**  
Intel® 945GME/ICH7-M
- **I/O Chipset:**  
Winbond W83627EHG
- **System Memory:**  
1 x 200-pin SO-DIMM socket DDR2 667MHz up to 2GB
- **Storage:**  
1 x Type II CF socket
- **Watchdog Timer:**  
Software programmable time-out intervals from 1~255 sec. or 1~255 min.
- **H/W Status Monitor:**  
Monitoring temperatures, voltages, and cooling fan status
- **Expansion Interface:**  
1 x Type III mini PCI socket  
1 x PCIe x1 socket (solder side)  
1 x Non-standard PCI socket (solder side) for BOSER Riser Card
- **Power Function:**  
Supports AT/ATX power mode
- **Operating Temperature:**  
0~60 degrees C
- **Operating Humidity**  
0~95%, non-condensing
- **Size(L x W):**  
170 x 170 mm

## ● I/O Interface

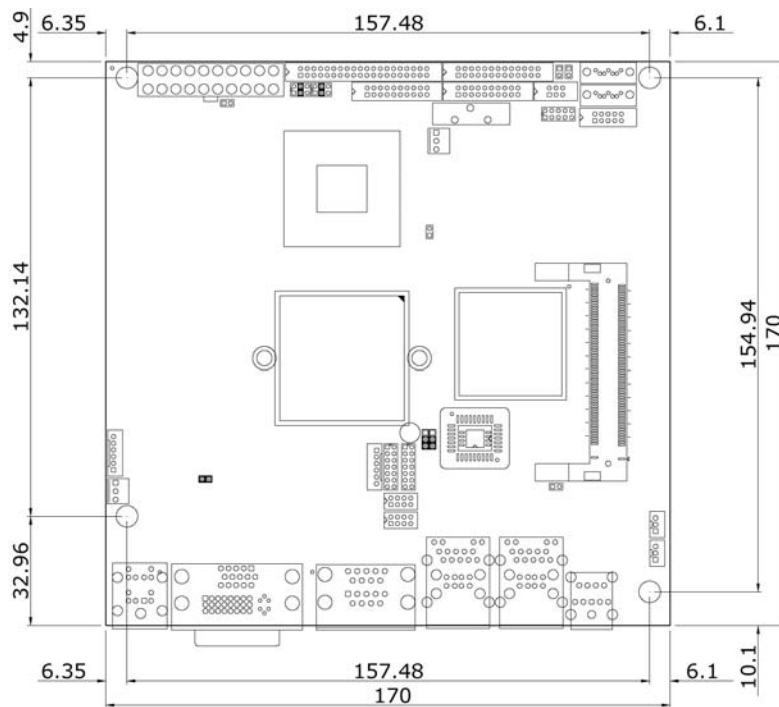
- **MIO:**  
7 x RS-232 (2 x external, 5 x internal, COM 3/COM 4 support +5V or +12V/1A power output)  
1 x RS-232/422/485  
8 x USB2.0 (4 x internal, 4 x external)  
1 x Parallel  
2 x SATA  
1 x PS/2 Mini DIN for KB  
1 x PS/2 Mini DIN for MS
- **GPIO:**  
8-bit general purpose input/output port

## ● Display

- **Chipset:**  
Intel® 945GME integrated Intel® GMA950
- **Display Memory:**  
224MB video memory with DVMT3.0
- **LVDS:**  
18-bit single/dual-channel

- **Resolution:**  
2048 x 1536
- **DVI Chipset:**  
Chrontel 7307
- **Audio**
  - **Chipset:**  
RealTek ALC202A
  - **Audio Interface (w/audio jack):**  
MIC In, Line Out
  - **Amplifier:**  
Provides 2W stereo power amplifier
- **Ethernet**
  - **Chipset:**  
Dual RTL8111C 10/100/1000 Mbps LAN
  - **Ethernet Interface:**  
2 x RS-45

### 1.3 Board Dimensions



# Chapter 2

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## Unpacking

### 2.1 Opening the Delivery Package

The HS-1743 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-1743 delivery package contains the following items:

- HS-1743 Board x 1
- Utility CD Disk x 1, including User's Manual
- Cables (as following table)
- Jumper Bag x 1

<b>Cables Package</b>		
<b>NO.</b>	<b>Description</b>	<b>QTY.</b>
<b>1</b>	Print DB25-26P(2.0) flat cable 27cm	1
<b>2</b>	SATA cable 50cm (w/Lock)	1
<b>3</b>	COM DB9*4-40P(2.0) flat cable 22cm	1
<b>4</b>	SATA power cable 15cm	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.

<b>Option Accessories</b>	
<b>NO.</b>	<b>Description</b>
<b>1</b>	SATA power cable
<b>2</b>	SATA cable 50cm (w/Lock)
<b>3</b>	2RS232(2.0) flat cable
<b>4</b>	USB 1-to 2 cable 20cm
<b>5</b>	H=23mm CPU Cooler

# Chapter 3

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## Hardware Installation

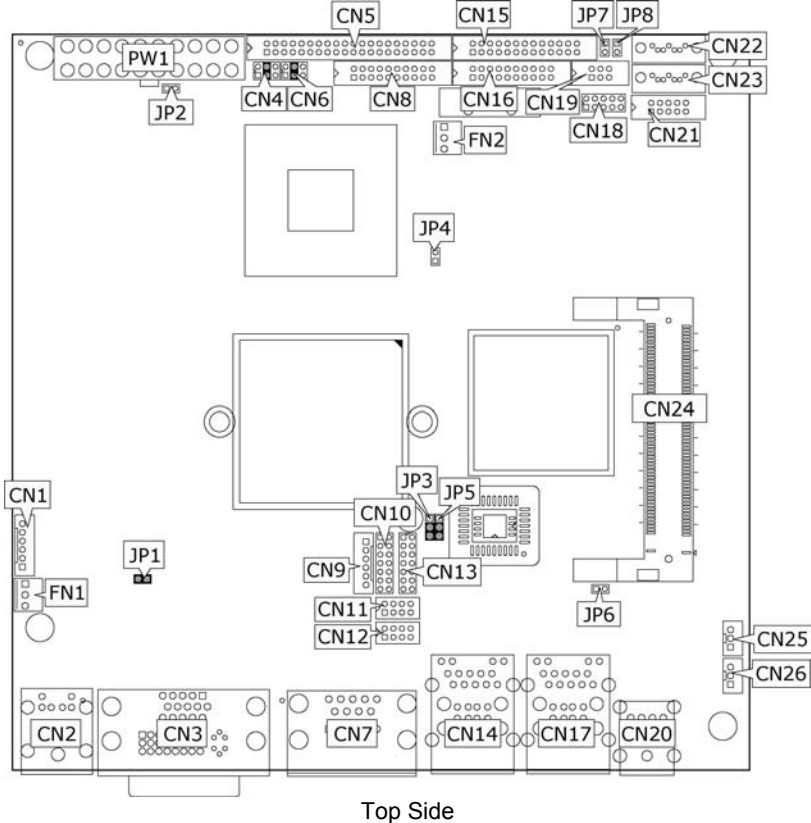
This chapter provides the information on how to install the hardware using the HS-1743. This chapter also contains information related to jumper settings of switch, and watchdog timer selection etc.

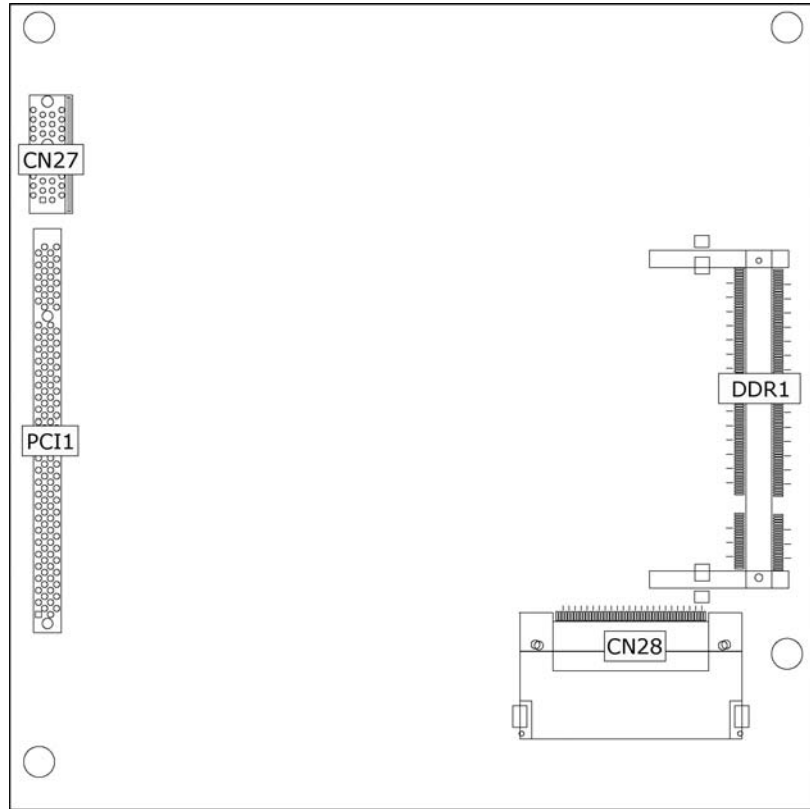
### 3.1 Before Installation

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 JP8 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 driver CD in good condition for future reference and use.

### 3.2 Board Layout





Solder Side

### 3.3 Jumper List

Jumper	Default Setting	Setting	Page
<b>JP1</b>	CF Use Master/Slave Select: <i>Master</i>	Short 1-2	23
<b>JP2/JP7</b>	AT/ATX Power Mode Select: <i>ATX</i>	Open	18
<b>JP3</b>	Panel Voltage Select: <i>+3.3V</i>	Short 2-3	11
<b>JP4</b>	FSB Frequency Select: <i>667MHz</i>	Open	10
<b>JP5</b>	Inverter Voltage Select: <i>+5V</i>	Short 2-3	11
<b>JP6</b>	LAN1 Enabled/Disabled Select: <i>Enabled</i>	Open	16
<b>JP8</b>	Clear CMOS: <i>Normal Operation</i>	Open	17
<b>CN4/CN6</b>	COM 3/COM 4 Power Pin Select: <i>Normal</i>	Short 3-4	14
<b>CN18</b>	COM 2 Use RS-232 or RS-422/485 Select: <i>RS-232</i>	Open	14

## 3.4 Connector List

Connector	Definition	Page
<b>CN1</b>	Internal 6-pin KB/MS Connector	19
<b>CN2</b>	PS/2 6-pin Mini DIN KB & MS Connector	19
<b>CN3</b>	15-pin CRT/DVI-I Connector	11
<b>CN5</b>	COM 5 ~ COM 8 Connector (2x20 Header)	14
<b>CN7</b>	COM 1/COM 2 Connector (DB9)	14
<b>CN8</b>	COM 3/COM 4 Connector (2x10 Header)	14
<b>CN9</b>	Inverter Power Connector	11
<b>CN10/CN13</b>	LVDS Panel Connector	11
<b>CN11/CN12</b>	Internal USB2.0 Ports	17
<b>CN14/CN17</b>	RJ-45 + External USB2.0 Port	16/17
<b>CN15</b>	Parallel Port	13
<b>CN16</b>	System Front Panel Connector/LAN LED	20
<b>CN19</b>	RS-485 Connector (3x2 Header)	14
<b>CN20</b>	MIC In/Line Out Connector	22
<b>CN21</b>	8-bit GPIO	25
<b>CN22/CN23</b>	Serial ATA Connector	13
<b>CN24</b>	Mini PCI Socket	24
<b>CN25/CN26</b>	Stereo Speaker Amplifier	22
<b>CN27</b>	PCIe x1 Socket	24
<b>CN28</b>	CompactFlash Socket	23
<b>DDR1</b>	DDR2 Socket	10
<b>PCI1</b>	PCI Socket	24
<b>FN1/FN2</b>	Fan Power Connector	18
<b>PW1</b>	20-pin ATX Power Connector	18

## 3.5 Configuring the CPU

The HS-1743 provides with Socket M for Intel® Core™ 2 Duo/ Core™ Duo/Core™ Solo/Celeron® M 400 series processor.

- **JP4: FSB Frequency Select**

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

□<sub>2</sub>  
□<sub>1</sub>

## 3.6 System Memory

The HS-1743 provides one SO-DDR2 socket at locations *DDR1*. The maximum capacity of the onboard memory is 2GB.

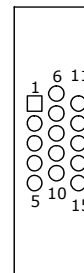


### 3.7 VGA Controller

The HS-1743 provides three types of connection for video output. CN3 offers a CRT/DVI-I connector and CN10/CN13 are the LVDS interface connectors onboard reserved for flat panel installation.

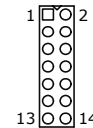
- **CN3A: 15-pin CRT Connector**

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



- **CN10/CN13: LVDS Interface Connector**

PIN	Description	PIN	Description
1	V <sub>LCD</sub>	2	V <sub>LCD</sub>
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 JP3 before proceeding on installing it.

**NOTE:** If use CN10 only, it just supports 18-bit single channel LVDS panel; If want to use 18-bit dual channel LVDS panel, please use CN10 and CN13 combined.

The HS-1743 has an onboard jumper that selects the working voltage of the flat panel connected to the system. Jumper *JP3* offers two voltage settings for the user.


- **JP3: Panel Voltage Select**

Options	Settings
<b>+5V</b>	Short 1-2
<b>+3.3V (default)</b>	Short 2-3




- **CN9: Inverter Power Connector**

PIN	Description
<b>1</b>	+12V
<b>2</b>	+12V
<b>3</b>	+5V
<b>4</b>	BK_EN
<b>5</b>	LCD_EN
<b>6</b>	GND



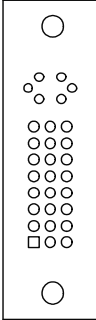
- **JP5: Inverter Voltage Select**

Options	Settings
<b>+3.3V</b>	Short 1-2
<b>+5V (default)</b>	Short 2-3



- **CN3B: DVI-I Connector**

PIN	Description	PIN	Description
<b>1</b>	- DATA2	<b>2</b>	DATA2
<b>3</b>	GND	<b>4</b>	-DATA4
<b>5</b>	DATA4	<b>6</b>	DDCCLK
<b>7</b>	DDCDATA	<b>8</b>	VSYNC
<b>9</b>	-DATA1	<b>10</b>	DATA1
<b>11</b>	GND	<b>12</b>	-DATA3
<b>13</b>	DATA3	<b>14</b>	VCC5
<b>15</b>	GND	<b>16</b>	HPDET
<b>17</b>	-DATA0	<b>18</b>	DATA0
<b>19</b>	GND	<b>20</b>	-DATA5
<b>21</b>	DATA5	<b>22</b>	GND
<b>23</b>	CLK	<b>24</b>	-CLK
<b>25</b>	RED	<b>26</b>	GREEN
<b>27</b>	BLUE	<b>28</b>	HSYNC
<b>29</b>	GND	<b>30</b>	GND

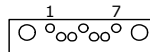


### 3.8 Serial ATA Connector

You can connect the Serial ATA device that provides you high speeds transfer rates (150MB/sec.).

- **CN22/CN23: Serial ATA Connector**

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

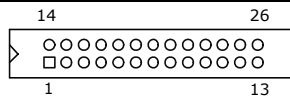


### 3.9 Parallel Connector

CN15 is a standard 26-pin flat cable connector designed to accommodate parallel port connection on the HS-1743.

- **CN15: Parallel Port**

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



### 3.10 Serial Port Connectors

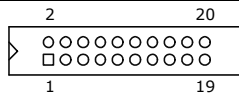
The HS-1743 offers 16C550 compatible UARTs with Send/Receive 16-byte FIFO serial ports and six internal 10-pin headers for RS-232 and two RS-422/485 connectors.

- **CN7: COM 1/COM 2 Connector (DB9)**

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

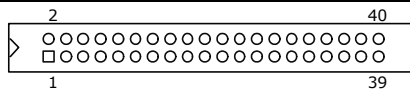
- **CN8: COM 3/COM 4 Connector (2x10 Header)**

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



- **CN5: COM 5~COM 8 Connector (2x20 Header)**

PIN	Description	PIN	Description
1	DCD	2	DSR
3	RXD	4	RTS
5	TXD	6	CTS
7	DTR	8	RI
9	GND	10	N/C
11	DCD	12	DSR
13	RXD	14	RTS
15	TXD	16	CTS
17	DTR	18	RI
19	GND	20	N/C
21	DCD	22	DSR
23	RXD	24	RTS
25	TXD	26	CTS
27	DTR	28	RI
29	GND	30	N/C
31	DCD	32	DSR
33	RXD	34	RTS
35	TXD	36	CTS
37	DTR	38	RI
39	GND	40	N/C



- **CN19: RS-422/485 Connector (3x2 Header)**

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



- **CN4/CN6: COM 3/COM 4 Power Pin Select**

Options	Settings	
	CN4	CN6
RI (default)	Short 3-4	Short 3-4
+5V	Short 5-6	Short 5-6
+12V	Short 1-2	Short 1-2



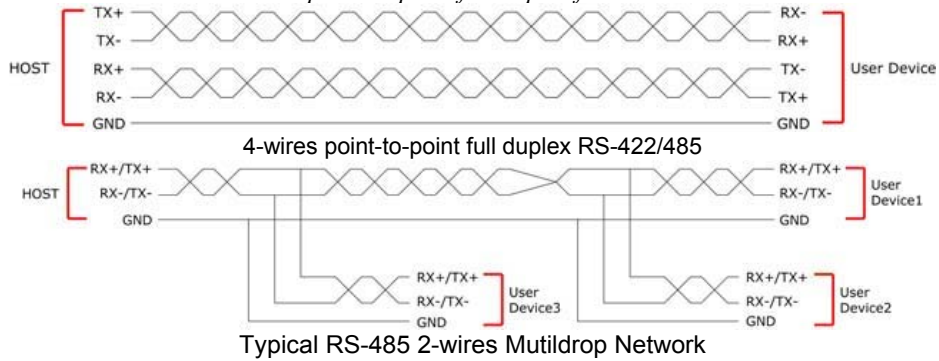
● **CN18: COM 2 use RS-232 or RS-422/485 Select**

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



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

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

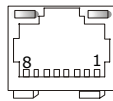


### 3.11 Ethernet Connector

The HS-1743 provides two external RJ-45 interface connectors. Please refer to the following for its pin information.

● **CN14A/CN17A: 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



- **JP6: LAN 1 Enabled/Disabled Select**

Options	Settings
Disabled	Short
Enabled (default)	Open

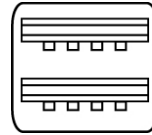


### 3.12 USB Connector

The HS-1743 provides two 8-pin connectors, at location CN11/CN12, for four USB2.0 ports, and four external USB2.0 port at CN14B/CN17B.

- **CN14B/CN17B: External USB2.0 Port**

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



- **CN11/CN12: Internal USB2.0 Ports**

PIN	Description	PIN	Description
1	VCC	2	VCC
3	USBD4-/USB6-	4	USBD5-/USB7-
5	USBD4+/USB6+	6	USBD5+/USB7+
7	GND	8	GND



### 3.13 CMOS Data Clear

The HS-1743 has a Clear CMOS jumper on JP8.

- **JP8: Clear CMOS**

Options	Settings
Normal Operation (default)	Open
Clear CMOS	Short

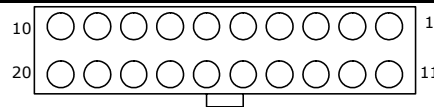


**IMPORTANT:** Before turn on the power of your system, please set JP8 to open for normal operation.

## 3.14 Power and Fan Connectors

- **PW1: 20-pin ATX Power 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	N/C
9	5VSB	19	+5V
10	+12V	20	+5V



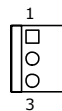
- **JP2/JP7: AT/ATX Power Function Select**

Options	Settings	
	JP2	JP7
ATX (default)	Open	Open
AT	Short	Short



- **FN1/FN2: Fan Power Connector**

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



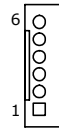


### 3.15 Keyboard/Mouse Connectors

The HS-1743 offers two possibilities for keyboard/mouse connections. The connection is via *CN1* for an internal 6-pin cable converter to a keyboard/mouse.

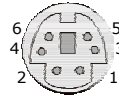
- **CN1: Internal 6-pin KB/MS Connector**

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



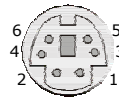
- **CN2A: PS/2 6-pin Mini DIN Keyboard Connector**

PIN	Description
1	Keyboard Data
2	N/C
3	GND
4	+5V
5	Keyboard Clock
6	N/C



- **CN2B: PS/2 6-pin Mini DIN Mouse Connector**

PIN	Description
1	Mouse Data
2	N/C
3	GND
4	+5V
5	Mouse Clock
6	N/C



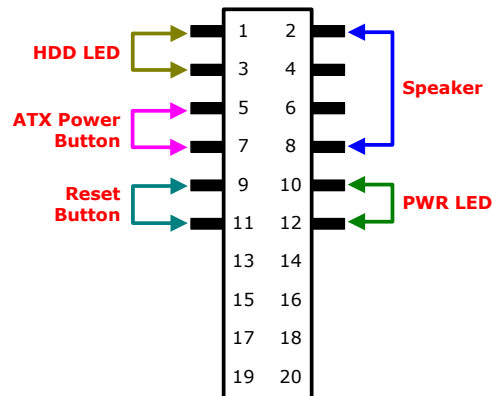
### 3.16 System Front Panel Control

The HS-1743 has front panel control at location *CN16* that indicates power-on, HDD and LAN action status.

- **CN16: System Front Panel Control**

PIN	Description	PIN	Description
1	330Ω pull VCC	2	Speaker
3	HDD LED	4	N/C
5	ATX Power Button	6	VCC
7	VCC	8	330Ω pull VCC
9	Reset Switch	10	330Ω pull 3.3V
11	GND	12	Power LED
13	-Link_100_LED0	14	3V_Dual
15	-Link_1G_LED0	16	Link/Act_LED0
17	-Link_100_LED1	18	3V_Dual
19	-Link_1G_LED1	20	Link/Act_LED1

#### Connector CN16 Orientation



## 3.17 Watchdog Timer

A user can set a value of Watchdog Timer in his software to reboot their hardware system. It is forced to reboot once user's software fails to reset the Watchdog Timer before the counter of Watchdog Timer meets user's setting value. This function, Watchdog Timer, prevents user's software from crashing.

W83627EHG

WDT Assembly sample code:

-----  
Extended function mode

-----  
MOV DX,2EH  
MOV AL,87H  
OUT DX,AL  
OUT DX,AL

-----  
Configure logical device 8

-----  
MOV DX,2EH  
MOV AL,07H  
OUT DX,AL  
MOV DX,2FH  
MOV AL,08H  
OUT DX,AL  
MOV DX,2EH  
MOV AL,30H ; Enable WDT  
OUT DX,AL  
MOV DX,2FH  
MOV AL,01H  
OUT DX,AL

-----  
Configure time mode

-----  
MOV DX,2EH  
MOV AL,F5H  
OUT DX,AL  
MOV DX,2FH  
MOV AL,00H ; Setup second mode, 08H for minute mode

OUT DX,AL

-----  
Configure reset time interval  
-----

MOV DX,2EH

MOV AL,F6H

OUT DX,AL

MOV DX,2FH

MOV AL,05H ; Setup reset time 5, User can setup from 1~255

OUT DX,AL

Once the Enable cycle is active a Refresh cycle is requested before the time-out period of watchdog timer. The refresh cycle restarts counting of the WDT period. When the time counting goes over the preset period of WDT, it will assume that the program operation is abnormal. A reset signal will start when such error happens.

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

### 3.18 Audio Connectors

The HS-1743 has an onboard AC97 3D audio controller. *CN20(Green)* is for Line Out, *CN20(Pink)* is for MIC in.

HS-1743 also support one extended speaker out with 2W amplifier.

- **CN25/CN26: Stereo Speaker Amplifier**

PIN	Description
1	+SPK_RO/+SPK_LO
2	GND
3	-SPK_RO/-SPK_LO



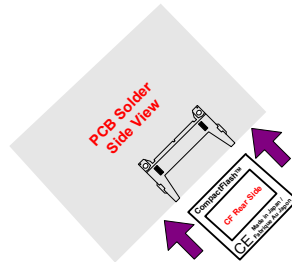
### 3.19 CompactFlash™ Socket

The HS-1743 also offers a Type II CompactFlash™ socket via IDE interface located at the solder side of the board. The designated *CN28* socket, once soldered with an adapter, can hold CompactFlash™ cards of various sizes. Please turn off the power before inserting the CF card.

- **CN28: CompactFlash™ Socket**

<b>PIN</b>	<b>Description</b>	<b>PIN</b>	<b>Description</b>
<b>1</b>	GND	<b>2</b>	IDE_PDD3
<b>3</b>	IDE_PDD4	<b>4</b>	IDE_PDD5
<b>5</b>	IDE_PDD6	<b>6</b>	IDE_PDD7
<b>7</b>	IDE_PDCS1#	<b>8</b>	GND
<b>9</b>	GND	<b>10</b>	GND
<b>11</b>	GND	<b>12</b>	GND
<b>13</b>	+3.3V	<b>14</b>	GND
<b>15</b>	GND	<b>16</b>	GND
<b>17</b>	GND	<b>18</b>	IDE_PDA2
<b>19</b>	IDE_PDA1	<b>20</b>	IDE_PDA0
<b>21</b>	IDE_PDD0	<b>22</b>	IDE_PDD1
<b>23</b>	IDE_PDD2	<b>24</b>	GND
<b>25</b>	GND	<b>26</b>	GND
<b>27</b>	IDE_PDD11	<b>28</b>	IDE_PDD12
<b>29</b>	IDE_PDD13	<b>30</b>	IDE_PDD14
<b>31</b>	IDE_PDD15	<b>32</b>	IDE_PDCS3#
<b>33</b>	GND	<b>34</b>	IDE_PDIOR#
<b>35</b>	IDE_PDIOW#	<b>36</b>	+3.3V
<b>37</b>	INT_IRQ15	<b>38</b>	+3.3V
<b>39</b>	+3.3V	<b>40</b>	N/C
<b>41</b>	RESET#	<b>42</b>	IDE_PDIORDY
<b>43</b>	CF_PDERQ	<b>44</b>	CF_REGB
<b>45</b>	IDE_ACTP#	<b>46</b>	DETECT
<b>47</b>	IDE_PDD8	<b>48</b>	IDE_PDD9
<b>49</b>	IDE_PDD10	<b>50</b>	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.



- **JP1: CF Use Master/Slave Select**

Options	Setting
Master (default)	Short
Slave	Open



## 3.20 Expansion Interface

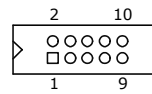
The HS-1743 offers one Type III mini PCI socket at *CN24*, one PCIe x1 socket at *CN27*, and one PCI socket at *PC11*.

### 3.21 8-bit GPIO Function

The HS-1743 offers one 8-bit general purpose input/output port.

- **CN21: 8-bit GPIO**

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



W83627EHG  
Digital I/O Assembly sample code

-----  
Extended function mode

```
MOV DX,2EH
MOV AL,87H
OUT DX,AL
OUT DX,AL
```

-----  
Configure logical device 7

```
MOV DX,2EH
MOV AL,07H
OUT DX,AL
MOV DX,2FH
MOV AL,07H
OUT DX,AL
MOV DX,2EH
MOV AL,30H ; Enable GPIO1
OUT DX,AL
MOV DX,2FH
MOV AL,01H
OUT DX,AL
```

-----  
Configure input / output  
-----

```
MOV DX,2EH  
MOV AL,F0H  
OUT DX,AL  
MOV DX,2FH  
MOV AL,FEH ; Setup GPIO bit0 as output, 0: output 1: input  
OUT DX,AL
```



# Chapter 4

---

## AMI BIOS Setup

The HS-1743 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 <F1> key when the following message appears briefly at the bottom of the screen during the POST (Power On Self Test).

**Press F1 to Run SETUP.**

## 4.2 Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, 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
<b>Esc key</b>	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
<b>PgUp key</b>	Move to top item
<b>PgDn key</b>	Move to bottom item
<b>+ key</b>	Increase the numeric value or make changes
<b>- key</b>	Decrease the numeric value or make changes
<b>F1 key</b>	General Help
<b>F2 key</b>	Change background color forward
<b>F3 key</b>	Change background color backward
<b>F4 key</b>	Reserved
<b>F5 key</b>	Reserved
<b>F6 key</b>	Reserved
<b>F7 key</b>	Reserved
<b>F8 key</b>	Reserved
<b>F9 key</b>	Reserved
<b>F10 key</b>	Save all the CMOS changes

### 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
<b>System Overview</b>						
<b>AMIBIOS</b>						
Version	:	08.00.13				
Build Date	:	9/14/10				
ID	:	HS17430F				
<b>Processor</b>						
Type	:	Intel(R) Core(TM) Solo CPU U1500				
Speed	:	1333MHz				
Count	:	1				
<b>System Memory</b>						
Size	:	1016MB				← Select Screen
System Time [00:29:32]						↑ ↓ Select Item
System Date [Tue 01/01/2002]						+ - 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
<b>Advanced Settings</b>						
<b>WARNING: Setting wrong values in below sections may cause system to malfunction.</b>						
▶ CPU Configuration					← Select Screen	
▶ IDE Configuration					↑ ↓ Select Item	
▶ SuperIO Configuration					+ - Change Field	
▶ Hardware Health Configuration					Tab Select Field	
▶ ACPI Configuration					F1 General Help	
▶ APM Configuration					F10 Save and Exit	
▶ PCI Express Configuration					ESC Exit	
▶ USB Configuration						
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### BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit
<b>Configure advanced CPU settings</b>						
<b>Module Version -13.04</b>						
Manufacturer : Intel						
Intel(R) Core(TM) Solo CPU U1500 @1.33GHz						
Frequency : 1.33GHz						
FSB Speed : 533MHz						
Cache L1 : 32 KB						
Cache L2 : 2048 KB						
Ratio Actual Value : 10						
Max CPUID Value Limit				[Disabled]	←	Select Screen
Intel(R) Virtualization Tech				[Enabled]	↑ ↓	Select Item
Execute-disable bit capability				[Enabled]	+ -	Change Field
Hyper Threading Technology				[Disabled]	Tab	Select Field
DTS-based Thermal Management				[Enabled]	F1	General Help
DTS Calibration				[Enabled]	F10	Save and Exit
Intel(R) C-STATE tech.				[Enabled]	ESC	Exit
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### BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit
<b>IDE Configuration</b>						
ATA/IDE Configuration				[Enhanced]		
Configure SATA as				[IDE]		
Configure SATA Channels				[Before PATA]		
Port2 SATA AHCI Speed				: GEN 1 (1.5 Gb/sec)		
▶ Primary IDE Master				: [Not Detected]		
▶ Primary IDE Slave				: [Hard Disk]		
▶ Secondary IDE Master				: [Not Detected]		
▶ Secondary IDE Slave				: [Not Detected]		
▶ Third IDE Master				: [Not Detected]	←	Select Screen
▶ Third IDE Slave				: [Not Detected]	↑ ↓	Select Item
					+ -	Change Field
					Tab	Select Field
Hard Disk Write Protect				[Disabled]	F1	General Help
IDE Detect Time Out (Sec)				[35]	F10	Save and Exit
					ESC	Exit
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### BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit
<b>Configure WIN627EHF Super IO Chipset</b>						
Parallel Port Address			[378]			
Parallel Port Mode			[Normal]			
Parallel Port IRQ			[IRQ7]			
Serial Port1 Address			[3E8]			
Serial Port1 Mode			[11]			
Serial Port2 Address			[2E8]			
Serial Port2 Mode			[10]			
Serial Port3 Address			[2F0]			
Serial Port3 Mode			[11]			
Serial Port4 Address			[2E0]			
Serial Port4 Mode			[10]			
Serial Port5 Address			[2D8]			
Serial Port5 Mode			[11]	←	Select Screen	
Serial Port6 Address			[2D0]	↑ ↓	Select Item	
Serial Port6 Mode			[10]	+ -	Change Field	
				Tab	Select Field	
				F1	General Help	
				F10	Save and Exit	
				ESC	Exit	
v02.59 (C)Copyright 1985-2005, American Megatrends, Inc.						

### BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit
<b>Hardware Health Configuration</b>						
System Temperature			: 43°C/109°F			
CPU Temperature			: 46°C/114°F			
SYSFAN Speed			: 0 RPM			
CPUFAN0 Speed			: 6750 RPM			
Vcore			: 1.200 V			
+12V			: 11.880 V	←	Select Screen	
+1.5V			: 1.592 V	↑ ↓	Select Item	
+1.05V			: 1.024 V	+ -	Change Field	
+5V			: 5.094 V	Tab	Select Field	
VBAT			: 3.216 V	F1	General Help	
			:	F10	Save and Exit	
				ESC	Exit	
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### BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit
<b>ACPI Settings</b>						
ACPI Aware O/S			[Yes]			
▶ Advanced ACPI Configuration					← Select Screen	
▶ Chipset ACPI Configuration					↑ ↓ Select Item	
					+ - Change Field	
					Tab Select Field	
					F1 General Help	
					F10 Save and Exit	
					ESC Exit	
v02.59 (C)Copyright 1985-2005, American Megatrends, Inc.						

### BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit
<b>Advanced ACPI Configuration</b>						
ACPI Version Features			[ACPI v1.0]			
ACPI APIC support			[Enabled]		← Select Screen	
AMI OEMB table			[Enabled]		↑ ↓ Select Item	
Headless mode			[Disabled]		+ - Change Field	
					Tab Select Field	
					F1 General Help	
					F10 Save and Exit	
					ESC Exit	
v02.59 (C)Copyright 1985-2005, American Megatrends, Inc.						

### BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit
<b>Chipset ACPI Configuration</b>						
Energy Lake Feature			[Disabled]			
APIC 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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**BIOS SETUP UTILITY**

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit
<b>APM Configuration</b>						
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]		←	Select Screen
Advanced Resume Event Controls					↑ ↓	Select Item
Resume On Ring			[Disabled]		+ -	Change Field
Resume On LAN			[Disabled]		Tab	Select Field
Resume On PME#			[Disabled]		F1	General Help
Resume On RTC Alarm			[Disabled]		F10	Save and Exit
					ESC	Exit
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**BIOS SETUP UTILITY**

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit
Active State Power-Management			[Disabled]			
					←	Select Screen
					↑ ↓	Select Item
					+ -	Change Field
					Tab	Select Field
					F1	General Help
					F10	Save and Exit
					ESC	Exit
v02.59 (C)Copyright 1985-2005, American Megatrends, Inc.						



## 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
<b>Advanced PCI/PnP Settings</b>						
<b>WARNING: Setting wrong values in below sections may cause system to malfunction.</b>						
Clean 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]			
IRQ4			[Available]			
IRQ5			[Available]			
IRQ7			[Available]			
IRQ9			[Available]			
IRQ10			[Available]			
IRQ11			[Available]			
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]			
					←	Select Screen
					↑ ↓	Select Item
					+ -	Change Field
					Tab	Select Field
					F1	General Help
					F10	Save and Exit
					ESC	Exit
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## 4.6 Boot Settings

### BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit
<b>Boot Settings</b>						
▶ Boot Settings Configuration					←	Select Screen
▶ Boot Device Priority					↑ ↓	Select Item
▶ Hard Disk Drives					+ -	Change Field
▶ USB Drives					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
<b>Boot Settings Configuration</b>						
Quick Boot			[Enabled]			
Quiet Boot			[Disabled]			
LAN Boot ROM			[Disabled]		←	Select Screen
AddOn ROM Display Mode			[Force BIOS]		↑ ↓	Select Item
Bootup Nom-Lock			[On]		+ -	Change Field
PS/2 Mouse Support			[Auto]		Tab	Select Field
Wait For 'F1' If Error			[Disabled]		F1	General Help
Hit 'DEL' Message Display			[Disabled]		F10	Save and Exit
Interrupt 19 Capture			[Disabled]		ESC	Exit
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## 4.7 Security Settings

### BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit
<b>Security Settings</b>						
Supervisor Password		:	Not Installed			
User Password		:	Not Installed			
Change Supervisor Password					←	Select Screen
Change User Password					↑ ↓	Select Item
Boot Sector Virus Protection [Disabled]					+ -	Change Field
Hard Disk Security					Tab	Select Field
There are no supported Hard Disks.					F1	General Help
					F10	Save and Exit
					ESC	Exit
v02.59 (C)Copyright 1985-2005, American Megatrends, Inc.						

## 4.8 Advanced Chipset Settings

### BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit
<b>Advanced Chipset Settings</b>						
<b>WARNING: Setting wrong values in below sections may cause system to malfunction.</b>						
▶ 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
v02.59 (C)Copyright 1985-2005, American Megatrends, Inc.						

### BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit
<b>North Bridge Chipset Configuration</b>						
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]			
Chipset Thermal Throttling			[Disabled]			
DT in SPD			[Disabled]			
TS on DIMM			[Disabled]			
▶ Video Function Configuration					←	Select Screen
					↑ ↓	Select Item
					+ -	Change Field
					Tab	Select Field
					F1	General Help
					F10	Save and Exit
					ESC	Exit
v02.59 (C)Copyright 1985-2005, American Megatrends, Inc.						

### BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit
<b>Video Function Configuration</b>						
DVMT Mode Select			[DVMT Mode]			
DVMT/FIXED Memory			[128MB]		←	Select Screen
					↑ ↓	Select Item
Boot Display Device			[CRT + DVI]		+ -	Change Field
Flat Panel Type			[1024x768 18bit 2CH]		Tab	Select Field
					F1	General Help
					F10	Save and Exit
					ESC	Exit
v02.59 (C) Copyright 1985-2005, American Megatrends, Inc.						

### BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit
<b>South Bridge Chipset Configuration</b>						
USB Function			[8 USB Ports]			
USB 2.0 Controller			[Enabled]			
Audio Controller			[AC'97 Audio Only]		←	Select Screen
SMBUS Controller			[Enabled]		↑ ↓	Select Item
					+ -	Change Field
SLP_S4# Min. Assertion Width			[1 to 2 seconds]		Tab	Select Field
Restore on AC Power Loss			[Power On]		F1	General Help
					F10	Save and Exit
ASF Support			[Enabled]		ESC	Exit
v02.59 (C) Copyright 1985-2005, American Megatrends, Inc.						

## 4.9 Exit Options

### BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit
<b>Exit Options</b>						
Save Changes and Exit						
Discard Changes and Exit					←	Select Screen
Discard Changes					↑ ↓	Select Item
					+ -	Change Field
Load Optimal Defaults					Tab	Select Field
Load Failsafe Defaults					F1	General Help
					F10	Save and Exit
					ESC	Exit
v02.59 (C) Copyright 1985-2005, American Megatrends, Inc.						

# Chapter 5

## Software Utilities

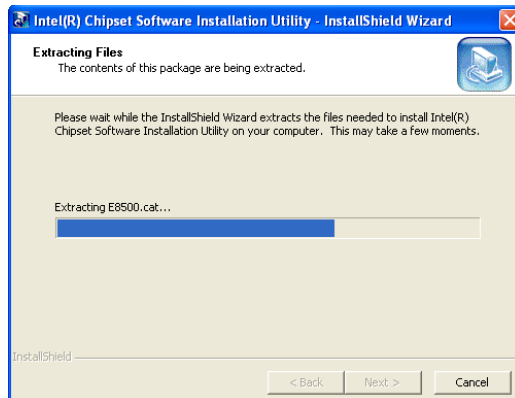
This chapter contains the detailed information of IDE, VGA, LAN and audio driver installation procedures. The utility disk that comes with the delivery package contains an auto-run program that invokes the installation programs for the IDE, VGA, LAN and audio drivers. The following sections describe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

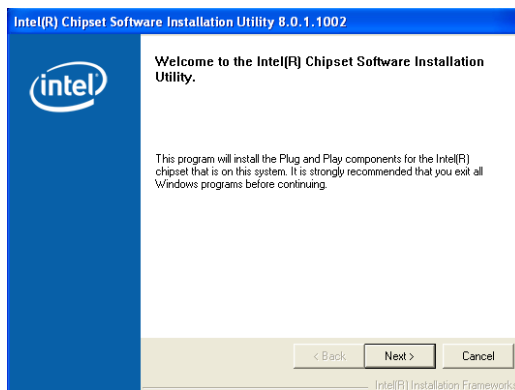
1. Insert the CD that comes with the board into the CD-ROM drive. Click **CHIPSET** to install Intel® 945GME/ICH7-M chipset driver.



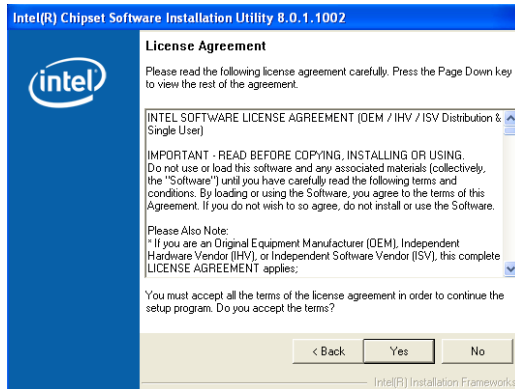
2. Once the **Install Shield Wizard** screen appears on the screen, make sure to close applications that are running and then click on **Next>** button.



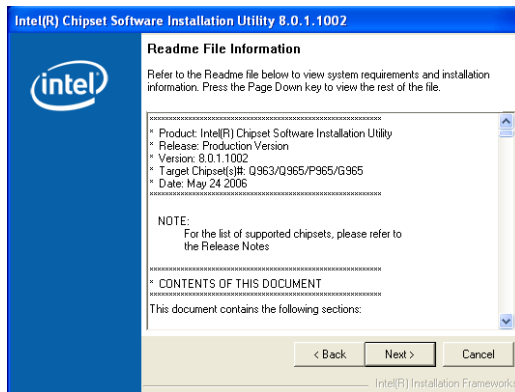
3. The **Welcome** screen is now displayed, and then click on **Next>** button to continue.



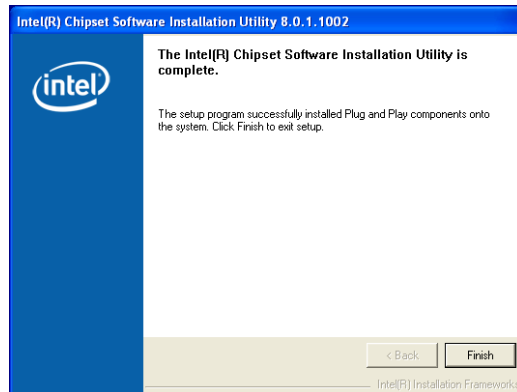
4. The **License Agreement** dialog box then appears on the screen. Choose **Yes** to proceed.



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



6. The **Installation Utility** successfully installed Plug and Play components onto the system. Click **Finish** to exit setup.



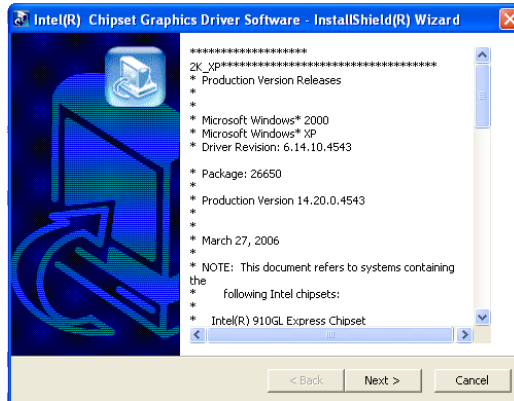
## 5.2 VGA Driver Installation

1. Insert the CD that comes with the board into the CD-ROM drive. Click **VGA** to install Intel® 945GME video driver.

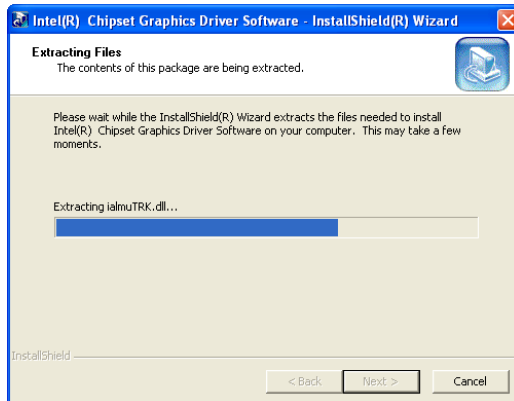




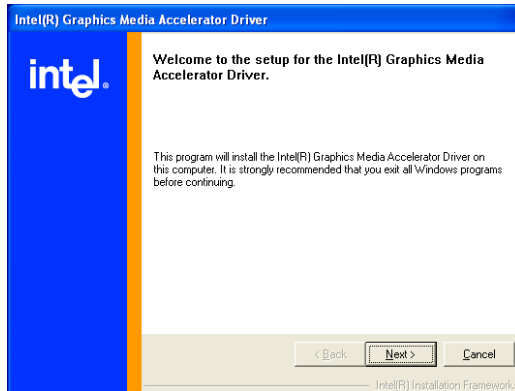
2. Once the **InstallShield Wizard** appears on the screen and click on the **Next >** button.



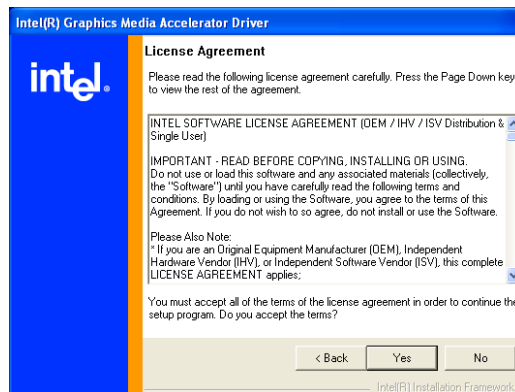
3. **InstallShield Wizard** will extracting files to your hard drive, and then click on **Next>** to continue.



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. Once **InstallShield 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 reboot and the new setting will be take effect.

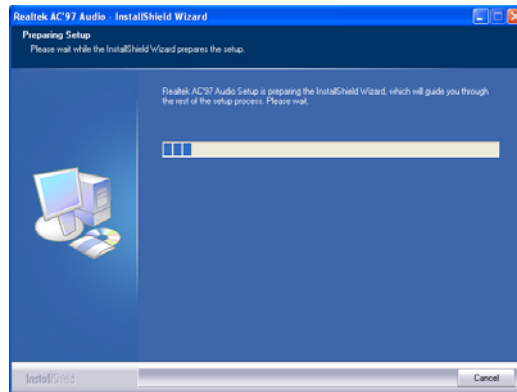


### 5.3 Audio Driver Installation

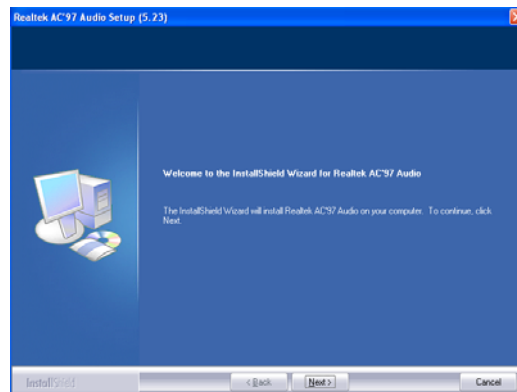
1. Insert the CD that comes with the board into the CD-ROM drive. Click **Audio** to install RealTek AC97 audio driver.



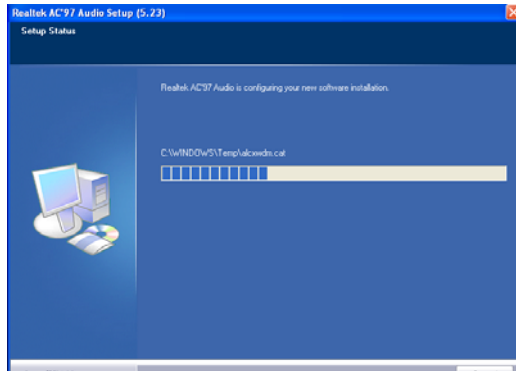
2. Once the **Install Shield Wizard** screen appears on the screen, make sure to close applications that are running.



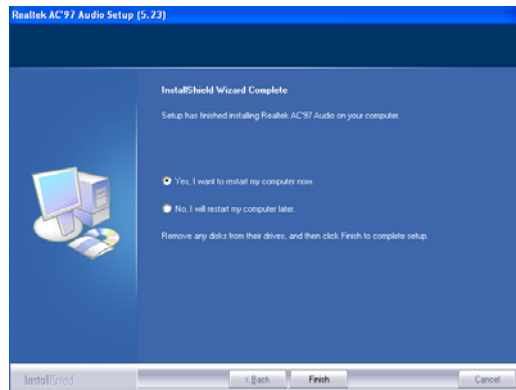
3. Realtek AC97 Audio Setup is preparing the **Install Shield Wizard**, which will guide you through the rest of the setup process. Click on **Next>** to process.



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



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

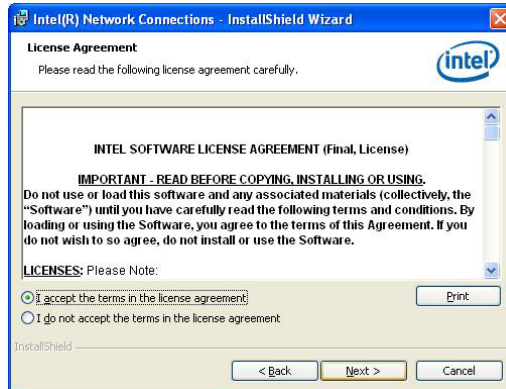


## 5.4 LAN Driver Installation

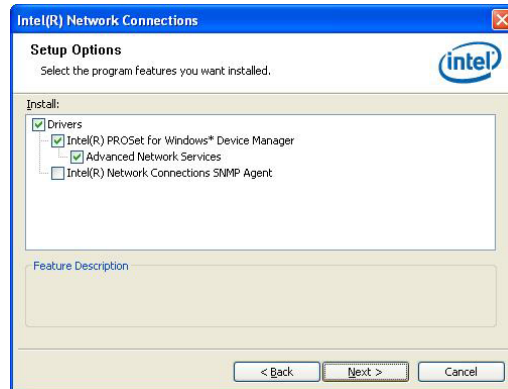
1. Insert the CD that comes with the board into the CD-ROM drive. Click **LAN** to install network driver.



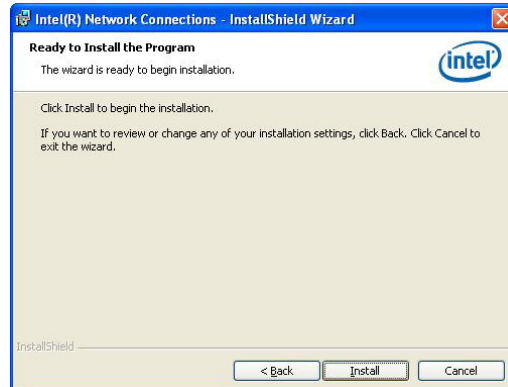
2. The *License Agreement* dialog box then appears on the screen, choose **Next>** to proceed.



3. Click on the *Advanced Network Services*, and press **Next>** to proceed.



4. Click **Install** to begin the installation.



5. When the dialog box below appears, make sure you close all other Windows applications the click on the **Finish** button to proceed.

